The shrinking middle class: myth or reality?

Some changes in our economic structure appear to contribute to a decline in the proportion of middle income earners, but an analysis of the factors that influence the distribution of earnings shows the middle is holding its own

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Public interest and concern has been stirred by recent articles that presage a decline of middle income earners. Those who support this view contend that such earners are declining as a proportion of the U.S. work force because more of the new jobs are at the top and bottom of the earnings structure.[1] They warn that this trend could lead to political and social unrest stemming from a two-tiered society, fewer advancement opportunities for those on the lower range of the earnings ladder, and even economic disaster as the great purchasing power engine of the middle class loses steam.

Discussions of the declining proportion of middle income earners can focus on changes in the distribution of earnings of individuals or changes in the distribution of earnings of families. Changes in the distribution of earnings 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 distribution of earnings within each occupation and changes in relative earnings among occupations can affect the distribution of earnings of individuals. Changes in the distribution of earnings of families are affected not only by these same factors but also by changes in family structure. For example, increasing numbers of dual earning families can lead to an increase in the proportion of families with high earnings and increasing numbers of single person families can lead to an increase in the proportion of families with low income.

This article focuses primarily on how changes in occupational structure affect the distribution of earnings of individuals. It also considers the contribution of changes to the distribution of earnings of individuals caused by changes in the distribution of earnings by occupation over the 1973–82 period.

Essential points in discussion

Proponents of the declining middle thesis suggest that a variety of factors are causing a decline in the proportion of our work force in the middle income levels. These factors can be categorized as affecting either the occupational structure of employment or relative wages among occupations. The more significant of these concern the occupational structure of employment: (1) the decline of employment in the so-called smokestack industries that have a large number of production workers who, according to most proponents, exemplify workers in the middle of the earnings spectrum; (2) the rapid growth of high tech industries that some argue have a bipolar occupational structure; (3) the large number of job openings and large numerical growth in low paying occupations indicated by the BLS industry and occupational projections; and (4) the shifting industrial structure of the United States from goods-producing industries that, according to the arguments, have a large proportion of middle income workers to service-producing industries

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that are considered to have many high and low income earners with relatively few in the middle.

The economic structure of the United States, however, is very complex and many factors, in addition to those cited above, affect the earnings distribution of American workers. Not all of these factors will cause bipolarization of earnings. Some will decrease the number of low income workers and increase middle income workers and work against bipolarization. Actual changes in the earnings distribution of American workers are determined by the combined effect of many factors.

The past

Data from the Current Population Survey (CPS) on usual weekly earnings and on employment of full-time wage and salary workers by detailed occupation for 1973 and 1982 were used to examine the merits of the declining middle income earner thesis.[2] The first analysis identifies the effect of changes in occupational structure on the distribution of employment of full-time workers in three income groups: low, middle, and high. The second analysis illustrates the combined effect of changes in occupational structure and changes in relative earnings among occupations on the earnings distribution of full-time workers over the 1973–82 period. A third analysis is identical to the first, but includes part-time as well as full-time workers.

The 1982 CPS provided data on usual weekly earnings of full-time wage and salary workers for 416 detailed occupations. To test the effect of changes in occupational structure on the distribution of workers into low, middle, and high earnings groups between 1973 and 1982, I (1) arrayed the 416 occupations in 1982 by 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 1973 for each occupation in the same order as in 1982, and calculated the 1973 percent distribution for each third. Consequently, an occupation was in the same third in 1973 as it was in 1982.

If the middle income earners are declining, the proportion of total employment in the middle third would show a decline between 1973 and 1982, and the bottom and top thirds, an increase. The following tabulation shows the distribution of employment in 1973 and 1982 by usual median weekly earnings in 1982:

Occupational earnings group	*Usual weekly earnings*	*Percent distribution of employment*	
		1973	*1982*
Top third	$385 to $785	26.3	29.0
Middle third	273 to 384	34.0	33.4
Bottom third	82 to 273	39.6	37.6

The top third increased, the bottom decreased, and the middle decreased modestly.[3] From this analysis, we can conclude 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.

As indicated, changes in wage levels also effect the earnings distribution of workers. To illustrate the combined effect of changes in relative wages and in occupational structure on the earnings distribution of workers over the 1973–82 period, I (1) ranked occupations in the 1973 CPS into thirds based on 1973 earnings; (2) summed employment in each of the thirds and calculated a percent distribution of employment; and (3) compared the resulting distribution with the 1982 distribution of employment in each of the three earnings groups. The following tabulation shows the distribution of employment by usual median weekly earnings in 1973 and 1982:

Occupational earnings group	*Usual weekly earnings (current dollars)*		*Percent distribution of employment*	
	1973	*1982*	*1973*	*1982*
Top third	$196 to $597	$385 to $785	27.7	29.0
Middle third	148 to 196	273 to 384	28.9	33.4
Bottom third	25 to 147	82 to 273	43.4	37.6

The data show that the proportion of total employment increased in the top and middle thirds and decreased in the bottom third. This calculation does not show a trend toward bipolarization, but instead indicates a shift of workers from the low to the middle and high earnings levels, with the middle having the largest increase. Thus, according to this tabulation, changes in occupational structure, when combined with changes in relative wages and other factors, moved workers up the earnings distribution over the 1973–82 period.

However, bipolarization can occur without significant shifts of employment to the top and bottom thirds of the earnings distribution if the earnings of those at the top were to increase significantly faster than those at the bottom. For example, if the earnings distribution of the bottom third remained at the 1973 level in 1982, but the top third increased, it could be said that bipolarization occurred even though there were no significant shifts in employment. However, the data do not indicate that this occurred. As shown in the following tabulation, the average of the median earnings for the detailed occupations weighted by employment increased in each third by about the same amount from 1973 to 1982, although the increase was slightly larger in the top third and slightly lower in the bottom third than in the middle:

Occupational earnings group	*Average weekly earnings (current dollars)*		*Percent change*
	1973	*1982*	*1973–82*
Top third	$235	$462	96.6
Middle third	173	328	89.6
Bottom third	116	216	86.2

Part-time workers. Including part-time workers in an analysis of how changes in occupational structure have affected the earnings distribution of workers is very complex. Part-time workers may work from 1 to 34 hours per week and, therefore, weekly earnings are probably affected more by the number of hours worked than by wage rates. In addition, most part-time workers (about two-thirds in 1982) are on part-time schedules by choice. Some are students who work only a few hours a week for spending money, some are older workers drawing retirement income who work part-time at least in part to provide diversity, and some are members of a household having a wage earner with a high income. Thus, the earnings of many part-time workers have little significance to issues related to concerns about the declining middle, such as lack of advancement opportunities and social and political unrest.

Some part-time workers, however, are on part-time schedules for economic reasons such as slack work rather than by choice. The earnings of these workers would be higher if they were able to work full time, and their employment and earnings problems are therefore relevant to the declining middle issue. Over the 1973–82 period, the proportion of workers on part-time schedules for economic reasons increased significantly, from 3.1 percent to 6.5 percent of total employment. A large part of this increase resulted from the recessionary conditions prevalent in 1982, but not in 1973. Still, some structural changes in the economy may also have occurred between 1973 and 1982 which affected not only the distribution of occupational employment of part-time workers but also the level of part-time employment. In turn, these changes could have affected the proportion of workers in the middle income group.

Because of the complexities of dealing with part-time workers in an analysis of the decline of middle income earners, only the effect of part-time workers on changes in occupational distribution from 1973 to 1982 is considered in this article. Issues concerning such factors as changes in hours worked and in the proportions of those who worked part-time voluntarily or for economic reasons are not considered.

Therefore, part-time workers were combined with full-time workers in an analysis identical to that for full-time workers. Total employment (combined part- and full-time employment) for 1973 and 1982 was distributed into the top, middle, and bottom thirds of the occupational earnings structure, based on median usual weekly earnings in 1982. Part-time workers were placed in the same third of the occupational distribution by earnings as full-time workers in the same occupation. Also, they were given an employment weight equal to a full-time worker.[4]

Part-time workers are heavily concentrated in occupations in the bottom third of the earnings structure. Therefore, the inclusion of part-time workers resulted in a larger proportion of workers in the bottom third than when only full-time workers were included. The following tabulation shows the distribution of total employment in 1973 and 1982 by usual weekly earnings in 1982 (part-time workers were distributed according to the 1982 usual weekly earnings of full-time wage and salary workers in the same occupation):

Occupational earnings group	*Usual weekly earnings in 1982*	*Percent distribution of total employment*	
		1973	*1982*
Top third	$385 to $785	22.8	24.8
Middle third	273 to 384	31.1	30.5
Bottom third	82 to 273	46.0	44.6

The data show that changes in the distribution of total employment among the top, middle, and bottom thirds of the earnings distribution between 1973 and 1982 were very similar to the changes that were shown when only full-time workers were considered. The top third increased, the bottom third declined, and the middle third declined very slightly (but not as much as the bottom third).

These results also do not support the notion of bipolarization. Most importantly, none of the three analyses shows an increase in the bottom third, which is an important part of the bipolarization hypothesis. In fact, they all show a decline in the share of employment in the lowest group.

Data limitations. The data used in the three analyses have some limitations that should be recognized. These limitations result from sampling and response errors in the CPS as well as from differences in data definitions. The data for 1973 include workers who reported they were self-employed but who had not incorporated their business. These individuals are not included in the 1982 data. However, the number of these workers is relatively small and should not significantly affect the data. Also, the 1973 data reflect only one month, May, whereas the 1982 data are annual averages.[5]

The future

Data on changes in occupational structure and occupational wage levels for the 1973–82 period do not support the declining middle income earners thesis. But what about the future? The basic tenets of the thesis could perhaps be more applicable to the future than to the recent period of back-to-back recessions.

It is very difficult to forecast the future in terms of occupational structure and associated earnings by occupation, but some insights can be gained by looking at the BLS 1982–95 occupational projections.

The projections are based on the occupational classification system used in the Occupational Employment Statistics (OES) survey, rather than on the classification system used in the CPS. Because earnings data are not collected in the OES survey, a similar analysis could not be conducted for detailed occupations as was done for the 1973–82 period. However, CPS and OES data are similar enough to permit analysis of developments for the standard major occupa-

tional groups of workers. The data indicate the following:

- Workers who typically have a high level of earnings—professional and technical workers and managers—are projected to increase as a proportion of total employment.
- Craftworkers, who also have higher than average earnings, but with slightly more workers in the middle third than in the top third, also are projected to increase as a proportion of all workers over the 1982–95 period. (See table 1.)
- Among those occupational groups with low earnings, laborers and farmworkers are projected to decline as a proportion of the total employment, and service workers and clerical workers are expected to increase their shares. However, if the four occupational groups with lower than average earnings (operatives, laborers, service workers, and farmworkers) are combined, they are projected to decline as a proportion of total employment.

The projected data are generally consistent with the findings for the 1973–82 period. Namely, they show an increasing proportion of employment in higher than average earnings occupations and a declining proportion in occupations with lower than average earnings, rather than a trend toward bipolarization.

Specific issues

As noted, the declining middle income earners thesis is based on a number of widely discussed developments, including the decline of smokestack industries, the rapid growth of high tech industries, the large number of openings in low paying occupations, and the shift from goods- to service-producing industries. However, the extent to which each of these factors has contributed or can be expected to contribute to the decline of middle income earners is open to debate. The following discusses these four factors in terms of their significance to this phenomenon.

Table 1. Distribution of full-time workers in major occupational groups by usual weekly earnings in 1982 and as a percent of total employment in 1982 and 1995

(In percent)

Occupational group	Distribution by usual weekly earnings			Percent of total employment	
	Top third	Middle third	Bottom third	1982	1995[1]
Total, all occupations	29	33	38	100.0	100.0
Professional, technical, and related workers	51	48	1	16.3	17.1
Managers, officials, and proprietors	80	20	0	9.4	9.6
Salesworkers	35	36	29	6.9	6.9
Clerical workers	5	20	75	18.8	18.9
Craft and related workers	45	50	5	11.4	11.6
Operatives	4	53	43	12.8	12.1
Laborers, except farm	1	14	85	5.8	5.5
Service workers	10	1	89	16.0	16.3
Farmworkers	0	5	95	2.7	1.9

[1]Based on moderate trend projections presented in "Occupational Employment Projections through 1995," *Employment Projections for 1995*, Bulletin 2197 (Bureau of Labor Statistics, 1984).

Decline of smokestack industries. Proponents of the declining middle income thesis argue that the long-term employment decline of some of the major so-called smokestack industries—automobile manufacturing, blast furnaces and basic steel products, and iron and steel foundries—is a major cause of bipolarization.[6] These industries do demonstrate declining trends in employment. Employment peaked in the mid-1960's in the blast furnaces and basic steel products industry, and in the mid-1970's in iron and steel foundries. Automobile manufacturing employment peaked in 1978 at about 1 million workers, and most industry analysts do not expect employment to rebound to that level in the foreseeable future. (Employment trends in these and other industries are shown in table 2.)

These smokestack industries pay relatively high wages. Average hourly earnings of production workers in each of the three industries are well above the average for production or nonsupervisory workers in all private nonagricultural establishments. (See table 2.) These industries also have a higher than average proportion of production workers. Thus, if it is assumed that production workers in these industries exemplify middle income earners, and that those displaced from these industries end up on low wage jobs or become unemployed, the decline of employment in these three industries would tend to cause income polarization.[7]

However, the effect of the employment decline in smokestack industries on the overall economy is not significant. Since 1973 (the high point of combined employment in automobile manufacturing, blast furnaces and basic steel products, and iron and steel foundries), there has been a notable decline in the number of workers in these industries. But, if the decline had not taken place, total employment in 1983 would have been only .5 percent higher. Even if all of these workers were in the middle third of the earnings structure, the overall distribution of workers by earnings would not be significantly different than it was in 1983 because they would be such a small part of the total.

We can conclude that the decline of smokestack industries is a factor that could cause bipolarization. However, we cannot conclude that international competition and technological change, factors that are largely responsible for the declining employment in the smokestack industries, cause bipolarization without looking at other industries which also face the same problems and which also have experienced employment declines over the past decade—textile, apparel, and leather products manufacturing. (See table 2.) Because these latter industries pay relatively low wages, the decline in the number of workers in the bottom of the earnings scale that resulted from their employment declines (600,000 from 1973 to 1983) more than offset the decline in the higher paying smokestack industries.

Growth of high tech industries. An additional argument advanced by proponents of the declining middle income earners thesis indicates that the rapid growth of high tech

Table 2. Employment and average hourly earnings in selected industries with declining employment trends, 1960–83

Year	Total nonagricultural wage and salary worker employment	Motor vehicle manufacturing	Blast furnace and basic steel products	Iron and steel foundries	Textile mill products	Apparel and other textile products	Leather and leather products
	Employment (in thousands)						
1960	54,189	724	651	205	924	1,233	363
1970	70,880	799	627	228	975	1,364	319
1971	71,214	848	574	218	955	1,343	299
1972	73,675	875	564	219	986	1,383	296
1973	76,790	936	605	237	1,010	1,438	284
1974	78,265	908	609	250	965	1,363	271
1975	76,945	792	548	230	868	1,243	248
1976	79,382	881	549	223	919	1,318	263
1977	82,471	947	554	230	910	1,316	255
1978	86,697	1,005	561	237	899	1,332	257
1979	89,823	990	571	241	885	1,304	246
1980	90,406	789	511	209	848	1,263	233
1981	91,156	789	506	201	823	1,244	238
1982	89,566	699	396	159	749	1,161	219
1983	90,138	758	343	141	744	1,164	208
	Average hourly earnings[1]						
1960	$2.09	$2.81	$3.04	$2.49	$1.61	$1.59	$1.64
1970	3.23	4.21	4.16	3.73	2.45	2.39	2.49
1971	3.45	4.72	4.51	4.03	2.57	2.49	2.59
1972	3.70	5.12	5.07	4.33	2.75	2.59	2.68
1973	3.94	5.46	5.50	4.70	2.95	2.77	2.80
1974	4.24	5.86	6.27	5.03	3.20	2.98	2.99
1975	4.53	6.42	6.96	5.45	3.41	3.17	3.20
1976	4.86	7.08	7.60	6.16	3.69	3.40	3.40
1977	5.25	7.84	8.36	6.67	3.99	3.62	3.61
1978	5.69	8.49	9.39	7.25	4.30	3.94	3.89
1979	6.16	9.06	10.42	7.76	4.66	4.23	4.22
1980	6.66	9.83	11.41	8.21	5.08	4.56	4.58
1981	7.25	11.02	12.61	9.02	5.52	4.97	4.99
1982	7.68	11.61	13.38	9.51	5.83	5.20	5.33
1983	8.02	12.10	12.90	9.90	6.18	5.37	5.54

[1]Includes production workers in manufacturing and mining, construction workers in construction, and nonsupervisory workers in other industries.

SOURCE: *Employment and Earnings*, Bureau of Labor Statistics.

industries contributes to bipolarization because these industries are characterized by large proportions of high and low paid workers and few in the middle.[8] If this argument has merit, these industries would have relatively high proportions of highly paid professional and managerial workers, and of low paid clerical and service workers; production workers would have to be relatively low paid unless there were very few of them in these industries.

In previous studies, the BLS has shown that high tech employment, under each of three groups of high technology industries, is growing faster than total employment.[9] However, the analysis also showed that high tech industries comprise a relatively small proportion of total employment and total employment growth. BLS defines the three groups of high tech industries as: group I—industries with a proportion of technology-oriented workers (engineers, life and physical scientists, mathematical specialists, engineering and science technicians, and computer specialists) at least 1.5 times the average for all industries; group II—industries with a ratio of R&D expenditures to net sales at least twice the average for all industries; and group III—manufacturing industries with a proportion of technology-oriented workers equal to or greater than the average for all manufacturing industries, and a ratio of R&D expenditures to sales close to or above the average for all industries (two non-manufacturing industries which provide technical support also are included). The following tabulation shows the percent of total employment in each of the three groups of high tech industries in 1972, 1982, and 1995, and the percent change for 1972–82 and 1982–95:

	Percent of total employment			*Percent change*	
	1972	*1982*	*1995*	*1972–82*	*1982–95*
All wage and salary workers	100.0	100.0	100.0	20.1	28.1
Group I	13.1	13.4	14.1	22.6	34.5
Group II	2.4	2.8	2.9	39.8	34.1
Group III	5.8	6.2	6.6	27.3	35.6

In 1982, under the broadest definition (group I), high tech industries only accounted for 13.4 percent of total employment, up from 13.1 percent in 1972. Under a more narrow definition (group III), high tech comprised only 6.2 percent of total employment. An even narrower definition (group II), shows high tech employment accounting for only 2.8 percent of the total. Group III is probably the definition that would be used by proponents of the declining middle income earners thesis because the broadest definition includes, among other industries, automobile manufacturing.

In about half of the high tech industries included in the group III definition, professional and managerial workers

combined accounted for a higher proportion of total employment than in the economy as a whole, and very few were significantly below the average. Nearly all of the high tech industries have a higher proportion of highly paid workers than manufacturing as a whole. However, the proportion of employment accounted for by low paid clerical and service workers is below that for all industries, but slightly higher than all manufacturing. Thus, the growth in high tech industries can only contribute significantly to bipolarization if production workers, who make up the largest proportion of workers in these industries, are low paid. But nearly all of the production workers in these industries have average hourly earnings above average for production workers in all manufacturing and production or nonsupervisory workers in all private nonagricultural establishments. (See table 3.) All these factors combined would tend to work against polarization when the entire economy is considered. Therefore, data on earnings and on employment growth provide little evidence that high tech industry growth is contributing to bipolarization.[10]

Job openings in low paying occupations. Another point made by some proponents of the declining middle income earners thesis is that a majority of the occupations having the largest number of job openings and large projected employment growth are on the low end of the earnings spectrum.[11] (See table 4.) This point is often made using the latest BLS projections of occupational growth, 1982–95. In these projections, many of the occupations that are expected to have the largest numerical employment growth over the 1982–95 period do have low earnings.[12] However, these factors do not necessarily imply that low paying jobs will increase their share of employment and cause the proportion of workers earning low wages to rise.

The BLS data on job openings indicate that most openings are caused by the need to replace workers rather than by growth in the number of jobs.[13] This is especially true in low paying occupations that employ large numbers of young people and women, who may periodically leave the labor force to attend school or to care for their families. In low paying jobs there also is significant movement between occupations. However, despite the large number of openings in these occupations, there is no indication that the number of workers having low earnings is increasing because the rate of increase in employment in these jobs is generally not faster than that for the total economy.

Similarly, in analyzing the composition of employment by occupation implied by projected growth, the growth rate must be considered in preference to numerical change. A very large occupation with a growth rate close to that for all occupations will show large numerical growth but will not increase as a proportion of total employment. For example, building custodians are projected to have the largest numerical growth between 1982–95, but with only an av-

Table 3. Average hourly earnings of production workers in high tech industries, 1982

Industry	Average hourly earnings	Proportion of 1982 employment accounted for by —	
		Professional and managerial workers	Clerical and service workers
All private nonagricultural establishments	$ 7.68	25.7	36.1
Manufacturing, total	8.50	17.0	13.0
Industrial inorganic chemicals	11.02	28.9	14.2
Plastic materials and synthetics	9.88	32.1	11.4
Drugs	9.08	35.7	21.9
Soaps, cleaners, and toilet preparations	9.12	22.9	22.8
Paints and allied products	8.80	23.4	21.0
Industrial organic chemicals	11.85	33.4	13.9
Agricultural chemicals	9.71	20.1	13.9
Miscellaneous chemical products	9.22	23.9	18.0
Petroleum refining	13.30	21.5	12.8
Ordnance and accessories	9.00	17.0	14.0
Engines and turbines	11.41	23.7	4.6
Special industry machinery, except metalworking	8.95	21.6	16.4
Office computing and accounting machines	7.92	46.7	19.4
Electric transmission and distribution equipment	8.06	15.8	10.3
Electrical industrial apparatus	8.32	18.7	12.4
Radio and TV receiving equipment	7.71	19.3	16.3
Communication equipment	9.62	40.6	17.5
Electric components and accessories	7.17	25.6	12.4
Miscellaneous electrical machinery	8.89	16.4	10.9
Aircraft and parts	11.23	33.8	15.0
Guided missiles and space vehicles	10.96	57.6	15.5
Engineering laboratories	8.44	36.6	18.8
Measuring and controlling instruments	8.03	28.2	16.4
Optical instruments and lenses	8.53	41.0	15.6
Surgical, medical, and dental instruments	7.00	20.4	15.2
Photographic equipment and supplies	10.57	34.9	18.4
Computer and data processing services	8.58	47.2	45.0

NOTE: This table uses group III definition of high tech industries.

SOURCE: National Industry-Occupation Matrix and *Employment and Earnings*, Bureau of Labor Statistics.

Table 4. Twenty occupations with the most job openings in 1980

Occupation	Job openings	
	Number (in thousands)	Percent of total
Sales clerks, retail trade	758	4.0
Managers and administrators, not elsewhere classified	713	3.8
Cashiers	618	3.3
Secretaries, not elsewhere classified	599	3.2
Waiters and waitresses	466	2.5
Cooks, except private household	437	2.3
Stockhandlers	358	1.9
Janitors and sextons	333	1.8
Bookkeepers	305	1.6
Miscellaneous clerical workers	301	1.6
Nursing aides and orderlies	284	1.5
Child care workers, private household	278	1.5
Building interior cleaners, not elsewhere classified	261	1.4
Typists	250	1.3
Truckdrivers	245	1.3
Machine operatives, miscellaneous specified	239	1.3
Assemblers	238	1.3
Construction laborers, except carpenter helpers	232	1.2
Carpenters	224	1.2
Farm laborers, wage workers	221	1.2

SOURCE: *Occupational Projections and Training Data, 1982 edition*, Bulletin 2202 (Bureau of Labor Statistics, 1982).

erage projected rate of growth, this occupation is not expected to increase as a proportion of total employment.

Among the 20 occupations that are projected to grow fastest over the 1982–95 period, most are in the top third earnings category and most of the remainder are in the middle third. (See table 5.) However, looking only at the fastest growing occupations can be misleading. A comprehensive analysis should include the entire occupational spectrum (which was done in an earlier section of this article). It is necessary to use data for all occupations because, individually, the fastest growing occupations are numerically small and have little effect on changing the overall distribution of workers by earnings level.

Shift from goods- to service-producing industries. Data on the changing distribution of industry employment clearly show a shift from goods-producing to service-producing industries.[14] To support the conclusion that this trend leads to bipolarization of earnings, the data would have to show that the distribution of low and high earnings occupations is concentrated to a greater extent in service-producing industries than in goods-producing industries.

An analysis of this nature was conducted by Thomas Stanback, Jr. and Thierry J. Noyelle for 10 major occupational groups in 18 industry categories.[15] This analysis showed a tendency towards bipolarization that has been used by many of the other proponents of the declining middle income earners thesis as a basis for their conclusion.

Stanback and Noyelle applied 1975 earnings data for major occupational groups to data on employment by major occupational group by industry for 1975 and 1960. Using constant earnings data, they analyzed how changes in the occupational distribution alone would affect the distribution of employment by earnings. Their analysis was, therefore, similar to that presented in this article for the economy as a whole. However, the Stanback and Noyelle analysis was done at a major occupational group level, rather than by detailed occupation. Their analysis showed that employment of middle income earners declined between 1960 and 1975, and that employment at both the top and bottom of the earnings scale increased. Their study also showed that growth of service-producing industries was largely responsible for this trend. Their analysis does lend considerable support to views that the middle is declining.

However, there are some concerns about the validity of the analysis. Data on the occupational employment distribution of industries used by Stanback and Noyelle for 1960 were from the industry-occupation matrix developed by BLS based on the occupational classification used in the 1960 census. Earnings data, however, were taken from the Survey of Income and Education collected as a supplement to the CPS in 1975, which used the 1970 census classification. Although similar to the 1960 census classification, some occupations shifted from one major group to another and could have affected the analysis.

In addition, employment data in the industry-occupation matrices include part-time workers. Given that part-time workers are generally found in low paying occupations and that part-time workers increased significantly as a proportion of the work force between 1960 and 1975, these data would tend to show an increase in low paid workers. Also, 1975 was a recession year and thus had a larger proportion of workers on part-time schedules for economic reasons than 1960. Finally, because the calculations were done by major occupational group, the analysis would not have captured the changing structure among detailed occupations within each major group. Thus, it is possible that some structural changes are masked by the broad data used.

Interestingly, a study by Peter Henle and Paul Ryscavage that measured the trend toward inequality in earnings for a similar period produced results similar to Stanback and Noyelle. This study, based on data from the CPS over the 1958–77 period, used a Gini index to measure the equality of earnings distribution for a number of factors, including occupations.[16] In general, the study showed greater inequality over time, but with considerable slowing of the long-term trend for the 1973–77 period. For some major occupational groups, however, there is a trend toward greater equality over time or an uncertain trend. For those showing greater inequality over time, there was less change later in the period.

The Stanback and Noyelle and Henle and Ryscavage studies both show comparable results for a period beginning about the early 1960's to the mid-1970's which suggest some bipolarization of earnings. However, my analysis of occupational trends for the 1973–82 period shows that the

Table 5. Twenty fastest growing occupations, 1982–95

Occupation	Projected employment growth, 1982–95 (in percent)
Computer service technicians	96.8
Legal assistants	94.3
Computer systems analysts	85.3
Computer programmers	76.9
Computer operators	75.8
Office machine repairers	71.7
Physical therapy assistants	67.8
Electrical engineers	65.3
Civil engineering technicians	63.9
Peripheral electronic data processing equipment operators	63.5
Insurance clerks, medical	62.2
Electrical and electronic technicians	60.7
Occupational therapists	59.8
Surveyor helpers	58.6
Credit clerks, banking and insurance	54.1
Physical therapists	53.6
Employment interviewers	52.5
Mechanical engineers	52.1
Mechanical engineering technicians	51.6
Compression and injection mold machine operators plastics	50.3

NOTE: Includes only detailed occupations with 1982 employment of 25,000 or more. Data for 1995 are based on moderate-trend projections.

SOURCE: "Occupational Employment Projections Through 1995," *Employment Projections for 1995*, Bulletin 2197 (Bureau of Labor Statistics, 1984).

tendency toward bipolarization, if it did exist, seems to have been reversed since the mid-1970's.

IS THE MIDDLE DECLINING? Some trends in the industrial and occupational structure of employment could cause a degree of earnings bipolarization. However, a multitude of factors have an effect on the occupational structure of our economy and on the earnings of workers in specific occupations. Although not all can be quantified, an analyses of available data indicates that the combined effect of all factors apparently has not caused bipolarization over the 1973–82 period. Also, given BLS projections of employment by occupation, bipolarization is not likely to occur between 1982 and 1995. □

FOOTNOTES

[1] See, for example, Bob Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983, pp. 60–72; Lucy S. Gordon, *Are Middle Level Jobs Disappearing?* (Industrial Union Department, AFL–CIO, 1983); Lester Thurow, "The Disappearance of the Middle Class," *The New York Times*, Feb. 5, 1984, p. F3; Thomas M. Stanback, Jr. and Thierry J. Noyelle, *Cities in Transition* (Conservation of Human Resources, Landmark Study Series, 1982); Barry Bluestone and Bennett Harrison, *The Deindustrialization of America* (Basic Books, Inc., 1982); Bruce Steinberg, "The Mass Market is Splitting Apart," *Fortune*, Nov. 28, 1983, pp. 76–82; and *Deindustrialization and the Two Tier Society* (Industrial Union Department, AFL–CIO, 1984).

[2] Similar data collected before and after this period were tabulated using different occupational classification systems and therefore are not comparable.

[3] The same analysis was conducted by deciles. This analysis showed that the proportion of total employment increased in the top five earnings deciles between 1973 and 1982 and decreased in each of the bottom five deciles.

[4] Median occupational weekly earnings could have been recalculated by combining part-time and full-time workers in the earnings distribution for each occupation. However, the significant data problems that would be incurred would result in very little difference in the earnings distribution of occupations by thirds. Most part-time workers are in occupations falling in the bottom third of the earnings distribution of full-time workers. Because part-time workers generally earn less than full-time workers, these occupations would remain in the bottom third. Also, part-time workers in occupations found in the middle and top thirds based on the earnings of full-time workers generally comprise a very small percent of each occupation and probably would not change the median earnings level for those occupations to a significant enough extent to move them into a lower group.

[5] The use of usual weekly earnings could also cause some differences in the analyses, compared to a true wage change, given that median earnings can be affected by length of work week, earnings distribution within an occupation, and other factors.

[6] *Are Middle Level Jobs Disappearing?;* "The Disappearance of the Middle Class"; *The Deindustrialization of America;* "The Mass Market Is Splitting Apart"; *Deindustrialization and the Two Tier Society.*

[7] This analysis focuses on the distribution of earnings of individuals rather than on the distribution by occupation. Because production workers in these industries are in many occupations and may not account for a large proportion of an occupation's total employment, a decline of workers in these industries would not be likely to affect an occupation's earnings distribution to the extent that it would move out of its relative earnings positions. It should also be noted that average weekly earnings of production workers in these industries from the BLS Current Employment Statistics (establishment) survey would place these workers in the low end of the top third earnings group, rather than in the middle group.

[8] "The Declining Middle"; "The Disapperance of the Middle Class"; and *Deindustrialization and the Two Tier Society.*

[9] Richard W. Riche and others, "High technology today and tomorrow: a small slice of the employment pie," *Monthly Labor Review*, November 1983, pp. 50–58.

[10] In addition, a study conducted by the Computer and Business Equipment Manufacturers Association, which was conducted primarily in response to the adverse crticism that high tech industries are creating a bipolar economic structure, shows a typical bell curve in the earnings of workers in the industry group. *Industry News* (Computer and Business Equipment Manufacturers Association, Apr. 2, 1984).

[11] "The Declining Middle"; *Are Middle Level Jobs Disappearing?*; "The Mass Market Is Splitting Apart"; and *Deindustrialization and the Two Tier Society.*

[12] "Occupational Employment Projections through 1995" *Employment Projections for 1995*, Bulletin 2197 (Bureau of Labor Statistics, 1984).

[13] *Occupational Projection and Training Data, 1982 Edition*, Bulletin 2202 (Bureau of Labor Statistics, 1982).

[14] Valerie A. Personick, "The job outlook through 1995: industry output and employment projections," *Monthly Labor Review*, November 1983, pp. 24–35.

[15] *Cities in Transition.*

[16] Peter Henle and Paul Ryscavage, "The distribution of earned income among men and women, 1958–77," *Monthly Labor Review*, April 1980, pp. 3–10.