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GROWTH IN FAMILY INCOME INEQUALITY, 1970–1990: INDUSTRIAL RESTRUCTURING AND DEMOGRAPHIC CHANGE*

ALBERT CHEVAN AND RANDALL STOKES

Industrial restructuring and changing population composition frequently have been treated as competing explanations of growing U.S. income inequality. Using the Gini coefficient, we employ a model of conditional change to explore the relative effects of each on changes of family income distribution between 1970 and 1990, across 784 metropolitan areas and public use microdata areas (PUMAs). Changes in both industrial structure and population characteristics are found to have significant and opposite effects on family income distribution, although there are sharp differences by decade in the dynamics that underlie increasing inequality. Our central conclusion is that it is too soon to eliminate deindustrialization as a significant cause of increased earnings inequality.

The economy and the society of the United States are being transformed progressively by two momentous secular trends extending back at least two decades. The first of these has come to bear the perhaps optimistic label “industrial restructuring.” This complex of changes is marked by the shift of relative employment away from the manufacturing sector and into other activities, most strikingly the service sector. According to census figures, the percentage of all workers employed in manufacturing declined from 26.4% to 17.9% between 1970 and 1990, whereas employment in the service sector increased from 25.9% to 32.6% over the same period. By the end of 1998, the percentage of the workforce in manufacturing had declined further to less than 16%, and was smaller *in absolute numbers* than it had been in 1970. Although the basic facts of industrial restructuring are not in dispute, social scientists and policy makers are sharply divided about its causes, effects, and policy implications.

The second trend, labeled the “great U-turn” by Harrison and Bluestone (1988), refers to the growth of income inequality in the United States over the past 20 years. In a flood of recent empirical and discursive writings it is agreed that the 1950s and 1960s were a period of increasing equality of income distribution, whereas the 1970s and 1980s were marked by increasing inequality of income distribution (Danziger and Gottschalk 1995; Freeman 1997; Karoly and Burtless 1995; Levy and Murnane 1992; Massey 1996; Morris, Bernhardt, and Handcock 1994; Nielsen and Alderson 1997). Like the shift of relative employment away from manufacturing and toward services, the basic facts of increasing inequality are rarely contested, but the reasons for

this historical reversal and its social implications are the subject of extensive debate and controversy.

The purpose of the present research is to explore the disputed connections between industrial restructuring, demographic changes, and changes in family income distribution over the critical 20-year period from 1970 to 1990, using a conceptual framework and research design that we believe offer significant new insights.¹ Specifically, we are concerned with the long-term impact of shifts in the sectoral structure of employment on changes in family income distribution across 316 metropolitan statistical areas (MSAs) and 468 public use microdata areas (PUMAs), net of the effects of several significant demographic changes. These areas are designed to approximate labor markets. Our intent, by incorporating such areas as the basic units of analysis, is to resolve inconsistencies in recent research findings on the disequalizing effects of deindustrialization.

Previous researchers used limited or suboptimal areas such as counties, states, or only metropolitan areas. Their studies relied on statistical and theoretical models that provide limited and incomplete tests of the rise in inequality. In this research we address both issues: the first by using an areal system that is based on all local economies in the United States, and the second by incorporating change into a statistical model that tests competing explanations for the increase in inequality.

ECONOMIC RESTRUCTURING

Research and speculation about the long-term social consequences of economic restructuring run the full gamut from consternation to complacency. According to one extensive body of literature, industrial restructuring, often called “deindustrialization,” is the single most powerful and direct cause of growing income inequality and the declining fortunes of the working classes, and a major policy effort must be mounted to salvage American industry.

Another, contrasting body of literature, which might be said to take the “post-industrialism” view, regards industrial restructuring in a far more benign light. Postindustrialists regard the shift of employment out of manufacturing and into services as part of the natural and welcome progression of a mature market economy; they believe that problems such as increasing inequality have no particular link to industrial re-

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1. Another connection, not discussed in this paper, concerns national fiscal and tax policies. Such policies may offer an explanation for the general rise in inequality, but do little to explain why inequality increased more in some geographic areas than in others.

structuring. From this perspective, the growing inequality of income distribution either is transitional or is tied to other social factors such as change in population composition and the ramifications of technological change for labor markets (Berman, Bound, and Griliches 1994).

Bluestone and Harrison (1982; Harrison and Bluestone 1988), using the term *deindustrialization*, were among the first social scientists to sound the alarm about industrial restructuring. They argued that many millions of highly paid blue-collar jobs in manufacturing were lost during the 1970s because of "runaways, shutdowns, and permanent physical cutbacks."

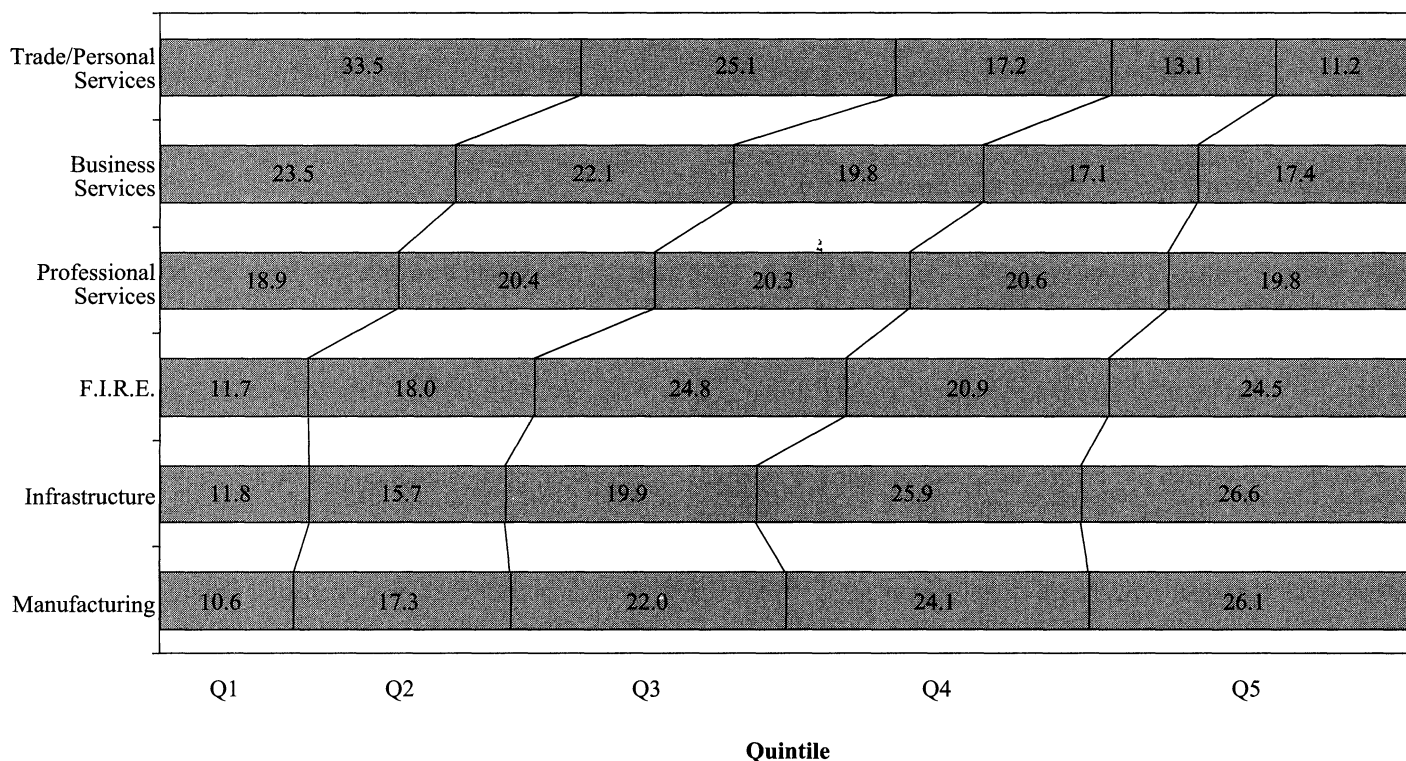
In particular, the reason for the continuing concern about the loss of manufacturing employment is the unique, positive role of such jobs in equalizing income distributions and providing historically unprecedented levels of affluence for ordinary workers. High productivity and widespread unionization in the manufacturing sector, coupled with the dominant position of American industry during and after World War II, created a situation in which manufacturing jobs provided good wages for relatively unskilled workers. High levels of productivity in manufacturing provided the means to pay high wages, aggressive industrial unions provided the incentive for corporations to do so, and world economic

dominance generated a seemingly limitless external market. Furthermore, unionized workforces typically displayed fairly narrow wage dispersions, providing an additional impetus toward equality. For immigrant and rural populations in the earlier decades of the twentieth century, and for racial and ethnic minorities more recently, manufacturing employment was a ladder into the middle classes.

This point is illustrated clearly in Figure 1, which shows the 1990 family earnings distribution, by quintile, of workers in six industrial sectors. More than 50% of manufacturing workers' families fall into the two highest earnings quintiles, while some services, particularly those we have grouped as "trade and personal services," are clustered in the lowest quintiles. The latter category is growing rapidly, whereas the former continues to shrink steadily.

For precisely this reason, Wilson (1976, 1987, 1996) places changes in manufacturing employment opportunities at the very center of his account of the declining fortunes of the inner city. Wilson argues that the shift of manufacturing jobs away from the center cities of the Midwest and the Northeast, first to the Sunbelt and then out of the country, lies at the heart of the "tangle of pathology" and deprivation found in these areas. The implications of Wilson's argument are not limited to African Americans: There is no inherent

FIGURE 1. QUINTILE DISTRIBUTION OF EARNINGS INCOME FOR PERSONS EMPLOYED IN SIX INDUSTRIAL SECTORS, 1990



reason why the movement of manufacturing employment out of an area should not be equally detrimental to the security and well-being of all less highly educated workers, regardless of race or ethnicity. This conclusion was drawn by researchers who reviewed the biennial *Displaced Worker Surveys* (DWS) prepared by the U.S. Department of Labor (Podgursky and Swaim 1987a, 1987b), and also by researchers taking a case study approach (Knapp 1995).

On the other hand, many scholars are unsure whether “deindustrialization” is fact or only popular fancy, and whether anything can or should be done. In some quarters, the changes in the structure of employment are viewed complacently as just another routine flick of the invisible hand and, despite some transitional inconvenience to certain categories of workers, as no different from past changes such as the movement of labor out of agriculture.

Drucker (1993), for example, argues that the labor force is not experiencing deindustrialization but the inevitable results of increasing manufacturing productivity. From certain viewpoints, he is correct. The real dollar value of manufacturing output increased by about 60% between 1970 and 1990 (U.S. Department of Commerce 1995), and the decline in the absolute number of industrial workers is slight and recent. On the other hand, even if Drucker is correct that writers such as Harrison and Bluestone (1988) have mistaken the results of increased manufacturing productivity for those of deindustrialization, there still may be reasonable cause for concern. Regardless of reasons why well-paid work is being replaced by less well-paid work, and even if overall industrial production remains vigorous, this situation would seem to be an issue of vital interest to policy makers.

Furthermore, a strong case can be made that something deserving the name *deindustrialization* is indeed taking place, even if only on a relative scale. The annual U.S. merchandise trade deficit for the past decade or more has remained well above \$100 billion (U.S. Department of Commerce 1998). To place this number in context, the entire 1997 gross domestic product from manufacturing was just over \$1 trillion: That is, the merchandise deficit is more than 10% of the size of all manufacturing output. The implications are obvious: If there were no merchandise trade deficit, and if domestic consumption remained the same as it is today, many more U.S. workers would be employed in manufacturing.

Whether or not we choose to use the term *deindustrialization*, macro economic trends are steadily reducing the availability of highly paid work in manufacturing, to the clear detriment of blue-collar workers. As Drucker observes, “[N]o class in history has risen so fast nor fallen so far as the American blue collar industrial worker” (1993:134).

Even among those who regard the loss of relative industrial employment as the source of serious social problems, a good many believe that not much can or should be done to stem this loss in the face of overwhelming global market forces. This probably is now the dominant view among policy analysts. Reich (1991), for example, argues that we cannot possibly stem the outflow of routine production jobs and therefore must look elsewhere for solutions to the social

problems created by this shift. Reich’s preferred solution is to upgrade routine production and service jobs with education and computerization.

INDUSTRIAL-SECTOR AND DEMOGRAPHIC EXPLANATIONS OF INCREASING INEQUALITY

The research literature dealing with these issues is not only enormous but also bewildering in its conceptual and methodological diversity. In general, however, two strands of research are most significant for the present analysis. The first, often characterized as a demand-side argument, attempts to empirically establish the relationship between various measures reflecting changes in the sectoral distribution of employment and changes in income distribution, either among individual earners or among families. The second strand considers the effect, on income distribution, of changes in a variety of demographic characteristics such as the percentage of families headed by women, the percentage of wives in the workforce, racial and ethnic composition, and educational levels.

In light of the volume of existing research, the following overview is drastically truncated. For most earlier studies, we invite readers to inspect the excellent literature reviews in Sassen (1990) and Harrison and Bluestone (1988). Morris and Western (1999) provide an outstanding, up-to-date guide to the many complexities underlying the growth of earnings inequality.

As Morris and Western observe, the evidence concerning the inequality effects of industrial restructuring is inconsistent. Most of the recent research finds that sectoral shifts of employment are of only minor importance in explaining the growth of inequality. Earlier studies, however, many stemming from the “dual economy” thesis pioneered by Gordon and others (Gordon, Edwards, and Reich 1982; Hodson and Kaufman 1982), generally found industrial restructuring to be disequalizing. The common finding across various, differing operationalizations is that growth in the concentrated sector is related negatively to inequality, whereas growth in the competitive sector is related positively to inequality (Bloomquist and Summers 1982; Jacobs 1982, 1985). The high degree of correspondence between the “concentrated sector” and manufacturing, and between the “competitive sector” and services, supports the proposition that the shift of employment away from manufacturing and toward services increases income inequality.

Moderate to significant disequalizing effects are also found in many studies more directly addressing the effects of change in service and manufacturing employment on income and income distribution. Nelson and Lorence (1988) found that metropolitan earnings inequality between 1970 and 1980 was increased significantly by growth in service-sector employment, when the independent effects of several population characteristics were taken into account. Lorence (1991), in a study concerned primarily with gender inequality, found that growth in service-sector employment reduced gender inequality, but did so by lowering men’s wages and thus increasing overall inequality. Lorence further found

that various services differ in their impact on wages: Growth in personal and social service employment has the strongest negative effects on median wage levels. Bernhardt and associates (Bernhardt, Morris, and Handcock 1995) found analogous results.

Kassab's (1992) research presents a more complicated picture of the consequences of the service shift. Although Kassab, unlike most other researchers, found that "jobs in the service sector have a positive impact on aggregate wages and salaries" (p. 98), the consequences for income *distribution* are less clear. In general, declines in manufacturing employment between 1978 and 1988 apparently have increased the inequality in income distribution, but these effects vary in complex ways for metropolitan and nonmetropolitan counties, and for different service sectors.

On the other hand, Levy and Murnane (1992) and Grubb and Wilson (1989) found that although industrial restructuring appears to be causally related to increased inequality, the effects are relatively modest and are overshadowed by increased inequality *within* industrial sectors. Still other researchers conclude that sectoral shifts in relative employment are of minor or no importance in explaining the growth in inequality, compared with the social and economic forces that are increasing income variance within virtually all sectors. Raffalovich (1990), for example, found no significant effects of industrial restructuring.

Part of the inconsistency in results is due to the difference in time periods, methods, and samples that are used. Morris and Western (1999) strongly suggest that one pivotal difference may be whether or not research designs incorporate regional or areal analyses. Studies that incorporate geographic areas in some fashion consistently tend to find stronger effects for industrial restructuring. Rodwin and Sazanami (1989), Grant and Wallace (1994), and Bernard and Jensen (1998) all find that deindustrialization increases inequality when the unit of analysis is the state, the region, or other delimited geographic areas. This is also true of several studies cited above, including Kassab (1992), Nelson and Lorence (1988), and Lorence (1991).

Many of the same researchers have examined the effects of changes in population composition on income distribution. Even while the sectoral composition of employment and income distribution has changed, so have several key characteristics of the population and the workforce. There is good reason to believe that several of these changes may have contributed to the growth of inequality. In the present analysis we consider changes in wives' labor force participation, female-headed families, minority population, nativity status, unemployment, educational attainment, the age distribution of family heads, and other considerations as alternative explanations for increasing inequality. All of these elements underwent compositional change between 1970 and 1990, and all are associated with income inequality.

Wives' Labor Force Participation

Lester Thurow (1987) argues that increasing labor force participation among women is likely to worsen both individual

and family income distributions. Because women are located toward the bottom of the earnings hierarchy, a growing proportion of female workers would seem certain to widen the earnings distribution. Furthermore, because of assortative mating, more highly educated and higher-income women are likely to be married to men with similar characteristics, thus causing a wider gap between lower- and higher-income families. Taken together, these factors argue for a positive link between wives' labor force participation and inequality of family income distribution.

To this point, however, a good deal of empirical research generally has not supported this assumption. Taking a cross-sectional approach, Nielsen and Alderson (1997) found a significant *negative* relationship between the level of inequality and female labor force participation in 1980 and 1990, and no relationship at all for 1970. Cancian and Reed (1998, 1999), in an innovative and careful series of studies, likewise found that wives' earnings *reduced* family income inequality. In an excellent review of this literature, Treas (1987) concluded that the continued higher rate of labor force participation by lower-income wives exerts an equalizing effect on the incomes of married-couple families. She observes, however, that marital homogamy quite likely will eventually make female labor force participation a disequalizing force, as the wives of higher-income men increasingly join the labor force.

Female-Headed Families

It has become a truism that poverty is the companion of female-headed families. If this is so, the nearly 45% increase in the proportion of all families headed by females between 1970 and 1990 surely had a positive effect on the increase in inequality and thus must be taken into account. One of the analytical problems in dealing with female-headed families, however, as with wives' labor force participation, is that industrial restructuring may have caused increases in both phenomena, as well as in inequality. Wilson (1976, 1987) and others (Stokes and Chevan 1996) believe that the loss of well-paying manufacturing jobs has discouraged marriage and has encouraged the rise of female-headed families in the black population. Furthermore, male wage stagnation, due in part to industrial restructuring, certainly has caused many married women to join the labor force.

Minority Population

A corollary of the well-known income gap between minority and majority populations in the United States is that levels of overall inequality tend to be high in areas with large minority populations. Nielsen and Alderson (1997), for example, uncovered a consistent relationship between income inequality and the size of the income gap between black and white households (or *racial dualism*, as they termed it). The historical economic disadvantage of African Americans, Native Americans, and Hispanics mandates that the relative size and changes of this population must be taken into account in any consideration of changes in family income inequality.

Nativity Status

Immigration has swelled since 1965. One by-product has been an increase in the size of the less skilled and less highly educated labor pool, at least in some areas, which has exerted a downward pressure on wages at the lower end of the earnings distribution. It seems possible that the net effect of immigration may have been to increase income inequality by lowering the share of income earned by those at the bottom of the income distribution.

Unemployment

In the short run, unemployment is tied closely to the business cycle, but there are also longer-term trends toward generally higher levels of unemployment. From 1970 to 1990, for example, the U.S. unemployment rate increased, on average, by 44%. Contrary to Thurow's (1987) commonsense prediction that higher average unemployment levels produce greater inequality, Nielsen and Alderson (1997) found that in 1980 unemployment had a *negative* effect on income inequality, and no appreciable effects in 1970 and 1990. We suspect that a longitudinal design, using change in the percentage of the labor force unemployed, may be more able to clarify the relationship between unemployment and inequality.

Education

Education is the Pandora's box of income inequality: Both low and high levels of education appear to promote income inequality. Jacobs (1985) and Nielsen and Alderson (1997), using measures of educational heterogeneity, observed that income equality is greater in populations with high proportions of either poorly educated or highly educated persons. More broadly, a number of studies show that the earnings of college-educated persons have increased significantly over the past 20 years, while those of high school graduates and dropouts have declined steadily (Dooley and Gottschalk 1985; Gottschalk 1997; Murphy and Welch 1993). Changes in the relative size of the better-educated and less highly educated populations within areas clearly must be considered.

Age

The U.S. population is aging. Poverty levels have declined greatly in the older population, thanks largely to cost-of-living adjustments built into Social Security. Nevertheless, older people's income remains decidedly lower than that of younger age groups, and their income distribution is skewed toward the lowest income categories (Schulz 1992). For this reason, changes in the size of the aged population could significantly affect income distribution, and may need to be assessed.

Employment Growth

Between 1970 and 1990, more than 40 million new jobs were created, twice as many as in the two preceding decades. This expansion was highly uneven, however: Employment increased in some areas at five times the overall rate of increase, while it decreased in many other places. One result of employment expansion is that new workers are drawn into

the labor force, including some who otherwise would be only marginally employable. Insofar as added workers are drawn disproportionately from lower-income families, high rates of job growth would raise family incomes more at the bottom of the income distribution than at other points, thereby reducing income inequality. From an analytical perspective, expansion of work opportunities must be distinguished from industrial restructuring.

Ecological Factors

Finally, there is good reason to incorporate some measure of metropolitan status. As Kuznets (1965) argued many years ago, metropolitan areas inherently contain greater inequality because of their greater social and economic diversity. Furthermore, industrial restructuring has been geographically quite uneven: Over the past 20 years, manufacturing employment has tended to flow from metropolitan to nonmetropolitan areas.

DATA AND MEASUREMENT

To approach the question of the effects of industrial restructuring on inequality, we observe how change in industrial structure affected change in family income distribution between 1970 and 1990.² We conduct this test across 784 relatively small geographic areas representing labor markets; income distribution is measured by the Gini coefficient of family income inequality (Miller 1966; Shryock and Siegel 1976). Industrial structure is derived from the industry reported by employed persons in the civilian labor force. All data are based on summary statistics of the 1970, 1980, and 1990 censuses. Except as noted, census data for 1970 and 1980 are taken from aggregate census data assembled by Adams (1992); census data for 1990 are taken from files made available by the U.S. Bureau of the Census (1993a, 1993b). Table 1 lists the means and standard deviations of all variables used in our analysis. Table 2 presents a breakdown of the areas analyzed, by region.

Units of Analysis

The choice of areal units for measuring income distribution and industrial structure is critical because income distribution and industrial structure are aggregate characteristics. Research on income inequality has been conducted with states, MSAs, and counties as areal units. A fairly large area is needed when areal industrial structure is measured by employment statistics; people frequently live outside the immediate area in which they work, and the effects of job gain or loss radiate to include the catchment area from which employees are drawn. Residential patterns also indi-

2. In addition to using the Gini coefficient, we conducted a similar analysis with the share of area income going to income quintiles as dependent variables. This analysis was motivated by a question about what governs income redistribution at different points in the income distribution. The essential finding in this analysis is that changes in industrial structure reduced income shares of the four lower quintiles and increased that of the highest quintile, whereas changes in population composition did exactly the opposite. Detailed results of this analysis are available from the authors.

cate that inclusive areas are the preferable basis for measuring income distribution.

Smaller areas, because of residential segregation based on social class, tend to have less widely dispersed income distributions than larger areas, and thus may cause underestimation of income inequality. As a result, income inequality in larger areas, rather than being a weighted average across the aggregate of several smaller areas, may be larger than in the areas entering the aggregation. For example, the Gini coefficient for eight MSAs in 1990 was larger than for any of the counties constituting each metropolitan area. If the Gini were unaffected by social class segregation, about half of the counties would have a greater Gini coefficient, and half would have a smaller Gini, than the Gini for the MSA as a whole. In the 153 MSAs formed from more than one county in 1990, however, the Gini coefficient was greater than the Gini coefficient for the MSA as a whole for only 32% of the counties.

Although counties are too small to use as units for this kind of analysis, states are too large and too inclusive. Changes in industrial structure in Atlanta or in greater New York are not likely to affect income distribution in the north Georgia hills nor in the Adirondacks, and vice versa.

Under these circumstances, areas approximating labor markets are optimal units of analysis. MSAs are appropriate units, but they exclude nonmetropolitan areas from consideration.

To solve these problems, we aggregated data from all U.S. counties to 784 areas. These areas consist of all 316 MSAs in 1990. The remaining nonmetropolitan counties were combined to form 468 PUMAs (U.S. Bureau of the

Census 1995). We attempted to achieve a minimum PUMA population of 50,000 by joining smaller PUMAs to contiguous PUMAs. This was possible for all but five PUMAs, which are completely surrounded by MSAs. On average, each nonmetropolitan PUMA contained 118,000 persons in 1990 and included five counties. New England county metropolitan areas based on counties are used because MSAs in New England are defined by town boundaries.

Income Inequality

As our central dependent variables, we use Gini coefficients for *family* income, rather than individual income, on the grounds that family resources determine most people's lifestyle and life chances most directly (Curtis 1986). Census data on family income distributions present several methodological problems. First, there are 15 categories in the family income distribution for 1969, 17 for 1979, and 25 for 1989; this fact increases the possibility that some of the difference between periods may be an artifact of the difference in the number of categories. Lerman and Yitzhaki (1989), however, found only minor differences between the sizes of the Gini as calculated from groupings of 10 to 30 categories; this conclusion was confirmed by extensive reanalysis of the present data.

Second, by electing to focus on family income and omitting the income of unrelated individuals, we have clarified the analysis at the probable cost of understating the level of income inequality.

Third, censuses suffer from underenumeration and unreported income. This is problematic for cross-sectional esti-

TABLE 1. MEANS AND STANDARD DEVIATIONS OF VARIABLES USED IN ANALYSIS OF INCOME INEQUALITY FOR 784 MSA/PUMAS, 1970-1990

Name of Variable	1970		1980		1990	
	Mean	SD	Mean	SD	Mean	SD
Gini Coefficient \times 100	36.5	3.8	36.8	2.8	38.9	3.2
% Employees in Manufacturing	24.3	12.2	22.6	10.7	19.4	9.0
% Employees in Infrastructure Industries	12.9	2.7	13.3	2.9	13.1	2.4
% Employees in Trade and Personal Services	25.3	4.1	23.9	3.7	25.2	3.5
% Employees in Business Services	2.3	0.9	3.1	1.2	3.7	0.9
% Employees in Finance, Insurance, Real Estate (F.I.R.E.)	3.5	1.4	4.4	1.6	4.9	1.8
% Employees in Professional Services	17.4	5.0	19.8	4.4	22.7	4.5
% Wives in Labor Force	38.7	6.1	48.2	6.4	57.3	6.3
% Labor Force Unemployed	4.6	1.7	6.9	2.4	6.7	2.2
Number of Employed Persons	97,645	251,661	124,540	287,949	147,553	340,195
% Families Headed by Female	10.6	2.9	12.7	3.6	15.6	4.5
% Population Black, Hispanic, or Native American	14.4	15.5	14.6	15.2	15.7	15.7
% Population Foreign-born	2.3	2.7	2.9	3.6	3.3	4.7
% Persons 25 and Over With < 12 Years Education	51.8	11.4	37.7	10.9	28.6	9.2
% Persons 25 and Over With 16+ Years Education	8.7	3.9	13.1	5.2	15.9	6.5
% Families Headed by Person 65+	15.7	4.5	16.2	4.1	17.9	4.0

TABLE 2. AREAS USED IN ANALYSIS OF INCOME INEQUALITY

Metropolitan Location	Location of Areas Used: Region				
	All Regions	Northeast	Midwest	South	West
Total U.S.	784	96	233	333	122
Nonmetropolitan Area	468	47	148	210	63
Small Metropolitan Area	268	38	75	109	46
Large Metropolitan Area	48	11	10	14	13

Sources: 1970, 1980, and 1990 Census of Population and Housing

mates of income inequality, but less so for longitudinal estimates of changes in income inequality such as those in the present analysis. Undercount and unreported income were present in previous censuses; errors from these sources would tend to cancel one another in longitudinal studies.

Fourth, categorized income distributions require the selection of means to represent each category in calculating a category's contribution to the aggregate area income. In choosing means, we take advantage of the highly detailed family income distributions available in the 1% public use microdata samples (PUMS) from each census. Family income is distributed across 582 categories for the 509,731 families in the 1970 PUMS, across 15,109 categories for 591,848 families in the 1980 PUMS, and across 99,341 categories for the 665,047 families in the 1990 PUMS. Mean incomes within the income categories of each census were determined on the basis of the PUMS distributions for the entire U.S. sample from each year, and we used these as the category means for calculating the Gini in the MSA/PUMA data. In addition, to ensure the accuracy of this procedure, we used the aggregate family income available in the 1970 and 1980 county data; we used the aggregate family income available for all but the last category and for the last category in the 1990 county data.

We summed initial estimates of income within each MSA/PUMA income category and then corrected them so as to sum to the reported aggregates. The mean Gini coefficients across all 784 areas, as shown in Table 1, increased modestly between 1970 and 1990 from 36.5 to 38.9; most of the increase occurred between 1980 and 1990.

Sectoral Employment Distribution

The primary independent variables for our analysis are based on the change in employment share across several key sectors of the economy. Although much of the theoretical literature on industrial restructuring juxtaposes the manufacturing and the service sectors, a simple dichotomy does not capture all that is important about industrial restructuring. Most important, the service sector needs to be specified more finely to reflect the diversity of wages and earnings distributions found within this sector. Research has shown consistently that changes in different service industries have different effects on wages and earnings distributions (Danziger 1976; Kassab 1992; Nelson and Lorence 1988). Therefore the ser-

vice sector is represented here by three segments: business services, professional services, and personal services. The latter is combined with retail, wholesale, entertainment, and recreation industries.

Some researchers have combined business services with the finance, insurance, and real estate (F.I.R.E.) industries in their classification schemes (Browning and Singelmann 1978), but doing so obscures important differences in the longitudinal effects of both industries; thus we classify them as separate variables.

Finally, the communications, utilities, construction, and transportation industries are combined here into a single category that we call the "infrastructure sector." Like manufacturing, these industries employ relatively well-paid and frequently unionized blue-collar employees. Unlike manufacturing, however, these industries are relatively labor-intensive and are largely sheltered from the effects of the global labor market. Thus they have not experienced general reductions in employment. Indeed, they may have buffered the effects of shrinking manufacturing employment, at least in some areas.

In summary, the six industrial sectors to be considered in the present analysis are manufacturing, business services, F.I.R.E., professional services, trade and personal services, and infrastructure industries. Table 1 shows the mean percentages of total employment across these six sectors for 1970, 1980, and 1990.

Population Composition Variables

Rates of wives' labor force participation for 1970, 1980, and 1990, and changes between these periods, are drawn directly from census materials and represent the percentage of all wives age 16 or older who are employed or actively seeking work. We obtained these data from published counts for 1970 (U.S. Bureau of the Census 1973) and from census files for 1980 and 1990 (U.S. Bureau of the Census 1983b, 1993b). As shown in Table 1, the mean percentage of wives in the labor force increased sharply from 38.7% in 1970 to 57.3% in 1990. Percentages of families headed by women are based on the percentage of all family heads that are female, and in which a family contains at least one child under age 18.

Because African Americans, Hispanics, and Native Americans are the numerically most significant low-income minorities, we measure the size of the minority population

by the percentage of areal population belonging to these three groups. Native Americans are an extremely small minority in many MSA/PUMAs, but are included because they are the numerically dominant minority group in a number of instances. Counts of Native Americans in 1970 and 1980 were obtained from published county tabulations (U.S. Bureau of the Census 1973, 1983a).

The percentage of the population that is foreign-born is used to measure nativity status, even though a more effective measure might focus on relatively recent immigrants. After some years in the United States, the income of the foreign-born tends to converge with that of the native-born (Farley 1996). Immigrants are a small, although increasing, part of the U.S. population, averaging less than 4% of MSA/PUMA population, but they tend to be concentrated. In 1990, two-thirds of foreign-born U.S. residents lived in just 14 metropolitan areas (Farley 1996).

Educational composition and dispersion are measured by the percentages of persons 25 and over with less than a high school diploma, and by the percentages with a bachelor's degree or higher. Persons with a high school diploma, but with less than a bachelor's degree, serve as the omitted category. Between 1970 and 1990 we find a striking decline in the mean percentage of persons with less than 12 years of education, from 51.8% to 28.6%, while the mean percentage

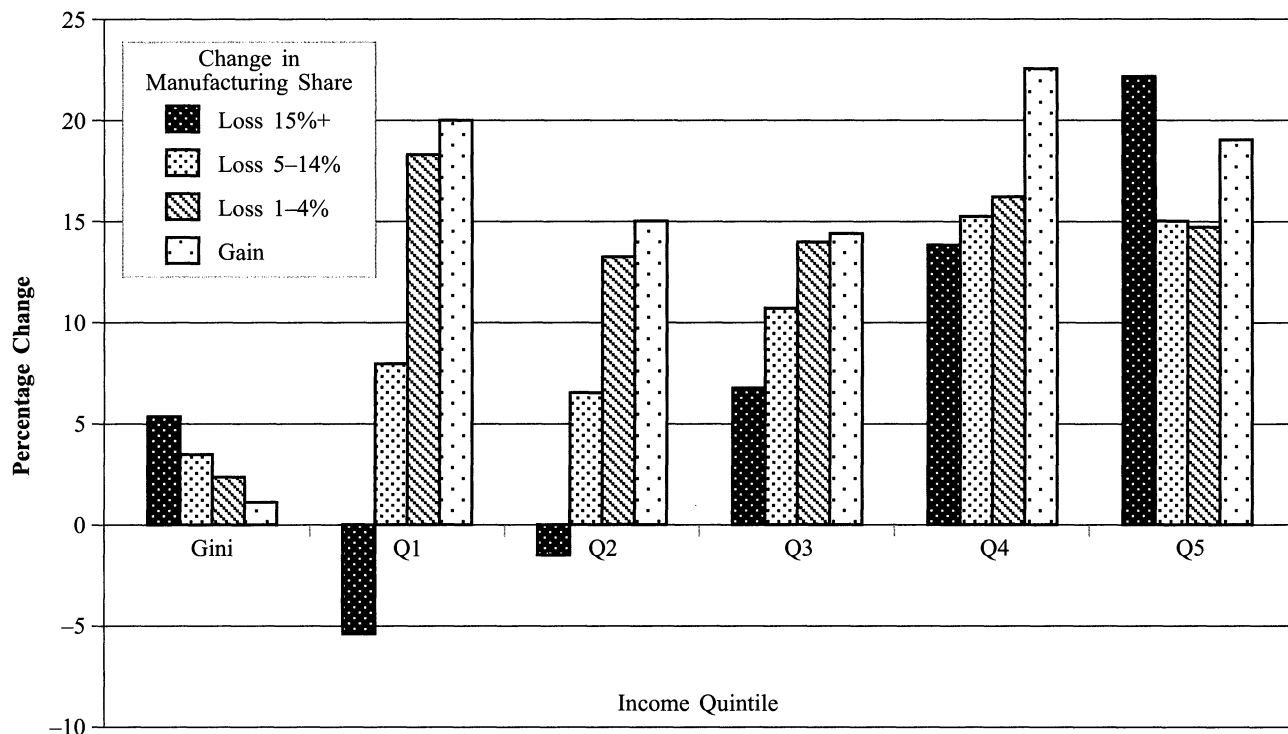
with 16 or more years of education approximately doubled, from 8.7% to 15.9%.

Unemployment rates are the enumerated figures at the time of each census. The percentage change in the number of persons employed is used as an approximation to the change in the number of jobs. We measure age structure by the percentage of family heads age 65 and over, rather than the more common percentage of the population age 65 and over; the latter measure includes many elderly persons who are not part of a family. Data for 1970 were copied from published county tabulations (U.S. Bureau of the Census 1973) and from census files for 1980 (U.S. Bureau of the Census 1983c) and 1990 (U.S. Bureau of the Census 1993b). In 1990 there were 316 metropolitan areas, divided into those greater than 1 million and those less than 1 million in population; all other areal units are nonmetropolitan.

ANALYSIS AND FINDINGS

It is useful to begin with an overview of the most controversial issue: the relationship between changes in manufacturing employment and changes in income distribution. The first cluster of bars in Figure 2 shows mean percentage changes in the Gini coefficients for family income distribution between 1969 and 1989, displayed separately for areas that experienced different degrees and directions of change in the share

FIGURE 2. AREAS' PERCENTAGE CHANGE IN GINI COEFFICIENT AND FAMILY INCOME BY INCOME QUINTILE AND CHANGE IN THE MANUFACTURING SHARE OF EMPLOYMENT, 1970-1990



of total employment occupied by manufacturing. The other five clusters show percentage changes in family income at different income quintiles, also divided into areas that experienced different degrees and directions of change in manufacturing employment. The pattern is quite clear: At this crude level, changes in the manufacturing share of employment exert exactly the kind of effect on income distribution predicted by proponents of the deindustrialization perspective. In regard to changes in the Gini, areas that lost manufacturing share experienced greater increases in inequality than areas that did not. Changes range from more than 5% in areas that sustained large losses in manufacturing employment to about 1% in areas that made substantial gains in manufacturing employment.

The display of income changes by income quintiles suggests that the link between inequality and loss of manufacturing employment is due largely to shifts in relative income at the lower reaches of the income distribution. Families in the upper two quintiles, although not immune to the effects of changes in the manufacturing share of employment, made substantial gains in real income regardless of what happened to manufacturing employment in their communities. The fortunes of families in the lowest two quintiles, on the other hand, were tied more closely to manufacturing employment. Families in the lower 40% of the income distribution living in areas that gained manufacturing employment made significant income gains, whereas those living in areas that lost manufacturing employment lost real income.

MODELING CHANGE

Although Figure 2 is a suggestive starting point, a more realistic analysis requires a multivariate analysis of the extent to which changes in both the broader industrial structure and population composition can account for changes in family income distribution over the critical 20-year period between 1970 and 1990, and in each decade of this period. Such a strategy is logically sounder than studies that use comparisons of cross-sectional regressions to assess change in inequality.

To accomplish this, we use a specification of the conditional change model in which change (Δ) in the dependent variable between two time periods is predicted from four types of independent variables. In this specification the dependent variable (Y), the population characteristics (P), and the six sectoral distribution variables (S) are measured as first differences between their levels at the current time and the previous time. Change in the number of jobs is measured as the interperiod rate of change (R) in the number of employed persons with jobs. The ecological variables reflecting metropolitan status (E) are coded as dummy variables. Thus our working equation to predict change in income inequality is

$$\Delta Y = B_0 + B_1\Delta S + B_2\Delta P + B_3R + B_4E + e. \quad (1)$$

As indicated by the Cook and Weisberg (1983) test, moderate heteroscedasticity is present in the data, although less than would be present if the data were not aggregated to MSAs/PUMAs. Therefore we use robust regression with an

estimator of variance developed by Huber (1967) and White (1980), which corrects for this condition and produces more conservative estimates of standard errors than does ordinary least squares regression.³

Change in inequality is analyzed over two discrete time periods, 1970–1980 and 1980–1990, and for the combined period 1970–1990. The first period overlaps the time when the upturn in inequality occurred; the second period was a time of generally increasing inequality; the 20-year period provides an overall picture.

From one census to the next, and even over the 20-year span from 1970 to 1990, geographic areas display a fair amount of continuity in income distribution as well as in the social and economic conditions that we presume to affect income distribution, but we observe far less continuity in *rates of change* over the two 10-year periods. The correlation between the changes in the Gini for each of the two periods, for example, is only 0.09. Furthermore, the correlation between the level of inequality in 1970 and the change in inequality between 1970 and 1990 is -0.55 : Areas with higher initial levels of inequality registered smaller increases in inequality than did areas with lower initial levels, and vice versa. This pattern indicates a convergence in inequality between areas. We also find relatively low correlations between changes in the two periods for most of the independent variables, a further indication of considerable discontinuity in the timing and degree of change. These considerations strongly support our decision to conduct separate analyses for the two 10-year periods.⁴

CHANGES IN THE GINI COEFFICIENT

Table 3 contains our principal findings concerning the joint effects, on family income distribution, of changes in areal industrial structure and areal demographic composition.

Table 3 shows clearly that changes in *both* industrial structure and population composition had extensive effects on changes in family income distribution between 1970 and 1990. It is equally clear that no single set of factors consistently explains changes in the Gini coefficient over the entire 20-year period: The causes of increasing income inequality were not the same in 1970–1980 as in 1980–1990.

Changes in Industrial Structure

When we examine the impact of changes in industrial structure, the most striking finding is that changes in manufacturing employment apparently affected family income inequality very strongly over the 1970–1980 period, but much less so in the following decade. In the earlier period, a statistically significant negative relationship existed between

3. Each period also contains several outliers; these were not the same in each period. Neither dropping them from the analysis nor using a form of regression that weights the data for outliers made any substantial difference in the results. Therefore the outliers are retained.

4. We explored several other combinations of periods, but they yielded less consistent results than the three periods we adopted. Our thanks to the editors and reviewers for their insistence that we consider each period separately.

TABLE 3. ROBUST REGRESSION COEFFICIENTS FOR THE CHANGE IN INCOME INEQUALITY, BY PERIOD

	Period		
	1970–1980	1980–1990	1970–1990
Constant	1.203**	1.991**	3.080**
Manufacturing Industry	-0.148**	0.009	-0.170**
Infrastructure Industries	0.000	-0.019	-0.162**
Trade and Personal Services	0.148**	0.326**	0.113**
Business Services	-0.068	0.192*	0.129
F.I.R.E.	0.065	0.212*	0.007
Professional Services	-0.026	0.258**	0.017
Employment	0.147	-1.547**	-0.309*
Unemployment	-0.016	-0.025	0.158**
Wives' LF Participation	0.017	-0.132**	0.006
Female-Headed Families	0.131*	0.227**	0.119**
Minority Population	0.160**	0.011	0.063**
Foreign-Born	0.039	0.113*	0.104**
< 12 Years Education	0.150**	0.083**	0.158**
16+ Years Education	0.135**	0.006	0.046
Elderly-Headed Families	0.188**	-0.018	0.176**
Small Metropolitan Area	0.076	0.773**	0.544**
Large Metropolitan Area	0.314	1.197**	0.973**
R ²	0.494	0.441	0.649

Sources: 1970, 1980, and 1990 *Census of Population and Housing*

* $p < .05$; ** $p < .01$

changes in relative manufacturing employment and changes in the Gini coefficient. Areas that gained most, or lost least, in manufacturing employment were significantly more likely to have equalized family income distributions between 1970 and 1980, or to have experienced smaller increases in inequality. Although the effects of changes in manufacturing employment are statistically significant over the entire 20-year period, they were much weaker and more inconsistent between 1980 and 1990 than between 1970 and 1980. This finding is intriguing, and will be discussed further below. The effects of changes in infrastructure employment, which we presumed to be the same as for changes in manufacturing employment, indeed appear to be similar. Over the 1970–1990 period, relative gains in infrastructural employment produced declines in family income inequality, but the effects are not statistically significant for either 10-year period.

Among the six industrial sectors we consider, the most consistent and most powerful effects appear to be due to changes in trade and personal services employment. Over both decades and over the combined period, relative growth in this area of employment significantly predicts increases in areal Gini coefficients. Because most areas (753 of 784) experienced varying degrees of gain in this sector, this finding

underscores the importance of the “McDonald’s effect” on income distribution. In general, our findings so far concerning the effects of industrial restructuring accord very well with the gloomy predictions of the “deindustrialization” thinkers. In combination, losses in manufacturing employment and gains in unskilled service employment cause significant disequalization of family income distributions.

Growth of relative employment in the business services, F.I.R.E., and professional services industries had no apparent effect on family income distribution between 1970 and 1980, but apparently were significant promoters of inequality in the following decade. In view of the differences in their internal earnings distributions, it is surprising that these three sectors should exert such similar effects. As shown in Figure 1, for example, well over twice as many workers in the business service sector as in the F.I.R.E. sectors are drawn from families whose incomes are in the lowest quintile (23.1% and 11.4%). Overall, and despite some inconsistency in timing, these findings bear out the expectations of Steinberg (1983) and others that growth in service employment eventually would increase income inequality because service-producing industries possess inherently greater internal inequality than goods-producing industries.

Changes in Population Composition

As might be expected, changes in population composition had pervasive effects on family income distribution, net of the effects of all other variables. Change in two characteristics in particular, female family headship and low educational achievement, exerted strong and consistent effects in both periods. Increases in wives’ increased labor force participation, in college graduation, and in minority population, foreign-born persons, and elderly family heads had substantial but less consistent effects on income distribution.

Female-headed families are a low-income group; not surprisingly, then, inequality was increased by the doubling of the percentage of families headed by females between 1970 and 1990. Because all but one of the 784 MSA/PUMAs experienced an increase in the proportion of families headed by females, the positive coefficients actually reflect the differing degrees of increase in the rate of female-headed families. In other words, the degree of areal increase in the Gini for family income distribution is proportional to the degree of increase in female-headed families.

Between 1970 and 1990, wives’ labor force participation increased in all 784 MSA/PUMAs. According to Freeman (1997), most of this growth during this period occurred among married women. Participation rates increased more among women married to lower-income men than among women married to higher-income men; thus increases in family income inequality were moderated. This consequence, however, is empirically visible only in the period from 1980 to 1990. It is unclear why we find no statistically significant effect for the previous decade. These results confirm Nielsen and Alderson’s (1997) finding of a negative association between female labor force participation and inequality, a point made in rebuttal to Thurow’s (1987) suggestion that quite

the opposite would occur, and consistent with the many earlier studies summarized by Treas (1987).

Racial and ethnic disparities in income were large in 1970 and remained so in 1990, although slightly reduced. It would seem to follow that increases in minority populations would increase family income inequality. This in fact was the case between 1970 and 1980, but not in 1980–1990, when minority populations increased in even a greater number of areas than in the previous decade. To understand this pattern more clearly, we estimated a reduced model for 1980–1990 in which we omitted change in female-headed families and in educational attainment. In this reduced model, change in the minority population did predict change in inequality; this finding suggests that these two characteristics explain the association between minority representation and inequality after 1980.

Table 3 shows that growth in the immigrant population increased income inequality after 1980. This finding is important because the foreign-born percentage of the population increased in 524 MSA/PUMAs between 1970 and 1990. Most probably it is a direct result of immigrants' lower earnings rather than of any broader effect on the labor market. Fix and Passel (1994) find only mild effects, at most, in their summary of several dozen studies of the effects of immigrants on the employment and wages of the native-born. Farley (1996) goes further and argues that immigrants stimulate the local economy. Indeed, the areas in which immigrants settled tended to be more economically dynamic: In MSA/PUMAs in which the foreign-born percentage of the population increased, employment growth rates from 1970 to 1990 were almost double those in areas where the percentage foreign-born decreased. Of course, whether this outcome is cause, effect, or coincidence cannot be determined with these data.

Changes in the distribution of educational attainment affected income inequality significantly. As noted above, overall educational attainment increased substantially from 1970 to 1990, as the percentage of the population with college education rose sharply and the percentage with less than high school education dropped equally sharply. Furthermore, economic returns to education became more favorable for those with a college degree (Farley 1996; Freeman 1997). Both trends had the effect of transferring income toward the upper end of the income distribution, as seen in the positive relationship between inequality and changes in the percentage of areal population with both low and high levels of education.

In general, between 1970 and 1980, areas that experienced disproportionately large relative increases at either extreme of the education attainment distribution also experienced disproportionately large increases in family income inequality. After 1980, however, increased inequality apparently was no longer governed by growth in the number of college-educated workers. We find no significant effect of increased college completion on income distribution during the 1980–1990 period. This change between decades suggests that future increases in skills-based industry employing highly educated persons will not necessarily exacerbate inequality.

Families headed by an older person are a low-income group. As expected, growth in the relative size of this population tended to increase inequality, but (like minority status and college completion) did so only during the 1970–1980 period.

Other Changes

Growth in both total employment and unemployment, although included primarily as control variables, exerted modest effects in the expected directions. All other things being equal, growth in unemployment increased inequality between 1970 and 1990, while economic expansion, as measured by employment growth, reduced family income inequality during that period. Effects are smaller over the two shorter periods, although employment growth significantly reduced family income inequality between 1980 and 1990. Because labor market conditions fluctuate sharply with the business cycle, it is possible that some of the effects of unemployment are transitory and depend on the timing of the censuses. All three censuses were conducted at about the same point in the business cycle, during periods of rising unemployment and shortly before recessions, but timing still might have varied substantially by area.

There were good reasons to anticipate that changes in family income inequality would be affected by whether changes occurred in a metropolis, and by the size of the metropolis. From 1970 to 1990, the average gain in the Gini was 3.6 times larger for the 48 metropolitan areas with more than 1 million population than for the 468 nonmetropolitan PUMAs, whereas the increase in the 268 smaller metropolitan areas was 2.6 times larger. These differences are reflected in the coefficients for metropolitan location from 1980 to 1990 in Table 3. Certainly a great many social and economic changes potentially linked to inequality are differentiated by metropolitan location, but the coefficients for metropolitan location displayed in Table 3 are net of many of the more important and more obvious of such changes. Thus we may ask why inequality increased more in metropolitan than in nonmetropolitan areas.

Part of the answer appears to lie in the economic structural starting points of metropolitan areas. When the initial industrial structures for the six sectors are controlled in augmented equations, the coefficients for metropolitan location lose their significance. This does not occur when the initial population structures are controlled; thus we can conclude that variation in initial economic structure accounts for the effect of location on inequality.

Changes in the relative inequality of metropolitan and nonmetropolitan areas illustrate our earlier observation that income distribution is converging across the United States. In 1970, contrary to Kuznets's (1965) expectation that metropolitan areas are inherently the site of greater inequality, the average Gini in nonmetropolitan areas was 37.4, compared with 35.1 in metropolitan areas. Over the next two decades, however, Kuznets was proved belatedly correct as income concentration within metropolitan areas edged past that of nonmetropolitan areas. By 1990, the Gini averaged 39.1 in

MSAs and 38.8 in nonmetropolitan PUMAs. Increased inequality was not universal, however; in 132 MSA/PUMAs, or approximately one in six, inequality declined between 1970 and 1990. A scant six of the 316 metropolitan areas were among the areas showing reductions in inequality.

COMBINED EFFECTS

Overall, the regression results displayed in Table 3 demonstrate that changes in some aspects of both industrial structure and population composition had significant effects on changes in family income inequality. This table, however, does not adequately summarize the net combined effects of the theoretically most important sets of variables. Moreover, statistically significant variables may differ considerably in their impact on inequality. An answer to the question "Was the great U-turn more the result of changes in industrial structure or of changes in social characteristics?" is certainly implicit in Table 3, but it is not explicit.

One way to approach a more definitive answer is to ask questions of the data while making some critical counterfactual assumptions: What would have happened to inequality if the structure of employment had *not* changed, or, conversely, if population composition had remained constant? Regression coefficients, in conjunction with the mean changes in the independent variables, may be used to summarize the relative combined effects of changes in industrial structure and population composition. For the effect of industrial structure, this is accomplished by substituting into Eq. (1) the regression coefficients and the actual mean change for all independent variables other than the industrial variables. Zero change is assumed for the industrial structure variables. The resulting expected change in the dependent variable is then added to the mean of the dependent variable at the beginning of the period to yield a counterfactual end-of-period value under the assumption of no change in industrial structure. The difference between the actual end-of-period value of the dependent variable and the estimated value based on the assumption of no change in industrial structure is the effect of industrial changes.⁵ This procedure is repeated in parallel fashion for the effect of population changes.

The results of each exercise are shown in Table 4. The effects of location, changes in employment, and the intercept of the regression, when added to industrial and population effects, yield the mean change in the Gini.

Between 1970 and 1990 the mean increase in the Gini across all areas was 2.471. Most of this increase occurred in 1980–1990. The net effect of changes in industrial structure

TABLE 4. ESTIMATED EFFECTS OF INDUSTRIAL AND POPULATION CHANGES, BY PERIOD

	Period		
	1970–1980	1980–1990	1970–1990
Observed Gini at Beginning of Period	36.469	36.766	36.469
Observed Gini at End of Period	36.766	38.940	38.940
Change in Gini During Period	0.297	2.174	2.471
Value of Gini if No Industrial Changes	36.790	37.569	37.874
Value of Gini if No Population Changes	37.744	40.219	40.678
Net Effect of Industrial Changes	-0.024	1.371	1.066
Net Effect of Population Changes	-0.978	-1.279	-1.738

Sources: Tables 1, 2, and 3

was to raise the Gini by 1.066, whereas changes in population composition lowered the Gini by 1.738. Thus both industrial changes and population changes contributed to the change in inequality, although in opposite ways; population changes made the larger contribution. These are net combined effects: Some changes in industrial structure reduced inequality, just as some specific population changes increased it.

Specific effects are of more than passing interest. From 1970 to 1990, for example, the reductions in manufacturing made a larger contribution to increased inequality than did any other variable. In contrast, the reduction in persons with less than a high school education reduced inequality the most. Indeed, the decline in persons dropping out of school before high school graduation was the only population factor that reduced inequality for the 1970–1990 period; it accounts for all of the negative effect of population change on inequality for the entire 20-year period. Population changes would have increased income inequality if the increase in high school graduation had not been so large.

Early in the U-turn, from 1970 to 1980, the net effect of industrial changes was barely visible, whereas the net effect of population changes was negative, mostly because of the increase in high school graduation. By the 1980–1990 period, the net effect of industrial changes became positive and the net effect of population changes remained negative. During this upward phase of the U-turn, the growth of professional services and trade and personal services dominated among industries contributing to increased inequality.

Demographic changes were fairly consistent in their effects from 1970 to 1990. In contrast, industrial changes were more or less neutral in impact from 1970 to 1980, but became disequalizing during the 1980s.

5. Equivalent results may be obtained by summing only the products of the coefficients for the independent variables of interest and the mean changes in these variables. We take a somewhat more complex route because we wish to emphasize the counterfactual aspects of the method. The expected values include variables regardless of their level of significance. Omitting the insignificant variables would bias the outcomes because they are part of the regression equation that is the basis for the procedure. Such omission would exert only minor effects on the outcomes because the coefficients of the insignificant variables are small.

CONCLUSION AND IMPLICATIONS

We began our discussion by noting that two general camps are debating about the reasons for the increasing family income inequality in the United States. According to the deindustrialization perspective, the shift toward service employment and away from manufacturing employment is responsible for the "great U-turn." From this perspective, highly paid unionized work in manufacturing is being replaced by non-unionized poorly paid lower-level service jobs; the so-called "McDonald's effect" is the result. Furthermore, it is argued, the internal dispersion of earnings in manufacturing employment is relatively narrow, whereas earnings dispersions in the services are much wider. Swapping one kind of employment for the other would seem to have obvious implications for income inequality.

In contrast, many others regard the shift toward service activities as the natural result of economic development. They argue that there is no inherent connection between growing service-sector employment and inequality. All service sectors include numbers of highly educated and well-paid professionals. If the shift toward service activities appears to increase inequality, this is because educational and other institutions are failing to increase human capital at an adequate rate, or perhaps because of other social changes. The latter include changes such as increased immigration, disproportionate growth in the minority population, and a change in family structure toward more female heads.

At one level, the resolution of this debate is obvious. *Both* perspectives receive substantial empirical support in the present analysis. Changes in levels of manufacturing employment and of trade and personal service employment both exert significant effects on family income distribution. Over the 20-year span covered by our analysis, declines in manufacturing employment and increases in trade and personal service employment unequivocally increased family income inequality, just as predicted by proponents of the deindustrialization viewpoint. Because manufacturing jobs pay well and because a very large share of jobs in trade and personal services do not, this conclusion is not surprising.

Contrary to our assumptions, we found that the effects of change in manufacturing employment on income distribution were substantially clearer and stronger between 1970 and 1980 than between 1980 and 1990. This result is theoretically puzzling and merits further investigation. In addition, although growth in trade and personal service employment increased family income inequality during both periods, relative employment growth in other service sectors, particularly professional services, was much more important between 1980 and 1990 than in the previous decade. This point suggests that the impetus toward growing income inequality, at least in regard to change in industrial structure, may have shifted from the decrease in highly paid blue-collar workers to the increase in highly paid white-collar workers. If this is the case, a new theoretical synthesis is needed, which will make sense of this emerging pattern. Pending a more fully detailed analysis of occupational changes, these conclusions remain tentative.

These complications should not be allowed to obscure our central finding: Contrary to much recent research and speculation, industrial restructuring has had a substantial impact on family income distribution. When *meaningful geographic areas* are used as the unit of analysis, rather than data aggregated to the national level, it is evident that the shift from goods-producing to service-producing industries has increased family income inequality.

Population characteristics and *changes* in population characteristics are also deeply implicated in the great U-turn; this finding should not surprise informed readers. Female-headed families are disproportionately poor, for example, and growth in the relative size of this group (other things being equal) will increase family income inequality. Likewise, growth in minority populations and the elderly population, the rate of immigration, and the movement of wives into the paid labor force have clear implications for family income inequality, as does change in the distribution of human capital. In communities that experienced either greater growth in their more highly educated population or smaller reductions in their less well-educated population, the increases in income inequality were greater. In short, both industrial restructuring and changes in the sociodemographic composition of the U.S. population contributed to the great U-turn.

Several complicating factors must be taken into account, however, before we conclude that both sides of the debate on industrial restructuring are more or less equally correct. In particular, it is possible that the design of our analysis understates the total effect of industrial restructuring by ignoring the relationship between population characteristics and industrial restructuring. A number of population characteristics with an important bearing on family income inequality are probably influenced significantly by prior changes in industrial structure.

Some research (Stokes and Chevan 1996; Wilson 1987, 1996) suggests that the sharp increase in female-headed families since 1965, particularly among African Americans, is due to a decline in the availability of decently paid work for less highly educated and less highly skilled male workers. Declines in manufacturing employment, as well as growth in lower-level service employment, contributed significantly to growing female family headship and thus indirectly to family income inequality. Others argue that the increase in wives' labor force participation is governed at least partially by the stagnation in wage levels among less educated male workers. Stagnation in working-class males' wages, in turn, is very likely a result of industrial restructuring.

In both of these instances, and perhaps in others we have not identified, we may be underestimating the impact of industrial restructuring by not considering how extensively some of this impact is mediated by changes in social characteristics. Full consideration of this more complex model is beyond the scope of the present paper, but should be high on the agenda for future research.

An additional qualification exists because we have chosen to focus on family income inequality rather than earnings inequality; this choice may understate the probable effect of

industrial restructuring on future inequality. Analysis not reported here, as well as other research (Auerbach and Belous 1998; Freeman 1997), suggests that individual earnings inequality has increased more sharply than family income inequality, largely because of shifts in the sectoral composition of employment. To some extent, families have responded to stagnating or declining earnings by putting additional family members to work, most often wives. This is especially true of families in the lower reaches of the class structure. To date, wives of lower-income men are still more likely than wives of higher-income men to join the paid labor force.

This compensatory movement may be nearing an end, however, as very nearly all working-class women able to join the workforce will soon have done so. As wives of more affluent men begin to enter the workforce in proportions equaling those of less affluent men, the very process that has dampened growth in family inequality will have the opposite effect. Instead of compensating for the effects of growing earnings inequality, wives' continued entry into the paid labor force ultimately may *amplify* those effects.

It is customary to close papers addressing social problems, such as growing income inequality, with policy recommendations intended to lessen the severity of the problem. In all candor, however, it is unlikely that any policy alternative meets the dual tests of effectiveness and political feasibility. That which is likely to be effective is not politically feasible, and that which is politically feasible is not likely to be effective. Inequality is increasing under the impetus of powerful market forces that current political sentiment places well outside the policy sphere. Although the federal government has the power to directly intervene in the economic and social processes that are increasing family income inequality, the neoliberal mood prevailing in policy circles rules out such a course of action. The religious adulation of market forces shows no signs of abating, even among policy experts whose sympathies lie with the working classes; meanwhile it has become an article of faith that nonmarket solutions will create more problems than they solve (Burtless et al. 1998).

Acceptable solutions usually tend somehow to upgrade workers' human capital, through either education, special training, or other means. Certainly such training will benefit individual workers, but it defies logic to believe that all workers, or even most workers, could benefit from such policies. Not all people are capable of becoming engineers; if they were, hospital floors soon would be swept by engineers earning minimum wages, and part-time retail sales would become an engineering specialty. Upgrading human capital is a supply-side solution to what is inherently a demand-side problem.

Economic inequality in this society is growing because of an intertwined combination of industrial restructuring and shifting population composition, and the resulting effects on the labor market. The immediate fact facing members of the working class is that market forces have made good jobs harder to find and have increased the competition for those jobs. Any effort to cope with the growing inequality of family income distribution must directly confront this most fun-

damental problem, and nothing now visible on the policy horizon holds any real promise of doing so.

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