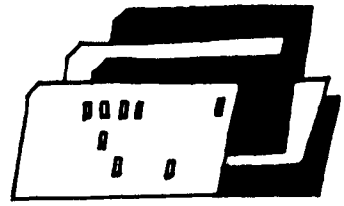
Research Summaries



Industrial structure has little impact on jobless rate of experienced workers

RICHARD M. DEVENS, JR.

Between 1972 and 1985, the proportion of the experienced labor force[1] involved in the production of goods fell from 36 to 31 percent. This trend, frequently cited in discussions of a "post" or "deindustrialized" society,[2] has led some analysts to hypothesize that the changing industrial structure may actually moderate economic recessions.

The notion that growth in the service-producing sector might moderate recessions is based on the observation that industries in this sector have been less cyclically sensitive than those in the goods-producing sector. Geoffrey H. Moore has observed that the 1981–82 recession "can be largely laid at the door of the goods-producing industries. The service industries, in fact, helped to stabilize total employment. This has been their usual role, but since the services' share of total employment is now far larger than it used to be, their stabilizing effect is more powerful, too."[3] This line of reasoning has an appealing logic to it: the more stable sectors are making up a larger share of the economy; therefore, the economy is becoming more stable. However, Moore was referring specifically to employment trends, which, because of a long-term tendency toward growth, may mask some cyclical variations. Thus, between 1972 and 1985, total payrolls grew by 23.9 million, with 95 percent of the growth in the service sector. Had it not been for the vitality of the service-producing sector in the early 1980's, total employment may easily have fallen even more than it did. However, payroll employment usually only pauses or slows down from long-run growth during recessions; therefore, unemployment rates are considered to be a more sensitive measure of cyclical patterns.

This analysis attempts to determine what, if any, effects the changing industrial structure of the experienced labor force has had on its unemployment rates,[4] and the impact of any such changes on the rise in unemployment rates in recessions. If the cyclical moderation hypothesis is correct, the trough to peak rises in the experienced worker unemployment rate will be smaller after an adjustment is made for industrial composition.

The overall change in the experienced worker unemployment rate is decomposed according to the formula:

$$U_T - U_{1972} = \sum_i [(W_{i,\,1972}\Delta U_i) + (U_{i,\,1972}\Delta W_i) + (\Delta U_i \Delta W_i)]$$

U_T is the experienced worker unemployment rate at time t, W_{it} is the labor force proportion of the ith industry, and U_{it} is the unemployment rate for that industry. ΔU_i is the change in the industry unemployment rate from 1972 to the target year and ΔW_i is the change in labor force proportion from 1972 to the target year. The formula can be broken into separate components of change: the three terms on the right side of the equation isolate the pure trend/cycle effect, the direct composition effect, and the interaction effect, respectively.

The trend/cycle effect is the change in the unemployment rate for experienced workers that would have occurred had labor force proportions been unchanged and the industry unemployment rates had changed. As its name reflects, this measure is affected by both the general trend in industry unemployment rates as well as the cyclical timing of the period being analyzed.

The direct composition effect is that part of the overall

Table 1. Unemployment rates of the experienced civilian labor force, and components of change, 1972–85 annual averages
[In percent]

Year	Unemployment rate	Change from 1972			
		Total	Trend/cycle	Industrial composition	Interaction
1972	4.848	–	–	–	–
1973	4.156	−0.692	−0.687	0.000	−0.006
1974	4.871	.023	.029	.000	−.004
1975	7.640	2.792	2.856	−.019	−.044
1976	6.820	1.792	2.016	−.023	−.023
1977	6.132	1.284	1.311	−.018	−.009
1978	5.202	.354	.376	−.020	.000
1979	5.059	.211	.234	−.026	.000
1980	6.350	1.502	1.564	−.023	−.042
1981	6.771	1.923	2.003	−.032	−.050
1982	8.703	3.855	4.059	−.052	−.148
1983	8.609	3.761	3.961	−.049	−.152
1984	6.604	1.756	1.761	−.032	−.083
1985	6.367	1.519	1.657	−.033	−.105

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change in the experienced worker unemployment rate that would have occurred if industry jobless rates had stayed the same, while labor force proportions changed.

The interaction term measures the joint effects of the two changes, including any tendencies for an unemployment rate to rise because of an "in-crowding" of workers that raises an industry's jobless rate or any tendency of workers to transfer between high unemployment and low unemployment sectors, thus either lowering or raising the respective industry labor force proportions.[5]

Data used are annual averages from the Current Population Survey, a monthly survey of about 59,000 households. Calculations are made at the industry division level, with manufacturing separated into its durable and nondurable goods components, for a total of 12 divisions.[6] The results are presented in table 1.

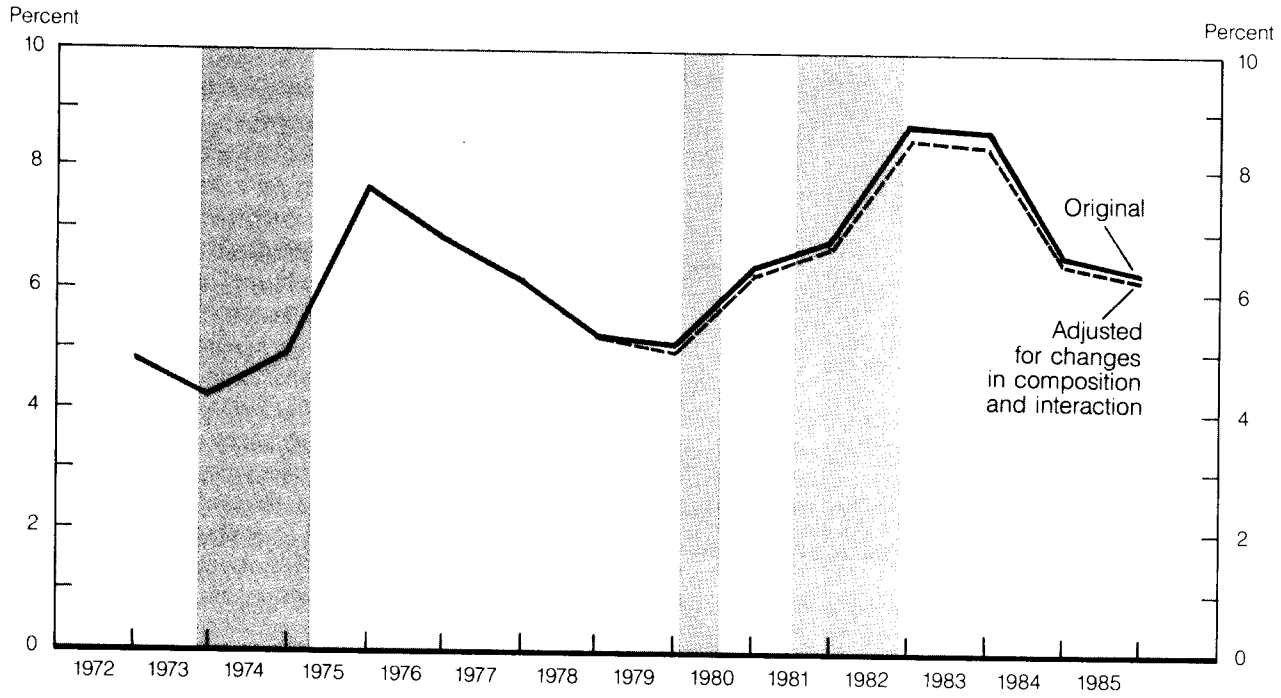
It is quite obvious that during the 1972–85 period, the unemployment rate was little influenced by the industry structure change. In fact, the changing industrial structure, as measured by the direct composition effect, was quite modest in its impact, ranging from zero in 1973 to –.052 percentage points in 1983. The interaction effect was negative or zero in all cases, while the trend/cycle effect had the greatest impact on the unemployment rate of the experienced labor force.

Unemployment rates for the experienced labor force appear in table 2 in original, composition-adjusted, and composition- and interaction-adjusted form (a procedure that assumes that the entire interaction term represents adjustments of labor force weight in response to changes in the industry unemployment rate[7]). All adjustments are based on the 1972 industry labor force distribution.

The unadjusted jobless rate rose 3.48 points (83.9 percent) in the 1973–75 recession. Industry composition change had virtually no effect; after adjusting for the direct composition effect since 1972, the increase was 3.47 points (83.4 percent). Taking into account the interaction term yielded an unemployment rate increase of 3.43 percentage points (82.6 percent) relative to the rate in 1973.

During the 1979–82 recessionary period, the unadjusted rate rose 3.64 points (72.0 percent). (While technically considered to be two complete cycles, the 1979–82 period is analyzed here as a single cycle.) Adjusted for changing composition since 1972, the rise was 3.62 points (71.9 percent). When both the composition and interaction effects were taken into account, the rise was 3.47 points (68.9 percent). Thus, the long-term trend in industry structure change had little effect on either the absolute level of the unemployment rate during these two downturns or on the magnitude of the unemployment rise. The limited impact of

Chart 1. Unemployment rate of the experienced civilian labor force, 1972–85 annual averages



NOTE: Shaded areas are recessionary periods designated by the National Bureau of Economic Research, Inc., Cambridge, MA.

Table 2. Unemployment rates of the experienced civilian labor force adjusted for compositional and interactional changes, 1972–85 annual averages
[In percent]

Year	Original unemployment rate	Adjusted unemployment rates	
		Changes in industrial composition	Changes in composition and interaction
1972	4.848	4.848	4.848
1973	4.156	4.156	4.150
1974	4.871	4.871	4.867
1975	7.640	7.621	7.577
1976	6.820	6.797	6.774
1977	6.132	6.114	6.105
1978	5.202	5.182	5.182
1979	5.059	5.033	5.033
1980	6.350	6.327	6.285
1981	6.771	6.739	6.689
1982	8.703	8.651	8.503
1983	8.609	8.560	8.408
1984	6.604	6.572	6.489
1985	6.334	6.334	6.229

the shift towards service industries is confirmed by chart 1, on which the original data and data adjusted for both composition and interaction have been plotted after rounding to the first decimal point.

The effect on the unemployment rate is so small because of the relative cyclical sensitivity of fast- and slow-growth industries. Unemployment rates for the relatively slow-growth manufacturing divisions are quite sensitive to the cycle. However, although employment levels continue to rise in the service industries, unemployment rates in these fast-growth industries are also sensitive to business cycles. For example, the jobless rate in the rapidly expanding retail trade industry (a major part of the service sector) also rose very sharply during recessions. By 1985, the retail trade industry accounted for almost as much of the experienced labor force as durable and nondurable manufacturing combined, and thus contributed as much weight to the aggregate unemployment rate.

Thus, it is incorrect to assume that all rapidly growing sectors are immune to the business cycle. Certainly, their cyclical sensitivity is more apparent in their unemployment rates than in their employment levels. Therefore, while the moderation hypothesis is intriguing, the empirical effect has been negligible during the past 14 years. □

——FOOTNOTES——

[1] The experienced labor force excludes those who have no previous work experience and, therefore, no attachment to a particular industry. This labor force concept is used because workers without experience cannot be meaningfully classified according to industry.

[2] See for example, Robert Kuttner, "The Declining Middle," *Atlantic Monthly*, July 1983; Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (New York, Basic Books, 1982); Thomas J. Di Lorenzo, "The Myth of America's Declining Manufacturing Sector," *Heritage Foundation Backgrounder* No. 321 (Washington, DC, Jan. 13, 1984); and Ronald E. Kutscher and Valerie A. Personick, "Deindustrialization and the shift to services," *Monthly Labor Review*, June 1986, pp. 3–13.

[3] Quoted in Henry F. Meyers, "The Growth in Services May Moderate Cycles," *The Wall Street Journal*, Sept. 22, 1986, p. 1.

[4] The experienced unemployed are categorized by the industry in which they last worked. This can lead to data classification problems—for example, a worker on layoff from a durable goods manufacturing job who works in a temporary job as a taxi driver would be classified as employed in transportation and public utilities. Despite these technical concerns, industry unemployment rates provide a useful perspective on the structural trends that are the focus of this report.

[5] This section draws heavily on Joseph Antos, Wesley Mellow, and Jack Triplett, "What is a current equivalent of unemployment rates of the past?" *Monthly Labor Review*, March 1979, pp. 36–46.

[6] Industry classification in the Current Population Survey is somewhat different than in the Bureau of Labor Statistics establishment payroll survey in that government employees are categorized by industry—public administration, health, education, and so forth—in the CPS, rather than being aggregated in a single industry.

[7] This assumption, which builds the best case possible for the cycle moderation hypothesis, is at least plausible in light of the consistently negative values of the interaction term.

Cooperative training in telecommunications: case studies

MARGARET HILTON AND RONNIE STRAW

In mid-1986, the Communications Workers of America (CWA) and American Telephone and Telegraph (AT&T) reached agreement on a 3-year contract covering 155,000 workers. The highlight of the new contract was an innovative employment security package that gives the company the flexibility to meet competition while protecting and enhancing the careers of the workers. AT&T will provide $7 million annually to a new jointly-administered corporation, the Alliance for Employee Growth and Development, which will offer career counseling, training, and retraining to both active and laid-off AT&T employees.[1]

All regular full- and part-time employees represented by CWA will be eligible for the joint training programs. In addition, laid-off CWA-represented employees may participate if they enroll within 6 months of layoff and take their severance pay in weekly installments. Laid-off workers will remain eligibile for 1 year after these severance payments expire, or until they find a new job, whichever happens first.

This new agreement represents a major milestone in the history of the U.S. telecommunications industry. Training and retraining will help American industry compete in world markets. For the 650,000 workers represented by CWA, the contract was also a major step forward. Between 1983 and 1986, total employment in telephone communications dropped by 14 percent,[2] as new technology and increased competition caused layoffs. More than half of CWA's members are employed by the seven Regional Bell Operating

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