

The declining middle class: a further analysis

The proportion of employment in higher paying occupations increased for all groups during 1973-82; but the earnings distribution of these occupations shifted to include more lower paying positions

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Some observers argue that jobs in the U.S. economy are shifting from middle paying to low and high paying. Some attribute the shift, or bipolarization, to declining employment in smokestack industries and growth of high tech industries, low paying occupations, and service-producing industries.¹ Others attribute the shift to the movement of the baby-boom generation into the labor market.² Robert Lawrence of The Brookings Institution found bipolarization occurring between 1969 and 1983, and cited the changing age distribution of the labor force as the most compelling explanation.

Other observers argue that, while the events used to explain the bipolarization might be occurring, occupational shifts are not responsible. Neal Rosenthal of the Bureau of Labor Statistics looked at median weekly earnings by occupation and found a slight shift away from the middle paying jobs between 1973 and 1982.³ More importantly, however, he found a decline in the proportion of lower paying jobs, which does not support the notion of bipolarization.

In this article, we replicate Lawrence's and Rosenthal's studies to determine why their respective results differ. We

extended Rosenthal's analysis of occupational employment to the 1973-85 period and to several broad population groups and found, as he did, that the changes in occupational structure—whether caused by changing technologies, changing industrial employment patterns, or other factors—almost always caused a *declining* proportion of employment in lower paying occupations. We extended Lawrence's analysis of earnings distributions to the 1973-85 period and found, as he did, an *increasing* proportion of lower paying jobs. Why do the results of the two analyses differ? Further analysis showed that within occupational earnings groups, the earnings distributions had shifted downward, that is, each group included more lower paying positions.

Several caveats to these discussions should be noted. Discussions of the declining proportion of middle-income earners can focus on changes in the earnings distribution of individuals or changes in the earnings distribution of families. Changes in the earnings distribution of individuals may be caused by changes in the occupational structure of the economy that reflect changes in industrial structure and technology. In addition, changes in the earnings distribution within each occupation and changes in relative earnings among occupations can affect the earnings distribution of individuals. Changes in the earnings distribution of families are affected not only by these same factors but also by changes in family structure. For example, increasing

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numbers of dual-earner families can lead to an increase in the proportion of families with high earnings and increasing numbers of single-person households can lead to an increase in the proportion of families with low earnings.

Issues of the debate

Of the many issues on structural and technological change, the one that currently attracts considerable attention and concern is the changing employment patterns—the employment decline in large heavy manufacturing industries and in blue-collar occupations, and the employment increase in high technology manufacturing and service-producing industries and in white-collar and service occupations. For example, 43 percent of the full-time wage and salary workers were employed in blue-collar and farm occupations in 1973, compared with only 35 percent in 1982.

Apprehension about these changes is widespread. In many countries, rising unemployment is considered the most striking social—perhaps even political—aspect of this structural change. Joyanna Moy has shown that the U.S. economy has proved to be more dynamic than most others, and so the alarm is less about a lack of jobs than about the growing proportion of “wrong types” of jobs.⁴ The focus of the debate on structural change in the United States has been on the apparent loss of middle earnings jobs, which some argue have been replaced by both low and high earnings jobs.

The debate has become more complicated because additional explanations of the apparent bipolarization have been offered and bipolarization is thought to be affecting different population groups unequally. According to Lawrence, men are believed to have borne the brunt of bipolarization; women have not even experienced bipolarization.⁵ Further, Lawrence says the entry of the baby-boom generation into the labor market and the resulting changes in the age distribution of the work force provide a more powerful explanation of bipolarization.

One major problem in this debate is the type of evidence offered. Some put forth anecdotal evidence. Others offer “hard” evidence, but for only a few industries or occupations—for example, the rapid growth of a few very low paying occupations and a few very high paying occupations in the service sector combined with the decline of a few middle paying occupations in the goods-producing sector. However, the evidence usually becomes less compelling when a broader focus is taken.⁶ A few offer systematic or comprehensive data; these observers, however, cannot agree on who comprises the middle class over time. Some use occupations to define the middle class; others use earnings. In this analysis, we use one data base for both the occupational and earnings approaches, and then reconcile the conflicting findings.

Rosenthal’s occupational approach

Like Rosenthal, we analyzed the declining middle-class

thesis using data from the Current Population Survey on usual weekly earnings and on employment of full-time wage and salary workers by detailed occupation. The analysis identifies the effect of changes in occupational structure on the distribution of full-time workers among three earnings groups: low, middle, and high. We revised Rosenthal’s original analysis to ensure a consistent data base for our analysis.⁷ Because of substantial changes in occupational definitions introduced in 1983, shifts between 1982 (and earlier years) and 1985 cannot be measured.

To test the effect of changes in occupational structure on the distribution of workers into low, middle, and high earnings groups between the beginning and ending years, we (1) arrayed the detailed occupations in the ending year by usual weekly earnings and arranged them into thirds (bottom, middle, or top), with each third containing the same number of occupations; (2) summed the number of workers in the occupations in each third and calculated a percent distribution of the employment; and (3) arrayed employment in the beginning year for each occupation in the same order as in the ending year, and calculated the beginning-year percent distribution for each third. Consequently, an occupation was in the same third in the beginning year as it was in the ending year. Rosenthal analyzed 416 detailed occupations for 1973 and 1982; we analyzed 504 occupations for 1983 and 1985. The 1982, 1983, and 1985 data are annual averages; the 1973 data relate only to May.

All full-time workers. If bipolarization were occurring, the proportion of total employment in the middle third would decline between 1973 and 1982, and the bottom and top thirds would show an increase. The following tabulation shows the distribution of employment of full-time wage and salary workers in 1973 and 1982 by usual median weekly earnings in 1982, based on the occupational approach:

	<i>Usual weekly earnings</i>	<i>Percent distribution of employment</i>	
		<i>1973</i>	<i>1982</i>
Top third	\$382 to \$773	25.2	29.0
Middle third	264 to 382	34.2	32.5
Bottom third	71 to 264	40.6	38.5

The share of employment in the top third increased appreciably, the bottom share decreased, and the middle decreased, but less than the bottom third. Based on the declining proportion of employment in the bottom third, we agree with Rosenthal’s conclusion that changes in occupational structure alone from 1973 to 1982, whether caused by technological change, the shift from goods- to service-producing industries, or other factors, do not support the notion of bipolarization.

The following tabulation shows our findings on the distribution of employment in 1983 and in 1985 by usual median

weekly earnings in 1985, based on the occupational approach:

	Usual weekly earnings	Percent distribution of employment	
		1983	1985
Top third	\$439 to \$931	29.5	29.7
Middle third	301 to 439	33.6	34.1
Bottom third	100 to 301	37.0	36.3

The top and middle thirds increased, and the bottom third decreased. The changes in occupational structure since 1983 also are *contrary* to the bipolarization thesis.

Population groups. Have blacks, whites, men, women, youth, and adults all benefited from these occupational trends which have caused a declining proportion of lower paying occupations? To answer this question, we need to identify the changes in occupational structure of full-time workers in the three earnings groups separately for each of the six population groups. To do this, we (1) summed separately by population group the number of workers in each occupation for 1973 and 1982 according to Rosenthal's 1982 rankings for total employment by occupation, and (2) calculated the percent distribution of employment by usual weekly earnings class for each population group. The occupational structure varies considerably by population group and the respective structures are changing. More than half of the youth, women, and blacks who worked full time were in low paying occupations in 1982. (See table 1.) Nearly 40 percent of the men who worked full time were in high paying occupations, compared with only 14 percent of their

female counterparts.

For each group, the share of employment in the top third increased several percentage points between 1973 and 1982. However, only for women did the share of employment increase in the middle third. Men accounted for the largest decline in the share of middle paying occupations. Only younger workers did not experience a decline in the share of employment in the bottom third. Despite the varying patterns among the groups, the shifts in occupational structure of full-time workers do not support the notion of bipolarization, where employment in both the lower paying and higher paying occupations grows as a percent of total employment, while employment in middle paying occupations declines.

Lawrence's earnings approach

In Lawrence's analysis of the declining middle-class thesis, he distributed full-time workers into earnings classes that are a fixed or constant percentage of the median weekly earnings for all full-time workers. With this approach, Lawrence did find evidence of bipolarization between 1969 and 1983.⁸ He said the most compelling explanation for the findings lies in demographic factors, not declining employment in smokestack industries or increasing employment in service industries. Further, he found the shifting age distribution to be the most important demographic factor.

The major difference between the occupational and earnings approaches is how the bottom, middle, and top earnings classes are tracked over time. In the occupational approach, one assumes that the "class" of occupations is stable over time. Thus, we only have to determine to which class an occupation belonged for a given year. In the earnings approach, one assumes that earnings levels which divide classes of workers are a fixed or constant percentage of the median weekly earnings for all full-time wage and salary workers. Thus, we only have to calculate the earnings groups for a given year.

We replicated elements of Lawrence's methodology for the 1973-85 period.⁹ (Because of the changes in occupational definitions in 1983, it is not possible to calculate the 1969-83 shifts with the occupational approach.) Like Lawrence, we used the cps data on usual weekly earnings of full-time wage and salary workers. To measure the changes in employment distribution by earnings groups between 1973, 1982, and 1985, we (1) arrayed the full-time workers in 1982 by usual weekly earnings and arranged them into thirds (bottom, middle, and top), with each third containing about the same number of workers; (2) assumed that the earnings level (or brackets) which divide the earnings groups are the same percentage of the median weekly earnings for full-time workers in both 1973 and 1985 as in 1982; and (3) arrayed the workers in the respective earnings classes in 1973 and in 1985 and calculated the distribution for each class. (The median usual weekly earnings of full-time workers used here are \$152 for 1973, \$300 for 1982, and \$349 for 1985.)

Table 1. Employment distribution for selected groups by earnings, based on the occupational approach, 1973 and 1982
[In percent]

	1973	1982
Youth, 16-24 years:		
Top third	11.4	14.5
Middle third	32.3	29.2
Bottom third	56.3	56.3
Adults, 25 years and older:		
Top third	28.6	32.0
Middle third	34.6	33.2
Bottom third	36.8	34.7
Men:		
Top third	34.9	39.0
Middle third	39.3	36.4
Bottom third	25.8	24.6
Women:		
Top third	7.5	13.9
Middle third	24.9	26.7
Bottom third	67.6	59.4
Whites:		
Top third	26.8	30.6
Middle third	34.6	33.0
Bottom third	38.6	36.4
Blacks:		
Top third	10.6	15.3
Middle third	31.2	29.9
Bottom third	58.2	54.8

If bipolarization were occurring, the proportion of total employment in the middle third would show a decline over time and the bottom and top thirds would show increases. The following tabulation shows the distribution of employment in 1973, 1982, and 1985 by usual weekly earnings in 1982, based on the earnings approach:

	<i>Usual weekly earnings</i>	<i>Percent distribution of employment</i>		
		<i>1973</i>	<i>1982</i>	<i>1985</i>
Top third	Over \$385	33.3	33.5	32.6
Middle third	\$239 to \$385	34.8	33.5	31.7
Bottom third	Under \$239	31.9	33.1	35.7

The shifts over the 1973 to 1982 period support the notion of bipolarization—declining employment share for the middle third, increasing shares for the bottom and top thirds. During the 1983–85 period, only the share for the bottom third increased; the shares for both the middle and top thirds decreased. While the shifts for the entire 1973–85 period do not support the bipolarization thesis because the top third decreased, they are of considerable concern because they show an increasing proportion of low paying jobs and a declining proportion of middle paying jobs.

Reconciling the findings

The most striking difference between the occupational and earnings approaches is the declining employment share in the bottom third with the occupational approach (1.9 percentage points), but an increasing share with the earnings approach (1.2 percentage points). To reconcile these conflicting findings, the two methods were combined. We (1) calculated for each detailed occupation the employment distribution by usual weekly earnings class in both 1973 and 1982, where the earnings class is defined by the earnings approach; (2) aggregated the individual occupations according to their rankings in the occupational approach; and (3) calculated the percentage distribution with the low, middle, and high paying occupations by earnings class.

As shown in the following tabulation, there has been a change in the earnings distribution of occupations, a downward shift:

<i>Occupational approach</i>	<i>Earnings approach</i>			
	<i>1973</i>	<i>Top</i>	<i>Middle</i>	<i>Bottom</i>
All full-time workers	33.3	34.8	31.9	
Top third	68.1	25.4	6.5	
Middle third	35.9	43.3	20.7	
Bottom third	9.6	33.4	57.0	
<i>1982</i>				
All full-time workers	33.5	33.5	33.1	
Top third	63.8	27.2	9.0	
Middle third	34.5	42.1	23.4	
Bottom third	9.7	30.9	59.4	

Within those occupations ranked in the top third, the proportion of wage and salary workers who would fall in the

top earnings category declined over the 1973–82 period, while the proportion of workers in the middle and bottom earnings categories increased. And different patterns hold for each group of occupations. Within those occupations ranked in the middle third, the proportion of wage and salary workers in the top and middle earnings category declined over the 1973–82 period, while the proportion in the bottom earnings categories increased. Within those occupations ranked in the bottom third, the proportion of wage and salary workers who would fall in the middle earnings category declined, while the proportion in the top and bottom earnings categories increased.

There are many possible explanations for the changes in earnings distribution within the occupational groupings. Unfortunately, sufficient data are not available to evaluate the impact of individual factors, and it is likely that there would be interactions among the factors. The following discussion highlights possible explanations for the changes.

The downward shift might be an experience or tenure effect. Three elements are required to make this point. First, earnings within an occupation are positively related both to occupational tenure (length of time in the occupation) and to job tenure (length of time with the current employer).¹⁰ Second, women, on average, have less experience or tenure than men within individual occupations; younger workers have less experience than older workers. Third, a greater percentage of the full-time workers in 1982, compared with 1973, were under age 35, and a greater percentage were women. Thus, the younger, more female 1982 work force, compared with the 1973 work force, implies less experience or tenure within individual occupations and, thus, smaller earnings. For example, there was a dramatic increase in the percentage of high paying jobs which were held by women over the period, from 11 percent in 1973 to 19 percent in 1982. Such a large change suggests a significantly different tenure mix in the high paying occupations. Similar but less dramatic changes occurred for the middle and low paying occupations.

The explanation for the changing earnings distributions within the occupational groupings might be a cohort effect. According to Richard Freeman, Robert Lawrence, and others, the baby-boom generation is so large that the earnings within the generation are depressed when compared with other generations.¹¹ If their thesis is valid, then the changing mix of generations within the work force that began in the early 1970's would have had a negative effect on the earnings distributions. Lawrence found this to be the most compelling explanation.

The changes in earnings distributions within occupations might be an industry effect. Of the 416 occupations in the 1982 analysis, 274 had full-time workers in both the goods- and service-producing industries. The median usual weekly earnings were higher in goods-producing industries for 181 of those occupations. The absolute difference in earnings across the 274 occupations was \$78 (the difference without

regard to sign). Most earnings studies only compare the median weekly earnings or hourly earnings of industries, not the occupational earnings by industry.

The changes in employment are sensitive to the economy's movement through the various stages of a business cycle. The 1973-82 shifts occurred as the economy moved from a business cycle peak to a trough. The entry-level earnings for most occupations may have been depressed when compared with 1973 because 1982 was the low point of the business cycle.

Finally, in response to innovations, international competition, cost consciousness, or other demand-oriented factors, companies might have made some significant changes in organizational structure. For example, they may have reduced the levels of management; substituted entry and mid-level personnel for senior personnel; and contracted for goods and services, rather than providing similar services with inhouse staff. At some point, such changes would affect the earnings distributions of individual occupations.

Part-time workers

At some point, the potential substitution of part-time workers for full-time workers must be considered when examining trends in the number of middle-class workers. (Rosenthal's findings did not change when part-time workers were included in his original analysis.) Substitution could consist of long-term, secular trends (such as businesses expanding working hours or employers accommodating workers seeking part-time work) or it could be a cyclical phenomenon, for example, decreasing work hours during a recession as demand slackens.

The percentage of all employed persons working part time is indicative of these phenomena. The following tabulation shows the proportion of workers on full- and part-time schedules, selected years, 1973-85:

	1973	1982	1983	1985
Full-time	83.0	79.5	79.7	81.0
Part-time for economic reasons .	3.0	6.2	6.2	5.2
Voluntary part-time	14.0	14.3	14.1	13.8

The percentage of employed persons voluntarily working part time has changed little over the last 12 years; the percentage working part time for economic reasons has fluctuated with the movement of the economy through business cycles.

To estimate the impact of part-time employment on detailed occupations by usual weekly earnings class, we (1) arrayed the detailed occupations in 1985 by the usual weekly earnings of full-time workers and arranged them into

thirds; (2) summed total workers, full-time workers, and part-time workers in each third and calculated the respective distributions of employment; and (3) arrayed the total, full-time, and part-time workers for each occupation in the same order as in 1985, and calculated the respective 1983 distributions. (The data do not permit distinguishing between types of part-time workers.) The following tabulation shows the distribution of total, full-time, and part-time employment in 1983 and 1985, based on occupational earnings:

	<i>Total</i>		<i>Full-time</i>		<i>Part-time</i>	
	1983	1985	1983	1985	1983	1985
Top third	25.2	25.6	29.5	29.7	7.5	7.4
Middle third	30.2	31.0	33.6	34.1	16.5	17.3
Bottom third	44.6	43.5	37.0	36.3	76.1	75.3

The share of middle earners increased slightly for each distribution. Part-time workers were certainly concentrated in occupations ranked in the bottom third; but the share of part-time workers in the bottom third declined over the period.

We can conclude from this calculation that the patterns of occupational shifts whether measured in terms of all workers, full-time workers, or part-time workers are comparable. Therefore, the substitution of part-time workers for full-time workers is not a valid explanation for the declining proportion of workers in low paying occupations.

TWO STUDIES OF THE DECLINING MIDDLE-INCOME thesis were analyzed to put them on equal footing. The original studies were based on different periods as well as different approaches. Our reconciliation showed that there was a significant change in the earnings distribution in all three occupational earnings groups—top, middle, and bottom—between 1973 and 1982.

One should be cautious in applying these findings to the future because we were not able to identify the cause of the changing earnings distributions. And the trends for some of the possible variables offered as explanations will be considerably different during the next decade, compared with the past decade. For example, according to BLS' labor force projections, the 1995 labor force will be older and more experienced than the current labor force.¹² Thus, if tenure and experience were the proper explanation for the 1973-82 earnings shifts within occupations, then the shifts might reverse during the next decade. However, the recent trends for the cohort effect—the presence of the baby-boom generation in the labor market—will continue through the next decade. □

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¹R. Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983, pp. 60–72; L. S. Thurow, "The Disappearance of the Middle Class," *The New York Times*, Feb. 5, 1984, p. F3; B. Steinberg, *Deindustrialization and the Two Tier Society* (AFL-CIO, Industrial Union Department, 1985); and M. Harrington and M. Levinson, "The Perils of a Dual Economy—A Growing Trend in the American Occupational Structure," *Dissent*, Fall 1985, pp. 417–26.

The intellectual stimulus to the debate initially came from B. Bluestone and B. Harrison, *The Deindustrialization of America* (New York, Basic Books, Inc., 1982). Proponents of the disappearing middle class have since construed the decline in employment in the smokestack and goods-producing industries along with a simultaneous growth in the high tech and service-producing industries as synonymous with a bipolarization of the earnings structure. They often point to the differential growth rates of employment in a small number of occupations identified with these industries. The argument is loose and no evidence to support a bipolarization in the earnings distribution arising from shifts in the occupational structure has ever been published.

²Robert Z. Lawrence, "Sectoral Shifts and the Size of the Middle Class," *Brookings Review*, Fall 1985, pp. 3–10.

³Neal H. Rosenthal, "The shrinking middle class: myth or reality?" *Monthly Labor Review*, March 1985, pp. 3–10.

⁴Joyanna T. Moy, "Recent trends in unemployment and the labor force, 10 countries," *Monthly Labor Review*, August 1985, pp. 9–22.

⁵Lawrence, "Sectoral Shifts."

⁶Rosenthal, "The shrinking middle class." Rosenthal examined the linkages between several phenomena—declining employment in smokestack industries, rapid growth of service industries, and so forth—on earnings distribution. He found that, in each instance, when comprehensive data were reviewed, the impact of each phenomenon on the earnings distribution was either negligible or nonexistent.

⁷Rosenthal's data were recalculated for two reasons. First, BLS periodically revises its procedures for estimating median weekly earnings. The median weekly earnings in this article for the detailed occupations are estimated based on \$10 centered intervals. Data for the median weekly earnings of full-time workers are based on the "true" median of the sample. The medians are revised because earnings tend to be clustered at certain points, usually around \$50 intervals. This clustering can affect the estimated changes in median earnings. Second, the May 1973 data used were revised to include only those responding to the usual weekly earnings question. Rosenthal included all respondents in his calculation. This second revision was necessary for subsequent analysis in this article. The two revisions had a very slight impact, certainly not a qualitative impact.

⁸Lawrence, "Sectoral Shifts."

⁹Lawrence's calculations involved four steps: he (1) centered the earnings of the middle class around the median usual earnings of men (\$379) as of 1983; (2) calculated the 1983 employment distribution of full-time workers by usual weekly earnings class; (3) centered the middle class for 1969 around the median usual weekly earnings of men in 1969 (\$142) and assumed the earnings brackets were the same percentage of male medium weekly earnings in both 1969 and 1983; and (4) calculated the 1969 employment distribution using the 1969 earnings class. The usual weekly earnings for Lawrence's middle class were \$250 to \$499 in 1983, and \$94 to \$187 in 1969. Between 1969 and 1983, the change in male weekly earnings and change in the Consumer Price Index were nearly equal.

Because of his approach, Lawrence might have overstated the decline in the proportion of workers in the bottom earnings group. First, he centered his middle class about the median weekly earnings of men in both 1969 and 1983. He might have centered his middle class about the median weekly earnings for all full-time workers, as we have done in our analysis. Thus, his middle class is not divided evenly between workers with earnings above and below the median for all full-time workers. Further, he uses the male median weekly earnings over time to establish the earnings levels which divide the classes. We used total median weekly earnings. If he had used the median weekly earnings for all full-time workers, the earnings levels which divided the middle and lower earnings groups would have been \$10 higher in 1983. With his approach (male earnings), the proportion of workers in the bottom third declined 3 percentage points; with our approach (full-time workers' earnings), the proportion of workers would have increased slightly. Thus, his results would have been qualitatively different with a different median.

The earnings approach (and the occupational approach) was not sensitive to the boundaries chosen to divide the classes of workers or to the number of classes considered. The middle might have been represented by 50 percent of the work force; shifts between 3, 4, or 10 classes might have been considered.

¹⁰The literature on earnings is extensive, but usually focuses on earnings differences by sex or race. Recent research by the BLS on earnings differences between men and women was published in a series of articles in the June 1984 *Monthly Labor Review*. In one of the articles, Earl Mellor showed that women receive less pay than men in almost all occupational groups which employ both men and women. For most jobs, full-time usual weekly earnings of women in 1982 were 60 to 80 percent of those of men. Readers should be wary of interpreting these differences as evidence of discrimination for many of the reasons discussed by Mellor.

¹¹See Lawrence, "Sectoral Shifts"; Richard B. Freeman, "The effect of demographic factors on age-earnings profiles," *Journal of Human Resources*, 14, 1979, pp. 289–318; Finis Welch, "Effects of cohort size on earnings," *Journal of Political Economy* 87, 1979, pp. 565–98; and Louise B. Russell, *The Baby Boom Generation and the Economy* (Washington, The Brookings Institution, 1982).

¹²Howard N Fullerton, Jr., "The 1995 labor force: BLS' latest projections," *Monthly Labor Review*, November 1985, pp. 17–25.