The employment shift to services: where did it come from?

Services did not gain all of its jobs from those lost in the agriculture and goods-producing sectors; employment growth stemmed largely from expansion of the labor force, particularly the increased participation of women

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The decline in manufacturing employment associated with the recent recession, coupled with the continued growth of services, has renewed interest in the distribution of employment among the three major sectors—agriculture, goods-producing, and service-producing industries. While the U.S. economy has been a "service economy" for more than 30 years, the increasing shift from goods production to services has raised fears about a possible national "deindustrialization."[1] These fears have been manifest in speculation on many aspects of employment policy, ranging from the impact on earnings and potential economic growth to the future of work.

Much of the current discussion has focused on the potential negative consequences of the continuing shift of employment to services, ignoring the fact that, in the past, such growth has been closely associated with economic progress and the rise in per capita GNP. This association has been so strong that the growth of the services sector often has been considered an indicator of the stage of economic development, and the relative importance of the three major sectors has been used to demarcate different stages of that development. Since the work of Allen Fisher and Colin Clark in the 1930's, it generally has been assumed that economic development results in a shift of employment from agriculture to goods-producing industries and finally to services.[2]

Although the movement away from agricultural employment can be readily explained by the combination of rising productivity and limited appetites, the cause of the changing relationship between the goods-producing and service-producing sectors remains more complex and problematical.

Given the interdependence of the goods and services sectors, the growth of each is somewhat related to growth in the other. Thus, greater production and consumption of goods require the development of numerous services, from transportation to retail sales outlets, as well as repair services. Furthermore, many business or producer services provide inputs which contribute to the production of goods. Indeed, Ronald Shelp has argued that the "development of the service sector can and should encourage the growth in manufacturing."[3] To a degree, then, the growth of both sectors is complementary.

Suggested explanations for the faster growth of services employment include changes in the demand for goods and services as a result of rising incomes and relative price movements, slower productivity growth in services, the increasing participation of women in the labor force since World War II, and the growing importance of the public and nonprofit sector in general.[4] But no consensus exists on the relative importance of the above factors in developing an adequate explanation of the sectoral shifts in employment.

In spite of the difficulties in explaining intersectoral shifts, there is a strong empirical correlation between economic progress as measured by the growth in per capita GNP and the services sector's share of total employment.[5] Maurice Lengelle has suggested a useful method for classifying coun-

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tries into different stages of economic development based on the rate of growth of the service sector and intersectoral shifts in employment. He argues that the industrial sector is the major source of employment growth in the service sector for the most advanced industrial societies. In the previous stage, agriculture had been the major contributor.[6]

It is important to note that Lengelle refers to *shifts* of workers from one sector to another. He clearly states that he is not referring to *actual* migrations but to *relative* or proportional changes in employment distributions. That is, the shift from goods to services is a result of the relative, rather than absolute, decline of employment in the goods sector. Based on this interpretation, Lengelle concluded that the U.S. economy reached the highest stage of economic development as early as the middle 1950's.[7]

This article examines intersectoral employment shifts since 1952. Component industries within the services sector are examined in some detail to determine which industries have contributed the most to its growth. The analysis is based primarily on data from the Current Population Survey, a national sample survey of 60,000 households conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics.[8]

Because of the heterogeneous character of the services sector, the economic impact can vary considerably, depending on whether growth has been in industries comprising mainly labor-intensive and unskilled jobs, or in capital-intensive industries with highly skilled jobs. The actual causes of the employment shifts and their impact on GNP growth are beyond the scope of this article.

Three major sectors

While there has never been a consensus, many analysts divide the economy into three major sectors—agriculture, goods, and services. BLS generally uses a two-sector break, with agriculture either not included at all or included as part of goods. There is even more disagreement on the actual composition of the sectors. Discussion focuses on the lack of an adequate definition of services,[9] but similar problems exist for the other two sectors. For instance, mining has often been combined with agriculture in a primary or extractive sector, and forestry and fisheries are sometimes placed in the services sector rather than in agriculture.

A more significant disagreement concerns the placement of the transportation, communications, and public utilities division. All or part of this division is often included in the goods-producing sector. Public employees sometimes are listed in a government division of the service sector and at other times are included in the industry in which they work (for example, public employees in construction would be included in the construction industry within the goods-producing sector).[10]

A major problem in determining the composition of the sectors is that certain features may not be shared by all industries in the sector. This is especially true of the services sector, which has become more heterogeneous over time. For example, while services in general may be less capital intensive and have slower productivity growth than goods-producing industries, just the opposite is the case for many individual industries within the sector.[11]

Table 1. Distribution of employment by major sector, 1850–1982

(In percent)

Year	Agriculture	Goods-producing	Service-producing
1850	64.5	17.7	17.8
1860	59.9	20.1	20.0
1870	50.8	25.0	24.2
1880	50.6	25.1	24.3
1890	43.1	28.3	28.6
1900	38.0	30.5	31.4
1910	32.1	32.1	35.9
1920	27.6	34.6	37.7
1930	21.8	31.7	46.6
1940	18.3	33.1	48.6
1952	11.3	35.5	53.3
1957	9.8	34.3	56.0
1962	7.8	33.1	59.1
1967	5.3	34.7	60.1
1972	4.4	31.4	64.2
1977	3.7	29.7	66.6
1979	3.6	30.2	66.3
1982	3.6	27.2	69.2

In the following analysis, the composition of the three sectors is based on the industrial classification used in the CPS and derived from the decennial census. Agriculture includes forestry and fisheries; the goods-producing sector includes mining, construction, and manufacturing; all remaining industries are included in services. Government employees are included in the industry in which they work, with only public administration listed separately as a division in the services sector.

Continuous growth in services

The sectoral distribution of employment over time is presented in table 1.[12] Since 1850 (the earliest available date for data on the service sector), agriculture's share of total employment has declined steadily, while the services sector has exhibited almost continuous increases. The services sector grew by more than threefold over the period, and accounted for about 70 percent of total employment in 1982. Agriculture declined from the major employment sector to only 4 percent of total employment in 1982. The goods sector increased its share of total employment through 1952; since then it has declined to about one-fifth of total employment in 1982.

While the goods sector has shown a relative decline over the past 30 years, actual employment in this sector increased through 1979, to about 30 million. During the 1980–82 period, employment decreased by almost 3 million, primarily a result of the 1980 and 1981–82 recessions. (Growth of the goods sector has resumed with the economic expansion in 1983.)

Between 1952 and 1982, the actual level of employment in agriculture declined by about 50 percent to 3.6 million, and employment in the goods sector showed a modest gain of about 25 percent. In spite of the goods sector's gain in employment, its share of total employment declined from 36 to 27 percent, as the services sector grew at a much faster rate, doubling to about 69 million to make up more than two-thirds of total employment. Not all industries in the services sector exhibited such spectacular growth. Transportation, communication, and public utilities grew rather modestly—at about the same rate as the goods sector—while trade and public administration increased at a somewhat greater pace. In contrast, employment in finance, insurance, and real estate nearly tripled over the period, and service division employment was up two and a half times.

Table 1 can be used to examine Lengelle's thesis that the proportional expansion of the service sector in recent years has primarily resulted from the relative decline in the goods sector, rather than in agriculture.[13] This is done by comparing changes in each sector's share of total employment for different time periods. However, calculations of these relative shifts in employment are extremely sensitive to the actual years chosen for comparison. This is especially true for the goods sector because of the much greater cyclical movement in this series. Thus, while goods employment has generally been declining, relatively speaking, since the early 1950's, there have been short periods of growth during cyclical upswings in the economy. An examination by individual year shows that the goods sector's share of employment tended to fluctuate between 33 and 35 percent for much of the period from 1952 to 1967. The following tabulation shows relative shifts in employment in the major sectors for 5-year intervals between 1952 and 1982:

	Agriculture	*Goods*	*Services*
1952–57	−1.5	−1.2	2.7
1957–62	−2.0	−1.2	3.1
1962–67	−2.5	1.6	1.0
1967–72	−0.9	−3.3	4.1
1972–77	−0.7	−1.7	2.4
1977–82	−0.1	−2.5	2.6

While the relative decline in agriculture exceeded that of the goods sector for each of the three intervals from 1952 to 1967, the goods sector actually increased its share from 1962 to 1967.

There appears to be a sharp change in the late 1960's. Since 1967, the relative decline in the goods sector has surpassed that in agriculture by a substantial margin. This is a result of both the slower absolute growth of employment in the goods sector and the fact that the agricultural share of employment appears to have stabilized at a fairly minimal level.

It is reasonable, therefore, to divide the period into two sections. Prior to 1967, the employment shift to the services sector was primarily the result of the relative decline in agriculture. Since 1967, the relative decline of employment in the goods sector has contributed the most to the shift. However, as noted, employment since 1980 has been significantly affected by the cyclical downturn in the goods sector. To avoid basing conclusions about long-term trends on the short-term effects of the business cycle, the analysis of the employment shift to services will exclude the 1980 and 1981–82 recessionary periods. From 1967 to 1979, the goods sector's share of employment declined 4.5 percentage points, compared with a decline of only 1.7 points for agriculture. This is in sharp contrast to the period from 1952 to 1967 when agriculture declined 6 points, versus a 0.8-point decline in the goods sector.

It is possible to quantify the extent of the shift to services by comparing the actual employment level in a sector for a particular year with the level that would have been required for the sector to account for the same share of total employment as it did in an earlier year. Industries which have grown faster than average (thus increasing their share of total employment) show a relative gain, while those which have grown slower than average show a relative loss, even if they experienced positive growth. This procedure yields an estimate of the size of relative employment gains and losses, which is not apparent from a simple comparison of growth rates. For instance, the level of employment in the goods sector was 21.7 million in 1952, or 35.5 percent of the total. If the sector had maintained its same share in 1967, employment would have grown to 26.4 million. Instead, employment increased only to 25.8 million, a relative "loss" of 0.6 million jobs. Similar calculations can be made for the other sectors. The relative gains and losses in millions of employees for the three sectors and two time periods are presented in the following:

	1952–67	*1967–79*
Agriculture	−4.5	−1.7
Goods-producing	−0.6	−4.5
Service-producing	5.1	6.1

It is possible that the calculations might overstate the extent of the shift to services because they are based solely on employment and do not take into account differences in hours worked in each sector. For instance, the more rapid growth of employment in the service sector might partly result from a decline in the average hours worked per employee. A correction for this effect can be made by using a Commerce Department series which converts part-time employees to full-time equivalents.[14] An examination of this series confirms the trends discussed above. The percentage distribution of employment, adjusted for full-time equivalents, in 1952 and 1979 are presented below (the 1979 figures are fairly close to those in table 2):

	1952	*1979*
Total	100.0	100.0
Agriculture	9.9	3.4
Goods-producing	35.9	29.6
Service-producing	54.3	67.0

Table 2. Estimated employment shifts by sector and industry, 1967–79

[In thousands]

Sector and industry	1967 actual	1979 actual	1979 with 1967 distribution	Relative gain or loss
Total	74,375	98,824	—	—
Agriculture	3,927	3,508	5,218	−1,710
Goods-producing	25,781	29,797	34,252	−4,455
Mining	553	901	731	170
Construction	4,529	6,437	6,018	419
Manufacturing	20,699	22,459	27,503	−5,044
Service-producing	44,667	65,518	59,354	6,164
Transportation, communication, and public utilities	4,882	6,529	6,483	46
Transportation	2,811	3,770	3,736	34
Communication	987	1,403	1,314	89
Public utilities	1,084	1,354	1,443	−89
Trade	13,901	20,101	18,470	1,631
Wholesale	2,553	3,862	3,390	472
Retail	11,349	16,240	15,081	1,159
Eating and drinking establishments	2,250	4,235	2,994	1,241
Finance, insurance, and real estate	3,514	5,902	4,664	1,238
Finance	1,407	2,425	1,868	557
Insurance	1,338	1,871	1,779	92
Real estate	769	1,605	1,018	587
Services	18,169	27,835	24,143	3,692
Business and repair	2,063	3,717	2,737	980
Personal	4,439	3,894	5,900	−2,006
Entertainment and recreation	675	1,054	899	155
Professional services	10,992	19,170	14,606	4,564
Health	3,802	6,990	5,050	1,940
Education	5,178	7,974	6,878	1,096
Legal	349	701	464	237
Welfare and religious	746	1,563	988	575
Public administration	4,201	5,151	5,584	−433
Postal	726	687	968	−281
Other Federal	1,523	1,615	2,026	−411
State	603	927	800	127
Local	1,062	1,923	1,789	134

The relative shifts for the two time periods were also examined and found to confirm the finding that the relative decline of the goods sector exceeded that of agriculture only in the latter period. These general trends, therefore, appear to be independent of any changes in the hours worked.[15]

Analysis of employment shifts

Relative employment shifts for the 1967–79 period by industry are provided in table 2. The goods sector accounted for more than 70 percent of the shift to services during this period, having absorbed a relative loss of 4.5 million jobs, compared with a 1.7-million loss in agriculture. A more detailed analysis brings out several interesting points.

First, manufacturing accounted for the entire decline in the goods-producing sector, as both mining and construction posted increases. Mining, although accounting for a very small proportion of total employment, was among the fastest growing industries. And the relative loss of 5 million jobs in manufacturing occurred despite an actual increase of 2 million employees during this period.

There is also, as expected, considerable diversity among the various industries in the service-producing sector. The relative loss of 2 million jobs in the personal service industry was greater than the total loss in agriculture. Other industries in the services sector which experienced a relative loss of jobs were public utilities (−0.9 million), postal employment (−0.3 million), and Federal public administration (−0.4 million). And the sizable increase in retail trade was due entirely to employment growth in eating and drinking establishments.

At the division level, the services industry was by far the most dynamic. In spite of the substantial relative decline in personal services, this division gained 3.7 million employees, equal to about 60 percent of the total shift to the services sector. Professional and related services alone gained about 4.6 million jobs. Its two biggest components, health and educational services, contributed the most to this growth, with welfare and religious organizations also showing a sizable gain.

Table 2 also illustrates that the contribution of an industry to intersectoral shifts in employment depends as much on its relative size as on its growth rate. Thus, educational services and State public administration both grew about 54 percent between 1967 and 1979, yet the former showed a relative gain of 1.1 million employees, while the latter gained only a modest 127,000. Legal services grew almost twice as fast as educational services and State public administration, but the small size of the industry limited its relative gain to only 237,000.

Seven industries gained at least a half million employees over the 1967–79 period: health services; eating and drinking establishments; educational services; business and repair services; real estate; welfare and religious organizations; and finance (banks, security and commodity brokers, and so forth). There are obviously considerable differences in the characteristics of these industries. In terms of broad functions, three provide mainly producer services (business and repair, real estate, and finance); three are social services (health, education, and welfare and religious organizations); and one is a distributive service (eating and drinking establishments). The diversity in these industries partly explains why there is no single causal explanation for the growth of the service sector. The growth of producer services is closely related to the changing needs of the industries they service, and at least partly reflects a substitution effect. Work previously done within a firm is now contracted out to companies specializing in those services. In contrast, the growth of social services has more to do with changing demographics and public policy, while the growth of distributive services has much to do with population increases and changes in family impacts on labor force participation patterns.

Role of public employment

The expansion in government employment has played a significant role in the development of the services sector. Table 3 provides a breakdown of public employment by

sector and industry for 1967 and 1979. Almost all of the increase in government employment during this period occurred at the State and local level, Federal employment being fairly stable. In 1979, 95 percent of all public employees worked in the services sector, up slightly from 92 percent in 1967. Furthermore, in 1979, three industries in the sector—health, education, and public administration—accounted for 83 percent of total government employment. Thus, while government expenditures might have a more diverse impact, the employment effect was highly concentrated. Outside of the services sector, government employment actually declined between 1967 and 1979, from about 900,000 to about 750,000.

Public employment has contributed to the shift to services, both by its growth in that sector and its decline in the rest of the economy. Its impact can be isolated by dividing total employment in each sector into its private and public components and calculating the relative gains and losses for each separately. In the services sector, government contributed about 1.2 million to the total relative gain of 6.2 million, or about 20 percent of the total shift. In the agriculture and goods sectors combined, the absolute decline in public employment resulted in a relative loss of about 500,000 jobs.

Of the three industries (health, education, and public administration) which account for most of public employment, public administration actually showed a relative loss of jobs since 1967. Hence, any analysis of the government impact on the shift to services should focus on health and education. Interestingly, the public component of each industry has been growing at a slower rate than the private share. In the health industry, private employment almost doubled between 1967 and 1979, while public employment rose by a comparatively modest 50 percent. This was true, to a lesser extent, in education, where private employment growth was 70 percent, compared with 50 percent for public employment. It should be noted here that the private sector in both industries is heavily dependent on government expenditures and subsidies, which include government medical insurance programs (medicare and medicaid), subsidies to education, student loan programs, and similar expenditures. This makes it difficult to isolate the contributions of the public and private sectors.

The government has also had a major impact on welfare organizations. Government employment in this area increased twelvefold, from 45,000 to more than 600,000, and accounted for about two-thirds of the total increase in the welfare and religious organization group.

Table 3. Government employment by sector and industry, 1967 and 1979 annual averages

[Numbers in thousands]

Sector and industry	1967		1979	
	Number	Percent of industry employment	Number	Percent of industry employment
Total employment	74,375	100.0	98,824	100.0
Government employment	11,170	100.0	15,665	100.0
Agriculture	60	1.5	109	3.1
Goods-producing	834	3.2	651	2.2
Mining	0	0	1	0.1
Construction	618	13.7	513	8.0
Manufacturing	216	1.0	137	0.6
Service-producing	10,276	23.0	14,905	22.8
Transportation, communication, and public utilities	536	11.0	845	12.9
Trade	61	0.4	102	0.5
Wholesale	3	0.1	3	0.1
Retail	57	0.5	99	0.6
Finance, insurance, and real estate	84	2.4	133	2.3
Services	5,394	29.7	8,674	31.2
Business and repair	13	0.6	31	0.8
Personal	12	0.3	10	0.3
Entertainment and recreation	72	10.7	107	10.2
Professional and related	5,297	48.2	8,524	44.5
Health	1,107	29.1	1,625	23.3
Education	4,119	79.5	6,192	77.7
Welfare and religious	45	6.0	603	38.6
Public administration	4,201	100.0	5,151	100.0

Origin of 'new' employment in services

The analysis thus far has examined changes in the relative strengths of the three sectors. This approach did not show the actual source of employment growth in the services sector. To examine the source, it is necessary to look at the movement of workers between the three sectors and from outside employment (either from outside the labor force or from unemployment status). These labor flows can be examined through the use of matched data from the March Current Population Survey. There are several problems associated with using matched data as a longitudinal data base. Of prime importance is the attrition in the sample from one year to the next. This can be the result of a variety of factors, such as change in residence, nonresponse, or death. Furthermore, persons who change answers to questions on which the match is keyed (such as race or sex) are also lost to the sample.[16] Keeping these limitations in mind, with matched data, a person's status in one year can be compared with his or her status in the previous year, providing some measure of actual intersectoral employment shifts. More specifically, these flows can help to illustrate the actual source of "new" employees in the service sector, that is, whether they previously worked in the goods or agriculture sectors or did not work the previous year.

Table 4 summarizes data from a March 1978–79 matched file of the CPS that provides employment information for 1977–78. The total sample for this match was 37,348. The data show the percentage distribution of employment in 1978 by the sector of employment in 1977. For example, about three-fourths of those employed in agriculture in 1978 had worked in that sector in 1977, 5 percent had worked in the goods sector, 11 percent in services, and 9 percent did not work at all.

Table 4. Employment status in 1978 by status in 1977

[Percent distribution]

1977 employment	1978 employment			
	Agriculture	Goods-producing	Service-producing	Did not work
Total (in thousands)	1,126	7,091	16,593	12,538
Percent	100.0	100.0	100.0	100.0
Agriculture	74.7	1.1	1.2	1.4
Goods-producing	5.0	80.0	4.5	3.2
Service-producing	11.1	14.5	85.6	10.2
Did not work	9.2	4.4	8.8	85.2
Men	100.0	100.0	100.0	100.0
Agriculture	80.8	1.2	1.4	2.6
Goods-producing	5.0	82.3	6.7	6.2
Service-producing	9.1	13.6	87.1	10.3
Did not work	5.1	2.9	4.8	81.0
Women	100.0	100.0	100.0	100.0
Agriculture	54.6	0.7	1.0	0.9
Goods-producing	5.0	73.3	2.6	2.1
Service-producing	17.6	17.3	84.2	10.2
Did not work	22.9	8.7	12.2	86.9

The table clearly illustrates the considerable movement between sectors and into and out of employment, although a majority of people maintained the same status in both years. Thus, at least 15 to 25 percent of the workers in each sector in 1978 were "new" workers, being previously employed in a different sector or not employed at all. The marginal contribution of agriculture as a source of "new" employees is also evident; it accounted for only about 1 to 2 percent of new employees in each of the other sectors. (Clearly, its contribution to the other two sectors was much greater earlier in the century.)

Of particular interest, therefore, is the contrast in the source of new employees for the goods and services sectors. In the goods sector, new employees were three times as likely to have worked in the services sector in the previous year than to have not been working. Just the opposite relationship holds for the services sector, where new employees were twice as likely to not have worked at all in the previous year than to have worked in goods producing.

The contrast between the two sectors is even greater when data for men and women are examined. Both men and women in the goods sector were more likely to have been employed the previous year in services than to have been not employed, although this tendency was stronger for men than for women. In the services sector, on the other hand, there was a clear difference between men and women, with men more likely to have been employed the previous year in the goods sector. This is in sharp contrast to the situation among women where, by a 6-to-1 ratio, they were more likely to have not worked at all in the year before.

The disproportionate contribution of the movement from not employed to employment in services can be illustrated by examining only those workers employed in 1978 who were not employed in 1977. The following tabulation shows the percentage distribution of these new workers by sector:

	Total	*Agriculture*	*Goods*	*Services*
Both sexes	100.0	5.5	16.8	77.7
Men	100.0	7.8	27.3	64.9
Women	100.0	4.6	12.3	83.2

Of the total new workers, about 78 percent found employment in the services sector, compared with only 17 percent in goods and 6 percent in agriculture. This tendency was even stronger among women, with about 83 percent finding employment in services, compared with about 65 percent for men. (Women accounted for three-fourths of all "new" employees.)

While no firm conclusions can be drawn from only one set of matched data, the above results are consistent with the conclusions based on historical data which show that the employment shift to services does not stem from an actual migration of workers from one sector to another but rather results from the expansion of the labor force and especially the increasing participation of women. Since 1967, women have accounted for about 60 percent of the total growth in the labor force.[17]

Recent trends

As mentioned earlier, employment trends since 1979 have been heavily influenced by the recessions of 1980 and 1981–82. The percentage change in the actual employment in each major sector and service division is shown in the following:

	Percent change, 1979–82
Total	0.7
Agriculture	1.8
Goods-producing industries	−9.2
Service-producing industries	5.1
Transportation, communications, and public utilities	0.4
Trade	3.3
Finance, insurance, and real estate	6.2
Services	8.1
Public administration	1.3

While employment in the goods sector declined 9.2 percent to 27.1 million, agricultural employment actually increased 1.8 percent to 3.6 million, and the services sector rose 5.1 percent to 68.9 million. As a result of these movements, the agricultural sector maintained its share of total employment at 3.6 percent, while the goods sector declined to 27.2 percent and services increased to 69.2 percent.[18]

Not all of the seven industries mentioned earlier that contributed greatly to the shift to services fared equally well during the 1980–82 period. Health services (up 11.7 percent), business and repair services (19.8 percent), eating and drinking establishments (11.6), and finance (14.9) all continued their rapid expansion. However, as a result of the recession and the decline in housing sales, employment in real estate posted a decline of 5.7 percent. Education and

welfare and religious organizations increased only marginally. Also of interest, when eating and drinking establishments are excluded, retail trade showed a slight decline.

The cyclical decline in employment in the goods sector in the 1979–82 period does not necessarily suggest that the U.S. economy has entered a new stage—one where the shift to services is based on an absolute, rather than relative, decline in the goods sector. That process has been called "deindustrialization." The contrasting sensitivity to the business cycle of the goods and the services sectors affects employment patterns in the recovery as well as in the recession. The following tabulation provides average annual percent changes in employment for periods of expansion and contraction in the goods and services sectors from the cyclical peak in November 1948 through the peak of July 1981:[19]

	Expansion	*Contraction*
Goods-producing	3.33	−8.49
Service-producing	3.29	0.39

The major contrast is that during economic contractions, employment in services continued to expand. However, during economic expansions, employment growth has been at about the same pace in both sectors.

While the early years of the 1980's have witnessed an absolute decline in employment in the goods sector, fears about "deindustrialization" appear premature because the employment figures were dominated by the 1980 and 1981–82 recessions, which had a disproportionate impact on the goods sector. It is still too early in the current recovery to draw firm conclusions, but the goods sector increased 7 percent during the first 12 months of expansion since the recessionary trough in November 1982, compared with a 3-percent growth in the service sector. Given the past performance of the goods sector during economic recoveries, one can expect further absolute growth, although growth probably will not be sufficient to prevent a further relative employment shift to services.

THE SHIFT TO SERVICE EMPLOYMENT since the late 1960's reflects primarily a relative decline in the goods sector rather than in agriculture. Between 1967 and 1979, there was a relative shift of more than 6 million jobs to the service sector, with almost three-fourths of the jobs coming from the goods sector.

Actual labor force flows indicate that despite this shift, there has been no real net migration of workers from the goods to the services sector. Rather, the primary source of new employees in the services sector was the employment of women who had previously not held jobs. □

———*FOOTNOTES*———

[1] For more discussion of this topic, see James Cook, "You mean we have been speaking prose all these years?" *Forbes*, Apr. 11, 1983, pp. 142–49; and Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (New York, Basic Books, 1982).

[2] Colin Clark, *The Conditions of Economic Progress* (London, MacMillan, 1940); and Allan G. B. Fisher, *The Clash of Progress and Security* (London, McMillan, 1935). For a dissenting view, see Joachim Singlemann, *From Agriculture to Services* (Beverly Hills, Sage Publications, 1978).

[3] Quoted in James Cook, "So what's wrong with a service economy?" *Forbes*, Aug. 30, 1982, p. 66.

[4] For a discussion of these issues, see Victor Fuchs, *The Service Economy* (National Bureau of Economic Research, 1963); Thomas Stanback, Jr., *Understanding the Service Economy* (Baltimore, Md., Johns Hopkins University Press, 1979); Eli Ginsberg and George Vojta, "The service sector of the U.S. economy," *Scientific American*, March 1981, pp. 48–55; and P. H. Mirvis and E. J. Hackett, "Work and the work force in the nonprofit sector," *Monthly Labor Review*, April 1983, pp. 3–12.

[5] See Victor Fuchs, "Economic growth and the rise of service employment," Reprint No. 257 (National Bureau of Economic Research, 1982).

[6] Maurice Lengelle, *The Growing Importance of the Service Sector in Member Countries* (Paris, Organization of Economic Cooperation and Development, 1966), pp. 8–9.

[7] However, Lengelle does not rule out the possibility that countries in this stage could also experience an absolute decline of employment in the goods sector, that at some point the continued growth of services could result in or be the cause of the "deindustrialization" of the economy.

[8] Data on the industrial distribution of employment are available from both the Current Population Survey of households (CPS) and the Current Employment Statistics program (CES, or establishment survey). While the CES provides a more detailed industrial breakdown of employment and has a longer history, it does not include agricultural employment or those workers who are self-employed. Because the following analysis will cover total employment in all three sectors, the primary source of data will be the CPS.

[9] For more discussion of the problems in defining services, see Ronald Kent Shelp, *Beyond Industrialization: Ascendency of the Global Service Economy* (New York, Praeger Publishers, 1981), pp. 10–13.

[10] Such differences in the composition of the sectors do not appear to have a serious impact on long-term trends. See, for example, Fuchs, "Economic growth," p. 222.

[11] For more discussion of these issues, see R. E. Kutscher and J. A. Mark, "The service-producing sector: some common perceptions," *Monthly Labor Review*, April 1983, pp. 3–12; and J. A. Mark, "Measuring productivity in service industries," *Monthly Labor Review*, June 1982, pp. 3–8.

[12] Data for 1850 through 1940 are from *Historical Statistics for the United States, Colonial Times through 1970* (U.S. Department of Commerce, 1975), Series D 152–166, p. 138. The industrial distribution for these years is based on the concept of "gainful work" rather than employment. For a discussion of the difference in these concepts see page 123. CPS data for the years 1952 through 1962 include 14- and 15-year-olds.

[13] Lengelle concluded that the United States belonged in group four as early as the mid-1950's, but he excluded transportation from services. See Lengelle, *The Growing Importance*, p. 12.

[14] Full-time equivalents are calculated by multiplying the number of part-time employees by the ratio of the average weekly hours of part-time to full-time employees. If a full-time workweek is 40 hours and there are two employees working 20 hours, then they would equal one full-time equivalant, that is, 2 × 20/40 = 1. Computations of sectoral shifts from this series are based solely on civilian employment.

[15] Estimates of the relative shifts in employment from the persons engaged series are as follows:

	1952–67	*1967–79*
Agriculture	*−3.7*	*−1.2*
Goods-producing	*−1.7*	*−3.5*
Service-producing	*5.5*	*4.7*

Given the slight differences that exist in classification of industries, estimates from the two series are a fairly close match.

[16] For a discussion of the use of matched data, see Robert W. Bednarzik and Richard M. Devens, ed., *Using the Current Population Survey as a Longitudinal Data Base*, Report 608 (Bureau of Labor Statistics, 1980).

[17] Data from March 1975–76 and March 1980–81 matched files were also examined and supported the above analysis. For more on the contribution of women, see Fuchs, "Economic growth."

[18] For more on the performance of the manufacturing industries during the period 1979 to 1982, see Diane Nilsen, "Employment in durable goods anything but durable," *Monthly Labor Review*, February 1984, pp. 15–24.

[19] The average annual percent changes were calculated as follows: the rate of change for an expansion is measured from a 3-month average centered on a trough to a 3-month average centered on the peak. The percentage change is divided by the number of months from trough to peak and multiplied by 12 to provide an annual average. A similar procedure is used for contractions.

ERRATUM

Because of a typographical error, a tabular entry is incomplete in Philip L. Rones' article, "Recent recessions swell ranks of the long-term unemployed," in the February issue. The full entry in table 3, p. 28, should read "Finance and services." A corrected version of the table appears below.

Table 3. The long-term unemployed by selected characteristics, June 1979 and June 1983, not seasonally adjusted

[Numbers in thousands]

Characteristic	Total unemployed		Unemployed 15 weeks or longer								Unemployed 27 weeks or longer							
			Total		Percent of unemployed		Percent of labor force		Percent distribution		Total		Percent of unemployed		Percent of labor force		Percent distribution	
	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983	June 1979	June 1983
Total	6,235	11,570	1,085	4,447	17.4	38.4	1.0	3.9	100.0	100.0	492	2,842	7.9	24.6	.5	2.5	100.0	100.0
Men	2,993	6,498	601	2,939	20.1	45.2	.9	4.6	55.4	66.1	288	1,934	9.6	29.8	.5	3.3	58.5	68.1
Women	3,242	5,072	484	1,507	14.9	29.7	1.1	3.1	44.6	33.9	204	908	6.3	17.9	.5	1.9	41.5	31.9
16 to 19 years	2,034	2,527	136	313	6.7	12.4	1.2	3.2	12.5	7.0	44	148	2.2	5.9	.4	1.5	8.9	5.2
20 to 24 years	1,441	2,478	233	814	16.2	32.8	1.5	4.9	21.5	18.3	91	458	6.3	18.5	.6	2.7	18.5	16.1
25 to 54 years	2,372	5,780	589	2,889	24.8	50.0	.9	4.0	54.3	65.0	284	1,938	12.0	33.5	.5	2.7	57.7	68.2
55 years and over	389	785	128	431	32.9	54.9	.9	2.9	11.8	9.7	73	299	18.8	38.1	.5	2.0	14.8	10.5
White	4,677	8,598	790	3,317	16.9	38.6	.9	3.4	72.8	74.6	329	2,104	7.0	24.5	.4	2.1	66.9	74.0
Black	1,421	2,599	273	997	19.2	38.4	2.6	8.3	25.2	22.4	119	657	8.4	25.3	1.1	5.5	24.2	23.1
Hispanic origin	432	896	70	240	16.2	26.8	1.4	3.8	6.5	5.4	26	155	6.0	17.3	.5	3.0	5.3	5.5
Construction	456	919	97	438	21.3	47.7	1.6	7.0	8.9	9.8	32	262	7.0	28.5	.5	4.2	6.5	9.2
Manufacturing	1,158	2,500	304	1,429	26.3	57.2	1.3	6.4	28.0	32.1	128	1,006	11.1	40.2	.6	4.5	26.0	35.4
Durable goods	611	1,602	182	993	29.8	62.0	1.3	7.5	16.8	22.3	84	703	13.7	43.9	.6	5.3	17.1	24.7
Primary metals	32	195	10	142	31.3	72.8	.8	14.0	.9	3.2	7	115	21.9	59.0	.5	11.4	1.4	4.0
Autos	54	137	18	91	33.3	66.4	1.3	8.4	1.7	2.0	7	73	13.0	53.3	.5	6.7	1.4	2.6
Nondurable goods	547	898	121	436	22.1	48.6	1.3	4.9	11.2	9.8	44	303	8.0	33.7	.5	3.4	8.9	10.7
Trade	1,304	2,243	195	816	15.0	36.4	1.0	3.8	18.0	18.3	71	448	5.4	20.0	.4	2.1	14.4	15.8
Finance and services	1,462	2,434	258	860	17.6	35.3	.8	2.4	23.8	19.3	134	542	9.2	22.3	.4	1.5	27.2	19.1
Job losers	2,096	6,135	577	3,314	27.5	54.0	—	—	53.2	74.5	265	2,173	12.6	35.4	—	—	53.9	76.5
Job leavers	823	748	143	231	17.4	30.9	—	—	13.2	5.2	61	143	7.4	19.1	—	—	12.4	5.0
Entrants	3,314	4,686	363	884	11.0	18.9	—	—	33.5	19.9	165	522	5.0	11.1	—	—	33.5	18.4