

Have employment patterns in recessions changed?

A survey of postwar recessions shows that the increasing proportion of service sector jobs has moderated overall employment declines; women in nontraditional jobs, blacks, and youths bear a disproportionate share of job losses

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By virtually all economic indicators, the U.S. economy entered its seventh post-World War II recession in early 1980.¹ What now remains open to analysis is the depth, duration, and diffusion of the downturn, as well as the rapidity or sluggishness of recovery. Such measures, however, are far more meaningful when examined in a historical context.

A survey of postwar recessions offers an opportunity to address many interesting questions. For example, what is (has been) the magnitude of cyclical changes? Have there been any changes in the way the employment of different groups is affected during downturns? Some recent research has suggested that the response of employment to cyclical fluctuations in production (output) has changed over the past 3 decades, although the "significance" of this change is apparently quite dependent on the degree of aggregation used in the analysis.² In addition, no clear consensus yet exists about the reason(s) for any change in this relationship.

Okun's Law has often been cited in this context. As originally formulated,³ the law states that the aggregate unemployment rate moves by about one-third as much as the gap between actual and potential gross national product (GNP gap). Although some recent research has questioned the continued viability of the original relationship, other analysts have argued that there has been little actual change in the unemployment-output correlation; rather, the responsiveness of unemployment to the GNP gap has always been around 45 percent. However, the relationship may differ substantially among sectors of the economy so that an exclusively aggregate approach is not always the appropriate procedure, and the connection between employment changes and the unemployment rate is not entirely a direct one. A goal of this article is to present information needed to estimate the sensitivity of employment to given declines in production within particular key sectors of the economy. Related to this is the question of the relative importance of the unemployment rate as a cyclical indicator. For example, to some analysts the high rate of unemployment experienced in the 1973-75 recession was not entirely the result of employer-initiated job ter-

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minations and the resulting shortfall in job opportunities. Instead, it has been suggested that a surge in the participation of women in the labor force, either in response to a deterioration in family earnings caused by the recession or as the result of a temporary misperception of available opportunities, was a major reason for the large increase in unemployment.⁴

The purpose of this article is to present and analyze data that may be useful in answering these and other questions on labor force statistics in recessions. The employment-production relationship is explored first. Then the impact of cyclical declines on the employment of specific worker groups is examined. Finally, in light of changes in the composition of the labor force, the usefulness of the unemployment rate as an indicator of labor market conditions is discussed.

How job losses trace production declines

Faced with a decline in product demand and given expectations of the severity and duration of the decline, firms may react by reducing hours worked and inventories, laying off workers, attempting to reduce (the growth of) hourly compensation, or some combination of these possibilities and others. Cutbacks in employment have always been a central response by firms reducing their production. Factors affecting a firm's decision to lay off workers include the technology of production, the desire to retain the most experienced workers (assuming that the plant is not shut down for good), and often a union's ability to constrain the labor cost flexibility of the firm.⁵

To evaluate the impact of recessions on employment and determine whether the impact has changed over time, it is necessary to compare cycles of similar severity or amplitude.⁶ This involves computing a measure or index of cyclical severity.⁷ But how should the index be calculated and what weight should be given to various cycle indicators? Geoffrey Moore and others have suggested that cycles can be usefully separated by their duration, depth, and diffusion (DDD).⁸ While this scheme can provide many insights, it creates a few measurement problems, because employer response may vary substantially depending on which of the three "D's" is prevalent (and employer decisions can feed back to change the actual situation). For example, a short but sharp decline in production may engender a different response than a long but mild downturn. Another measure, used by Jeffrey Sacks, calculates the percentage deviation of industrial output from its trend value at cycle troughs and peaks.⁹ This "output gap" yields a single index but may overlook some of the complexities pointed out by the separability of "DDD." Another approach is to attempt to actually estimate the parameters of the employment response by using regression analysis. For example, a researcher may have theoretical reasons to distinguish between time periods and test the

hypothesis that the employment-production relation has changed significantly. Each method has its merits. In this analysis, a very simple measure was used: various indexes of changes in industrial production and components of real gross national product. Fortunately, the analysis does not appear to be overly sensitive to this simple index. However, it is important to emphasize that many interesting questions cannot be answered with this elementary approach; for example, little can be said about how quickly firms initiate employment adjustments in response to a decline in demand and whether such lags have been modified over time.

Given these limitations, what do the data suggest? Table 1 contains information on the percentage changes in employment, real GNP, and industrial production for each of the six complete postwar recessions plus the current period.¹⁰

The data seem to suggest some change, toward moderation, in the elasticity of employment with respect to production. For example, during the 1973-75 recession—characterized here as the most severe of the postwar downturns—the percentage drop appears to be significantly less than during 1957-58 (the next most severe recession), especially among nonfarm payroll jobs.¹¹ A similar conclusion is reached in comparing the 1960-61 and 1969-70 recessions, which were much the same with respect to depth and duration. It seems that, for any given short-run drop in production, over time there has been a smaller reduction in employment.

A certain amount of caution is required in interpreting this assessment as support for the idea that the relationship between production and employment adjustments has changed over time. By all accounts, for example, the 1973-75 recession was unusual. It technically began in the fourth quarter of 1973, but firms con-

Table 1. Percent changes in employment, real gross national product, and industrial production from postwar business cycle peaks to troughs, seasonally adjusted

Business cycles	Over the period changes in:			
	Total employment	Nonfarm payroll employment	Real gross national product	Index of industrial production
November 1948 to October 1949 ¹	-2.0	-5.0	-1.4	-8.5
July 1953 to May 1954	-2.4	-3.0	-3.3	-8.9
August 1957 to April 1958	-2.1	-4.0	-2.5	-12.4
April 1960 to February 1961	-6	-2.2	-6	-6.1
December 1969 to				
November 1970	-3	-1.2	-6	-5.8
November 1973 to				
March 1975	-1.6	-1.8	-5.7	-15.1
January 1980 to July 1980 ¹	-8	-1.3	-2.3	-8.4

¹ July 1980 has not been designated by the NBER as the business cycle trough.

NOTE: Data for industrial production are from *Industrial Production 1976 Revision* (Federal Reserve System, Board of Governors, 1977); *Industrial Production January 1976-December 1978* (Federal Reserve System, Board of Governors, 1979); and *Federal Reserve Bulletin*, various issues. Data for gross national product are from *Survey of Current Business* (U.S. Department of Commerce), January 1980, pp. 38-39, and subsequent issues. Gross national product is estimated on a quarterly basis. The calculations presented here are based on the quarter within which each cycle reference date falls. For example, the calculation for the current recession is based on the change between the first and second quarters of 1980.

tinued to add to their workforces throughout the first half of 1974, apparently unwilling to retrench despite early signs of declines in final sales. Indeed, the index of industrial production showed little change until late 1974, while inventories accumulated rapidly. Whatever the reasons for the unusual nature of the 1973–75 recession—the carryover of momentum from the durable goods boom of 1973 into 1974, interpreting final sales weakness as but a temporary oil embargo phenomenon, and others—table 1 still supports the view that employment is less sensitive to changes in production now than in past recessions.¹²

However, this conclusion is less revealing than might be thought. It leaves the critical question of whether this change results from different firm behavior within industries or from a different (greater) proportion of employment in industries that, irrespective of the reasons, are less sensitive to cyclical developments. As noted by many analysts, the service-producing industries account for a steadily increasing share of total employment, and are generally viewed as more recession-proof than the manufacturing sector. The following tabulation shows nonfarm payroll jobs from selected business cycle peaks and troughs in the service- and goods-producing industries:¹³

<i>Date</i>	<i>Total payroll jobs (in 000's)</i>	<i>Goods-producing share</i>	<i>Service-producing share</i>
November 1948 . . .	45,083	41.7	58.3
October 1949	42,823	39.2	60.8
April 1960	54,561	38.0	62.0
July 1964	53,373	36.6	63.4
November 1973 . . .	77,867	32.4	67.6
March 1975	76,429	29.4	70.6
January 1980	91,031	29.3	70.7
July 1980	89,867	28.0	72.0

The data reveal some clear characteristics. First, service-sector jobs as a proportion of total payroll employment have increased steadily. Second, at the cyclical trough, service jobs are always a higher proportion of the total than at the peak. Third, the employment share of the goods-producing sector has steadily declined, and this sector is very vulnerable to cyclical developments.

However, the data do not prove that service sector employment is immune to recessions. Evidence of immunity would have to be measured from a trend-adjusted time series. Even if service jobs do not decline in recessions, the rate of growth may decline. Moreover, the relative buoyancy of service employment may be unevenly distributed across industry categories.

Table 2 contains information to assess certain of these issues.¹⁴ Interestingly, prior to the late 1960's, service sector employment grew negligibly or posted mod-

est declines during recessions. But such retrenchment hardly matched that shown in the more vulnerable goods-producing industries (to be examined in detail later). Of equal significance is the source of employment strength in the service sector. Government employment increased in each recession, with especially large gains in the last two complete recessions. The services industry—legal, health, and business services, hotels and motels, auto repair, amusement and recreation, and others—also posted sizable gains, especially during 1973–75. However, for the entire sector, increases were below trend growth, indicating that service employment is not completely unaffected by recessions. Of course, the output of services—as measured in the national product accounts—actually increased 2.8 percent during the 1973–75 downturn.¹⁵ Moreover, the services industries generally exhibit low productivity growth, less technological advancement, and have a high ratio of direct labor to machines; hence, employment growth is not surprising, even during an economic contraction.¹⁶

The data in table 2 clearly show that the cyclically vulnerable part of the economy is the goods-producing sector. Thus, it is this sector that must be analyzed before any statements about the (hypothesized) changed responsiveness of employment to declines in production can be supported with any confidence.

Table 3 presents information on employment and production in manufacturing. The question of interest: Has there been a discernible change in the amplitude of fluctuations in employment relative to fluctuations in production? Two points should be noted prior to examining the data. First, production workers are more susceptible to recession-induced layoffs than managerial and other employees. Because of this and the fact that the proportion of production workers among all manufacturing employees has declined secularly, it is important to analyze this group separately.¹⁷ Second, it is important to use an appropriate measure of production. For example, although certainly correlated with production, real gross national product includes the output of both goods and services, and is therefore a less than appropriate comparative measure. Instead, the index of manufacturing production, stratified by durable and nondurable goods production, is used for analysis.¹⁸

Several salient conclusions emerge from table 3. Predictably, production jobs always fall more sharply than all jobs combined. Durable goods industries are always more severely affected in recessions, as indicated by the magnitude of fluctuations in both employment and production. The data provide less than unequivocal support for the hypothesis that the aggregate employment elasticity during business contractions has moderated—at least for reasons other than changes in the aggregate mix of employment.

Take all manufacturing industries, for example. Among production workers, the data tend to suggest

Table 2. Changes in nonfarm payroll employment from postwar business cycle peaks to troughs, by selected industry divisions, seasonally adjusted

[Numbers in thousands]

Business cycles	Total nonfarm payroll employment	Goods-producing industries					Service-producing industries				
		Goods sector total	Construction	Manufacturing			Service sector total	Wholesale trade	Retail trade	Services	Government
				Total	Durable goods	Nondurable goods					
November 1948 to October 1949:											
Actual change	-2,250	-2,018	-52	-1,554	-1,348	-203	-232	-38	-57	54	100
Percent change	-5.0	-10.7	-2.3	-10.0	-16.2	-2.8	-9	-1.4	-9	1.0	1.7
July 1953 to May 1954:											
Actual change	-1,528	-1,539	26	-1,488	-1,151	-337	11	5	-48	85	130
Percent change	-3.0	-7.2	19	-8.1	-10.5	-4.5	(¹)	.2	-6	1.5	2.0
August 1957 to April 1958:											
Actual change	-2,131	-1,676	-172	-1,417	-1,168	-249	-455	-66	-242	-14	124
Percent change	-4.0	-8.0	-5.9	-8.2	-11.8	-3.4	-1.4	-2.2	-3.1	-2	1.6
April 1960 to February 1961:											
Actual change	-1,188	-1,162	-136	-970	-787	-183	-26	-24	-122	161	57
Percent change	-2.2	-5.6	-4.6	-5.7	-8.1	-2.5	-1	-8	-1.5	2.2	.7
December 1969 to November 1970:											
Actual change	-855	-1,651	-70	-1,580	-1,318	-262	796	18	62	250	351
Percent change	-1.2	-6.8	-1.9	-7.9	-11.2	-3.2	1.7	.5	.6	2.2	2.8
November 1973 to March 1975:											
Actual change	-1,438	-2,736	-628	-2,192	-1,367	-825	1,298	88	-3	614	721
Percent change	-1.8	-10.9	-15.1	-10.7	-11.2	-9.9	2.5	2.0	(¹)	4.7	5.2
January 1980 to July 1980:											
Actual change	-1,164	-1,552	-423	-1,143	-862	-281	388	-31	8	298	125
Percent change	-1.3	-5.8	-8.9	-5.5	-6.8	-3.4	.6	-6	(¹)	1.7	.8

¹ Less than 0.05 percent.

Table 3. Percent changes in manufacturing payroll employment and production from postwar business cycle peaks to troughs, seasonally adjusted

Business cycles	Manufacturing		
	All workers	Production workers	Production
November 1948 to October 1949	-10.1	-11.6	-7.1
July 1953 to May 1954	-8.1	-10.4	-9.6
August 1957 to April 1958	-8.2	-10.7	-13.1
April 1960 to February 1961	-5.7	-7.7	-7.4
December 1969 to November 1970	-7.9	-9.3	-7.1
November 1973 to March 1975	-10.7	-13.9	-17.2
January 1980 to July 1980	-5.5	-7.7	-9.9
	Durable goods		
November 1948 to October 1949	-16.2	-18.7	-16.0
July 1953 to May 1954	-10.5	-13.7	-15.1
August 1957 to April 1958	-11.8	-15.2	-19.6
April 1960 to February 1961	-8.1	-11.1	-11.2
December 1969 to November 1970	-11.2	-13.3	-11.5
November 1973 to March 1975	-11.3	-14.5	-19.3
January 1980 to July 1980	-6.8	-9.7	-11.8
	Nondurable goods		
November 1948 to October 1949	-2.8	-3.4	+2.6
July 1953 to May 1954	-4.5	-6.0	-1.9
August 1957 to April 1958	-3.4	-4.4	-4.1
April 1960 to February 1961	-2.5	-3.4	-1.6
December 1969 to November 1970	-3.2	-3.7	-.8
November 1973 to March 1975	-9.9	-13.1	-14.1
January 1980 to July 1980	-3.4	-4.7	-7.6

 Note: Data for manufacturing production are from *Industrial Production 1976 Revision* (Federal Reserve System, Board of Governors, 1977); *Industrial Production January 1976-December 1978* (Federal Reserve System, Board of Governors, 1979) and *Federal Reserve Bulletin*, various issues.

some moderation occurred after the first two recessions. From 1957 forward, however, and subject to the limitations of a less than ideal empirical index of the severity of recession, the relationship shows no clear trend. The data for durable and nondurable industries yield similarly mixed results. The employment of production workers in durable goods fell 18.7 percent during 1948-49, but only 15.2 and 14.5 percent over the course of the 1958 and 1975 recessions; yet, production actually declined by larger percentages in the latter two downturns. However, other comparisons are possible which suggest the opposite: contrast production and employment in 1953-54, 1960-61, and 1969-70.

Examination of the sectors in the economy that have been most sensitive to cyclical fluctuations provides less support for the hypothesis that the response of employment—or, more appropriately, the hiring and firing decision of firms—to short-run output changes has become more moderate. Using standard regression analysis, Martin Baily found that there was a decline in the “long-run output elasticity” for production workers in all manufacturing, but it was not as pronounced as the highly aggregate data in table 1 might have implied.¹⁹ This contrast suggests that, at the empirical level, business cycles are very complex phenomena unlikely to be understood by simple employment-production comparisons. Moreover, a single measure of “cycle severity” is

very difficult to construct. Cycles can be alike in duration and diffusion, but differ significantly in depth. Exactly how these features may interact and affect firms' hiring and firing decisions depends upon a number of factors not entirely understood and difficult to observe.

Aggregate hours. As the economy weakens, both jobs and hours are usually cut. The joint effect is presented in table 4 for manufacturing production workers.

The data clearly show the predominance of the employment effect in each recession, with the 1973-75 period the most severe. In addition, the data indicate that the hours effect reached its greatest magnitude among the six complete postwar recessions during 1973-75. Information on the current downturn shows that aggregate hours lost have been substantial in just a short period of time. Interestingly, while the employment effect again dominates, the hours effect in manufacturing and durable goods is larger than in all but the 1973-75 recession. This may indicate the relative importance of hours reductions in the early stages of a recession. Of equal interest is the fact that over the postwar period there appears to be no trend in the relative importance of the employment effect. Some recent theoretical work has implied that certain structural changes, especially the development of unemployment insurance would have increased the importance of the employment effect.²⁰ The data presented here are inconsistent with this view. However, offsetting changes in other variables are possible. Also, each recession differs in terms of its depth and duration, and these differences may engender dissimilar personnel responses by firms.

It must be emphasized that numerous interesting

questions have been ignored. There is no suggestion that aggregate data tell us much about the total impact of recessions on workers—questions about standards of living, probability of finding a good job, and others.

Impact on age, sex, and race groups

Economic contractions directly affect people's living standards through lost jobs, reduced hours of work, and other factors. Just as jobs in certain industries are more vulnerable to cyclical contractions, so it is possible that identifiable demographic groups—because they may be associated with certain occupations or industries—experience the employment impact of recession more directly than others.

Who bears the burden of recession-induced cutbacks in employment? This question will be examined with a relatively narrow focus; no attempt will be made to study the overall impact of recession on different groups. Thus, the main question is, given relative levels of employment at the onset of recession, are cutbacks unevenly distributed? The major advantage of analyzing only employment changes is the perspective it may provide on the "last hired, first fired" syndrome, thought to especially affect women, minorities, and youth.

Throughout the 1970's, a number of analysts have suggested using indicators of employment rather than unemployment to evaluate the state of the labor market. In particular, the employment-population ratio has been advocated as both a more "objective" measure and in better accord with estimates of the level of aggregate demand.²¹ One's belief on these matters aside, it is possible to examine the peak-to-trough changes in the employment ratio as one dimension of a recession's

Table 4. Declines in aggregate weekly hours of manufacturing production workers from postwar business cycle peaks to troughs, seasonally adjusted

[Hours in millions]

Industry and effect	Hours	Percent of total effect	Hours	Percent of total effect	Hours	Percent of total effect	Hours	Percent of total effect	Hours	Percent of total effect	Hours	Percent of total effect	Hours	Percent of total effect
	November 1948 to October 1949		July 1953 to May 1954		August 1951 to April 1958		April 1960 to February 1961		December 1969 to November 1970		November 1973 to March 1975		January 1980 to July 1980	
Manufacturing														
Total effect	62,677	100.0	74,745	100.0	74,247	100.0	44,082	100.0	68,354	100.0	109,675	100.0	64,312	100.0
Employment ¹	59,272	94.6	60,656	81.2	56,078	75.5	39,343	89.2	55,080	80.6	85,144	77.6	46,426	72.2
Hours ²	3,853	6.1	14,089	18.8	15,859	21.3	5,135	11.6	14,634	21.4	28,505	26.0	19,384	30.1
Residual ³	-448	-7	...	...	+2,309	2.2	-396	-8	-1,360	-2.0	-3,975	-3.6	-1,498	-2.3
Durable goods														
Total effect	55,749	100.0	56,352	100.0	55,454	100.0	44,294	100.0	56,291	100.0	68,483	100.0	46,773	100.0
Employment ¹	51,818	92.9	46,999	83.4	46,426	83.7	32,080	72.4	46,680	82.9	53,323	77.9	35,455	75.8
Hours ²	4,834	8.7	10,832	19.2	10,641	19.2	3,614	8.2	11,084	19.7	17,736	25.9	12,534	26.8
Residual ³	-902	-1.6	-1,479	-2.6	-1,613	-2.9	+8,600	+19.4	-1,473	-2.6	-2,576	-3.8	-1,216	-2.6
Nondurable goods														
Total effect	6,236	100.0	18,624	100.0	15,432	100.0	9,113	100.0	13,129	100.0	41,515	100.0	16,854	100.0
Employment ¹	7,956	127.6	14,133	75.9	10,074	65.3	7,487	82.2	9,012	68.6	31,919	76.9	11,179	66.3
Hours ²	-1,781	-28.6	7,164	38.5	5,615	36.3	1,683	18.5	4,276	32.6	11,043	26.6	5,958	35.4
Residual ³	+61	+1.0	-2,673	-14.4	-257	-1.6	-57	-7	-159	-1.2	-1,447	-3.5	-283	-1.7

¹ Employment effect (EE) equals the change in employment (ΔE) from peak to trough times hours at the peak ($EE = \Delta E \times \text{Hours}_p$).

² Hours effect (HE) equals the change in hours (ΔH) from peak to trough times employment

at the peak ($HE = \Delta H \times \text{Employment}_p$).

³ The combination of employment and hours effects that cannot be allocated.

impact. (This approach assumes that the trend factor between peak and trough is negligible.)

Table 5 contains information on the level of and change in the employment ratio for all postwar contractions.²² As measured by changes in the employment ratio, men are more affected than women, and teenagers more so than adults, a fact borne out by other research.²³ For example, in the 1973–75 recession, the ratio for teenagers and men fell 4.4 and 4.3 points, respectively, while that of women dropped half a point. The current recession indicates a similar pattern. The differences in the aggregate between men and women are not surprising. For reasons such as discrimination, men and women tend to work in different jobs, and certain jobs are more sensitive than others to business cycles. Table 5 also strongly suggests that the employment situation of black workers weakens substantially relative to that of whites. In each recession for which data are available, the black employment ratio fell quite a bit more than the ratio for whites.

Of course, there are many other ways to examine employment data. It may be of somewhat greater interest to probe the share of the employment decline accounted for by each group relative to its peak share of employment. For example, if the “last hired, first fired” perspective is correct, women, blacks, and teenagers should experience a disproportionate share of the total drop in employment.

Table 6 shows employment changes from peak to trough—as measured by the household survey—for selected age, sex, and race categories. Also shown is each group's share of total employment at the cyclical peak, and the proportion of the decline in employment accounted for by the group. Teenagers quite clearly account for a sizable share of recession drops in employment. While never comprising more than 9 percent of peak employment, teens accounted for between 14 and 38 percent of the total net decline in jobs. Men—the group that makes up the largest, but declining, share of employment—have often accounted for far less of the decrease in employment than their peak share of jobs. This is not true of the current recession, however, in which men have made up 88 percent of the decline. Save for the relatively mild 1970–71 recession, the employment of women seems less affected by economic contractions than that of their male counterparts. Indeed, during the 1980 downturn, female employment has actually increased, as parts of the service sector, where a large proportion of women are employed, have continued to add jobs. The data by race show that, over the course of a recession, black workers are generally more affected than whites, although so far in 1980 this has not been the case.²⁴

As before, aggregate data obscure many interesting issues. One important issue is whether the probability of experiencing a recession-induced job layoff is greater for, say, women than for men, or for blacks than for whites, within certain cyclically sensitive industry aggregates and occupations. But this is very difficult to determine on the basis of available data.

Table 7 uses manufacturing payroll employment data by sex for each recession for which seasonally adjusted data are available. (Data by race and age are not available.) The presentation is limited to manufacturing because the bulk of recession layoffs occurs in that sector. Further, the data refer to all employees; while it would be preferable to use information on production workers, such data (by sex) are not available in a seasonally adjusted form. In addition, there are no payroll data on the occupational distribution of men and women within manufacturing, which would be extremely useful in assessing the potential for a job termination. Lastly, within the manufacturing sector, industries differ in their cyclical sensitivity, and because men and women differ in their industry mix of employment the data in table 7 may mask some interesting facts.

Given these important caveats, the data in table 7 are revealing. In manufacturing industries as a whole, the relative employment impact on women has tended to steadily increase, while that of men has dropped. For example, in the 1960–61 recession, while women were 26 percent of peak employment, they accounted for only 18 percent of the decline; by 1973–75, the percentages were 29.3 and 38.3, respectively. (In the current-re-

Table 5. Changes in employment-population ratios from postwar business cycle peaks to troughs by sex, age, and race, seasonally adjusted

Business cycles ¹	Total, 16 years and over	Men, 20 years and over	Women, 20 years and over	Both sexes, 16 to 19 years	White workers	Black and other workers
Peak: December 1948	56.8	85.8	30.9	48.6	(²)	(²)
Trough: October 1949	54.9	82.5	30.8	44.2	(²)	(²)
Over-the-period change	-1.9	-3.3	-1	-4.4	(²)	(²)
Peak: March 1953	58.1	86.9	33.5	49.5	(²)	(²)
Trough: July 1954	55.0	83.3	31.9	41.1	(²)	(²)
Over-the-period change	-3.1	-3.6	-1.6	-8.4	(²)	(²)
Peak: July 1957	57.5	84.2	35.4	42.8	57.2	60.0
Trough: April 1958	55.2	80.8	34.6	39.8	55.1	56.6
Over-the-period change	-2.3	-3.4	-0.8	-3.0	-2.1	-3.4
Peak: June 1960	56.5	82.0	36.0	42.5	56.1	58.5
Trough: April 1961	55.2	80.6	35.4	38.4	55.2	55.4
Over-the-period change	-1.3	-1.4	-0.6	-4.1	-0.9	-3.1
Peak: December 1969	58.1	80.7	41.4	44.5	58.1	58.4
Trough: March 1971	56.4	78.4	40.7	40.6	56.5	55.2
Over-the-period change	-1.7	-2.3	-0.7	-3.9	-1.6	-3.2
Peak: November 1973	58.2	78.8	42.7	47.0	58.6	55.2
Trough: June 1975	55.8	74.5	42.2	42.6	56.5	50.9
Over-the-period change	-2.4	-4.3	-0.5	-4.4	-2.1	-4.3
Peak: January 1980	59.9	75.7	48.3	48.5	60.7	54.3
Trough: July 1980	59.0	74.2	48.1	46.5	59.9	53.1
Over-the-period change	-0.9	-1.5	-0.2	-2.0	-0.8	-1.2

¹ Percent changes are based on the actual peaks and troughs of the series rather than those defined by the National Bureau of Economic Research (NBER). Employment-population ratios represent civilian employment as a proportion of the civilian noninstitutional population.

² Not available.

Table 6. Percent changes in employment from postwar business cycle peaks to troughs by sex, age, and race, seasonally adjusted

Category	November 1948 to October 1949	March 1953 to July 1954	July 1957 to April 1958	June 1960 to April 1961	April 1970 to March 1971	July 1974 to April 1975	February 1980 to July 1980
Total employment	-2.5	-3.8	-3.0	-1.2	-0.7	-2.5	-0.8
Men, 20 years and over	-2.9	-2.9	-3.2	-8	-6	-2.5	-1.4
Percent of peak total employment	67.3	65.6	64.3	62.8	57.9	56.1	53.6
Percent of total employment decline	77.8	49.9	70.4	43.7	46.7	57.4	88.3
Women, 20 years and over	.8	-3.6	-1.5	-7	-8	-1.7	.4
Percent of peak total employment	25.8	28.1	29.8	30.7	34.3	35.4	38.4
Percent of total employment decline	(¹)	26.2	15.3	18.3	38.5	24.3	(¹)
Both sexes, 16 to 19 years	-11.0	-14.3	-7.2	-7.0	-1.3	-5.3	-3.4
Percent of peak total employment	6.9	6.4	5.9	6.5	7.8	8.5	8.0
Percent of total employment decline	30.5	23.9	14.3	38.0	14.8	18.3	32.3
White workers	(²)	(²)	-2.8	-6	-7	-2.2	-9
Percent of peak total employment	(²)	(²)	89.7	89.3	89.3	89.2	88.8
Percent of total employment decline	(²)	(²)	84.4	48.1	92.3	80.8	97.1
Black and other workers	(²)	(²)	-4.5	-4.0	-6	-4.1	-4
Percent of peak total employment	(²)	(²)	10.4	10.6	10.7	10.8	11.2
Percent of total employment decline	(²)	(²)	15.8	35.3	9.9	18.0	5.3

¹ Employment did not decline over this period.
² Not available.

NOTE: See footnote 1, table 5.

cession, the relative employment impact on men has been just slightly greater than for women.)

These data could reflect several different phenomena. First, although difficult to prove, some women may have gained access to occupations both more vulnerable to cutbacks and previously the domain of men. One might expect that—if simply for seniority reasons alone—women would be more likely to lose these recently acquired jobs in a recession. Second, and not inconsistent with the first interpretation is that the employment gains made by women may have been predominantly in cyclically sensitive industries, for example, metals, machinery, and transportation equipment. In fact, the evidence does suggest that there has been substantial growth in the employment of women in durable goods industries. Between 1959 and 1980, female employment in manufacturing increased about 2.3 million, and almost 65 percent of this was in durable goods. And, as table 7 shows, the largest percentage drops in the employment of women during recession occurred in durable goods, and women's share of the employment cutbacks in that sector has risen steadily relative to their share of employment over the three completed recessions shown.²⁵

Turning to nondurable goods, a slightly different pattern emerges. The percentage drop in the employment of women is always greater than for men. Also, even in the 1960-61 recession, women bore a disproportionate share of the total employment decline. This probably reflects the concentration of women in industries such as textiles and apparel, both cyclically sensitive.

Household survey data were used to examine the relative vulnerability of blacks and whites, teenagers and adults. The required data are not seasonally adjusted, and usable data exist only for those recessions from

1969 forward. To mitigate one problem of using unadjusted data, table 8 presents quarterly average changes between the same quarter a year apart, for example fourth quarter 1969 and 1970. Although this method does not provide a perfect match with actual recession dates, it is close enough to provide useful insight. The data shown are for all manufacturing industries and all blue-collar occupations.

Women in manufacturing tend to account for a more than proportionate share of the drop in employment, except during the current recession. In blue-collar jobs, again except for 1980, both the percentage and propor-

Table 7. Percent changes in manufacturing employment from postwar business cycle peaks to troughs by sex, seasonally adjusted

Category	Apr. 1960 to Feb. 1961	Dec. 1969 to Nov. 1970	Nov. 1973 to Mar. 1975	Jan. 1980 to July 1980
Total manufacturing employment	-5.7	-7.9	-10.7	-5.5
Men	-6.3	-8.0	-9.4	-5.6
Percent of peak employment	74.1	78.0	70.7	68.8
Percent of employment decline	82.0	73.1	61.7	71.3
Women	-4.0	-7.5	-14.0	-5.0
Percent of peak employment	25.9	22.0	29.3	31.2
Percent of employment decline	18.0	26.9	38.3	28.7
Durable goods	-8.1	-11.2	-11.3	-6.8
Men	-8.6	-10.9	-10.3	-6.8
Percent of peak employment	82.3	79.4	78.0	75.2
Percent of employment decline	87.2	77.2	70.8	75.6
Women	-5.9	-12.4	-15.0	-6.7
Percent of peak employment	17.7	20.6	22.0	24.8
Percent of employment decline	12.8	22.8	29.2	24.4
Nondurable goods	-2.5	-3.2	-9.9	-3.4
Men	-2.3	-2.7	-8.7	-3.3
Percent of peak employment	63.3	61.0	60.0	59.0
Percent of employment decline	59.6	52.3	46.5	58.0
Women	-2.7	-3.9	-13.3	-3.5
Percent of peak employment	36.7	39.0	40.0	41.0
Percent of employment decline	40.4	47.3	53.5	42.0

Table 8. Percent changes in manufacturing and blue-collar employment from postwar business cycle peaks to troughs by sex, age, and race, quarterly averages, not seasonally adjusted, 1969-80

Category	Percent change in manufacturing employment from			Percent change in blue-collar employment from		
	IV 1969 to IV 1970	I 1974 to I 1975	III 1979 to III 1980	IV 1969 to IV 1970	I 1974 to I 1975	III 1979 to III 1980
Total employment	-4.2	-7.3	-4.1	-2.6	-7.1	-5.9
Men, 20 years and over	-2.9	-5.6	-3.7	-1.3	-5.6	-5.1
Percent of peak employment	68.4	67.4	65.5	75.5	76.9	73.4
Percent of employment decline	47.0	49.3	59.1	37.1	59.3	62.6
Women, 20 years and over	-6.2	-8.1	-2.2	-7.3	-10.4	-5.5
Percent of peak employment	27.1	27.2	29.0	17.1	16.6	16.7
Percent of employment decline	39.6	28.7	15.7	47.5	24.3	15.6
Both sexes, 16 to 19 years	-12.3	-30.9	-18.9	-5.5	-14.2	-13.0
Percent of peak employment	4.6	5.4	5.5	7.3	6.5	9.9
Percent of employment decline	13.4	22.0	25.1	15.4	16.4	21.7
White workers	-4.0	-7.2	-4.1	-2.4	-6.5	-6.0
Percent of peak employment	89.6	89.0	88.5	86.8	87.2	87.4
Percent of employment decline	84.8	83.8	87.8	79.4	79.6	88.6
Black and other workers	-6.2	-11.2	-4.4	-4.1	-11.3	-5.4
Percent of peak employment	10.4	11.0	11.5	13.2	12.8	12.6
Percent of employment decline	15.2	16.2	12.3	20.6	20.4	11.4

tionate employment declines are far larger for women than men. Teenagers in both manufacturing and blue-collar jobs experience a very large proportion of employment cutbacks relative to their peak share of employment. This is consistent with the very high cyclical sensitivity of youth employment. As expected, black workers in manufacturing are more likely than whites to experience employment separation in recessions. For example, in the 1973-75 recession, black workers made up 16 percent of the manufacturing employment drop but only 11 percent of peak employment. The data for blue-collar occupations tell a similar story. That is, even though white workers may account for most of the job loss, it tends to be less than proportional. To what extent this reflects differential job access, promotion criteria, industry distribution, or other factors cannot be answered on the basis of these data.

Subject to data limitations and the exception of the current recession, the data in tables 7 and 8 tend to be consistent with the hypothesis that women, youth, and blacks bear a disproportionate share of employment contractions in recessions. Of course, this does not prove that these groups are more likely to be laid off than men. It might be argued, for example, that some groups are more likely to quit jobs and that the data simply reflect this assumed voluntary behavior. Employment separations can result either from leaving the job or being laid off, but the evidence is very clear that in a recession the bulk of labor turnover results from job loss.²⁶ Not only is there evidence that quits decline as job opportunities dry up, but there is also some indication that, other things equal, as the proportion of women employed across industries has increased, it has been negatively associated with the manufacturing quit rate.²⁷

This information is suggestive but not definitive. Ideally, one requires a measure of the overall probability of job loss. That is, information is needed on the number of persons in a given demographic group, employed in a particular industry and occupation, who are laid off during an economic contraction. This necessitates information on labor force flows from a given job to unemployment, not in the labor force, or to another job because of layoff. (Thus, persons laid off do not necessarily become unemployed.) This type of information is not available, though certain inferences are possible.²⁸

Table 9 contains information calculated from Current Population Survey gross flow data and shows the probability of moving from employed to unemployed or to not in the labor force for selected industry and occupation groupings. The gross flow data are subject to a number of crucial limitations, and must be used with great caution. This is especially true the more disaggregated the data.²⁹ A straightforward way to interpret the numbers is as follows: If there were 100 persons employed in manufacturing in month *t*, and 35 are unemployed in month *t*+1, then the probability of moving from employed to unemployed is .35.

The first two columns of table 9 show the flow probabilities for all employed persons. As expected, at both the cyclical peak and trough, employed women have a higher probability of leaving the labor force than men. Whether this reflects greater discouragement by women cannot be determined, because this flow would have to be separated into job losers and leavers and distinguished by reasons for dropping out. Interestingly, the flow from employed to unemployed is always higher at the trough of a recession among men than among women. Moreover, the peak-to-trough percentage increase in

Table 9. The probability of employment separations from selected industries and occupations by sex, selected quarterly averages, not seasonally adjusted

Total	From employment to		From manufacturing employment to		From construction employment to		From employment as craftworkers to		From employment as operatives to		From employment as nonfarm laborers to	
	Unemployment	Not in labor force	Unemployment	Not in labor force	Unemployment	Not in labor force	Unemployment	Not in labor force	Unemployment	Not in labor force	Unemployment	Not in labor force
All workers												
IV 1969 ...	.0096	.0376	.0117	.0169	.0280	.0308	.0105	.0157	.0164	.0266	.0290	.0658
IV 1970 ...	.0148	.0349	.0203	.0151	.0453	.0256	.0184	.0146	.0273	.0252	.0411	.0674
I 1974 ...	.0154	.0323	.0190	.0157	.0546	.0254	.0195	.0140	.0171	.0154	.0189	.0429
I 1975 ...	.0243	.0313	.0367	.0131	.0913	.0204	.0372	.0136	.0490	.0211	.0642	.0408
III 1979 ...	.0154	.0420	.0174	.0213	.0295	.0425	.0153	.0210	.0263	.0322	.0333	.0744
III 1980 ...	.0188	.0397	.0223	.0280	.0477	.0388	.0204	.0207	.0335	.0299	.0498	.0820
Men												
IV 1969 ...	.0098	.0238	.0095	.0109	.0292	.0286	.0107	.0149	.0136	.0184	.0289	.0650
IV 1970 ...	.0160	.0220	.0187	.0091	.0467	.0235	.0187	.0136	.0263	.0174	.0412	.0670
I 1974 ...	.0163	.0185	.0164	.0095	.0575	.0232	.0197	.0128	.0245	.0162	.0457	.0413
I 1975 ...	.0268	.0304	.0313	.0092	.0972	.0173	.0375	.0118	.0426	.0147	.0661	.0382
III 1979 ...	.0153	.0291	.0160	.0155	.0298	.0413	.0153	.0192	.0255	.0249	.0338	.0719
III 1980 ...	.0204	.0283	.0213	.0133	.0502	.0353	.0206	.0186	.0331	.0243	.0511	.0784
Women												
IV 1969 ...	.0093	.0604	.0170	.0232	.0055	.0718	.0060	.0392	.0220	.0445	.0242	.0806
IV 1970 ...	.0128	.0562	.0244	.0469	.0170	.0682	.0114	.0540	.0304	.0429	.0388	.0775
I 1974 ...	.0140	.0544	.0253	.0311	.0088	.0614	.0149	.0404	.0327	.0423	.0229	.0621
I 1975 ...	.0205	.0504	.0502	.0229	.0048	.0677	.0304	.0564	.0632	.0361	.0411	.0645
III 1979 ...	.0155	.0608	.0208	.0347	.0245	.0572	.0153	.0556	.0282	.0482	.0305	.1016
III 1980 ...	.0167	.0557	.0246	.0303	.0190	.0786	.0172	.0543	.0323	.0427	.0383	.1129

this flow is always greater among men. Because this is calculated for all employed persons, it probably reflects the different distribution of men compared to women among industries and occupations and the fact that, on average, more men are employed in cyclically vulnerable industries.

The story changes in a rather interesting manner for manufacturing workers (columns 3 and 4). The probability of becoming unemployed is always higher for women. And the peak-to-trough percent change in that probability shifted between 1969-70 and 1974-75 such that the increase became greater for women than men. Among all operative workers, the male-female differences are similar to those in manufacturing. But the pattern does not hold for either nonfarm laborers or for craft workers. In these occupations, men have a higher probability of going from employed to unemployed regardless of the stage of the recession. Nevertheless, the percentage increase in the employed to unemployed flow between peak and trough was greater for women nonfarm laborers and craftworkers than for men in the two complete recessions. As relatively new entrants into these occupations, women would be more likely to be laid off in a recession, and the fact that their employment-to-unemployment flow probability often increases more than that for men is consistent with this possibility. The construction flows are baffling. While the change from employed to unemployed among men is as expected and reflects the fact that construction is a cy-

clical industry, the reduced probabilities of unemployment for women jobholders during 1974-75 and 1979-80 are not easily explained.

The data in table do not prove—but are generally consistent with—the hypothesis that employment declines in economic contractions result primarily from job loss and that certain groups are more likely to suffer such cutbacks. Additional information provides supporting evidence. For all workers, the largest proportion of the net change in unemployment in recessions is accounted for by job losers.³⁰ For example, during the 1973-75 recession 92 percent of the net increase in unemployment in manufacturing resulted from job loss; among men it was 97.5 percent, while for women it was 85.7 percent. Among blue-collar workers, the results were similar, with job loss accounting for 93.5 percent of the net change in male unemployment, and 85.4 percent of the change among women. As expected, job loss tends to account for far less of net unemployment changes in service occupations, making up only 40.5 percent in the 1973-75 recession. Net change data also show that recession-induced unemployment for both blacks and whites comes predominantly in the form of layoffs. Therefore, there is support for the “last hired, first fired” hypothesis.

Unemployment in recession

Little attention has been given thus far to the unemployment rate. That neglect will be rectified in this sec-

tion, although the focus will turn on a set of questions somewhat different from the usual. In table 1, the data suggest a mild decline in employment in the 1973–75 recession. Yet, the unemployment rate reached a postwar high of 8.5 percent at the business cycle trough (March 1975) and, in fact, did not peak until May 1975, when it hit 9.0 percent.

To many, the movements in employment and unemployment during the 1973–75 recession have seemed anomalous.³¹ Indeed, some have suggested that the unemployment rate, at least in the 1973–75 recession, was a misleading indicator of the state of the labor market and that more attention should be given to the civilian employment-population ratio. As Geoffrey Moore has argued:

A high level of unemployment not accompanied by a low level of employment (relative to population) may not imply a deficiency of demand. It may, on the contrary, imply that large numbers of workers are seeking jobs, or seeking to change jobs, because employment opportunities are plentiful.³²

Moore contrasts the unemployment rate and employment-population ratio at the trough of each postwar recession, and finds that the data suggest that 1975 was the worst year by the unemployment measure, but the second best year by the employment measure, topped only by 1970.

In certain respects this statement is quite true, recognizing—if only implicitly—the dynamics of labor force flows and the importance of perceived and actual employment opportunities as one determinant of those flows. From the standpoint of assessing the impact of recession on labor force statistics, however, the statement is not correct. What is critical is not the *level* of the employment ratio—which is the product of long-term secular trends—but its *change* in a recession. Viewed in this way, as the following tabulation indicates, both series show a very similar pattern.

Period	Percentage point change in the—	
	Unemployment rate	Employment-population ratio
November 1948–October 1949	4.1	–1.6
July 1953–May 1954	3.3	–2.0
August 1957–April 1958 . . .	3.2	–1.7
April 1960–February 1961 . .	1.7	–.9
December 1969–November 1970	2.4	–1.2
November 1973–March 1975	3.7	–2.2
January 1979–July 1980	1.4	–.9

Although the two series do not match perfectly, they are clearly not so at odds as to support the hypothesis that the employment ratio gives an entirely different perspective on cyclical movement of the economy.³³ Both series are very useful, and each has its place in any analysis of cyclical developments.

Minimizing the unemployment rate as a cyclical indicator has recently been based on another set of arguments. In particular, it has become popular to contend that the relatively high unemployment rate reached in the last recession was primarily the result of a recession-induced surge in the number of women—and in some scenarios one might include teenagers—entering the labor force. As an economic analyst for *The Wall Street Journal* explained:

The distressing increase in the unemployment rate during the 1973–75 slump mainly reflected the economy's inability to provide enough jobs to accommodate a sharply rising number of job-seekers, especially women.³⁴

If this argument were true, one would reasonably expect the data to show that the proportion of the unemployed who are women tends to be significantly lower at the cyclical peak than at the trough. The fact that over half of the peak-to-trough increment in the number unemployed between 1973 and 1975 consisted of men, of whom 90 percent were job losers, while adult women accounted for one-third of the increment and 68 percent were job losers already casts some doubt on the thesis.³⁵

Other data tell a similar story. Table 10 contains information on unemployment rates. Irrespective of the stage of the cycle, men tend to have lower unemployment rates than women or teenagers, and whites lower rates than blacks. Moreover, the percentage-point increase for men was greater than that for women in four of the seven recessions, including 1973–75. In addition, the percentage increases for men are always higher than those for women or teenagers. Of course, these data do not show whether there was a significant, above-trend increase in female labor force participation. However, both the relative importance of job losers and the generally greater increase in adult male unemployment does suggest that a sharply rising number of job seeking entrants into the labor force is an unsatisfactory explanation for recession-induced increments in unemployment.³⁶

More information on this thesis is contained in table 11, which shows the proportion of the unemployed who were women and teenagers during each cycle peak and trough. For women, this proportion of unemployment declined in all but the 1960–61 contraction. Between 1973 and 1975, the proportion fell from 48.6 to 44.5 percent. The teenage fraction of unemployment declined in each recession. This is inconsistent with the “women swelling the labor force” hypothesis about unemployment.

It is true, of course, that the labor force participation rate of women increased between 1973 and 1975 (from 45.3 percent in November 1973 to 46.1 percent in March 1975), but this increase was little more than part of a long term secular change in participation and not an extra surge.³⁷

Table 10. Changes in unemployment rates from postwar business cycle peaks to troughs by sex, age, and race, seasonally adjusted, 1948-80

Business cycles	Total, 16 years and over	Men, 20 years and over	Women, 20 years and over	Both sexes, 16 to 19 years	White workers	Black and other workers
Peak: November 1948	3.8	3.3	3.4	9.1	(²)	(²)
Trough: October 1949 ¹	7.9	7.9	5.9	15.8	(²)	(²)
Over-the-period change	4.1	4.6	2.5	6.7	(²)	(²)
Peak: July 1953	2.6	2.2	2.5	7.3	(²)	(²)
Trough: May 1954	5.9	5.2	5.8	13.4	(²)	(²)
Over-the-period change	3.3	3.0	3.3	6.1	(²)	(²)
Peak: August 1957	4.1	3.4	4.1	11.5	3.7	7.5
Trough: April 1958	7.4	6.7	6.8	17.2	6.7	13.8
Over-the-period change	3.3	3.3	2.7	5.7	3.0	6.3
Peak: April 1960	5.2	4.4	4.8	14.2	4.6	10.1
Trough: February 1961	6.9	5.9	6.5	17.4	6.2	12.8
Over-the-period change	1.7	1.5	1.7	3.2	1.6	2.7
Peak: December 1969	3.5	2.3	3.5	11.8	3.3	5.9
Trough: November 1970	5.9	4.2	5.6	17.4	5.5	9.2
Over-the-period change	2.4	1.9	2.1	5.6	2.2	3.3
Peak: November 1973	4.8	3.1	4.8	14.9	4.3	8.9
Trough: March 1975	8.5	6.8	8.3	19.9	7.8	14.0
Over-the-period change	3.7	3.7	3.5	5.0	3.5	5.1
Peak: January 1980	6.2	4.8	5.8	16.5	5.5	11.9
Trough: July 1980	7.6	6.6	6.6	18.7	6.8	13.9
Over-the-period change	1.4	1.8	.8	2.2	1.3	2.0

¹ This rate was, in part, the result of a one-month dip related to a serious labor dispute in the mining industry. The rates for September and November 1949 were 6.6 and 6.4 percent, respectively.

² Not available.

One way to view the impact of this increase in participation is to assume away the trend increase and ask what the overall unemployment rate would have been at the trough of the 1975 recession had female participation remained unchanged at the November 1973 rate. Given this assumption, it is possible to estimate, other things equal, the maximum change in the unemployment rate that could be attributed to the change in the female labor force.³⁸ On the basis of this mechanical approach to the labor market, it would be hypothesized that a highly significant proportion of the increase in unemployment would be accounted for by this adjustment procedure. Even under such favorable conditions, how-

ever, the data do not provide support for the argument. The "adjusted" rate of unemployment for March 1975 is 7.9 percent instead of 8.5 percent, not an insignificant drop but certainly not of such magnitude to account for much of the increase in joblessness (in fact, it accounts for just 16.2 percent of the increase in unemployment).

The analysis presented in this section is not intended to suggest that the unemployment rate is the only useful cyclical indicator of the performance of the labor market. However, used properly and in conjunction with other statistics such as the employment ratio, the unemployment rate is both useful and suggestive of the relative performance of the economy.

Table 11. Women and teenagers as a proportion of total unemployed at postwar business cycle peaks and troughs

[Numbers in thousands]

Business cycles	Total unemployed	Women, 16 years and over as a percent of total unemployed	Women, 20 years and over as a percent of total unemployed	Teenagers as a percent of total unemployed
Peak: November 1948	2,285	29.9	23.5	17.1
Trough: October 1949	4,916	24.8	19.6	13.8
Peak: July 1953	1,660	34.0	27.3	17.5
Trough: May 1954	3,767	33.0	28.0	14.3
Peak: August 1957	2,747	36.7	29.3	17.5
Trough: April 1958	5,016	33.5	27.6	14.6
Peak: April 1960	3,260	35.5	30.8	19.2
Trough: February 1961	4,832	36.3	29.1	17.5
Peak: December 1969	2,884	48.1	33.9	29.3
Trough: November 1970	4,885	45.2	32.6	26.2
Peak: November 1973	4,321	48.6	34.6	30.2
Trough: March 1975	7,874	44.5	34.3	22.1
Peak: January 1980	6,500	47.0	35.6	24.0
Trough: July 1980	8,021	42.7	33.1	21.6

Summary

The purpose of this article has been to survey what happens to key indicators of the labor market in recessions. Among the principal observations:

1. There is some evidence that the response of aggregate employment to short-run changes in production has moderated in the postwar period.
2. This apparent moderation could result from a shift in the mix of employment from cyclically sensitive industries to those less cyclical, especially service-producing industries; or it could reflect a change in the response of firms to production cutbacks within industries. There is clear evidence to support the employment mix thesis, but support for the second hypothesis is somewhat less clear. Moreover, the very simple comparative approach adopted in this article did not strongly

uphold the second hypothesis.

3. Black workers and teenagers, both in the aggregate and within key cyclical sectors, bear a disproportionate share of the decline in employment in recessions.

4. Adult female employment, largely as a result of industrial and occupational distribution, is less affected by recession than some other groups. However, there is evidence—from both the payroll and household surveys—that *within* manufacturing industries and blue-collar occupations, women tend disproportionately to lose their jobs (the exception being during the 1980 recession).

5. The unemployment rate remains a useful statistic to assess the relative performance of the labor market. There is little evidence that the obvious secular changes in the demographic composition of the labor force are critically important in explaining cyclical changes in unemployment. □

FOOTNOTES

¹The National Bureau of Economic Research (NBER)—the organization that has historically dated business cycle activity—announced that January 1980 marked the pre-recession peak for the recession. For purposes of analysis, the peak to trough for the current recession is taken to be January to July 1980. Even though July has not been designated as the trough, some economic indicators began to turn up after July.

²See, for example, Martin Neil Baily, "Stabilization Policy and Private Economic Behavior," *Brookings Papers on Economic Activity*, No. 1, 1978, pp. 11–60; Glen Cain, "Labor Force Concepts and Definitions in View of Their Purposes," *Concepts and Data Needs, Appendix, Vol. 1* (Washington, National Commission on Employment and Unemployment Statistics, 1979), pp. 3–55; Geoffrey H. Moore, "Lessons of the 1973–1976 Recession and Recovery," in William Fellner, ed., *Contemporary Economic Problems* (Washington, American Enterprise Institute for Public Policy Research, 1977), pp. 117–58; and Michael Piore, ed., *Unemployment and Inflation: Institutional and Structuralist Views* (White Plains, N.Y., M. E. Sharpe Inc., 1979).

³Arthur Okun, *The Political Economy of Prosperity* (Washington, Brookings Institution, 1970), pp. 132–45; and Robert J. Gordon and Robert E. Hall, "Arthur Okun, 1928–1980," *Brookings Papers on Economic Activity*, No. 1, 1980, pp. 1–6.

⁴Alfred L. Malabre, Jr., "The Outlook," *The Wall Street Journal*, Apr. 16, 1979, p. 1. The apparent belief underlying this argument is that the economy was unable to "absorb" an extra surge of women entering the labor force during the depths of the 1973–75 recession. Note that the issue is that of accounting for cyclical changes in unemployment and is not connected to the argument that secular changes in the structure of the labor force may have had an impact on the "nonaccelerating inflation unemployment rate." Also see George Perry, "Changing Labor Markets and Inflation," *Brookings Papers on Economic Activity*, No. 3, 1970, pp. 411–41; and Michael L. Wachter, "The Demographic Impact on Unemployment: Past Experience and the Outlook for the Future," *Demographic Trends and Full Employment*, Special Report No. 12 (Washington, National Commission for Manpower Policy, 1976), pp. 27–99.

⁵Martin Neil Baily, "On the Theory of Layoffs and Unemployment," *Econometrica*, July 1977, pp. 1043–63; Costas Azariadis, "Implicit Contracts and Underemployment Equilibria," *Journal of Political Economy*, December 1975, pp. 1183–1202; Roger Kaufman, "Why the U.S. Unemployment Rate Is So High," in Michael Piore, ed., *Unemployment and Inflation*, pp. 155–69; and James Medoff, "Layoffs and Alternatives Under Trade Unions in U.S. Manufacturing," *The American Economic Review*, June 1979, pp. 380–95.

⁶While data from both the establishment and household surveys will be examined here, the focus will be on the establishment survey,

because of its more precise industry data and the ability to distinguish production and nonproduction workers. See Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

⁷Our sole concern is with the postwar period—1948 to the present. It should be noted, therefore, that there is pretty clear evidence that the magnitude of cyclical fluctuations up to the 1940's was much sharper than those of the last 3 decades, although this recent period has not been uniformly stable. Some economists, therefore, have tried to differentiate "classical cycles"—periods of absolute declines and expansions—from "growth cycles"—deviations around rising trends. See Baily, "Stabilization Policy," pp. 15–18; and Philip A. Klein, *Business Cycles in the Postwar World: Some Reflections on Recent Research* (Washington, American Enterprise Institute for Public Policy Research, 1976), pp. 2–7.

⁸Moore, "Lessons of the 1973–1976 Recession," pp. 118–23.

⁹Jeffrey Sachs, "The Changing Cyclical Behavior of Wages and Prices: 1890–1976," *The American Economic Review*, March 1980, p. 81.

¹⁰Unless otherwise noted, cycle dates are those of the National Bureau of Economic Research (NBER). Actual labor market developments do not match perfectly with NBER cycle dates, most particularly when special circumstances are involved. However, the observations in this section are not affected by using actual peaks and troughs for employment.

¹¹Another interesting feature of the data is that the lag between changes in production and actual employment adjustments, at least up to the 1980 recession, has apparently increased. For example, in 1960, employment cutbacks began almost simultaneously with retrenchment in production, while by 1969 there was a 3 to 4 month lag between the two series. This is consistent with Baily's estimate that the proportion of the total employment response to changes in production in the first month has declined. See Baily, "Stabilization Policy," pp. 24–27. While Baily interprets this as evidence that the expectation of countercyclical policy has changed behavior in the direction of relative stability, other possible explanations cannot be ruled out.

¹²Some perspective on the 1973–75 downturn can be found in Arthur Okun, "Unemployment and Output in 1974," *Brookings Papers on Economic Activity*, No. 2, 1974, pp. 495–506; and Barry Bosworth, "Capacity Creation in Basic Materials Industry," *Brookings Papers on Economic Activity*, No. 2, 1976, pp. 297–350.

¹³While only selected recessions are shown, the relationship has been the same throughout the postwar period.

¹⁴Only a few broad industry categories are shown in order to avoid

the cumbersome task of analyzing detailed industries. Obviously, even within the goods-producing sector, there are differences across industries in the impact of a recession on employment. Some of the more sensitive manufacturing industries are motor vehicles, primary metals, fabricated metals, and furniture products. Within the service sector, transportation and public utilities is cyclically sensitive, because it includes the transportation of goods, which contracts quite a bit in recessions.

¹⁵ Data on the components of gross national product are from *The National Income and Product Accounts of the United States, 1929-74: Statistical Tables, a Supplement to the Survey of Current Business* (Washington, U.S. Department of Commerce), and various issues of the *Survey of Current Business* (Washington, U.S. Department of Commerce). A complete analysis would have to explain the historically increasing importance of the services, a task that is beyond the scope of this paper.

¹⁶ Different interpretations of the source of and relationship among these factors (and others) may be seen in Bennett Harrison and Thomas Vietorisz, "Labor Market Segmentation: Positive Feedback and Divergent Development," *The American Economic Review*, May 1973, pp. 366-76; John Kendrick, "Productivity Trends and Prospects," in *U.S. Economic Growth From 1976 to 1986: Prospects, Problems, and Patterns*, Vol. 1, Studies prepared for the Joint Economic Committee, United States Congress (Washington, Government Printing Office, 1976), pp. 1-20; and Michael Piore, "Introduction," in Piore, ed., *Unemployment and Inflation*, pp. IX-XXX.

¹⁷ For example, while production workers accounted for about 83 percent of all manufacturing workers in 1948, by January 1980 the proportion had dropped to 71 percent. Similar relative declines have occurred in durable and nondurable industries.

¹⁸ Data on industrial production can be found in *Industrial Production: 1976 Revision* (Washington, Federal Reserve System, Board of Governors, 1977), and *Federal Reserve Bulletin*, various issues.

¹⁹ Baily, "Stabilization Policy," pp. 25-26. Baily did not perform regressions for durable and nondurable goods separately, and did not explicitly separate periods of expansions and contractions in his analysis.

²⁰ See, for example, Martin Feldstein, "Temporary Layoffs in the Theory of Unemployment," *Journal of Political Economy*, October 1976, pp. 937-57.

²¹ See Geoffrey H. Moore, "Employment, Unemployment, and the Inflation-Recession Dilemma," in William Fellner, ed., *Contemporary Economic Problems* (Washington, American Enterprise Institute for Public Policy Research, 1976), pp. 163-82. The apparent coincidence of high unemployment and a high employment-population ratio as observed in 1975 has been used to suggest that the unemployment rate provided misleading signals about the performance of the economy. However, there is a very serious problem with using the level of the employment ratio as a cyclical indicator unless it is adjusted for the secular trend in the series. This is hardly an insignificant task, given the highly divergent trends between various demographic groups.

²² Throughout this section the dates for peaks and troughs are based on the actual highs and lows as given by the series for all workers. It must be emphasized that the data presented throughout most of this section are "net changes," for example, they show the net change in employment among demographic groups. Many more persons could experience the loss of a job over the course of a recession than the data indicate. Further, some persons who lost a job could have subsequently found another job.

²³ See Lawrence Summers and Kim Clark, "The Demographic Composition of Cyclical Variations in Employment," *Journal of Human Resources*, forthcoming.

²⁴ The 1960-61 data for whites and blacks are somewhat anomalous. These data are independently seasonally adjusted and therefore would not be expected to add up to the total employment figure. However, the 1960-61 numbers indicate that about 15 percent of the total decline in employment cannot be apportioned to either group. This is too high to reflect a simple seasonal adjustment issue. The data should be interpreted with some care. Not seasonally adjusted data for April 1960 and 1961 show white workers with 89.4 percent of peak employment but just 57.7 percent of the decline, while the

figures for blacks were 10.6 percent and 42.3 percent, respectively.

²⁵ See also Robert W. Bednarzik, "The plunge of employment during the recession," *Monthly Labor Review*, December 1975, pp. 3-10; and *Job loss and other factors behind the recent increase in unemployment*, Report 446 (Bureau of Labor Statistics, 1976). It is true, of course, that in absolute terms men account for most of the decline in employment. While not intending to slight this fact, it is not really germane to the issue at hand.

²⁶ See Peter Barth, "A Time Series Analysis of Layoff Rates," *Journal of Human Resources*, Fall 1971, pp. 448-65.

²⁷ Paul Armknecht and John Early, "Quits in manufacturing: a study of their causes," *Monthly Labor Review*, November 1972, pp. 31-37.

²⁸ The ideal measure for the probability of being laid off is

$$P(\text{LO}) = \frac{U_{t+1}^{\text{la}} + N_{t+1}^{\text{la}} + E_{t+1}^{\text{la}}}{E_t}$$

where E_t is the number employed in a job at time t ;

U_{t+1}^{la} is the number who were laid off and became unemployed;

N_{t+1}^{la} is the number who were laid off and left the labor force;

E_{t+1}^{la} is the number who were laid off and found another job.

²⁹ See Harvey Hilaski, "The status of research on gross changes in the labor force," *Employment and Earnings*, October 1968, pp. 6-13; Ralph Smith and Jean Vanski, "Gross Change Data: The Neglected Data Base," *Data Collection, Processing and Presentation, National and Local, Appendix, Vol. 2* (Washington, National Commission on Employment and Unemployment Statistics, 1979), pp. 132-59; and *Measuring Labor Force Movements: A New Approach*, Report 581 (Bureau of Labor Statistics, 1980). Three of the more important problems with the data are: rotation group bias, differential probabilities of reinterview for various groups, and errors in the classification and coding of occupations and industries. The information shown in table 9 is not available by age or race.

³⁰ As with other data presented in this section, seasonally adjusted series on reasons for unemployment by sex, race, and industry and occupation are not available. Therefore quarterly averages and over-the-year comparisons are the basis for the statements in the text. Of course, these data refer to the net change in unemployment and do not indicate the total flow of employed workers into unemployment by reason of job layoff.

³¹ See Malabre, "The Outlook," p. 1.

³² Geoffrey H. Moore, "Employment, Unemployment, and the Inflation-Recession Dilemma," p. 175.

³³ It has also been noted that, from a forecasting perspective, the unemployment rate is actually somewhat superior to the employment ratio. See Julius Shiskin, "Employment and unemployment: the doughnut or the hole?" *Monthly Labor Review*, February 1976, pp. 3-10.

³⁴ Malabre, "The Outlook," p. 1. A different perspective is presented in James Henry, "Lazy, Young, Female, and Black: The New Conservative Theories of Unemployment," *Working Papers*, May-June 1978, pp. 55-65.

³⁵ It must be emphasized that even were the "surge of female participation" view correct, that is, the added worker effect predominates, it still would not follow that the unemployment rate was (is) a less than adequate cyclical indicator. On the contrary, the data could just as easily be a reflection of the employment-related severity of the recession.

³⁶ Data from the gross flows in and out of the labor force also suggest that there was not an extra surge of labor force entrance among women. In the first quarter of 1974, the probability of entering the labor force among women was .0543 (2,346,000 persons), while the probability of leaving the labor force was .0697 (2,426,000 persons). In the first quarter of 1975, the probabilities were .0538 (2,311,000 persons) and .0691 (2,514,000 persons), respectively. The probability of going from not in the labor force to unemployed in the first quarter of 1974 was .0167 (719,000 persons) and .0217 (813,000 persons) in the first quarter of 1975. The probability of going from unemployed to not in the labor force was .3194 (643,000 persons) and

.2672 (840,000 persons) respectively.

³⁷ There is some evidence of the "added worker" effect among women over age 45, while the "discouraged worker" effect is predominant among younger women. See Summers and Clark, "The Demographic Composition." A recent paper that attempted to distinguish between the behavioral response of married women to short- and long-run market conditions did find some evidence of an added worker response among married women. See Olivia S. Mitchell, "The Cyclical Responsiveness of Married Females Labor Supply: Added and Discouraged Worker Effects," in *Industrial Relations Research Association, Proceedings of the Thirty-second Annual Meetings* (Madison, Wis-

consin, 1980), pp. 251-57.

³⁸ Formally, the procedure is:

- a) November 1973 participation rate times the March 1975 female civilian noninstitutional population equals the adjusted labor force;
- b) Subtraction of the actual March 1975 labor force from the adjusted labor force equals the "extra" number unemployed;
- c) Subtraction of the extra number unemployed from the actual number unemployed equals the adjusted number of unemployed persons; and
- d) Dividing the adjusted unemployed by the adjusted labor force yields the adjusted rate of unemployment.

Mexican repatriation during the Depression

Mexican migration to the United States virtually stopped during the Great Depression of the 1930's. Public hostility rose against alien labor, and unemployed native workers eagerly grabbed for jobs previously held only by Mexicans. In the period from 1931 to 1934 more than 350,000 Mexicans were repatriated, and during the remainder of the decade Mexican emigrants generally found themselves unwelcome. The Depression had ended an exodus to the United States. This is shown in U.S. figures, imperfect as they may be from 1901 to 1930 about 728,000 Mexican immigrants were legally admitted to the United States, but in the decade from 1931 to 1940 only some 23,000 Mexican immigrants were admitted. The number of unregistered migrants who settled on the United States side of the border during the 1901-30 period was probably over a million, but many of these returned during the crisis of the Depression, some attracted by the repatriation efforts of the Mexican government.

—ARTHUR F. CORWIN, ED.,

Immigrants—and Immigrants: Perspective on Mexican Labor Migration to the United States
(Westport, Conn., Greenwood Press, 1978), (Contributions in Economics and Economic History, 17.) p. 53.
