U.S. INDUSTRY EMPLOYMENT TRENDS FROM 1969 TO 1995

AND THE IMPLICATIONS FOR ECONOMIC INEQUALITY

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Submitted to the Department of Urban Studies and Planning
on May 28,1984 in partial fulfillment of the
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ABSTRACT

The decline of traditional sectors of industry such as auto and steel has raised concerns about the long-term ability of the U.S. economy to provide an adequate range of employment opportunities. The shift in employment between older manufacturing industries and new service industries has raised the issue of how industrial change is affecting the supply of low, middle, and high wage jobs. Over the past year, a national debate has emerged over whether middle level jobs are declining relative to low wage and high wage jobs.

This thesis examines the hypothesis that the labor market is polarizing into low wage and high wage jobs due to shifting levels of employment between low, middle, and high wage industries between 1969 and 1982, and between 1982 and 1995 (projected). The issue of labor market polarization is examined in light of its importance to the issues of upward mobility, particularly for women and minority workers; dislocated workers; the growing number of working poor; disparities in regional economic growth; and narrowed options for families attempting to maintain their income.

The study finds that rather than middle wage industries declining relative to low and high wage industries, both middle and high wage industries have declined relative to low wage industries. Between 1969 and 1982, thirteen low wage service industries contributed close to sixty-seven percent of net employment growth. The study also finds that women and minorities are primarily concentrated in either low wage industries or in industries which have experienced slow or declining employment growth from 1969 to 1982. If the goal of economic equality is to be achieved, more active policy interventions must be implemented such as economic development strategies, labor law reform, state and national industrial policies, reform of the employment security system, and the introduction of new workplace technology in ways which reinforce paths of upward mobility. Traditional affirmative action programs must also be strengthened. An agenda for continued research is also presented.

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CHAPTER ONE

INTRODUCTION

The decline of traditional sectors of industry such as textiles, apparel, auto, and steel has raised concerns about the long-term ability of the U.S. economy to provide an adequate range of employment opportunities. The recent recession has brought this issue to the forefront of the economic policy debate, particularly in light of record high post-Depression unemployment which many expect will persist throughout the decade. The depth of the problem is conveyed by a report recently written by Katherine Abraham at the Sloan School of Management at MIT. The report provides evidence that, if every available job were filled in the current recession, we would still have an excess of close to nine million unemployed workers.[1]

While the economic woes of the country have been especially acute over the past three years, the decline of traditional industry must be viewed as part of an overall shift of capital investment in the past twenty years. Plant closings, accelerated overseas investment, the higher growth rate of the service sector relative to manufacturing, and the resulting economic dislocation for specific regions and groups of workers all characterize this restructuring of the economy.

Underlying the issue of how many jobs the economy is producing is an equally critical concern about what types of jobs are being destroyed, what types of jobs are replacing them, and who has access to them. Although it is still far from conclusive, there is mounting evidence that the distribution of earnings is becoming more unequal over time, reflecting a possible polarization of the labor market. By a "polarized" labor market we mean that jobs that provide a middle range of earnings seem to be decreasing as a percentage of total employment.

The question of whether the economy is polarizing into low wage and high wage jobs has become part of a larger public debate over the "disappearing middle." Over the past year, editorials addressing this issue of what is happening to the middle class and the middle of the job market have appeared in The Atlantic, the Wall Street Journal, the New York Times, Fortune, the National Journal, the Boston Globe, and elsewhere.[2]

The debate over the disappearing middle arose in the context of a national economy in dire straits. A growing number of dislocated workers were unable to find comparable replacement jobs, a national debate arose over whether an industrial policy was needed to revitalize U.S. industry and restore our competitiveness, and increasing poverty was concentrated among women and minorities, in spite of two decades of affirmative action policies.

Behind all these issues lies a more fundamental question: are the economic problems of the past five years primarily cyclical or are they a reflection of longer-term structural changes? Are changes in traditional

macroeconomic policy, in particular bringing down the value of our overvalued dollar, sufficient to meet the goals of both growth and equity?

The debate over the "disappearing middle" has combined three issues which should be separated. The first is the distribution of family income over the past two decades. The second is the distribution of individual earnings over the same period. The third is what trends are affecting the supply of low, middle, and high wage jobs. This thesis is primarily concerned with this last issue of what forces are changing the shape of the labor market.

Changes in the distribution of family income can be the result of: demographic changes (for example, an increase in women and youth entering the workforce, thereby increasing the number of earners per household, or an increase in the number of female-headed households); changes in income or inheritance tax policy; changes in transfer payment policy (for example narrowed eligibility requirements for welfare and food stamps or the inability of state governments to pay benefits which keep pace with inflation); the aging of the workforce; and changes in the labor market since employment is still the primary distributor of income. Separating out the effects of these different factors on family income is difficult.

The distribution of earned income is affected by changes in the labor market as well as by the composition of the workforce. Because the distribution of earnings is not affected by changing household composition, transfer payments, and tax policy, an analysis of earnings data may give a clearer picture of how the changing structure of the

economy is affecting the types of jobs workers have available to them, and thus their potential for economic advancement.

Thus, if the economy is producing proportionately less middle level jobs, we might expect this labor market polarization to be reflected in a more bimodal distribution of individual earnings. However, just as using family income as a measure of what forces are shaping the labor market runs into the problem of varying numbers of earners per family, using individual earnings as a proxy runs into the problem of an individual having multiple jobs. A person holding two $5/hour jobs and reporting earnings of $10/hour thus distorts the fact that the economy is producing two low wage jobs, rather than one middle wage job.

Lastly, charting the changing distribution of jobs across the earnings spectrum, i.e. how many low, middle, and high wage jobs are available at different points in time, will give us the clearest picture of whether or not labor market polarization is occurring. Again, since the wages of available jobs are a primary determinant of the level of individual earnings, we might find that labor market polarization is reflected in a distribution of individual earnings which is becoming increasingly bimodal over time. This hypothesis is discussed briefly in Chapter Two.

A polarizing labor market would mean that many workers are increasingly restricted to low wage jobs with narrowed opportunities for advancement into the middle and higher range of jobs. However, if in response to worsening prospects for mobility, families have responded by having more family members work (witness the huge influx of women into the

paid workforce in the 1970's), then family income may stay relatively constant. Thus, an underlying and important change in the structure of the labor market would not be apparent from an analysis of family income. Examining the distribution of family income is important for reasons of social policy and is one method of looking at what is happening to the "middle class." However, for the purpose of understanding structural changes in the economy, an analysis of changes in the structure of the labor market or in the distribution of earnings is more appropriate.

Having made the distinction between changes in the structure of the labor market, in the distribution of income, and in the distribution of earnings, what are some possible consequences of a tendency toward labor market polarization?

Narrowing opportunities for upward mobility: Middle level jobs are an essential element of any society which sees upward mobility as a desirable social and economic goal. If routes of advancement are narrowing, more people will be restricted permanently to low wage, dead-end jobs. Affirmative action will have little meaning if there are few good jobs into which minorities and women can progress. Thus, a lack of middle level jobs will result in continued race and sex inequality. For a country which has always considered itself to be the land of opportunity, this poses a difficult challenge to the very legitimacy of the political system.

Downward mobility for displaced workers: Not only will low wage workers find advancement into better-paying jobs more difficult, but workers displaced from good jobs will find it difficult to maintain their

standard of living. In the case of plant closings, the problem of a declining standard of living is not confined to individuals but affects entire communities.

Regional disparities: The uneven development and the uneven decline of industries has led to widening regional disparities in employment opportunities. In addition to the much-discussed frostbelt/sunbelt split, many cities have been affected by the loss of jobs to suburban areas, as well as to jobs going offshore. Even areas with large numbers of jobs being created may be suffering from the negative consequences of a polarized labor market or a lack of enough higher paying jobs.

Increasing poverty: The proliferation of low wage jobs will increase the number of families who have a full-time wage earner but whose earnings are insufficient to bring them above the poverty level. This increase in the number of "working poor" can only make the option of dropping out of the workforce more attractive, thereby exacerbating the long-run crisis of the welfare system.

Narrowed choices for families: With fewer jobs available that pay a family wage, more families will be forced to have multiple earners, regardless of preference. Given the shortage of affordable, quality daycare available in many areas, families with young children in particular may feel that they are being forced to sacrifice family well-being.

Before looking at the available evidence that the labor market is polarizing, it is important to consider what might be causing this shift. While there is not yet sufficient evidence to discern in any detail what

might be pulling the economy toward labor market polarization, two general trends are assumed to be responsible:

First, the economy has undergone a fundamental shift since World War II away from manufacturing employment and toward services. Employment in the service sector has risen from 57% of total U.S. employment in 1948 to just under 70% today[3] This shift in employment between industries may result in a more polarized labor market for two reasons:

a. If service industries tend to be either low wage industries or high wage industries, on average, whereas manufacturing industries tend to be middle wage on average, then the growth of services relative to manufacturing will lead to polarized wages across the economy. A stereotypical example of this is the notion that service industries are either low wage (such as fast food restaurants) or high wage (such as computer software companies). Manufacturing industries, on the other hand, are assumed to pay an average wage more in the middle, such as autos and other durable goods manufacturing. To separate out this effect, we would need to examine the relative employment growth between low wage, middle wage, and high wage industries.

b. If the service sector has a more polarized distribution of wages within industries, i.e. service industries contain proportionately more low and high wage jobs than middle wage jobs, then the faster growth of services relative to manufacturing will again create an increasingly polarized distribution of wages across the economy. To separate out this effect, an examination of the distribution of wages within industries would be required.

Second, technological and organizational changes in production have resulted in the proliferation of both low and high wage jobs, with middle level jobs not growing as fast or being eliminated. As an example, automating a manufacturing plant may result in more jobs being created for engineers and managers at one end of the jobs spectrum and more clerical workers at the other, but in the process jobs for skilled craftspersons and semi-skilled assembly workers are eliminated. This trend is taking place in both new and old industries and in both services and manufacturing. To separate out this effect, we would want to look at the changing growth in employment by occupation within all industries.

Third, a combination of the above two effects of employment shifts between industries and employment shifts within occupations and industries may result in a labor market polarization. For this, we would need to look at the changing distribution of all jobs and wages across the economy.

This thesis analyzes whether changing levels of employment between industries is leading to labor market polarization. It is part of a larger research project being conducted by Bennett Harrison of the Department of Urban Studies and Planning at MIT and Barry Bluestone of the Social Walfare Research Institute at Boston College. This larger project will examine the two remaining components: The effect of changes within industries and occupations on labor market polarization; and the changing distribution of jobs and wages across the economy.

In the next chapter, past research which points to the tendency for labor market polarization is reviewed and the question of changes in the

distribution of individual earnings is discussed briefly. Chapter Three analyzes whether shifting employment between industries from 1969 to 1982 has contributed to labor market polarization, and how projected industry employment from 1982 to 1995 will affect this. In Chapter Four, employment by industry for minorities and women is discussed in relation to its effects on the earnings of these groups. Finally Chapter Five looks at the policy implications of the findings presented in Chapters Three and Four and suggests an agenda for continued research.

ENDNOTES

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2. See Kuttner, 1983; Linden, 1984; Samuelson,1983; Steinberg,1983; and Thurow, 1984.

3. Stanback,Jr., Thomas M., "Technology and the Changing Workforce," paper presented by the Symposium on "The Long-Term Impact of Technology on Unemployment," Washington, D.C., June 30, 1983.p. 1.

Chapter Two

A Review of Past Research on Changing Employment and Earnings

This chapter reviews the evidence that significant changes have occurred in the labor market since 1960 which have led to increasing inequality and/or polarization. Before discussing this research, it is important to clarify the significance of increasing inequality in the labor market and in the earnings distribution as opposed to increasing polarization or bimodality.

An increase in inequality and an increase in polarization will both result in greater variance being measured across the distribution of wages or earnings. However, an increase in inequality may be the result of only one tail of the distribution growing, whereas polarization requires that both the low and high ends are growing simultaneously relative to the middle, which may be shrinking in absolute terms or simply not growing as fast. This distinction between inequality and polarization is important to keep in mind as the research presented below is discussed.

I. Changes in the Distribution of Earned Income

As early as 1972, Peter Henle of the U.S. Department of Labor first reported evidence of increasing earnings inequality.[1] Using data from the Current Population Survey, he found that the earned income distribution

for men during 1958-70 showed "a slow but persistent trend toward greater inequality" both for all male earners and for male earners working fulltime year round. In a later article in 1980, Peter Henle and Paul Ryscavage found a continuation of the basic trend toward inequality, though the trend seemed to have slowed some from 1970-77.[2]

Henle and Ryscavage have calculated gini coefficients for all wage and salary earners (including part-time employees) and for year round full time workers.[3] Among men, the gini index for all wage and salary earners increased by 14% from .327 to .374 between 1958 and 1977. The index for year-round fulltime male wage earners increased from .254 to .287, an increase of 13%.

For women, the results are more ambiguous with no clear trend toward greater or lesser earnings inequality over the same time span. Nevertheless, the overall level of inequality is greater for women than men because of a greater variance in hours of work. Across industries, the highest gini coefficients for both sexes are generally found in precisely the fastest growing sectors-- retail trade and business services. This may point to greater future inequality in the earnings distribution of women as these industries expand and lower gini index industries stagnate or shrink.

Both the earlier and later studies discuss four developments which the authors feel may account for the greater inequality in earnings for men:

1. the growing importance of voluntary part time work;
2. the increasing flow of young people into the labor force;

3. the changing occupational structure, most importantly the growth of high paid professionals and managers; and
4. the pattern of increases in earnings which in many cases meant higher increases in rates of pay for the higher earning occupations.[4]

The authors feel that slower movement toward inequality during 1970-78 can be explained by the fact that these four trends also decreased during the same period.

In an article which builds on the above work of Henle and Ryscavage, Martin Dooley and Peter Gottschalk show that the growing inequality of male earnings can't be explained by either the growing number of youth in the labor force or by education effects.[5] The authors consider two explanations for the greater inequality.

The first is that increased transfer programs may have created "disequalizing labor supply responses."[6] However, since the trend was found for higher earner groups who would not have been impacted by transfers, the authors don't feel this explanation is adequate. The second explanation is that workers of the baby boom generation may have a greater variance of skill and education investment. However, accounting for this effect eliminates some of the inequality but some remains. The authors conclude by saying that an explanation for the greater inequality in earnings, both within demographic groups and within occupations, remains an important topic for further research.[7]

Writing with Sheldon Danziger, Peter Gottschalk has also looked at what role the increased inequality in earnings has played in the recent

dramatic increase in poverty from 1979 to 1982.[8] The authors examined trends in poverty for selected years from 1967 to 1982, as well as projected how economic growth, the level of income transfers, and the shape of the income distribution will affect poverty rates in 1983 and 1984.

Danziger and Gottschalk note that inequality of earnings in this period, which strongly affects the shape of the income distribution, increased during recessions and grew over time.[9] From 1979 to 1982, poverty increased by 3.3 percentage points. This figure decomposes into a 0.8 point increase due to a decline in mean market incomes, an offsetting 0.4 point decline due to an increase in income transfers, and, as what the authors describe as "by far the most important factor," a 2.9 point increase due to the shape of the income distribution. The authors further conclude that,

> ...even with sustained three per cent real growth in market incomes for all households it would still take about eleven years to reduce poverty from the 1982 rate to its 1979 level, if all other factors, including transfers, remained constant.[10]

The authors feel that the key factor in the limited effectiveness of economic growth in reducing poverty is the limited extent to which female-headed households benefit from increases in market income. The authors remain pessimistic about this changing in the near future.

Other researchers using various data sources have found corroborating evidence of increasing earnings inequality. Bennett Harrison of MIT and Alan Matthews of the Social Welfare Research Institute at Boston College used the Social Security Longitudinal Employer-Employee Date file (LEED)

for 1957-1975 to study New England employees in selected industries.[11] The results for all industries together, and for a sample of 13 selected industries, point to increasing inequality among wage workers in all industries except commercial printing, hospitals, and paper mills. In ten of the thirteen industries, the inequality among all workers of both sexes was greater than the inequality among men or women alone.

The research results discussed above provide clear evidence that the distribution of earnings has become more unequal over time. Moreover, a complete explanation for this growing inequality has not been provided. Whether this growing inequality reflects emerging polarization in the labor market cannot be discerned until a more detailed analysis has been completed.

II. Changes in the Shape of the Labor Market

A detailed study of the changing mix of jobs in the labor market has been conducted by Thomas Stanback, Jr. and Thierry Noyelle, both of the Conservation of Human Resources project of Columbia University. In their book Cities in Transition, Stanback and Noyelle write of an "Unstable Dual Economy" as follows:

> The developments adumbrated above suggest that our society may be moving toward an unstable dual economy, in the sense that the transformation of employment systems is pushing toward an increasing separation between two socioeconomic strata with increasingly restricted bridges between them: a stratum of managers, professionals, technicians, teachers, and other highly skilled employees living in a relatively well protected and well paying economic world, and a large stratum of assembly workers, clericals and service workers who find it increasingly difficult to make ends meet and to deal with the stress associated with unrewarding and somewhat insecure jobs [12]

To get a picture of how changes in the labor market affected earnings from 1960 to 1975, Stanback and Noyelle constructed an industry/occupation matrix for both 1960 and 1975. Approximately 12 industries and 10 occupations were used, creating a matrix with 120 cells. Holding earnings constant at their 1975 level, the employment level in each cell was multiplied times the 1975 average wage for that cell. Using the combined results for 120 cells, an earnings distribution was constructed for both 1960 and 1975. These distributions were then characterized by using three earnings classes which were defined by their relationship to the mean wage across the economy. For example, the middle earnings class was defined as 80 to 119 percent of the mean wage for the entire economy.[13]

In interpreting Stanback's and Noyelle's results, it is important to keep in mind that what they are looking at is the changing structure of jobs, i.e. a labor market phenomenon, as opposed to looking at the changing distribution of earnings. By holding earnings constant at their 1975 level, they have eliminated an important variable from their analysis: the change in average earnings for each industry/occupation cell between 1960 and 1975. Thus, the question they are looking at is: "If we held earnings constant at their 1975 level, how would employment shifts between industries and occupations alone affect the shape of the earnings distribution?"

Factoring in the change in earnings from 1960 to 1975 may produce different results than those arrived at by Stanback and Noyelle. Until a more detailed analysis is undertaken, however, the question of how changing employment between industries and occupations is affecting the

earnings distribution is still an open one. Given this clarification, the result of Stanback and Noyelle's analysis is presented in Table 2.1.

TABLE 2.1

1960 and 1975 Distribution of Total U.S. Labor Force Among Earnings Classes and Distribution of 1960-1975 Job Increases in the Services Using 1975 Earnings for Both Years[a]

Earnings Classes (percentage of Average Earnings)	Distribution of Total U.S. Labor Force (percentages)[b]		1960-1975 Job Increases in Services[c]	
	1960	1975	Numbers of Jobs(000s)	Percentage
120 percent and above	31.6	34.2	7,171	35.0
119 to 80 percent	35.9	27.8	2,311	11.3
79 percent and below	32.5	38.0	10,034	53.8
TOTAL	100.0	100.0	20,516	100.0

[a] Stanback and Noyelle have constructed distributions for both 1960 and 1975 by multiplying the employment level in each industry-occupation cell for 1960 and 1975 by the mean earnings for that cell in 1975; thus, the results reflect only changes in employment between 1960 and 1975, not changes in earnings.

[b] Excludes Agriculture, Mining, and Public Administration. Based on employment for an industry-occupation matrix, holding earnings constant at their 1975 level.

[c] TCU, Wholesale, Retail, FIRE, Corporate Services, Consumer Services and Non-profit.

Source: Based on U.S. Bureau of the Census, "Survey of Income and Education" (for 1975) and U.S. Bureau of Labor Statistics, "Tomorrow's Manpower Needs, National Industry-Occupational Matrix" (for 1960).

From: Stanback and Noyelle: Cities in Transition (1983).

Table 2.1 illustrates clearly the shift to a more polarized labor market between 1960 and 1975. In the total labor force, the middle earnings class has dropped from 35.9 percent to 27.8 percent of the total, while the bottom earnings classes have risen from 32.5 percent to 38.0 percent. Even more dramatic is the data in columns 3 and 4, which separates out the service sector and looks at the growth in jobs. Here, the middle earnings class accounts for only 11.3 percent of the growth in service jobs, whereas the bottom class has grown 53.8 percent and the top class 35.0 percent. Stanback and Noyelle conclude that "The growth of services in recent times has moved the economy toward a greater inequality in earnings."[14]

The shift away from blue collar work and toward white collar work within manufacturing has also contributed to the decline of middle level jobs. In many cases this has resulted from the introduction of new production technology and the proliferation of managers, engineers, researchers, advertisers, etc. The trend toward locating corporate headquarters in the U.S. and production facilities overseas has contributed to this loss of better paid (and usually union) blue collar work.

In addition to pointing out the previously mentioned problem of these changes in the labor market worsening the already uneven distribution of earnings, Stanback and Noyelle raise the following issues:

1. In spite of women's increased participation in the paid workforce and in services in particular, women are still being placed in low paid jobs both inside and outside of services.

2. Minority workers of both sexes have found it difficult to find many opportunities in services. The problem is especially acute for minority males, who have benefitted little from the growth of services. What upward mobility service jobs have provided has been largely restricted to white males. While the reasons for the drop in minority male workforce participation from 78 percent to under 69 percent from 1965-80 are probably complex, the lack of job opportunities in the services may be a contributing factor, especially as manufacturing jobs have left the inner city in many areas.

Stanback and Noyelle believe that the increased polarization of the labor market has forced workers to find new routes of upward mobility, since internal job ladders are disappearing. Two primary strategies have emerged: education; and changing jobs frequently in search of better pay and/or more job security.

Education may work well for young workers, but it requires an almost impossible investment for older workers, particularly those with dependents. It also requires a solid educational background from high school, something still denied many minority workers because of inadequate primary and secondary schools.

The job-hopping strategy is also flawed. Larger firms have limited opportunities for upgrading, thus this strategy is largely limited to the opportunities offered by small firms. Small firms often have truncated occupational ladders as well, and again women and minorities have had a difficult time in improving their positions in small firms. Stanback and

Noyelle conclude by saying:

> To conclude, while we readily concede that the evidence presented does not permit a definitive statement regarding mobility processes, it seems apparent from the analysis that the considerable moving about of workers in and out of the labor force (e.g. for purposes of going back to school) or from industry to industry (e.g. for purposes of upgrading through job-hopping) need not translate into substantial improvement. This appears to be particularly true for women and minority workers, who are the most likely to be stuck with the "bad" jobs, although there is some indication that the lack of mobility opportunities is also becoming a problem for white male workers.[15]

III. Research on the Industry Level

Using data from the Bureau of Labor Statistics for detailed industries, economist Richard Freeman of Harvard University found that between 1950 and 1980, the inequality of average earnings for non-supervisory workers increased by 60 percent (as measured by the standard deviation of the log of earnings). Freeman also found the inequality of average earnings by industry increasing using data from the National Income Accounts industry classification, which includes data for all employees.[16]

A recent unpublished study by the Bureau of Labor Statistics compares average weekly earnings levels for wage and salary workers in the twenty fastest-growing industries over the period 1972-80 with average earnings in the twenty industries showing the greatest decline in employment.[17] The criteria for choosing the twenty fastest growing industries in terms of employment were as follows:

1. The industry had more than 100,000 workers in 1980;
2. it experienced employment growth during the current recession;
3. its employment is projected to grow between 1980 and 1990; and

4. it was one of the fastest growing industries in terms of employment between 1972 and 1980.

These industries (in no particular order) are the following:

- computer and data processing services
- social services
- savings and loan associations
- legal services
- offices of dentists
- business services
- medical instruments and supplies
- nursing and personal care facilities
- offices of physicians
- office and computing machine manufacturing
- transportation services
- eating and drinking places
- crude petroleum and natural gas extraction
- holding and other investment offices
- miscellaneous services
- electronic components and accessories
- amusement and recreation services
- insurance agents, brokers, and services
- automotive repair shops
- banking

Services clearly dominate this list of industries. Of this group of twenty, sixteen industries are service producing, three are goods producing, and one is in mining. Out of a total of 90 million wage and salary jobs in July of 1982, 19 million jobs were located in these 20 industries, or more than one in five.

The criteria for choosing the 20 most rapidly declining industries were as follows:

1. the industry showed one of the sharpest declines in absolute employment between 1972 and 1980; and

2. it employed at least 100,000 workers in 1980.

While these industries all declined in the current recession and are

expected to decline to 1990, these characteristics were not used as part of the criteria. This list is dominated by manufacturing (fourteen out of twenty) and accounted for 5 million wage and salary jobs in July 1982.

The 20 industries (also in no rank order) are:

--footwear, except rubber
--radio and television receiving equipment
--laundry, cleaning, and garment service
--dairy products
--knitting mills
--weaving mills cotton
--variety stores
--miscellaneous general merchandizing stores
--yarn and thread mills
--gas stations
--highway and street construction
--household appliance manufacturing
--bakery products
--household furniture plastics materials and synthetics
--blast furnace and basic steel products
--sugar and confectionary products
--motor vehicle and equipment manufacturing
--metals forging and stamping
--railroad transportation

The study found that in July of 1982, average weekly earnings of production workers in the declining industries was $310.00, whereas in the fastest-growing industries it was only $210.00. This translates into an earnings differential of over $5,000 a year. While it is impossible to draw detailed conclusions about the distribution of earnings from this study. it is clear that in general, jobs which are disappearing provided better opportunities than a large number of those which are being created. Many workers displaced from declining industries face bleak prospects for maintaining, let alone improving, their standard of living.

A recent study by Patrick Walker of the University of Massachusetts in Boston examines changes in the distribution of skill for different

occupations between 1950 and 1978.[18] Walker's study covers 221 detailed Bureau of Labor Statistics industries. His results show that in 1978, 103 of the 221 industries showed significant polarization of skill (skill being measured by General Educational Development and Specific Vocational Preparation rankings which include earnings as one variable). The total employment of these industries constituted 56.2% of the labor force, up from 51.1% in 1970. Thus, well over half of the labor force works in industries with statistically significant polarized or bimodal skill distributions. Moreover, 197 of the 221 industries studied were becoming more bimodal between 1970 and 1978. Walker's most striking result is that, over the even longer period of 1960 to 1978, the U.S. economy as a whole changed to become clearly bimodal, with bimodality by Walker's index increasing by one third.[19]

All of the research reviewed here does not constitute definitive evidence the labor market is polarizing - for this more detailed analysis is needed. It does demonstrate, however, that the changing structure of industries and occupations is changing the structure of the labor market. While some of this shift can be accounted for by supply side factors such as greater numbers of youth entering the labor force and more voluntary part time workers there are also important demand side factors operating which are transforming the types of jobs which workers have available to them In the next chapter, the actual and projected change in employment levels between industries between 1960 and 1995 is examined for its effects on the shape of the labor market.

ENDNOTES

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2. Henle, Peter, and Paul Ryscavage, "The Distribution of Earned Income Among Men and Women: 1958-77,"Monthly Labor Review, November, 1982.

3. Ibid. p. 5.

4. Ibid. p. 5.

5. Dooley, Martin, and Peter Gottschalk, "Does a Younger Male Labor Force Mean Greater Earnings Inequality?" Monthly Labor Review, November, 1982.

6. Ibid. p. 45.

7. Ibid. p. 45.

8. Danziger, Sheldon, and Peter Gottschalk, "Macroeconomic Conditions, Income Transfers, and the Trend in Poverty," paper prepared for the Urban Institute Conference on An Assessment of Reagan's Social Welfare Policy, July 28-29, 1983, Revised September 1983.

9. Ibid. p. 19.

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CHAPTER THREE

The Impact of Shifts of Employment Between Industries on Labor Market Polarization

The analysis presented in this chapter seeks to answer the following question: have shifting employment levels between industries from 1969 to 1982 led to increasing labor market polarization and how will this be affected by projected employment shifts from 1982 to 1995? For example, does declining employment in middle wage industries such as radio and television manufacturing and the simultaneous growth in both retail services at the low end of the industry wage scale, and crude petroleum at the high end, translate into a bimodal distribution of average industry wages? Are more and more people employed in either high wage or low wage industries with less people employed in industries which pay, on average, in the middle?

The analysis uses Bureau of Labor Statistics data on 136 Economic Growth Sectors. These data were furnished by the Office of Economic Growth and Employment Projections in the BLS which is responsible for projecting employment trends by industry and occupation. Economic Growth Sectors are a classification of industries which uses information derived from national input--output tables. Appendix I lists each economic growth

sector by number and industry name and cross-classifies each industry by Standrd Industrial Code (SIC) number for purposes of comparison.

The data set consists of:

1. the mean wage paid by each economic growth sector (henceforth used synonymously with industry) in 1980;
2. actual employment level by industry for 1969, 1979, and 1982 for all employees, both fulltime and part time; and
3. employment projections for each industry for 1982-1995.

This analysis has focused on three different time periods:

1. actual employment changes from 1969 to 1982;
2. projected employment changes from 1982 to 1995; and
3. the cumulative effect of actual plus projected changes in employment from 1969 to 1995.

It is worth noting here how the Bureau of Labor Statistics formulates its industry and occupation growth projections. The BLS begins by using population projections to estimate the labor force, where the two greatest areas of uncertainty are women's participation and retirement rates. Once GNP, consumer demand, and final demand are projected, employment by industry is calculated using an input-output table. Using these employment by industry projections, the last step is to project occupational employment using an industry-occupational matrix.

Using this same data set, in 1983 Ronald Kutscher, Associate Commissioner of the Office of Economic Growth and Employment Projections, undertook the following analysis in order to see what affect shifting industry employment was having on wages.[1] He began by multiplying the employment level of each industry for 1969, 1979, 1982, and 1995 by each

industry's 1980 mean wage. Thus, he had calculated each industy's wage bill for each of these four years. He then summed the wage bill for all industries to get the total wage bill across the economy for each of the four years. By dividing the total wage bill by the total number of people in the labor force for that year, he calculated a mean wage over the economy for each year. The formula for the average wage in 1969 is the following:

$$\frac{\sum_{i=1}^{150} Ni_{1969} Wi^{1980}}{\sum_{i=1}^{150} Ni_{1969}}$$

Where: Ni_{1969} = the number of employees in industry i in 1969;

Wi^{1980} = mean annual earnings in industry i in 1980.

Kutscher arrived at the following results:

	1969	1979	1982	1995
Mean Wage Total Economy	$14,505	14,214	14,109	14,035

Thus, holding wages constant at their 1980 level, Kutscher found that employment shifts between industries alone was not dramatically lowering wages, as might have been thought from the growth of services and the relative decline of manufacturing. Kutscher wrote,

> These data show a 2.3 percent decline in wages from 1969-82 because of industry shifts. Our new projections imply almost no more decline due to that (0.5 percent). Even the 2.3 percent decline over a 13 year period is a very small decline of between 0.1 and 0.2 percent per year due to changing industrial mix--particularly considering that over this period wage increases were averaging in the range of 5-8 percent annually.[2]

Because the average wage remains fairly constant over a 26 year period, Kutscher also feels that it is unlikely that industry wages across the economy are polarizing. In order for the average wage to be changing so little, the economy as measured at the industry level would have to be polarizing almost perfectly symmetrically, around an unchanging mean. Kutscher felt this was doubtful, though not impossible.

To uncover whether the fairly constant average level of earnings from 1969 to 1995 was obscuring more dramatic changes in the labor market, it was necessary to disaggregate one step and go back to the level of mean earnings for each industry. Again, the question being asked was "Holding mean industry earnings constant at their 1980 level, are the set of industries with a middle level mean wage growing faster or slower than the set of industries with low and high mean wages?"

To get a clear answer to the above question, each industry was assigned an earnings class based on its 1980 mean wage. Each earnings class covers a range of $250.00, thus all industries paying between $10,000 and $10,250 would be assigned to the same earnings class. The total employment for each earnings class was calculated for each year in 1969, 1982, and 1995. The results of the analysis are displayed graphically in Figures 1-3, The Distribution of Total Employment By Earnings Class for select years. Table 3.1 lists each industry and its

FIGURE 1
Employment in 1969 for 136 Sectors
Arrayed by Average Annual Earnings
in 1980

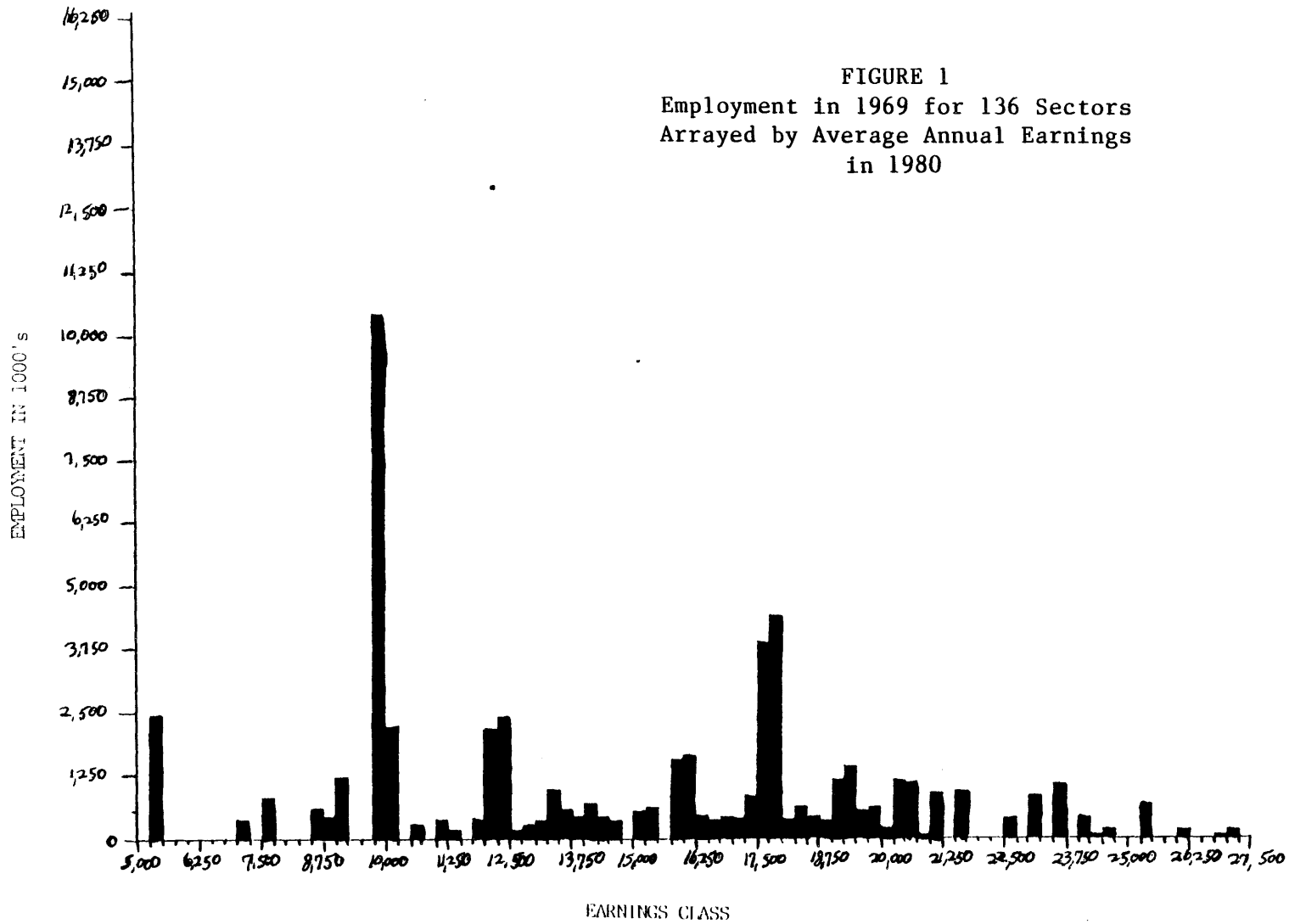
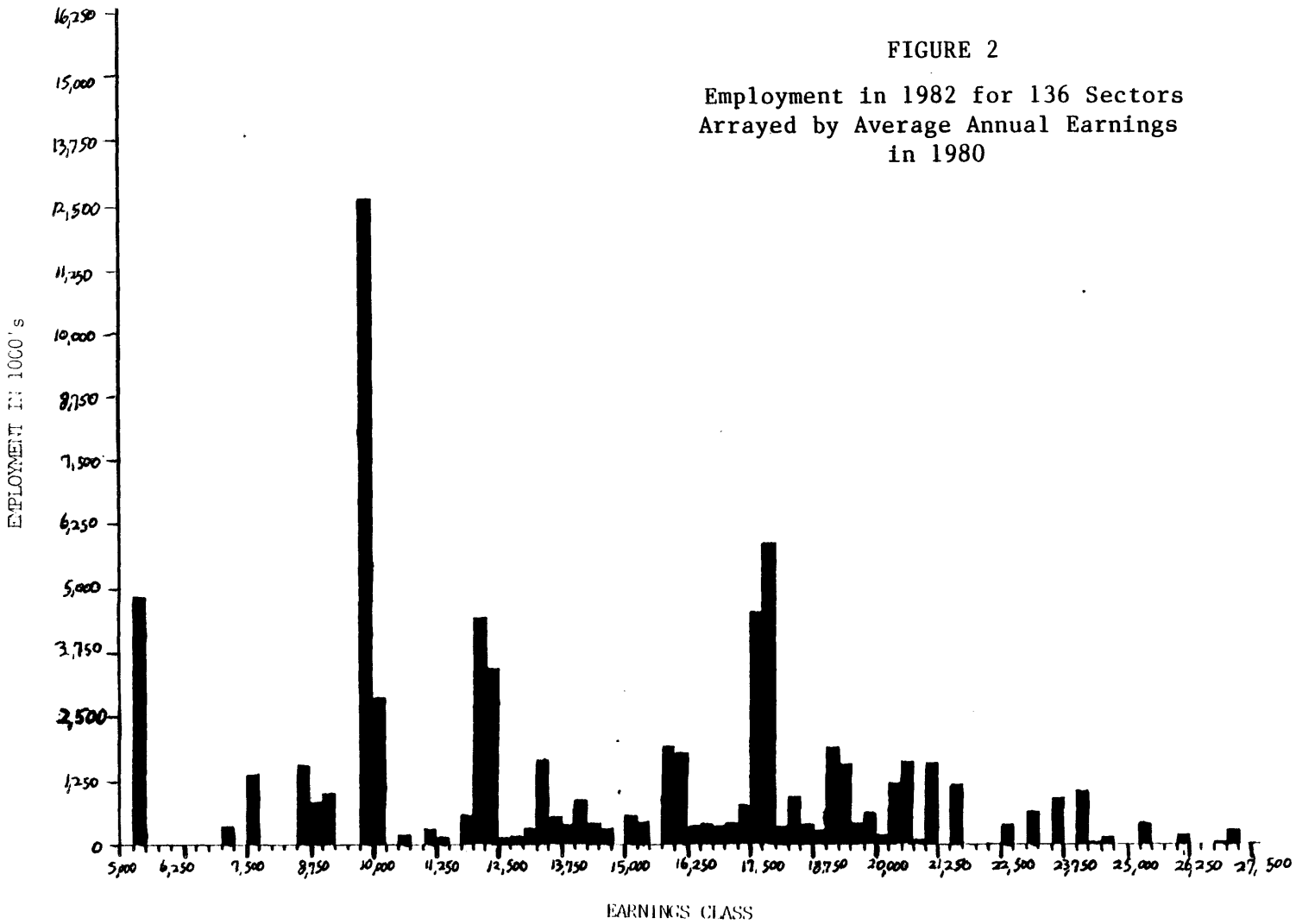


FIGURE 2

Employment in 1982 for 136 Sectors
Arrayed by Average Annual Earnings
in 1980



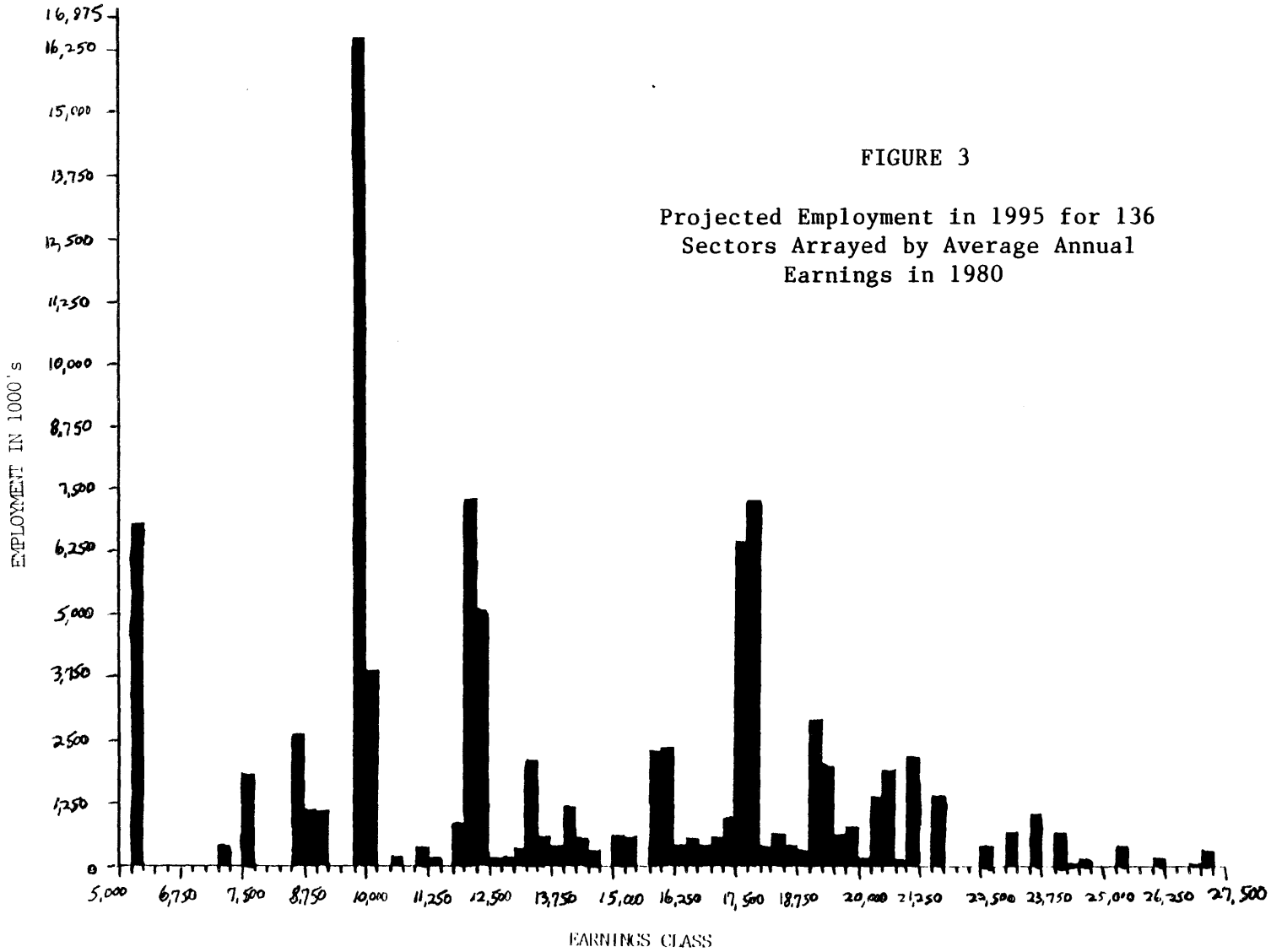


FIGURE 3

Projected Employment in 1995 for 136 Sectors Arrayed by Average Annual Earnings in 1980

TABLE 3.1

ECONOMIC GROWTH SECTORS IN ORDER OF LOWEST TO HIGHEST MEAN WAGE IN 1980

Economic Growth Sector	Industry Name	1980 Mean Wage	Earnings Class
124	Eating and Drinking Places	5330	$ 5,250-500
133	Barber and Beauty Shops	7,243	7,000-250
131	Hotels and Lodging Places	7,608	7,500-750
142	Medical Services, except Hospitals	8,639	8,500-750
139	Amusement and Recreation Services	8,853	8,750-9,000
033	Apparel	9,217	9,000-250
144	Nonprofit Organizations	9,796	9,750-10,000
059	Leather Products, Including Footwear	9,887	" "
125	Retail Trade, ex. Eating and Drinking Places	9,969	" "
132	Personal and Repair Services	10,031	10,000-250
143	Educational Services	10,106	" "
112	Local Transit and Intercity Buses	10,140	" "
032	Hosiery and Knit Goods	10,501	10,500-750
038	Wooden Containers	11,075	11,000-250
039	Household Furniture	11,248	" "
034	Fabricated Textile Prod., n.e.c.	11,263	11,250-500
137	Automobile Repair	11,972	11,750-12,000
130	Real Estate	12,200	12,000-250
134	Business Services, n.e.c.	12,225	" "
029	Fabric, Yarn, and Thread Mills	12,288	12,250-500
141	Hospitals	12,324	" "
109	Musical Instruments and Sporting Goods	12,656	12,500-750
030	Floor Coverings Mills	12,913	12,750-13,000
108	Jewelry, Silverware	12,983	" "

TABLE 3.1 - (page 2 of 5)

Economic Growth Sector	Industry Name	1980 Mean Wage	Earnings Class
107	Watches, Clocks, and Clock Oriented Services	13,000	13,000-250
020	Canned and Frozen Foods	13,041	" "
126	Banking	13,307	13,250-500
110	Manufactured Products, n.e.c.	13,623	13,500-750
031	Textile Mill Products, n.e.c.	13,652	" "
037	Millwork, Plywood, and Wood Products, n.e.c.	13,666	" "
138	Motion Pictures	13,771	13,750-14,000
063	Pottery and Related Products	13,866	" "
102	Transportation Equipment, n.e.c.	13,943	" "
024	Confectionery Products	13,968	" "
043	Newspaper Printing and Publishing	14,120	14,000-250
057	Plastic Products	14,225	" "
035	Logging	14,360	14,250-500
036	Sawmills and Planing Mills	14,400	" "
117	Transportation Services	14,473	" "
056	Rubber Products ex. Tires and Tubes	14,510	14,500-750
040	Furniture and Fixtures ex. Household	14,738	" "
058	Leather Tanning and Industrial Leather	15,021	15,000-250
018	Meat Products	15,033	" "
062	Structural Clay Products	15,075	" "
104	Medical and Dental Instruments	15,161	" "
105	Optical and Opthalmic Equipment	15,323	15,250-500
091	Electric Lighting and Wiring	15,383	" "
101	Motorcycles, Bicycles, and Parts	15,471	" "
071	Heating Apparatus and Plumbing Fixtures	15,480	" "
090	Household Appliances	15,499	" "
128	Insurance	15,894	15,750-16,000
022	Bakery Products	15,900	" "
019	Dairy Products	16,015	16,000-250
095	Electronic Components	16,045	" "
076	Fabricated Metal Products, n.e.c.	16,104	" "
045	Printing and Publishing, n.e.c.	16,186	" "
027	Food Products, n.e.c.	16,189	" "

TABLE 3.1 - (page 3 of 5)

Economic Growth Sector	Industry Name	1980 Mean Wage	Earnings Class
026	Soft Drinks and Flavorings	16,278	16,250-500
092	Radio and Television Receiving Sets	16,289	" "
075	Cutlery, Handtools, and General Hardware	16,346	" "
087	Service Industry Machines	16,639	16,500-750
044	Periodical and Book Printing, Publishing	16,668	" "
042	Paperboard	16,807	16,750-17,000
088	Electric Transmission Equipment	16,932	" "
072	Fabricated Structural Metal Products	17,213	17,000-250
064	Stone and Clay Products, n.e.c.	17,265	17,250-500
073	Screw Machine Products	17,364	" "
084	Non-electrical Machinery, n.e.c.	17,386	" "
013	Stone and Clay Mining and Quarrying	17,398	" "
089	Electrical Industrial Apparatus	17,399	" "
103	Scientific and Controlling Instruments	17,596	17,500-750
015	Maintenance and Repair Construction	17,660	" "
096	Electrical Machinery and Equipment, n.e.c.	17,773	17,750-18,000
118	Radio and Television Broadcasting	17,796	" "
061	Cement and Concrete Products	17,899	" "
123	Wholesale Trade	17,967	" "
113	Truck Transportation	18,133	18,000-250
028	Tobacco Manufacturing	18,183	" "
099	Ship and Boat Building and Repair	18,275	18,250-500
060	Glass	18,276	" "
023	Sugar	18,378	" "
016	Ordnance	18,435	" "
053	Paints & Allied Products	18,452	" "
080	Material Handling Equipment	18,536	18,500-750
021	Grain Mill Products	18,538	" "
082	Special Industry Machinery	18,735	" "
083	General Industrial Machinery	18,884	18,750-19000

TABLE 3.1 - (page 4 of 5)

Economic Growth Sector	Industry Name	1980 Mean Wage	Earnings Class
067	Primary Copper and Copper Products	19,032	19,000-250
066	Iron and Steel Foundries and Forgings	19,127	" "
136	Professional Services, n.e.c.	19,156	" "
127	Credit Agencies and Financial Brokers	19,253	19,250-500
052	Cleaning and Toilet Preparations	19,353	" "
011	Railroad Transportation	19,461	" "
093	Telephone and Telegraph Apparatus	19,643	19,500-750
074	Metal Stampings	19,695	" "
086	Typewriters and Other Office Equipment	19,712	" "
048	Chemical Products, n.e.c.	19,732	" "
081	Metalworking Machinery	19,880	19,750-20,000
135	Advertising	19,912	" "
069	Primary Non-ferrous Metals and Products, n.e.c.	19,915	" "
047	Agricultural Chemicals	19,984	" "
121	Gas Utility, Excluding Public	20,217	20,000-250
094	Radio and Communication Equipment	20,282	20,250-500
078	Farm Machinery	20,326	" "
051	Drugs	20,402	" "
041	Paper Products	20,432	" "
085	Computers and Peripheral Equipment	20,506	20,500-750
119	Communication, Except Radio and Television	20,507	" "
122	Water and Sanitary Services ex. Public	20,944	20,750-21,000
140	Doctors and Dentist' Services	21,033	21,000-250
055	Tires and Inner Tubes	21,117	" "
114	Water Transportation	21,232	" "
100	Railroad Equipment	21,244	" "

TABLE 3.1 - (page 5 of 5)

Economic Growth Sector	Industry Name	1980 Mean Wage	Earnings Class
079	Construction, Mining, and Oilfield Machinery	21,596	21,500-750
068	Primary Aluminum and Aluminum Products	21,601	" "
014	Chemical and Fertilizer Mineral Mining	21,610	" "
120	Electrical Utilities, Public and Private	21,647	" "
050	Synthetic Fibers	21,747	" "
025	Alcoholic Beverages	22,503	22,500-750
010	Non-ferrous Metal Ores Mining ex. Copper	22,513	" "
077	Engines, Turbines, and Generators	22,651	" "
049	Plastic Materials and Synthetic Rubber	22,689	" "
070	Metal Containers	22,735	" "
098	Aircraft	23,199	23,000-250
097	Motor Vehicles	23,585	23,500-750
106	Photographic Equipment and Supplies	23,673	" "
011	Coal Mining	24,031	24,000-250
115	Air Transportation	24,081	" "
046	Industrial Organic and Inorganic Chemicals	24,121	" "
008	Iron and Feroalloy Ores Mining	24,388	24,250-500
009	Copper Ore Mining	24,584	24,500-750
017	Complete Guided Missiles and Space Vehicles	24,719	" "
065	Blast Furnace and Basic Steel Products	25,496	" "
054	Petroleum Refining and Related Products	26,176	26,000-250
116	Pipeline Transportation	26,782	26,750-27000
012	Crude Petroleum and Natural Gas	27,140	27,000-250

Source: Bureau of Labor Statistics, Office of Economic Growth and Employment Projections.

earnings class in order of lowest to highest mean industry earnings, thus it is possible to see which industries comprise each earnings class.

Looking at Figure 1 which shows the distribution of total employment by earnings class for 1969, a slight degree of bimodality appears evident. The maximum of the low wage mode or "hump" is at the $9,750-10,000 earnings class (where over 80% of the employment is accounted for by one industry--retail trade), the minimum at approximately $14,500, and the maximum of the high wage mode or hump is at $17,500-18,000.

The picture for 1982 employment across earnings classes and the projected employment for 1995, as shown in Figures 2 and 3, shows a continuation of what appears to be weak bimodality. This can be seen more clearly in Figures 4, 5, and 6 which show the change in absolute levels of employment for the periods 1969-82, 1982-95, and the total period 1969-95.

In order to test the hypothesis that low wage and high wage industries as a group were growing faster than middle wage industries as a group, the Stanback/Noyelle method of grouping the data around the mean was applied. The mean for this analysis was defined as the grand mean of the 136 industry means for earnings in 1980. This mean of industry means is $17,029. Again to be consistent with Stanback and Noyelle, the middle was defined as 80-119 percent of the mean. In this case, industries with mean earnings between $13,623 and $20,265 constitute the middle, while low wage industries pay mean wages below this range and high wage industries pay mean wages above it.[3]

FIGURE 4

Net 1969-82 Change in Employment in 136 Sectors Arrayed by Average Annual Earnings in 1980

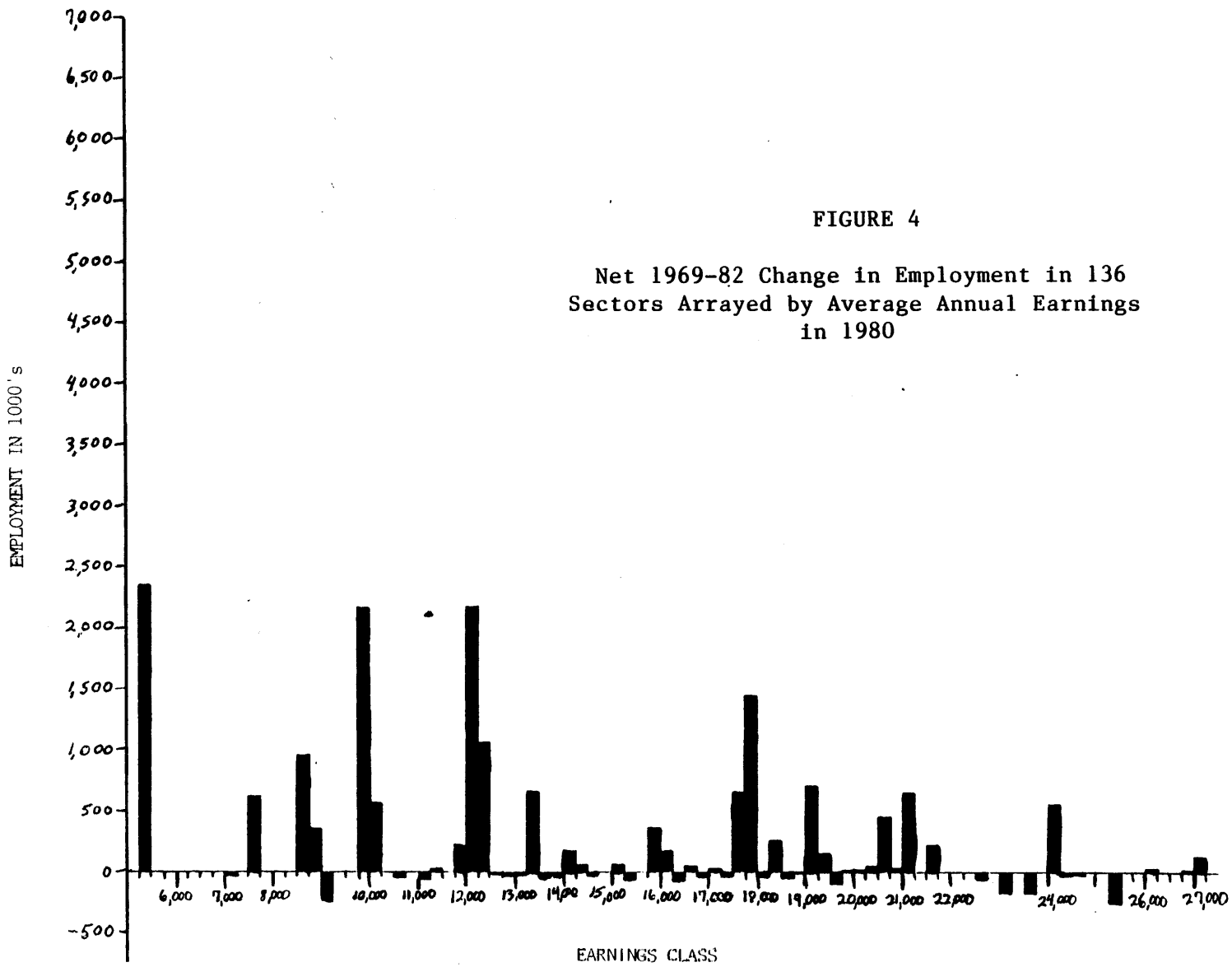
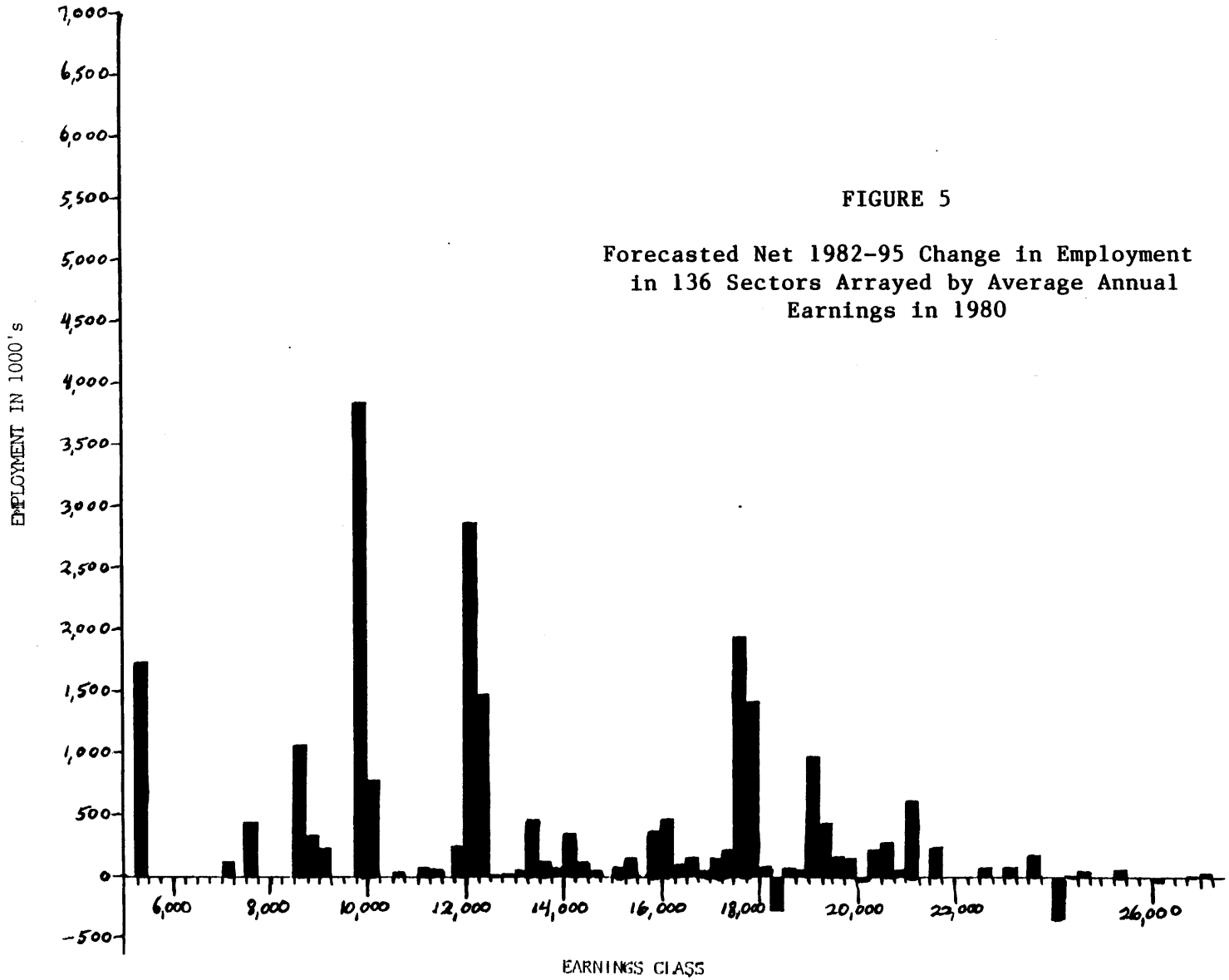


FIGURE 5

Forecasted Net 1982-95 Change in Employment in 136 Sectors Arrayed by Average Annual Earnings in 1980



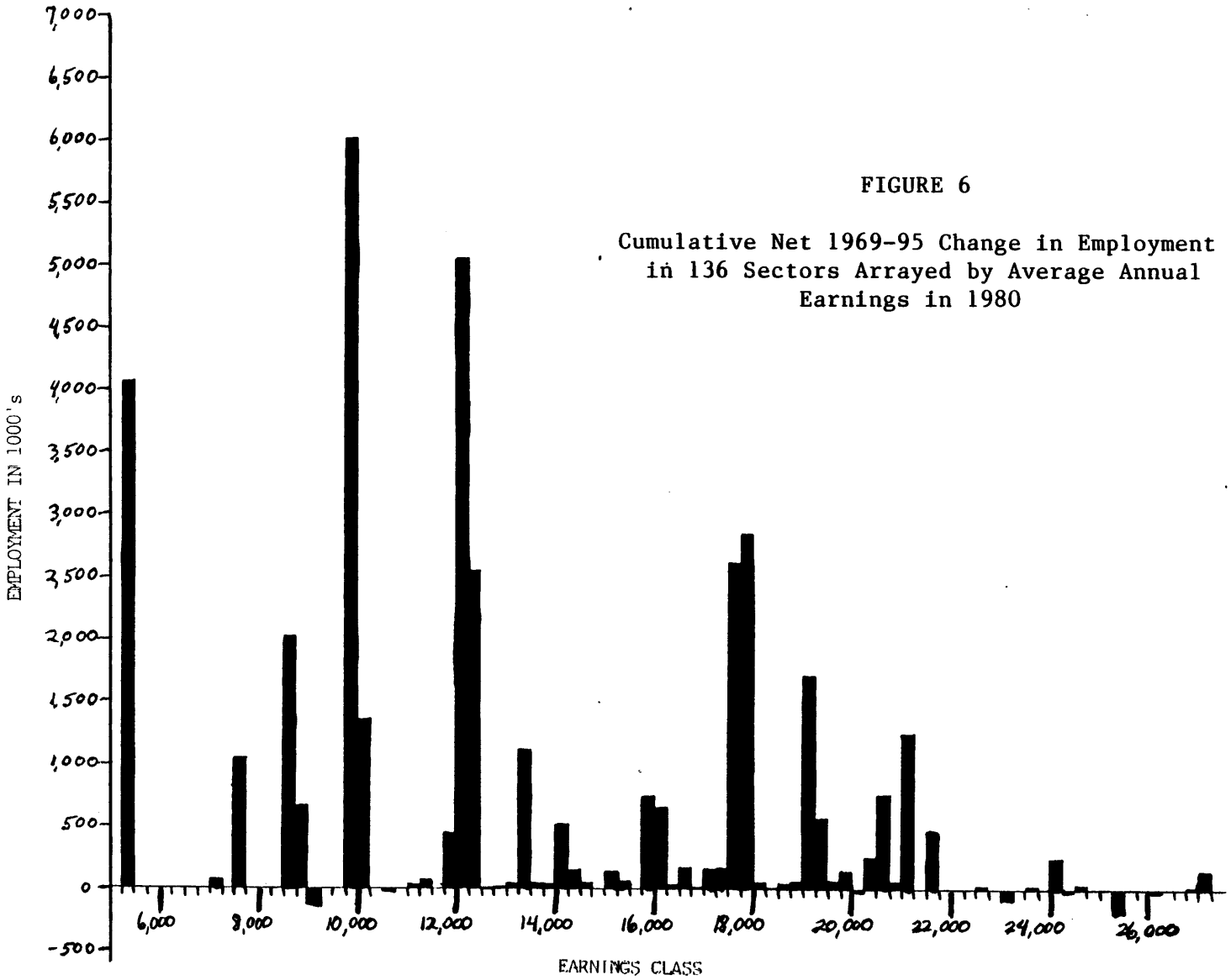


FIGURE 6

Cumulative Net 1969-95 Change in Employment in 136 Sectors Arrayed by Average Annual Earnings in 1980

TABLE 3.2

ABSOLUTE CHANGE IN EMPLOYMENT (in 1000's) BY EARNINGS CLASS

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	1969-82	1982-95	1969-95
124	5,250	2,354	1,731	4,085
133	7,000	-25	108	83
131	7,500	618	439	1,057
142	8,500	963	1075	2,038
139	8,750	360	326	686
033	9,000	-235	117	-118
144 059 125	9,750	2,178	3,840	6,018
132 143 112	10,000	581	797	1,378
032	10,500	-47	31	-16
038 039	11,000	-67	83	16
034	11,250	10	65	75
137	11,750	215	249	464
130 134	12,000	2,192	2,897	5,089
029 141	12,250	1,071	1,494	2565
109	12,500	-15	16	1
030 108	12,750	-30	33	3
107 020	13,000	-13	51	38
126	13,250	671	466	1,137

TABLE 3.2 - (2 of 4)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	1969-82	1982-95	1969-95
110 031 037	13,500	-59	102	43
138 063 102 024	13,750	-34	77	43
043 057	14,000	190	340	530
035 036 117	14,250	56	108	164
056 040	14,500	-2	42	40
058 018 062 104	15,000	47	94	141
105 091 101 071 090	15,250	-77	149	72
128 022	15,750	375	382	757
019 095 076 045 027	16,000	195	476	671
026 092 075	16,250	-84	100	16
087 044	16,500	50	145	195

TABLE 3.2 - (3 of 4)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	1969-82	1982-95	1969-95
042 88	16,750	-33	44	11
072	17,000	24	157	181
064 073 084 013 089	17,250	-19	210	191
103 015	17,500	683	1,946	2,629
096 118 061 123	17,750	1,468	1,405	2,873
133 028	18,000	-40	92	52
099 060 023 016 053	18,250	288	-287	1
080 021 082	18,500	-38	86	48
083	18,750	-3	68	65
067 066 136	19,000	721	999	1,720
127 052 111	19,250	162	433	595
093 074 086 048	19,500	-99	173	74

TABLE 3.2 - (4 of 4)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	1969-82	1982-95	1969-95
081 047 135 069	19,750	1	150	151
121	20,000	10	-23	-13
094 078 051 041	20,250	58	211	269

Source: Bureau of Labor Statistics, Office of Economic Growth and Employment Projections.

Table 3.3 illustrates that low wage industries as a class are constituting an increasing share of total employment from 1969-1995. Low wage industries as a class constituted 50 percent of total employment in 1982 as compared to 45.2 percent in 1969. Their share is projected to rise still further to 52.5 percent in 1995. Both middle wage and high wage industries are accounting for decreasing shares of total employment over the same period.

TABLE 3.3

Percentage Share of Total Employment in Low, Middle, and High Wage Industries, 1969-1995

Industry Class	Percentage Total Employment 1969	1982	1995
Low	45.2	50.0	52.5
Middle	42.0	37.9	35.8
High	12.8	12.1	11.7
TOTAL	100.0	100.0	100.0

The different rates of employment growth experienced by the three earnings classes discussed above is illustrated in Table 3.4. Here we see that employment in the lowest earnings category grew 41.7 percent from 1969 to 1982, close to 67 percent of new employment growth over the same period. The middle earnings category showed a 15.7 percent increase in employment, accounting for 23.4 percent of new employment growth. The class of high wage industries increased its employment growth by 21.4 percent, accounting for only 9.7 percent of employment growth.

TABLE 3.4

Changes in Employment Share by Earnings Class, 1969-1982

Earnings Class % of mean	Employment in 1000's 1969	1982	Changes in Employment Ab. Change	%Change	%Share Growth
1. Low: 0-79% $5,000-13,622	25,822	36,583	10,761	41.7	66.9
2. Middle: 80-119% $13,623-20,265	23,961	27,724	3,763	15.7	23.4
3. High: 120% + $20,266-27,000	7,321	8,886	1,565	21.4	9.7
TOTAL	57,104	73,193	16,089		100.0

The most striking feature of the analysis presented in Tables 3.3 and 3.4 is the dramatic growth of employment in low wage industries. With the exception of the Canned and Frozen Foods Industry which contributed a scant 4000 new employees to its net growth over the period, one hundred percent of the growth in low wage industries has come from 13 service industries. These industries contributed 67 percent of the total employment growth in the economy from 1969 to 1982. More specifically, Retail Trade; Business Services; Eating and Drinking Places, and Medical Services have been the largest contributors to this growth.

Both the class of low wage and the class of high wage industries have experienced faster rates of growth from 1969 to 1982 than the class of

middle range industries, as measured in percentage terms. However, the contribution to net employment growth over the period in absolute terms gives a much different picture. Instead of polarization, we see that low wage industries have contributed the bulk of new jobs, middle wage industries have contributed considerably fewer, and high wage industries have contributed the least.

Figure 8, which shows the projected percentage rate of growth in employment by earnings class from 1982 to 1995, is interesting because of its relative uniformity when compared to the wide variance in actual growth rates from 1969 to 1982 shown in Figure 7. Whereas from 1969-1982, twenty four earnings classes showed negative growth rates, the projections for 1982 to 1995 show negative growth rates in only four earnings classes. On the level of individual industries, from 1969 to 1982, seventy industries showed declining growth rates, while from 1982 to 1995, the BLS projections show only 17 industries showing declines.

While there is no way of predicting what the actual experience of the economy will be in this period, the variance in industry growth rates from 1969-1982 would suggest that the BLS projections from 1982 to 1995 will underestimate the degree to which growth rates across industries will vary. Table 3.5 lists the percentage change in employment from 1969-1982, 1982-1995, and 1969-1995 for each industry and earnings class.

The growth of employment in low wage industries, and in the number of persons working part-time from 8,000 to over 25,000 from 1970 to 1980 is consistent with the entrance of a large number of women and young workers into the labor force during the 1970's.[4] New workers are expected to be

FIGURE 7

Percentage Change in Employment from 1969-82
for 136 Sectors Arrayed by Average Annual
Earnings in 1980

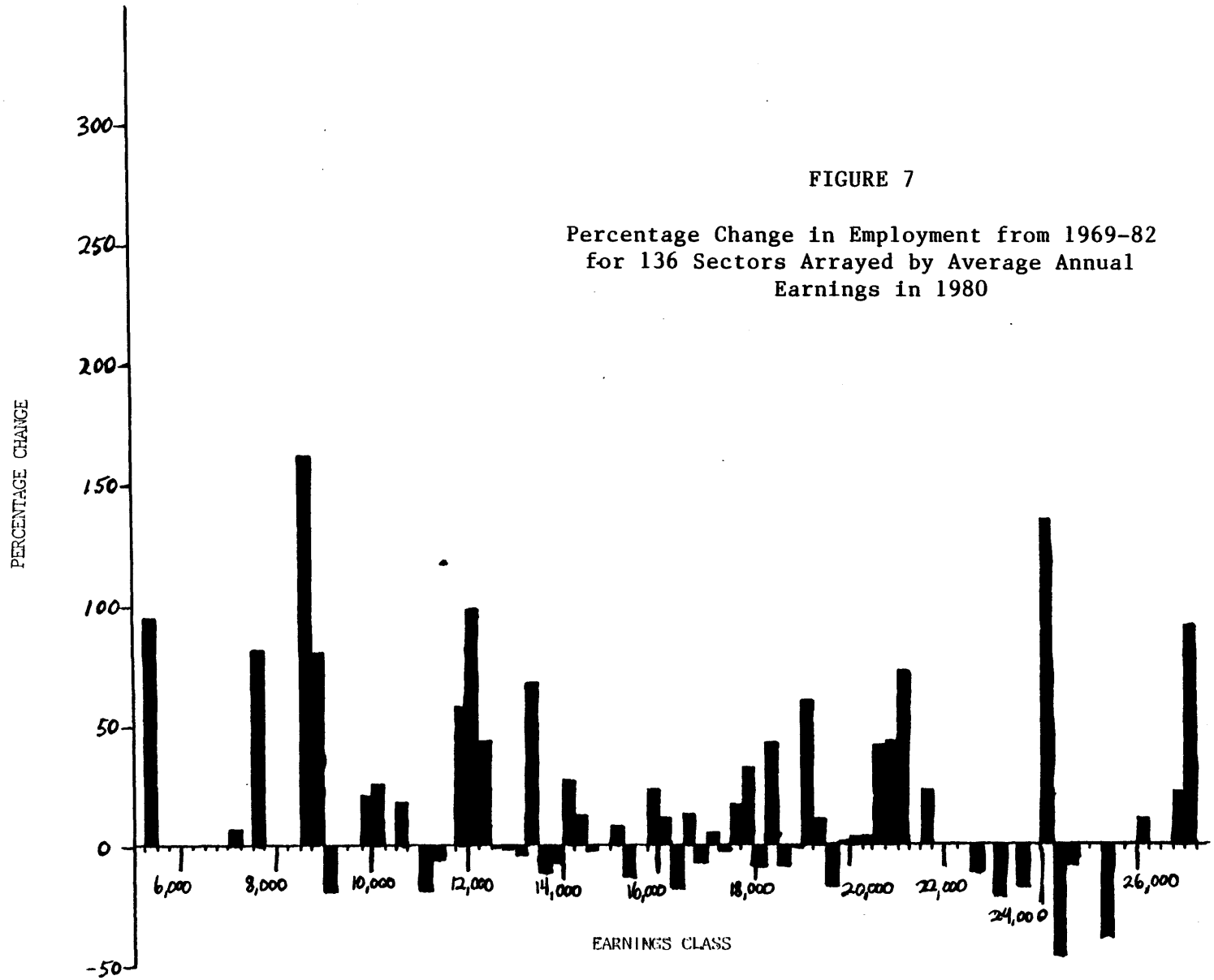
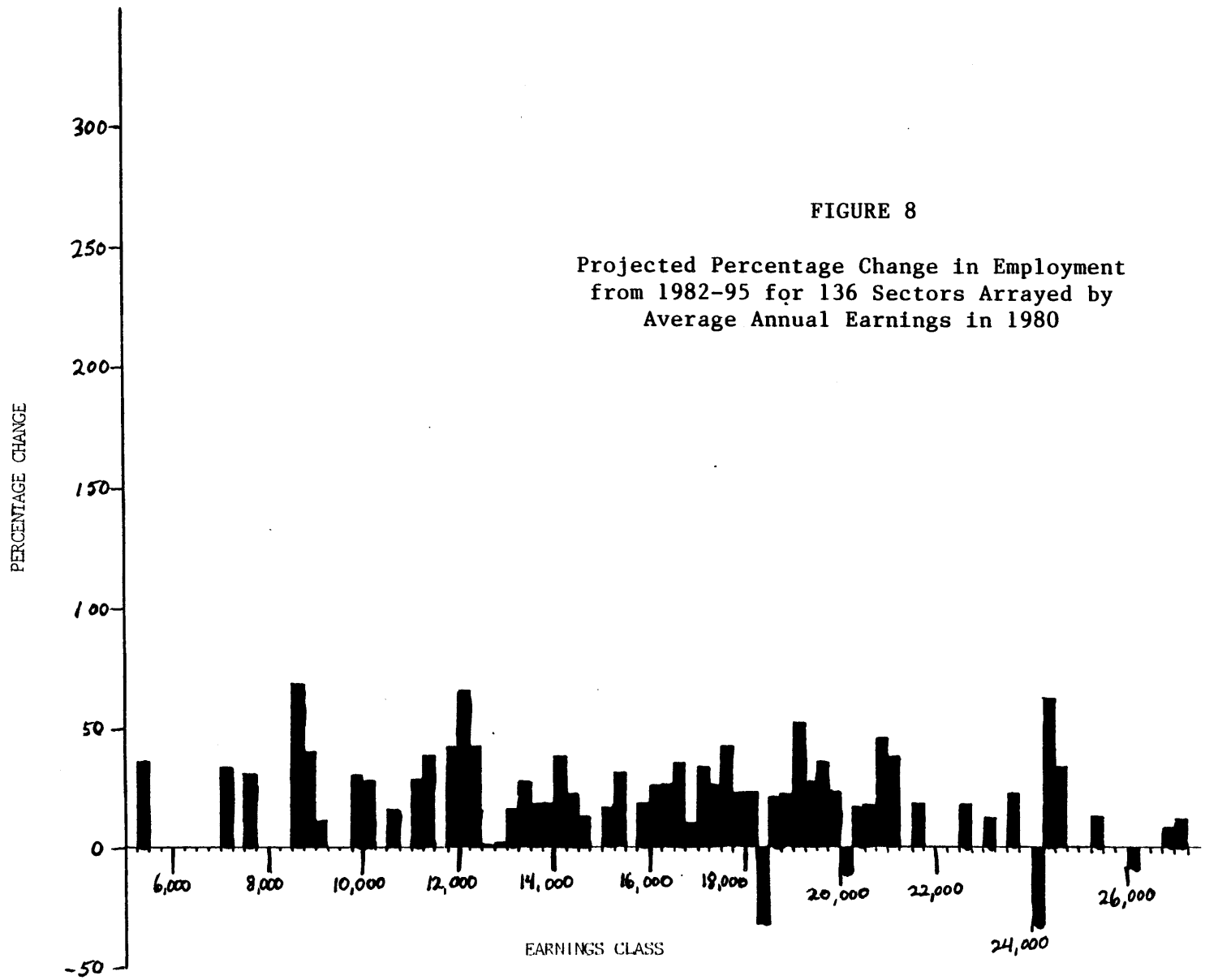


FIGURE 8

Projected Percentage Change in Employment from 1982-95 for 136 Sectors Arrayed by Average Annual Earnings in 1980



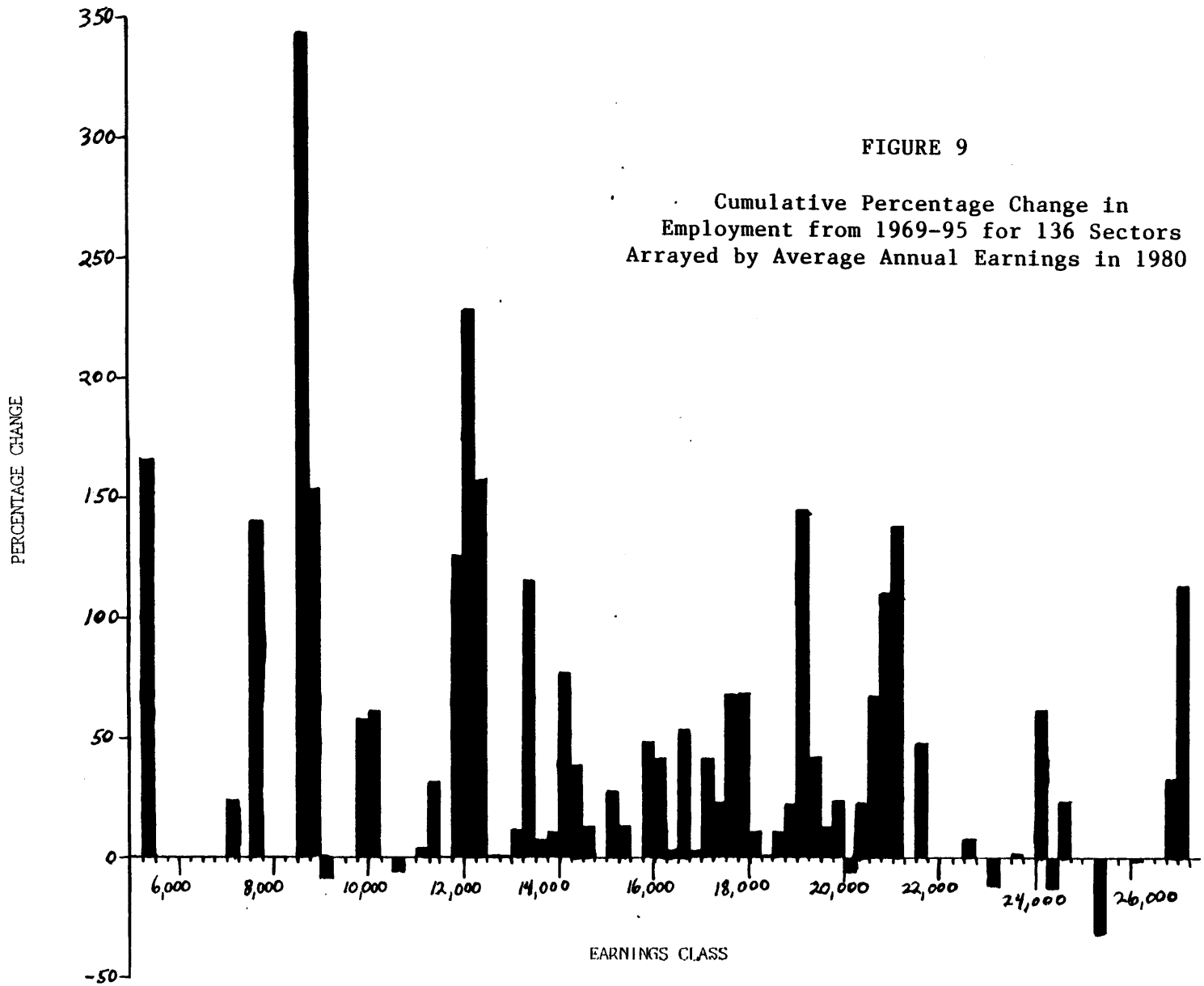


FIGURE 9

Cumulative Percentage Change in Employment from 1969-95 for 136 Sectors Arrayed by Average Annual Earnings in 1980

TABLE 3.5

Percentage Change in Employment by Industry and Earnings Class

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	% change by Industry 69-82	% change by Earnings Class 69-82	% change by Industry 82-95	% change by Earnings Class 82-95	% change by Industry 69-95	% change by Earnings Class 69-95
124	5,250	95.46	95.46	35.91	35.91	165.65	165.65
133	7000	7.46	-7.46	34.84	34.84	24.78	24.78
131	7,500	82.07	82.07	32.02	32.02	140.37	140.37
142	8,500	162.67	162.67	69.13	69.13	344.26	344.26
139	8,750	80.90	80.90	40.50	40.50	154.16	154.16
033	9,000	-19.03	-19.03	11.70	11.70	-9.55	-9.55
144		162.67		69.13		344.26	
059	9,750	-35.35	20.90	-25.12	30.48	-51.59	57.76
125		23.80		33.75		65.57	
132		1.31		23.50		25.12	
143	10,000	52.65	26.01	33.14	28.31	103.23	61.68
112		-5.69		12.83		6.41	
032	10,500	-18.73	18.73	15.20	15.20	-6.37	-6.37
038	11,000	-58.33	-19.03	-26.67	29.12	-69.44	4.55
039		-14.56		32.22		12.97	
034	11,250	-5.75	-5.75	39.63	39.63	31.61	31.61
137	11,750	58.74	58.74	42.86	42.86	126.78	126.78
130	12,000	49.93	99.05	39.92	65.77	109.78	229.96
134		121.07		73.62		283.84	
029	12,250	-28.22	44.94	7.27	43.25	-23.00	107.64
141		70.28		48.51		152.88	
109	12,500	-10.3	-10.3	12.3	12.3	.69	.69
030	12,750	-23.0	-19.6	23.4	26.8	-4.92	2.0
108		-17.4		29.0		6.5	

TABLE 3.5 - (2 of 5)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	% change by Industry 69-82	% change by Earnings Class 69-82	% change by Industry 82-95	% change by Earnings Class 82-95	% change by Industry 69-95	% change by Earnings Class 69-95
107	13,000	-48.57	-4.02	16.67	16.45	-40.00	11.76
020		1.39		16.44		18.06	
126	13,250	68.26	68.26	28.17	28.17	115.67	115.67
110		-16.36		-1.68		-17.76	
031	13,500	-25.93	-10.05	11.67	19.32	-17.28	7.33
037		-1.03		33.91		32.53	
138		.97		17.70		18.84	
063	13,750	-13.33	-7.96	17.95	19.59	2.22	10.07
102		-18.18		48.61		21.59	
024		-16.09		-2.74		-18.39	
043	14,000	13.59	27.74	20.57	38.86	36.96	77.37
057		44.16		55.58		124.29	
035		-2.56		-1.32		-3.85	
036	14,250	-22.17	13.56	16.76	23.03	-9.13	39.71
117		103.81		36.92		179.05	
056	14,500	-13.13	-.66	7.19	13.86	-6.88	13.11
040		13.10		19.51		35.17	
058		-34.48		-36.84		-58.62	
018	15,000	3.27	9.20	6.05	16.85	9.52	27.59
062		-46.88		-11.76		-53.13	
104		92.68		72.15		231.71	
105		1.41		19.44		21.13	
091		-8.78		35.29		23.41	
101	15,250	7.69	-13.95	35.71	31.37	46.15	13.04
071		-19.74		27.87		2.63	
090		-24.60		33.33		.53	
128	15,750	34.09	24.13	25.25	19.80	67.95	48.71
022		-21.58		-22.94		-39.57	
019		-32.93		-25.75		-50.20	
095		42.39		51.52		115.74	
076	16,000	6.54	12.10	30.37	26.34	38.89	41.63
045		17.05		17.72		37.79	
027		1.36		16.11		17.69	

TABLE 3.5 - (3 of 5)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	% change by Industry 69-82	% change by Earnings Class 69-82	% change by Industry 82-95	% change by Earnings Class 82-95	% change by Industry 69-95	% change by Earnings Class 69-95
026		2.11		15.17		17.61	
092	16,250	-40.65	-18.18	21.74	26.46	-27.74	3.46
075		-14.55		41.13		20.61	
087	16,500	8.16	14.01	34.59	35.63	45.58	54.62
044		18.19		36.29		60.95	
042	16,750	-17.83	-7.55	1.59	10.89	-16.52	2.52
088		3.86		19.07		23.67	
072	17,000	5.56	5.56	34.43	34.43	41.90	41.90
064		-7.19		37.21		27.34	
073		-19.47		31.87		6.19	
084	17,250	17.86	-2.39	23.86	27.03	45.98	23.99
013		-10.31		-13.79		-22.68	
089		-7.62		39.81		29.15	
103	17,500	16.49	17.73	53.98	42.90	79.38	68.23
015		17.79		42.32		67.64	
096		18.03		30.56		54.10	
118	17,750	67.18	33.49	62.10	24.01	170.99	65.55
061		-6.73		14.90		7.17	
123		35.14		22.61		65.70	
133	18,000	-7.46	-9.57	34.84	24.34	24.78	12.44
028		-18.07		-23.53		-37.35	
099		12.70		24.88		40.74	
060		-9.19		24.40		12.97	
023	18,250	-19.44	43.84	-3.45	-30.37	-22.22	.15
016		-54.86		7.59		-51.43	
053		-15.28		14.75		-2.78	
080		-9.57		32.98		47.06	
021	18,500	0.75	-8.78	6.72	21.77	7.52	11.09
082		-14.56		21.02		3.40	
083	18,750	-1.03	-1.03	23.61	23.61	22.34	22.34
067		-15.63		25.93		6.25	
066	19,000	-29.17	61.00	21.72	52.50	-13.78	145.52
136		117.89		59.21		246.90	

TABLE 3.5 - (4 of 5)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	% change by Industry 69-82	% change by Earnings Class 69-82	% change by Industry 82-95	% change by Earnings Class 82-95	% change by Industry 69-95	% change by Earnings Class 69-95
127		56.33		49.09		133.07	
052	19,250	18.70	11.53	20.55	27.63	43.09	42.35
111		-33.38		-18.94		-46.00	
093		1.37		41.22		43.15	
074	19,500	-26.77	-17.22	34.95	36.34	-1.18	12.87
086		-9.62		46.81		32.69	
048		-22.76		26.32		-2.44	
081		-7.62		24.76		15.25	
047	19,750	1.56	.16	33.85	24.23	35.94	24.43
135		33.06		26.71		68.60	
069		-15.22		8.97		-7.61	
121	20,000	4.55	4.55	-10.00	-10.00	-5.91	-5.91
094		3.67		8.49		12.47	
078	20,250	-2.86	4.94	26.47	17.13	22.86	22.91
051		39.16		40.70		98.50	
041		-1.87		12.26		10.17	
085	20,500	91.07	42.12	62.15	18.18	209.82	67.95
119		30.17		33.14		73.31	
122	20,750	44.12	44.12	45.92	45.92	110.29	110.29
140		140.50		47.57		254.89	
055	21,000	-11.76	72.94	-0.95	38.05	-12.61	138.74
114		-12.12		0.0		-12.12	
100		-27.45		35.14		-1.96	
079		25.74		40.55		76.73	
068		-8.50		27.14		16.34	
014	21,500	33.33	24.25	45.83	19.60	94.44	48.60
120		48.70		8.19		60.87	
050		-26.52		27.84		-6.06	
025		-10.53		-5.88		-15.79	
010		32.00		3.03		36.00	
077	22,500	0.89	-10.07	47.79	19.53	49.11	7.49
049		-17.59		30.34		7.41	
070		-26.44		-3.13		-28.74	
098	23,000	-21.77	-21.77	12.72	12.72	-11.82	-11.82

TABLE 3.5 - (5 of 5)

ECONOMIC GROWTH SECTOR	EARNINGS CLASS	% change by Industry 69-82	% change by Earnings Class 69-82	% change by Industry 82-95	% change by Earnings Class 82-95	% change by Industry 69-95	% change by Earnings Class 69-95
097	23,500	-22.61	-17.32	21.84	22.49	-5.71	1.27
106		26.13		25.71		58.56	
011		78.52		31.54		134.81	
115	24,000	26.06	135.58	26.52	-31.29	59.49	61.86
046		10.85		15.90		28.47	
008	24,250	-46.67	-46.67	62.50	62.50	-13.33	-13.33
009	24,500	-26.47	-7.80	40.00	34.62	2.94	24.11
017		-1.87		33.33		30.84	
065	25,250	-38.82	-38.82	13.45	13.45	-30.59	-30.59
054	26,000	10.44	10.44	-9.95	-9.95	-0.55	-0.55
116	26,750	22.22	22.22	9.09	9.09	33.33	33.33
012	27,000	91.10	91.10	11.83	11.83	113.70	113.70

Source: Bureau of Labor Statistics, Office of Economic Growth and Employment Projections

found in industries which create a large number of entry level jobs. That is not to say, however, that this proliferation of low wage jobs does not create problems for these and other workers. This will be discussed in greater detail in Chapter Four, which looks at the problems faced by minority and women workers.

Since the greater than average employment growth of low wage industries as a class was accompanied by some growth in both middle and high wage industries, the results of the above analysis are also consistent with Ronald Kutscher's finding that the average wage over the economy decreased only slightly from 1969 to 1995 as a consequence of employment shifts between industries. The results are also consistent with previous research discussed in Chapter Two which found a large growth in the variance across industry wages between 1950 and 1980 (Freeman, 1983) and increasing inequality in individual earnings during the same period (Henle, 1972; Henle and Ryscavage, 1980; Dooley and Gottschalk, 1982, Harrison, 1983).

Summary of Findings

Given the above analysis, what can be said which either supports or refutes the hypothesis of labor market polarization?

First, industries with mean earnings between 80 percent and 119 percent of the grand mean of all industry mean earnings (between $13,623 and $20,265) have experienced less absolute growth than industries paying low

mean wages, but have experienced greater absolute growth than industries paying high mean wages. Thus, polarization is not occurring due to employment shifts between industries alone.

Second, the large growth of employment in industries with average low wages is consistent with the thesis that the labor market is polarizing, given that employment changes within industries is also occurring. This growth of employment in low wage industries may be contributing significantly to bimodality, but is also consistent with the view that only the bottom tier of the labor market is increasing while the middle and top are shrinking relatively. Thus, shifts of employment between industries support the labor market polarization thesis at the low end of the industry wage scale but they do not support the polarization thesis at the high end. More detailed studies of the distribution of earnings within industries and occupations is needed to provide a definitive answer to the question of labor market polarization.

Third, the uneven growth in employment across industry earnings classes supports previous research citing the growing inequality across both industry mean earnings (Freeman 1983) and individual earnings (Henle, 1972; Henle and Ryscavage, 1980; Dooley and Gottschalk, 1982; Harrison, 1983).

Fourth, the large growth in low wage industries and the relatively slower growth in middle and high wage industries may lead to frustrated aspirations for those workers in low wage industries who desire upward mobility. This aspect of the trend in industry growth and earnings polarization will be discussed in the following chapter.

ENDNOTES

1. Correspondence between Ronald Kutscher and Bennett Harrison, November, 1983.

2. Ibid.

3. The methodology applied here is exactly analogous to that applied by Stanback and Noyelle in their book Cities in Transition and discussed in some detail in Chapter Two (see p. 16). As with Stanback and Noyelle, earnings are held constant and only employment levels are varied. Because low, middle, and high wage industries were defined by their mean wage in 1980, the mean of industry means in 1980 was used as the point of comparison, rather than comparing these industry means to what the average worker would have received in 1980. Thus, the comparison is internally consistent since the 136 industry means are being grouped around their own mean. Because this study is concerned primarily with the shift from manufacturing to services, agriculture and public administration were not included in the analysis.

4. U.S. Bureau of the Census, "Money Income of Households, Families, and Persons in the United States" 1970 and 1980: Table 52, "Work Experience and Total Money Earnings in 1970-Civilians 14 Years Old and Over by Race and Sex," and Table 59, "Work Experience in 1980-Civilians 15 Years Old and Over, by Total Money Earnings in 1980, Race, Spanish Origin, and Sex." Because the 1980 figures include workers 15 years old and over whereas the 1970 figures include workers 14 years old and over, the growth in parttime workers is actually biased downward.

CHAPTER FOUR

MINORITY AND FEMALE EMPLOYMENT

I. Introduction

The analysis of industry employment growth presented in Chapter Three shows that from 1969 to 1982, the majority of new jobs created were found in service industries which paid low average wages. The employment projections developed by the Bureau of Labor Statistics forecast a continuation of this trend. Moreover, the class of industries with average wages between 85 percent and 120 percent of the mean for all industries are expected to contribute the least to employment growth from 1969 to 1995. This chapter extends the analysis used in Chapter Three one step by looking at the different rates of concentration of minority and female employment in low, middle, and high wage industries.

The increase in the number of women participating in the wage labor force represents one of the most striking changes in the U.S. economy over the past decade. From 1968 to 1978, the proportion of women actively seeking or engaged in paid work increased from 41.6 percent to 50.1 percent. The number of working women employed in non-agricultural jobs rose from 24.4 million to 35.3 million, a gain of over 10 million workers.[1]

In spite of women's increased participation in the workforce, gains

in education, and a decade of affirmative action policy, the economic position of women has not improved over the same period. Between 1967 and 1977, earnings of year-round fulltime women workers relative to male workers held constant at just below 60 percent of male earnings. A Bureau of Labor Statistics report from 1981 shows that when women's earnings are broken down into 250 occupational categories, women are at a disadvantage in earnings in all occupations, ranging from a low of 52 percent of male earnings for salesworkers to a high of 94.7 percent of male earnings for the category of nurses, dieticians, and therapists.[2]

Partly as a reflection of this disparity in earnings, in 1970 female-headed households were more than four and one half times as likely as male-headed households to have incomes below poverty level. By 1977 this gap had expanded to the point where female-headed households were almost six times as likely to be poor.[3] Since a large proportion of poor women are minorities, this disparity in income points to the failure of affirmtive action in overcoming race, as well as sex, discrimination.

Improving the position of minority workers has also been slow. While minority workers made some progress in the 1960's, the 1970's showed much smaller gains which have been threatened by a continued series of recessions. Minority unemployment rates have been persistently high; minority average income is only 62 percent of that for whites; the labor force participation of black males has dropped; and minority youth unemployment continues at high levels.[4]

II. Employment of Women and Minorities by Industry

To understand the lack of economic progress made by women and minorities over the past decade and the prospects for improving their position over the coming decade, it is important to look at which industries presently employ large numbers of women and minority workers and whether these industries are expected to expand their employment in the future. continuing the classification of industries developed in Chapter Three into low, middle, and high wage, where do we find concentrations of women and minority workers?

To calculate the percentage of minority and female workers in low, middle, and high wage industries, data for detailed industries for 1970 from the Bureau of the Census were used. Since the Census data are categorized by Standard Industrial Classification (SIC) Code, they had to be recalculated to fit the Economic Growth Sector Classification used by the Bureau of Labor Statistics. The Bureau of Labor Statistics classification by Economic Growth Sector was used for the industry analysis in Chapter Three.

Because the two data sets are not exactly comparable without going to a more detailed industry level than that for which statistics separating out female and minority employment are available, the results below must be regarded as approximations rather than absolute figures. Nevertheless, they are meaningful for a general look at employment concentration, particularly for low wage industries where only a slight comparability problem exists.[5]

Low, middle, and high wage industries were defined as they were for the industry employment analysis in Chapter Three: low wage industries paid

a mean wage in 1980 up to $13,622; middle wage industries between $13,623 and $20,265; and high wage industries between $20,266 and $27,000. Dividing workers between wage categories on the basis of sex and on black and hispanic origin produced the results displaced in Table 4.1. Because agriculture and public administration were not included in the industry employment analysis, they are also separated out here.[6]

TABLE 4.1

Employment in Low, Middle, and High Wage Industries
By Race and Sex, 1970

	Percentage Employment				
	Low	Middle	High	Agric.	Pub. Admin.
Total Women	67.2	20.9	6.4	1.1	4.4
Total Men	35.8	37.9	14.9	5.3	6.1
White Women[a]	66.9	21.2	6.6	1.0	4.3
White Men	35.3	38.5	15.0	5.2	6.0
Black Women	74.5	13.4	4.8	1.4	5.9
Black Men	36.8	36.0	14.6	5.3	7.3
Hispanic Women	76.0	11.8	5.8	2.4	4.0
Hispanic Men	40.7	32.7	13.0	7.4	6.1

[a] The figures for whites were derived by subtracting the figures for blacks and hispanics from Total Women and Total Men. Thus, the figures for whites most likely includes groups who would be categorized as other, such as Asians and Native Americans.

Source: Industrial Characteristics, U.S. Census Bureau, 1970, and the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

Low wage industries show a high percentage of women workers of all races: over 67 percent of all women, close to 67 percent of white women, and close to 75 percent of black women work in industries with low mean wages. Low wage industries which employ large numbers of both all women and minority women workers include retail trade, especially eating and drinking places; hospitals; apparel; personal services; medical services; and educational services.[7]

In contrast to the concentration of women of all races in low wage industries, low wage industries do not show a dramatic concentration of minority men. Close to 36 percent of all men are found in low wage industries, compared with 35.3 percent of black men, and just over 40 percent of hispanic men. For each racial group, the concentration of women workers in low wage industries is close to double that of men. Thus, sex segregation in low wage industries is more apparent than is racial segregation. Low wage industries employing large numbers of minority men include retail trade; educational services; personal and business services; and hospitals. All of these industries are expected to show considerable employment growth from 1982 to 1995 based on projections by the Bureau of Labor Statistics.

In addition to looking at low wage industries which employ a large number of women and minority workers, we can also look at industries which employ a higher percentage of minority men and/or women than all men or women. These industries show concentrations of minority employment because they employ a higher proportion of minority workers, rather than a high absolute number.

A higher percentage of minority women than all women are employed by the hotel industry, while hispanic women are found in higher percentages than all women additionally in leather products, household furniture manufacturing, banking, and auto repair. Low wage industries with higher percentages of minority men than all men are hospitals; hotels and lodging places; amusement and recreation services; apparel; nonprofit organizations; personal services; household furniture; auto repair; real estate; canned and frozen foods; and fabric, yarn, and thread mills. Hispanic men are also concentrated additionally in leather products; retail trade; and business and repair services. Black men are concentrated additionally in local transit and intercity buses.[8]

In middle wage industries, women are employed in large numbers in only two manufacturing industries: electronic components; and electrical machinery and equipment, although black women are not found in large numbers in either of these industries. In services, the broad category of finance, insurance, and real estate also employs a large number of women of all races, while professional services employs a large number of black women.

Two middle wage industries emply a large number of both black and hispanic men: transportation equipment, not elsewhere classified; and construction. Hispanic men are also found in large numbers in food and kindred products; and in fabricated metal products. Middle wage industries employing a higher percentage of black and hispanic men than all men are food and kindred products; and transportation services. Hispanic men are found additionally in manufactured products not elsewhere classified;

motion pictures; fabricated metal products; stone,clay, and glass products; and ship and boat building. Logging, soft drinks, and tobacco manufacturing also employ a higher percentage of black men than all men.

No high wage industry employs a large number of women workers, but aircraft; and photographic equipment and supplies both employ a higher percentage of hispanic women than all women. The auto and steel industries both employ a large number of black and hispanic men, while the aircraft industry employs a higher percentage of hispanic men than all men. Table 4.2 summarizes the results discussed above by listing the Economic Growth Sectors which either employed large numbers of women and/or minority workers in 1970 and/or employed a higher percentage of minority men or women than all men or women. Table 4.2 is based on 1970 data because this is the most recent year for which detailed industry data is available which separates out hispanics.

What happened to these 44 industries with concentrations of women and/or minority workers in terms of employment growth between 1969 and 1982? Table 4.2 reveals that 39 out of these 44 industries, or 89 percent, were either low wage or showed employment growth from 1969 to 1982 which was considerably below the average growth rate across the economy of 28 percent. Close to half of the industries listed with middle or high average earnings experienced employment declines during this same period.

Plant closings due to declining industries have hit women and minority workers especially hard. Two studies which followed displaced

TABLE 4.2

Industries With A High Concentration of Women and/or Minority Workers in 1970

Economic Growth Sector	Mean Wage 1980	% Growth Employment 1969-1982
Low Wage:		
Eating and Drinking Places	$ 5330	95.46
Hotels and Lodging Places	7607	82.07
Medical Services, except Hospitals	8639	162.67
Amusement and Recreation Services	8853	80.90
Apparel	9217	-19.03
Nonprofit Organizations	9796	162.67
Leather Products	9887	-35.35
Retail Trade, ex. Eating and Drinking Places	9969	23.80
Personal and Repair Services	10031	1.31
Educational Services	10106	52.65
Local Transit and Intercity Buses	10140	-5.69
Household Furniture	11248	-14.56
Automobile Repair	11972	58.74
Real Estate	12200	49.93
Fabric, Yarn, and Thread Mills	12288	-28.22
Hospitals	12324	70.28
Canned and Frozen Foods	13041	1.39
Banking	13307	68.26
Middle and High Wage:		
Manufactured Products,n.e.c.	13623	-16.36
Motion Pictures	13771	.97
Transportation Equipment, n.e.c.	13943	-18.18
Transportation Services	14360	-2.56
Logging	14473	103.81
Rubber Products	14510	-13.13
Meat Products	15033	3.27
Bakery Products	15900	-21.58
Electronic Components	16045	42.39
Fabricated Metal Products	16104	6.54
Food Products,n.e.c.	16189	1.36
Soft Drinks	16278	2.11
Fabricated Structural Metal Products	17213	5.56
Stone and Clay Products, n.e.c.	17265	-7.19
Maintenance and Repair Construction	17660	17.73
Electrical Machinery and Equipment, n.e.c.	17773	18.03
Wholesale Trade	17967	35.14
Tobacco Manufacturing	18183	-18.07
Ship and Boat Building	18275	12.70
Iron and Steel Foundries and Forgings	19127	-29.17
Credit Agencies and Financial Brokers	19253	56.33
Plastic Materials and Synthetic Rubber	22689	-17.59
Aircraft	23199	-21.80
Photo Equipment and Supplies	23673	26.1
Motor Vehicles	23585	-22.61
Blast Furnace and Basic Steel Products	25496	-38.82

Source: Industrial Characteristics, Detailed Industry of Employed Persons by Race and Sex: 1970, U.S. Census Bureau; and the Office of Economic Growth and Employment Projections, Bureau of Labor Statistics.

workers after a plant closing found that women workers have the greatest difficulty maintaining earnings. According to a study conducted by Abt Associates of Cambridge, Massachusetts, 57 percent of men versus 40 percent of women found new jobs within two years after being laid off. While men lost an average of 76 cents an hour and had an average wage of $8.26 an hour in new jobs, women lost $1.54 an hour and had an average wage of only $6.57. According to study director Jane Kulick, women's occupations tended to shift away from manufacturing and toward the service sector.[9]

Another study of a manufacturing plant shutdown found that women more often found replacement jobs in parttime service sector work while men were more likely to find jobs as craft workers or operatives with earnings comparable to their former jobs. According to the study's authors,

> Being employed in the factory was a step up for the women. While there was inequality between the men and the women from the start, that inequality was even greater after the plant shutdown.

Research conducted by Greg Squires for the Illinois Advisory Committee to the U.S. Commission on Civil Rights also documents the adverse impact of plant closings on minority workers.[10] Plants which relocate out of the central city or other areas with high minority populations mean large job losses for minority workers. Because minorities are often more restricted in relocating to follow a job due to housing discrimination, they face additional problems in becoming reemployed. The desire to maintain community and family ties also seems to restrict the mobility of women to a greater extent than that of men.[11]

Although the above analysis of female and minority employment by industry is based on 1970 data, its conclusions are consistent with more recent data. A study which examined employment gains by industry for

women workers from 1968 to 1978 found that:

> Women made the largest numerical gains, as well as proportionate gains in industry divisions in which they already constituted a significant share of employment.[12]

The most significant change in industry employment for women workers over the past decade has been the decline in employment in the personal services industry, particularly for minority workers as better opportunities have opened up in the services, health, and clerical fields. While women and minorities have made some advances during the 1970's, these advances have not been substantial enough to alter the results of our analysis appreciably.

III. Employment of Women and Minorities by Occupation

The high proportion of women workers and the higher concentration of minority male workers found in low wage industries is cause for concern in and of itself because the majority of workers in these industries receive low wages. As these industries expand to 1995, we can expect that they will continue to employ large numbers of women and minorities. The concern becomes still greater, however, when we examine the concentration of women and minorities by occupation. If all black women in health services were physicians, after all, we would not be as concerned as we would be if all black women in this industry were nurses aides and orderlies.

Women workers have historically been concentrated in a small number of occupations with low earnings. In 1981, over 50 percent of the female workforce was found in two occupational categories: clerical and kindred workers; and service workers not working in private households. Adding operatives brings this total to 64 percent of all women workers, while adding non-college and university teachers and the category of

nurses, dieticians, and therapists brings the percentage of women workers accounted for up to 74%.

Since women have increased their participation in the labor force over the past decade, looking at what occupations they have been moving into in the greatest numbers will tell us something about employment opportunities open to women. From 1972 to 1980, the top ten growth occupations, listed in order of greatest absolute growth of women workers, were:

1. secretaries
2. registered nurses
3. cashiers
4. bookkeepers
5. waitresses
6. banktellers
7. cooks
8. accountants
9. computer and peripheral machine operators
10. health technicians

This list reveals that the increased participation of women in the workforce over the past decade has largely been absorbed by women entering traditional female occupations. The top seven growth occupations for women all have earnings which fall below the median weekly earnings of fulltime wage and salary workers in 1980. Out of the top ten growth occupations for women, only accountants, number eight, has a weekly salary above the median for fulltime workers in 1980. In 1981, women constituted 40 percent of accountants.[13]

Conversely, the occupational categories showing the greatest increases in employment of male workers were truckdrivers, engineers, heavy equipment mechanics, cooks, and computer specialists. With the exception of cooks,

these occupations are highly male dominated and showed weekly earnings above the median of fulltime wage and salary workers in 1980.[14]

The employment experience of minority workers in many ways parallels that of women workers. Minority workers have been concentrated in low status occupations and have correspondingly lower earnings than whites. Looking at the specific situation of Black workers illustrates the trends in occupational mobility as a whole, though differences exist between groups. A Bureau of Labor Statistics study shows that Black workers were concentrated in the same occupations in 1980 in which they were concentrated in 1972.[15] Table 4.3 lists occupations with high concentrations of Black workers in 1980. For both men and women workers, a high concentration is defined as 20 percent or more of all workers in the occupation being Black. For comparison, Blacks comprised just under 10 percent of the civilian labor force in 1970.

TABLE 4.3

Occupations with Concentrations of Black Male and Female Workers in 1980

Black Women	% Black		Median Weekly Earnings For All Workers
Occupation	1972	1980	
Maids and Servants	71.1%	52.5%	$126
Clothing Ironers and Pressers	38.4	40.4	164
Postal Clerks	26.7	32.7	400
Cleaning Service Workers	35.3	30.2	200
Laundry and Drycleaning Operatives	28.7	23.3	166
Health Service Workers	23.7	21.0	188
Textile Operatives	12.4	20.7	200

Table 4.3 cont'd.

Black Men Occupation	% Black 1972	 1980	Median Weekly Earnings For All Workers
Garbage Collectors	33.3%	32.8%	$189
Health Service Workers	24.5	32.1	188
Cement and Concrete Finishers	33.3	31.0	- - -
File Clerks	22.0	25.6	192
Furnacemen, Smeltermen, and Pourers	23.9	25.4	374
Taxicab Drivers and Chauffeurs	22.5	24.0	240
Bus Drivers	21.7	24.0	303
Cleaning Service Workers	25.4	22.8	200
Mail Handlers, Except Post Office	25.0	22.1	222
Textile Operatives	18.9	22.1	200
Laundry and Drycleaning Operatives	24.0	21.9	166
Packers and Wrappers	12.6	20.4	204

Source: Diane Nilsen Westcott, "Blacks in the 1970's: Did They Scale the Job Ladder?," Monthly Labor Review, June, 1982.

Although occupations which traditionally have had high concentrations of Black workers continue to do so, if Blacks are moving into better paid occupations which have had high percentages of white workers, their job prospects would still be improving. Table 4.4 lists occupations with over 100,000 Black workers in 1982. The median weekly earnings for all workers for each occupational category, regardless of race and sex, are listed in column two.

Of the twelve occupations which employ a large number of Black women, only one-- teachers-- shows a median weekly wage above the median weekly wage of $289 for all occupations. Many of the occupations for Black women in Tables 4.3 and 4.4 are the same, evidence that Black women have had difficulty moving out of traditional minority jobs in large numbers. It is also important to note that these occupations are characterized by a high

Table 4.4

Occupations with over 100,000 Black Workers in 1982

Black Women Occupation	# Workers in 1000's	Median Weekly earnings, all workers
Health Service Workers	394	$188
Food Service Workers	303	162
Private Household Workers	285	107
Cleaning Service Workers	282	200
Teachers, Except College and University	231	333
Secretaries	224	230
Personal Service Workers	171	191
Cashiers	148	168
Typists	126	213
Office Machine Operators	121	238
Miscellaneous Clerical	107	233
Sewers and Stitchers	102	157

Black Men Occupation	# Workers in 1000's	Median Weekly earnings, all workers
Cleaning Service Workers	339	$200
Truck Drivers	219	314
Other Construction Craftsmen	204	- - -
Food Service Workers	182	162
Protective Service Workers	182	315
Managers and Administrators, Not Elsewhere Classified	145	431
Construction Laborers, Except Carpenters Helpers	129	250
All Other Craftsmen	119	- - -
Mechanics, Except Auto	116.	- - -
Machine Operatives, Miscellaneous Specified	115	273
Farm Laborers, Wage Workers	109	174
Freight and Material Handlers	102	259

Source: Current Population Survey Tables for Black Workers, Annual Averages for 1982, U.S. Census Bureau, Table 33,"Employed and Unemployed Persons, By Detailed Occupation, Age, and Sex."

proportion of women workers in general, not only Black women.

For Black men, more progress appears evident. Although the majority of occupations listed which employ a large number of Black men have median weekly earnings below the median for all occupations, there are at least several with above median earnings. With the exception of managers and administrators, these better paying occupations fall in the areas of blue collar work, where Black men have found the greatest opportunities for increasing their earnings.

In the management and administration area, Black men were most likely to be employed as managers of cafeterias, restaurants, and bars; and as school administrators. Partly as a reflection of declining school enrollment, especially in urban areas, Black employment in school administration declined in the 1970's. The number of Black fast food restaurant managers rose. In spite of this slightly more encouraging picture for Black men, in 1981 the median weekly earnings of Black men for all occupations was $271 compared with $356 for white men.[16]

A critical factor in understanding the progress for Blacks in certain occupations, and lack of progress in others, is the geographic dimension. A 1982 Bureau of Labor Statistics study points out that the recipients of most of the occupational upgrading which occurred in the 1970's were suburban Blacks, who comprise roughly 22 percent of the Black population. The 55 percent of Blacks living in the central cities were disproportionately concentrated less skilled and service jobs. The study provides an excellent summary of changes in Black occupational mobility during the 1970's:

Overall, shifts by Blacks into the high-salaried occupations were

> rather limited; this was most apparent for those who resided in the central city areas. The majority of blacks lived in central cities, which have high concentrations of office and other business district-type activities. Yet, by 1980, central city blacks had made little progress increasing their proportion in white collar occupations... Further, the progress that did occur among blacks living in the city was mostly accounted for by women, whereas, in the suburbs black men and women shared equally in the gains... Clearly, black workers, especially black men and city dwellers, need to gain more access to the higher-skilled, better-paying jobs in the rapidly growing white-collar fields, if their earnings are to increase.[17]

Thus we see that minority and women workers are not only concentrated in low wage industries, but in low wage occupations within all industries. Because low wage occupations are expected to provide the majority of new jobs into the 1990's according to projections by the Bureau of Labor Statistics, the concentration of women and minority workers in these occupations will likely persist over the coming decade. Without significant changes in public policy or a vastly different outlook for where growth will occur in the economy, women and minorities will find it difficult to improve their relative economic position substantially.

ENDNOTES

1. Davis, Howard, "Employment Gains of Women by Industry," Monthly Labor Review, June 1980, pp. 3-9.

2. Rytina, Nancy F., "Earnings of Men and Women: A Look at Specific Occupations," Monthly Labor Review, April, 1982, pp. 26-28.

3. Squires, Greg, "Business Incentives and Minority Employment," report of the Wisconsin Advisory Committee to the U.S. Commission on Civil Rights, September, 1982, p. 6.

4. Westcott, Diane Nilsen, "Blacks in the 1970's: Did They Scale the Job Ladder?," Monthly Labor Review, June, 1982.

5. The sex and race composition of industries was calculated using data from the 1970 Census, Industrial Characteristics, Table 236, "Detailed Industry of Employed Persons by Race and Sex: 1970." For the majority of low wage and high wage industries, no comparability problem exists between SIC Code classifications and Economic Growth Sector Classifications. Thus, the figures for low wage and high wage industries were calculated first and the middle wage industry figures were calculated by subtracting low wage and high wage from the total. In cases where the SIC Code industry aggregated two or more Economic Growth Sectors which fell into different earnings categories (i.e. one is high and the other is middle), the employment for all groups between the industries was assumed to be in the same proportion as the proportion of total employment between the industries in 1969. Thus, no account is taken of the fact that women and minorities may be found in the lower wage sector of a particular industry. This biases the results to be conservative.

6. As with the industry employment analysis in Chapter Three, this analysis is primarily concerned with shifts between manufacturing and services, thus agriculture and public administration were omitted.

7. U.S. Census Bureau, Industrial Characteristics: 1970, Table 236, "Detailed Industry of Employed Persons by Race and Sex: 1970."

8. Ibid.

9. Collins, Huntly, "How Women Lost More than Jobs with the Recession," Philadelphia Inquirer, March 18, 1984.

10. Squires, Greg, op cit.

11. Collins, Huntly, op cit.

12. Davis, Howard, op cit.

13. Westcott, Diane Nilsen, op cit., p. 36.

14. Rytina, Nancy F., "Earnings of Men and Women: A Look at Specific Occupations," Monthly Labor Review, April 1982, pp. 26-28; and Carol Boyd Leon, "Occupational Winners and Losers: Who They Were During 1972-1980," Monthly Labor Review, June 1982, pp. 18-28.

15. Westcott, Diane Nilsen, op cit.

16. Mellor, Earl F. and George D. Stamas, "Usual Weekly Earnings: Another Look at Intergroup Differences and Basic Trends," Monthly Labor Review, April 1982, p. 16, Table 1.

17. Westcott, Diane Nilsen, op cit. p. 37.

CHAPTER FIVE
CONCLUSION

The analysis of industry employment trends undertaken for this study reveals that if labor market polarization is occurring, it cannot be attributed solely to shifts in employment levels between low, middle, and high wage industries. Overall employment in the class of industries which possess mean wages in the "middle" (between 80 and 119 percent of the grand mean of 136 industry mean wages in 1980) is growing slower than employment in low wage industries, but faster than employment in high wage industries.

The huge proliferation of jobs in the class of industries with low mean wages is striking. This growth in employment in low wage industries is attributable to thirteen service industries which contributed close to 67 percent of the net growth in employment across all industries from 1969 to 1982. In order for the results of this analysis to be consistent with the hypothesis of labor market polarization, there would need to be a large growth of high wage jobs <u>within</u> industries to correspond to the growth in employment in industries with low mean wages cited above.

A high percentage of industries which employ a large number and/or possess concentrations of women and minority workers either pay low average wages or have shown weak employment growth from 1969 to 1982.

Women and minorities are also concentrated in occupations which are at the low end of the pay scale. Unless women and minorities can make substantial progress in moving out of low wage industries and into higher paying industries, they will continue to be at a disadvantage in earnings vis a vis white males. This is particularly true for women of all races who are more segregated into low wage industries than are minority men. Simultaneously, women and minorities must move into higher paying occupations within those industries.

The disproportionate growth of employment in low wage industries which has occurred from 1969 to 1982, and which is expected to continue to 1995, will almost certainly mean that the demand for better paying jobs will outstrip the supply. Even if all of the new jobs created in low wage industries between 1969 and 1982 were filled by new entrants to the labor force, over time as these new workers' experience increases their expectations about upward mobility will rise. While it is impossible to make a definitive statement about upward mobility without doing a more detailed study by industry and occupation, it is clear that even on a gross level there simply are not enough middle wage jobs being created for this huge cohort of workers in low wage industries to move into. Under these circumstances, the prospects for achieving economic equality seem remote at best.

The proliferation of jobs in low wage industries is consistent with earlier research which showed increasing inequality in the distribution of industry earnings (Freeman,1983) and in individual earnings (Henle,1972; Henle and Ryscavage,1980; Dooley and Gottschalk,

1982; Harrison,1983). However, the greater employment growth in industries with low mean earnings does not imply greater inequality in individual earnings in and of itself.

Increasing inequality in individual earnings can be detected by using a measure of variance. If the variance measured in an earnings distribution is increasing over time, then inequality has also increased. While the variance across industry mean wages and employment is clearly increasing from 1969 to 1995 as revealed by Figures 1,2, and 3, the implications for inequality in the distribution of individual earnings is ambiguous.

Because our analysis uses only mean earnings for each industry, it is impossible to discern how employment shifts between industries is affecting the distribution of individual earnings. Each industry mean represents a distribution of earnings within that industry which we cannot analyze with the data we have used. If, for example, the distribution of earnings within industries were polarized so that industries were producing more low wage and high wage jobs, then the distribution of individual earnings across the economy would exhibit increasing variance, i.e. inequality. If, on the other hand, the distribution of earnings within industries showed little dispersion and the employment growth in low wage industries were an indication that everyone is, in effect, worse off, then the variance across earnings would be less and thus there will be less inequality.

This brings us back to our original discussion in Chapter One of the distinction between changes in the distribution of earnings and

changes in the distribution of income, whether individual income or family income. Because earnings are only one component of income, it is possible to have increasing equality in earnings (for example most people having lower earnings so the disparity between low earners and high earners is less) while at the same time having increasing inequality in income. Those persons who rely primarily on earnings for their income would be worse off, while a rise in other sources of income,such as investments,to other persons could make them better off. Thus, decreasing inequality in earnings can be consistent with increasing inequality in income.

It is also important to distinguish between inequality in the statistical sense of being one means of characterizing an earnings distribution and inequality in a broader social context. An overall distribution of individual earnings could be becoming more equal because a shortage of better paying jobs has made the disparity between high and low earners less. If this means, however, that women and minorities will continue to be segregated in low wage industries and occupations, then one needs to be concerned about equality in the broader sense of who benefits from economic progress. If the disproportionate growth of employment in low wage industries is also indicative of a decline in the economy's demand for skills, this raises concerns not about growing inequality, but about the potential for the erosion of the economic position of the vast majority of workers.

Since the relative decline in employment of middle and high wage industries and the large growth in employment in low wage industries

is the result of economic forces which have been taking shape over more than twenty years, influencing the trend will not be a simple endeavor. However, since the trends cited above are cause for concern, it is important to consider ways whereby the negative consequences can be reduced or eliminiated. Policies designed to further economic equality through labor market outcomes must address two fundamental issues: 1. the number and quality of new and existing jobs; and 2. ensuring access to good jobs for all groups of workers.

The first issue of job quality and availability immediately raises the question of economic growth. A growing and dynamic economy produces a larger social product for distribution and allows the creation of both more and higher quality jobs. However, growth is not sufficient in and of itself to reduce labor market inequality if race and sex discrimination persist. Policy options to reduce discrimination such as affirmative action in employment, housing, and education; and pay equity must be more vigorously pursued than they have been to date.

While not an exhaustive list, additional policy approaches which fall within the broader framework of growth with equity include the following:

1. Labor Union Strategy:

Part of the reason that low wage jobs are low wage is because they are not unionized. While unionization in and of itself will not equalize wages between low and middle wage industries, increased unionization of the retail trade and service sectors could provide one basis for a new tier of middle level jobs. Unions must continue to include job ladders or

or similar agreements for upward mobility as part of their bargaining agreements. Lobbying for means to create new high quality jobs is equally important to fighting to maintain existing jobs in industries with uncertain prospects.

In addition to a continuing series of recessions and intensifying international competition, a major reason for the current weak position of the labor movement is increasing attacks from management. Over the past decade, the use of unfair labor practices in union elections has risen dramatically.[1] Because the penalties of pursuing this strategy are so inconsequential for management, they have little incentive not to do so. Labor law reform is needed to put labor on an equal footing with management. However, the weak political position of labor has made recent attempts at this reform unsuccessful.

The labor movement must also continue to become more involved in new forms of work organization, whether they be worker owned and managed firms or innovations such as flexible production systems. While some new forms of organization may violate existing union custom, they may at the same time be consistent with the desired goals of union custom such as job security or greater worker autonomy. The greater the extent that unions are involved in the early stages of new production systems being developed, the more these systems will reflect workers' concerns. State and local economic development efforts may prove to be a fruitful testing ground for new forms of workplace organization and greater workplace democracy. For this reason, organized labor must continue to be integrally involved in such efforts.

2. Economic Development Efforts:

As industrial decline accelerates job loss in many areas, the need for more innovative approaches to job creation increases. Many states are beginning to experiment with new financing mechanisms for young or expanding enterprise, targetting new business creation with minority and/or women's ownership, tax credits for firms which create new well paid jobs, and state involvement in research and development. Local communities are also undertaking more detailed assessments of their economies and what options are open to them to expand or strengthen their economic base. The greater the extent to which minority, women's, and labor organizations become involved in such efforts, the greater is the likelihood that they will constitute an important arena for the pursuit of economic justice goals.

3. Programs for Dislocated Workers:

A great deal of attention has been focussed on the problems of workers displaced from declining industries during the recent recession, particularly in light of the fact that many of them have been displaced permanently. In an effort to mitigate the disruption that this economic change causes, new programs have been proposed to help dislocated workers make the transition into new employment. These proposals include severance benefits, relocation assistance, and special counseling and training.

Programs to aid dislocated workers will benefit women and minorities if they are designed to take into consideration the additional barriers to reemployment these groups face such as housing discrmination-- which

limits their mobility-- and child care support for parents entering training programs. However, a danger exists that programs designed for dislocated workers will create a two tier system where dislocated workers receive a majority of the benefits and long-term disadvantaged workers receive very little. Since the majority of disadvantaged workers are minorities and women, these programs could inadvertently widen the gap between disadvantaged workers and workers who have previously been employed on a steady basis and thus exacerbate the negative consequences of discrimination.

The solution to this dilemma lies in improving the employment security system for all workers, thus using the crisis faced by dislocated workers as an opportunity for more fundamental reform. Improved counseling and training programs, for example, should not be restricted to dislocated workers or parallel programs should be instituted which will address the problems of disadvantaged workers. When considering models for how other countries have addressed the plant closing issue, special care must be given that proposed programs won't exacerbate the disparities in opportunity faced by these two groups of workers. This requires examining how programs for dislocated workers fit into an overall framework of employment programs in these countries, rather than trying to implement attractive programs piecemeal.

4. Industrial Policy:

The fastest growing sector of the service economy over the past decade has been producer services, demonstrating the integral way that services are tied to the manufacturing base. In many cases, the key to

revitalizing local and regional economies lies in understanding how the service and manufacturing sectors can reinforce each other.

States are currently taking greater initiative in designing and implementing industrial policies than is the national government. Since industrial policies will be most successful when they are tailored to specific industries, localities, and firms, this is a positive development. However, a national framework is also needed to coordinate issues which go beyond the purview of any one state such as trade policy, research and development, and development finance. A national industrial policy with a strong local/regional component could design necessary strategies to revitalize some industries, encourage the growth of new industry, and expand job opportunities for all groups of workers. Industrial policy can also be combined with targetted government spending and procurement to aid distressed communities as well as disadvantaged workers.

5. New Workplace Technology:

The introduction of new workplace technology is an important element in the character of new jobs being created. While technology has more often been used to deskill work than to upgrade it, there is not a prima facie rule that says this must be so. In her paper "The Future of Work, Expectations and Realities," economist Eileen Appelbaum argues that by rushing to production methods which utilize low cost labor, industry is sacrificing the long run productivity gains which only investments in worker expertise can bring.[2] How technology might be used to enhance work and strengthen ladders of upward mobility should

be a top research priority.

The industry employment projections formulated by the Bureau of Labor Statistics which were used in the analysis for Chapters Three and Four also incorporate certain assumptions about technological change. When the Office of Economic Growth and Employment Projections calculates its input-output tables and industry-occupation matrices, it must estimate how the diffusion of new workplace technology will affect employment levels both between industries and within occupations. The B.L.S. updates the coefficients for both the input-output table and the industry-occupation matrix on a regular basis to reflect new technological change assumptions.[3] However, the variability in actual industry growth rates from 1969 to 1982 compared to the relatively uniform industry growth rates projected for 1982 to 1995 suggests that technological change may have employment outcomes which are difficult to predict. How the introduction of new workplace technology may differentially impact different groups of workers is another important area of research.

6. Remaining Questions for Research:

A more detailed analysis of the changing structure of occupations and earnings within industries must be conducted in order to resolve the issue of labor market and earnings polarization. Paths of upward mobility among different industries in the service sector must be more clearly defined, as well as clarifying who has access to emerging job opportunities. Since the growth of services has been tied to the manufacturing base, we need to understand what impact the erosion of some elements of the industrial base will have on segments of the service sector, and thus on local

economies and groups of workers.

The role of new workplace technology in the labor market polarization process needs to be understood more fully, as does the potential for using new technology to increase worker participation and satisfaction. Projected changes in employemnt for specific industries and occupations must also be analyzed in greater detail for their impact on the demand for skill across the economy. Exploring these questions, among others, will give us a basis on which to design more effective policy instruments.

ENDNOTES

1. Freeman, Richard, "Why are Unions Faring Poorly in NLRB Representation Elections?" National Bureau of Economic Research, 1983.

2. Appelbaum, Eileen, "The Future of Work, Expectations and Realities," Philadelphia: Department of Ecnomics, Temple University, March 31, 1983.

3. Correspondence with Thierry Noyelle, Conservation of Human Resources Project, Columbia, Univeristy, March, 1984.

APPENDIX I

Bureau of Labor Statistics Input-Output
Sectoring Plan

Industry sector number and title	Bureau of Economic Analysis Input-Output Sector	Standard Industrial Classification (SIC) 1972
ECONOMIC GROWTH SECTOR		
Agriculture, forestry, and fisheries		
1 Dairy and poultry products	1.01-1.02	pt. 01, pt. 02
2 Meat animals and livestock	1.03	pt. 01, pt. 02
3 Cotton	2.01	pt. 01, pt. 02
4 Food and feed grains	2.02	pt. 01, pt. 02
5 Agricultural products, n.e.c.	2.03-2.07	pt. 01, pt. 02
6 Forestry and fishery products	3.00	08 (except 085), 091, 0971
7 Agricultural, forestry, and fishery services	4.00	071, 072, 075, 076, 078, 085, 092
Mining		
8 Iron and ferroalloy ores mining	5.00	101, 106
9 Copper ore mining	6.01	102
10 Nonferrous metal ores mining, except copper	6.02	10 (except 101, 102, 106, pt. 108, 109)
11 Coal mining	7.00	11, 12
12 Crude petroleum and natural gas	8.00	13 (except pt. 138)
13 Stone and clay mining and quarrying	9.00	14 (except 147, pt. 148)
14 Chemical and fertilizer mineral mining	10.00	147
Maintenance and repair construction		
15 Maintenance and repair construction	12.01-12.02	pt. 15, pt. 16, pt. 17, pt. 138
Manufacturing		
16 Ordnance	13.02-13.07	348, 3795
17 Comolete guided missiles and space vehicles	13.01	3761
18 Meat products	14.01	201
19 Dairy products	14.02-14.06	202
20 Canned and frozen foods	14.07-14.13	203, 2091-2092
21 Grain mill products	14.14-14.17	204
22 Bakery products	14.18	205
23 Sugar	14.19	2061-2063
24 Confectionery products	14.20	2065-2067
25 Alcoholic beverages	14.21	208 (except 2086-2087)
26 Soft drinks and flavorings	14.22-14.23	2086-2087
27 Food products, n.e.c.	14.24-14.32	207, 209 (except 2091-2092)
28 Tobacco manufacturing	15.01-15.02	21
29 Fabric, yarn, and thread mills	16.01-16.04	221-224, 226, 228
30 Floor covering mills	17.01	227
31 Textile mill products, n.e.c.	17.02-17.10	229

Industry sector number and title	Bureau of Economic Analysis Input-Output Sector	Standard Industrial Classification (SIC) 1972
32 Hosiery and knit goods	18.01-18.03	225
33 Apparel	18.04	23 (except 239), 39996
34 Fabricated textile products, n.e.c.	19.01-19.03	239
35 Logging	20.01	241
36 Sawmills and planing mills	20.02-20.04	242
37 Millwork, plywood and wood products, n.e.c.	20.05-20.09	243, 2448, 245 (except 2451), 249
38 Wooden containers	21.00	244 (except 2448)
39 Household Furniture	22.01-22.04	251
40 Furniture and fixtures, except household	23.01-23.07	25 (except 251)
41 Paper products	24.01-24.07	26 (except 265)
42 Paperboard	25.00	265
43 Newspaper printing and publishing	26.01	271
44 Periodical and book printing, publishing	26.02-26.04	272-274
45 Printing and publishing, n.e.c.	26.05-26.08	275-279
46 Industrial inorganic and organic chemicals	27.01	281 (except 28195), 2865, 2869
47 Agricultural chemicals	27.02-27.03	287
48 Chemical products, n.e.c.	27.04	2861, 289
49 Plastic materials and synthetic rubber	28.01-28.02	2821-2822
50 Synthetic fibers	28.03-28.04	2823-2824
51 Drugs	29.01	283
52 Cleaning and toilet preparations	29.02-29.03	284
53 Paints and allied products	30.00	285
54 Petroleum refining and related products	31.01-31.03	29
55 Tires and inner tubes	32.01	301
56 Rubber products except tires and tubes	32.02-32.03, 32.05	302-306
57 Plastic products	32.04	307
58 Leather tanning and industrial leather	33.00	311
59 Leather products including footwear	34.01-34.03	31 (except 311)
60 Glass	35.01-35.02	321-323
61 Cement and concrete products	36.01, 36.10-36.14	324, 327
62 Structural clay products	36.02-36.05	325
63 Pottery and related products	36.06-36.09	326
64 Stone and clay products, n.e.c.	36.15-36.22	328, 329
65 Blast furnaces and basic steel products	37.01	331
66 Iron and steel foundries and forgings	37.02-37.04	332, 339, 3462
67 Primary copper and copper products	38.01, 38.07, 38.10, 38.12	3331, 3351, 3357, 3362
68 Primary aluminum and aluminum products	38.04, 38.08, 38.11	3334, 28195, 3353-55, 3361
69 Primary nonferrous metals and products, n.e.c.	38.02, 38.03, 38.05, 38.06, 38.09, 33.13, 38.14	3332, 3333, 3339, 334, 3356, 3369, 3463
70 Metal containers	39.01-39.02	341
71 Heating apparatus and plumbing fixtures	40.01-40.03	343

	Industry sector number and title	Bureau of Economic Analysis Input-Output Sector	Standard Industrial Classification (SIC) 1972
	Transportation, contd.		
115	Air transportation	65.05	45
116	Pipeline transportation	65.06	46
117	Transportation services	65.07	47 (except 474 and pt. 4789)
	Communications		
118	Radio and television broadcasting	67.00	483
119	Communications, except radio and television	66.00	48 (except 483)
	Electric, gas, and sanitary services		
120	Electric utilities, public and private	68.01, 78.02, 79.02	491, pt. 493
121	Gas utilities, excluding public	68.02	492, pt. 493
122	Water and sanitary services, excluding public	68.03	49 (except 491, 492 and pt. 493)
	Trade		
123	Wholesale trade	69.01	50, 51
124	Eating and drinking places	74.00	58
125	Retail trade, except eating and drinking places	69.02	52-57, 59, 7396, pt. 8042
	Finance, Insurance, and Real Estate		
126	Banking	70.01	60
127	Credit agencies and financial brokers	70.02-70.03	61, 62, 67
128	Insurance	70.04-70.05	63, 64
129	Owner occupied real estate	71.01	na
130	Real estate	71.02	65 , 66, pt. 1531
	Other services		
131	Hotels and lodging places	72.01, 77.08	70, 836
132	Personal and repair services	72.02	72 (except 723, 724), 76 (except 7692, 7694 and pt. 7699)
133	Barber and beauty shops	72.03	723, 724
134	Business services, n.e.c.	73.01	73 (except 731, 7396), 7692, 7694, pt. 7699
135	Advertising	73.02	731
136	Professional services, n.e.c.	73.03	81, 89 (except 8922)
137	Automobile repair	75.00	75
138	Motion pictures	76.01	78
139	Amusements and recreation services	76.02	79
140	Doctors' and dentists' services	77.01	801-803, 8041
141	Hospitals	77.02	806
142	Medical services, except hospitals	77.03	074, 3049, 805, 807-809
143	Educational services	77.04, 77.06-77.07	82, 833, 835
144	Nonprofit organizations	77.05, 77.09	832, 839, 84, 86, 8922

Industry sector number and title		Bureau of Economic Analysis Input-Output Sector	Standard Industrial Classification (SIC) 1972
72	Fabricated structural metal products.....	40.04-40.09	344
73	Screw machine products.....	41.01	345
74	Metal stampings.....	41.02	346 (except 3462-3463)
75	Cutlery, handtools and general hardware.....	42.01-42.03	342
76	Fabricated metal products, n.e.c.....	42.04-42.11	347, 349
77	Engines, turbines, and generators.....	43.01-43.02	351
78	Farm machinery.....	44.00	352
79	Construction, mining and oilfield machinery	45.01-45.03	3531-3533
80	Material handling equipment.....	46.01-46.04	353 (except 3531-3533)
81	Metalworking machinery.....	47.01-47.04	354
82	Special industry machinery.....	48.01-48.06	355
83	General industrial machinery.....	49.01-49.07	356
84	Nonelectrical machinery, n.e.c.....	50.00	359
85	Computers and peripheral equipment.....	51.01	3573-3574
86	Typewriters and other office equipment.....	51.02-51.04	357 (except 3573 and 3574)
87	Service industry machines.....	52.01-52.05	358
88	Electric transmission equipment.....	53.01-53.03	361, 3825
89	Electrical industrial apparatus.....	53.04-53.08	362
90	Household appliances.....	54.01-54.07	363
91	Electric lighting and wiring.....	55.01-55.03	364
92	Radio and television receiving sets.....	56.01-56.02	365
93	Telephone and telegraph apparatus.....	56.03	3661
94	Radio and communication equipment.....	56.04	3662
95	Electronic components.....	57.01-57.03	367
96	Electrical machinery and equipment, n.e.c...	58.01-58.05	369
97	Motor vehicles.....	59.01-59.03	371
98	Aircraft.....	60.01-60.04	372, 376 (except 3761)
99	Ship and boat building and repair.....	61.01-61.02	373
100	Railroad equipment.....	61.03	374
101	Motorcycles, bicycles and parts.....	61.05	375
102	Transportation equipment, n.e.c.....	61.06-61.07	379 (except 3795), 2451
103	Scientific and controlling instruments.....	62.01-62.03	381, 382 (except 3825)
104	Medical and dental instruments.....	62.04-62.06	384
105	Optical and ophthalmic equipment.....	63.01-63.02	383, 385
106	Photographic equipment and supplies.....	63.03	386
107	Watches, clocks, and clock-operated devices.	62.07	387
108	Jewelry and silverware.....	64.01	391, 3961
109	Musical instruments and sporting goods.....	64.02-64.04	393, 394
110	Manufactured products, n.e.c.....	64.05-64.12	395, 396 (except 3961), 399 (except 39996)
	Transportation		
111	Railroad transportation.....	65.01	40, 474, pt. 4789
112	Local transit and intercity buses.....	65.02	41
113	Truck transportation.....	65.03	42, pt. 4789
114	Water transportation.....	65.04	44

Industry sector number and title	Bureau of Economic Analysis Input-Output Sector	Standard Industrial Classification (SIC) 1972
Government enterprises		
145 Post office	78.01	43
146 Commodity credit corporation	78.03	na
147 Federal enterprises, n.e.c.	78.04	na
148 Local government passenger transit	79.01	na
149 State and local government enterprises, n.e.c.	79.03	na
Special industries		
150 Noncomparable imports	80.00	na
151 Scrap, used and secondhand goods	81.00	na
152 Construction industry	na	na
153 Government industry	82.00	na
154 Rest of the world industry	83.00	na
155 Households	84.00	na
156 Inventory valuation adjustment	85.00	na

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U.S. Bureau of Labor statistics.
October 18, 1979

(THIS SUPERCEDES PREVIOUS 162 ORDER SECTORING PLAN)

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