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ABSTRACT

The Gini index of household income indicates that, after rising for the past 2 decades, the inequality of income distribution in the United States stabilized between 1987 and 1991. This paper examines this apparent stabilization to determine whether other measures can corroborate the Gini index and to identify any changes in underlying factors associated with rising inequality. Following an introduction, section II of the paper examines economic, social, and demographic trends from 1987 to 1991 which also indicate a stabilization in income distribution, including: (1) a stabilization of the nation's wage structure; (2) a reduction in the trade deficit; (3) a slowdown in the trend toward declining union membership; (4) a raise in the minimum wage; (5) a reduction in the growth of single parent households; and (6) the 1990-91 recession, which affected white collar workers particularly severely. Section III discusses sources and analysis of household income data, while section IV examines selected measures of inequality from 1979 to 1991 to provide a context for the recent stabilization. This section also examines changes in the distribution of wages and earnings from 1979 to 1991 as an underlying factor of household income distribution, indicating that while earnings ratios were increasing for both age and education-level groups in the 1980s, the ratio changed very little for age groups between 1987 and 1991. Tables and 28 references are included. (BCY)

June 23, 1993

HAS GROWING INCOME INEQUALITY COME TO AN END?

by

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I. Introduction

Close inspection of Census Bureau measures of income inequality for recent years indicates that inequality in the distribution of household incomes, after rising slowly in the 1970s and accelerating in most of the 1980s, changed very little between 1987 and 1991. The Gini index for the household income distribution was .427 in 1987 and .428 in 1991, and the shares of aggregate money income received by the lowest and highest quintiles of the distribution were only slightly different (U.S. Bureau of the Census, 1992a). These developments raise a question as to whether or not the long-run trend towards greater inequality in the income distribution has come to an end.

This question has received little attention from researchers. At most, a few have acknowledged that the inequality trend may have leveled off in the last few years. This is quite natural, however, since researchers have been more interested in searching for the causes of growing income inequality and the related phenomenon of rising inequality of labor market incomes. This research, of course, has taken many directions and continues to be a major area of economic inquiry.

The question has also been rarely mentioned in the popular press. This is probably the result of the media's pre-occupation with the "haves and have nots" debate and its implications for

the last Presidential election and the new administration's economic program. One journalist, however, did acknowledge the slowdown in the rise of inequality as shown in the Census Bureau's data. David Wessel (1992) of the Wall Street Journal raised the possibility that many of the factors popularly thought of as causing greater income inequality (e.g., real estate speculation, high interest rates, executive pay practices) had changed in the late 1980s and early 1990s and that the pressures leading to rising inequality had abated. While past research suggests that the dynamic process resulting in greater income inequality is very complex and involves not only economic but social and demographic factors as well, this journalist's point is well taken.

In this paper, the trend in household income inequality between 1987 and 1991, the period in which the apparent stabilization has occurred, is examined in some detail. There are two purposes for doing so. The first purpose is to determine whether or not this trend, apparent for the Gini index, can be corroborated by other measures of income inequality. As has been pointed out in the literature, differences in the way inequality measures are constructed can produce different readings with respect to both the level and trend of inequality (e.g., Karoly, 1992a; Slottje, 1989). A second reason for examining this trend is to identify if underlying factors associated with rising inequality have changed as well. While the precise causes of the long-run increase in inequality are still being debated, a number of factors, such as growing dispersion in the wage distribution,

are thought to be related.

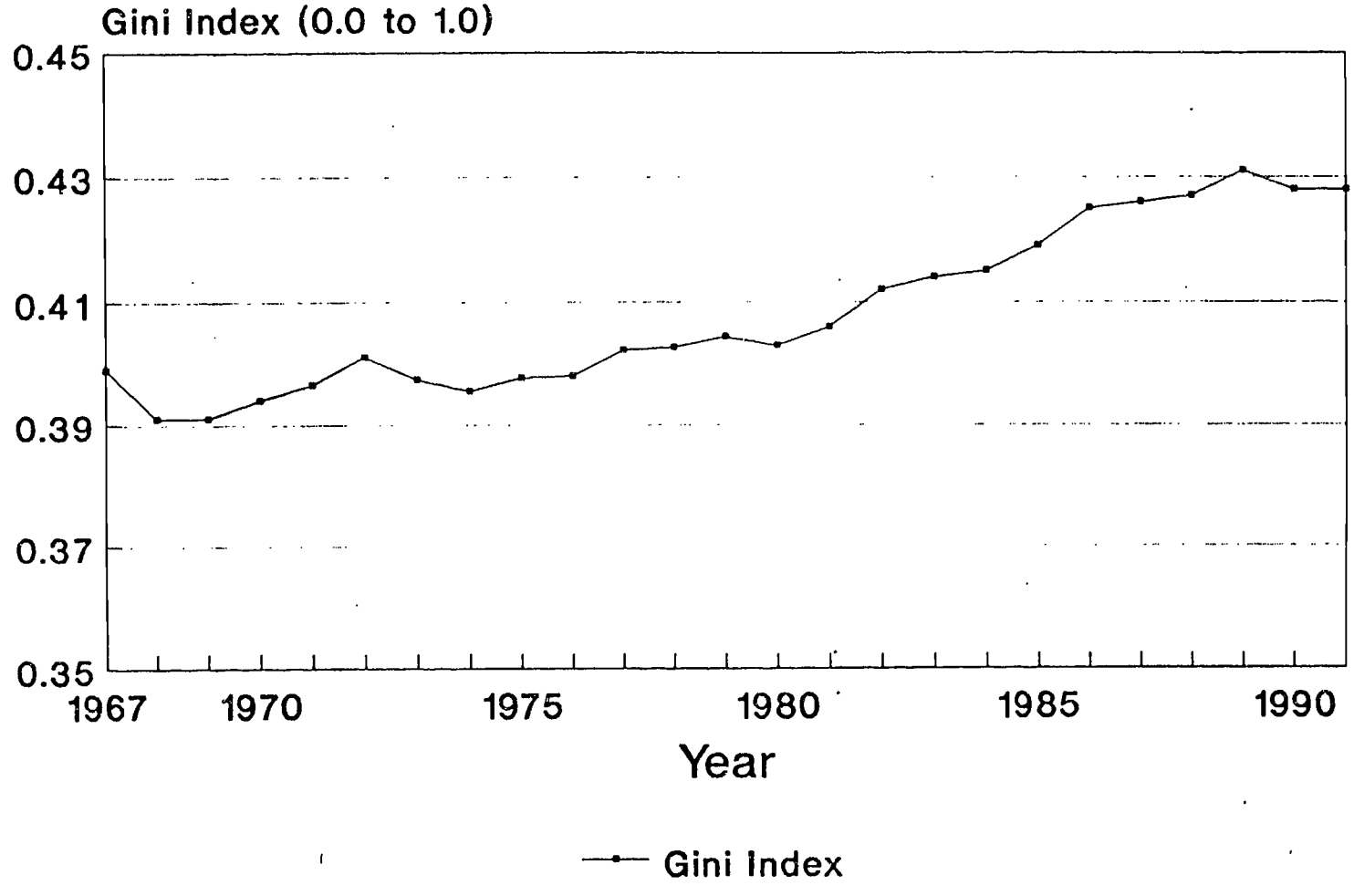
The paper is organized as follows. Section II discusses some of the reasons why it might be thought the trend in income inequality has stabilized in recent years. Section III contains a brief discussion of the data and the different inequality measures used in the analysis. In Section IV various inequality measures are presented which depict the 1987-91 trend in the context of what these measures were indicating over the somewhat longer 1979 to 1991 period. It also contains a discussion of what has happened to some of the underlying factors thought to be related to changes in inequality. A concluding section summarizes the results of the analysis and its implications.

II. Why the Trend in Inequality May Have Stabilized

Figure 1 shows the long-run trend in the Gini index, as calculated by the Census Bureau, from 1967 to 1991. 1/ Although the long-run trend in this measure of income inequality is upward, from 1987 to 1991 the trend seemed to flatten out. 2/ As Wessel (1992) stated in his article, there have been a number of developments in the economy in these most recent years that might lead one to believe that, "The rich may not be getting richer anymore."

Researchers over the years have examined a variety of economic, social, and demographic factors thought to be related to the rise in income inequality, and most have concentrated on the economic ones. High on the list of the economic factors have been changes taking place in the Nation's wage structure. This

Figure 1. Gini Index for All Households, 1967 to 1991



is natural since such a large proportion of household income is derived from the labor market and changes taking place in the distribution of wages and earnings are most likely to be "echoed" in the income distribution. (As will be discussed later, research has shown that wage inequality increased both "between" and "within" groups defined on the basis of age and/or experience, education, and other groups.)

Table 1, which contains some economic, social, and demographic factors, shows the trend in inequality, as measured by the Gini index, in wages and salaries of men age 16 and over from 1979 to 1991. The index rose from .417 to .444 between 1979 and 1987, but since then has not increased much more. This trend, of course, parallels the trend in the Gini index for the household income distribution.

One of the suspected causes of this growing dispersion in wages mentioned in the literature, as well as the popular press, has been the Nation's trade deficit (Murphy and Welch, 1988). During much of the 1980s, imports grew much more rapidly than exports and the merchandise trade deficit mushroomed to $152 billion by 1987. This, it is argued, adversely affected low skilled workers because these imports represented jobs that would have typically gone to them. As shown in Table 1, however, the trade deficit in the 1987-91 period was reduced dramatically; the growth in imports slowed during this period and the volume of exports increased. Was this development coincidental with the stabilization in wage inequality or related?

Other economic factors that have been discussed by

Table 1. Selected Economic, Social, and Demographic Variables That Have Been Associated With Growing Income Inequality, 1979 to 1991

Year	(1) Gini Index Male W&S	(2) Merchand. Trade Bal. (bil. $)	(3) Union Member. (%)	(4) Min. Wage (Cur. $)	(5) Single-Parent Hhlds. (%)	(6) Work. Wife Hhlds. (%)	(7) Hhlds. Und. 45 (%)
1979	.417	$ -23.9	-	$2.90	12.7	29.7	47.4
1980	-	-19.7	-	3.10	12.9	29.9	48.3
1981	-	-22.3	-	3.35	13.4	30.0	48.7
1982	-	-27.5	-	3.35	13.6	29.9	48.7
1983	.437	-52.4	20.1	3.35	13.7	30.3	48.7
1984	-	-106.7	18.8	3.35	14.0	-	49.0
1985	-	-117.7	18.0	3.35	14.2	31.0	49.6
1986	-	-138.3	17.5	3.35	14.3	31.1	49.6
1987	.444	-152.1	17.0	3.35	14.5	31.8	49.6
1988	.442	-118.5	16.8	3.35	14.8	31.8	49.6
1989	.450	-109.4	16.4	3.35	14.8	32.0	49.8
1990	.445	-101.7	16.1	3.80	14.8	32.3	49.4
1991	.446	-65.4	16.1	4.25	15.0	32.1	49.3

SOURCE:
(1) Derived from March Current Population Survey microdata files.
(2) Council of Economic Advisers, (1993).
(3) U.S. Bureau of Labor Statistics, (1992).
(4) U.S. Bureau of the Census, (1992b).
(5) U.S. Bureau of the Census, (1992c).
(6) Unpublished U.S. Bureau of the Census data.
(7) U.S. Bureau of the Census, (1992a).

researchers involve wage-setting mechanisms, specifically unionization and the minimum wage (Blackburn, Bloom, and Freeman, 1990). For many years, union membership has been on the decline. As shown in Table 1, between 1983 and 1987, the proportion of all employed wage and salary workers that were members of unions fell from 20.1 percent to 17.0 percent. In the next four years, however, this trend slowed, from 17.0 percent in 1987 to 16.1 percent by 1991. Another change in a wage-setting mechanism was the minimum wage, which was unchanged through most of the 1980s at $3.35. In 1990 and 1991, however, it was raised to $3.80 and $4.25, respectively, lifting the floor for low wage workers.

Economists and other researchers have from time-to-time pointed to social and demographic changes, in addition to economic changes, that may have been related to rising inequality. One of these was the changes taking place in composition of households (Ryscavage, Green, and Welniak, 1992). As widely reported, in the past 20 years or so a profound shift occurred from married-couple households to single-parent and nonfamily households. Female single-parent households, especially, have been thought to be a disequalizing force on the income distribution since their incomes are so low. Table 1 indicates, however, that since 1987 there was a slight slowdown in the growth of single-parent households.

Another social factor sometimes examined in connection with growing inequality has been the increase in the number of working wives (e.g., Karoly, 1992b; Cancian, Danziger, and Gottschalk, 1991; Ryscavage, 1992). As shown in Table 1, between 1979 and

1987 the proportion of all households containing a working wife rose from 29.7 to 31.8 percent. Since 1987, however, the proportion has leveled off at around 32 percent.

A purely demographic factor that has now been generally dismissed as accounting for the increase in income inequality is the baby boom generation. Nevertheless, and as is shown in Table 1, the proportion of households in the country that contain a householder under age 45 reached its high water mark during the second half of the 1980s at almost 50 percent and in the early 1990s started to recede.

In addition to these factors are the other developments that have taken place in recent years and reported by Wessel and others in the popular press which could have contributed to the apparent stabilization in inequality. Greater attention has been focused on the compensation practices of corporate executives, interest rates have dropped, commercial real estate prices have sagged, and so on. Perhaps even more important is the recent recession the economy has experienced. Typically, in recessionary periods inequality rises as blue-collar and middle income workers are laid off. But unlike previous recessions, the 1990-91 recession was particularly severe on white-collar workers (Nardone et al, 1993) and income inequality has not become any worse.

All of the changes discussed here, while perhaps sufficient justification for posing the question raised in the paper, should be considered in the following context, however. First, these changes are simply circumstantial since the dynamic process

leading to greater dispersion in the income distribution is complex and interrelated. And second, in terms of judging trends in inequality, a four-year period, such as that between 1987 and 1991, is very short.

III. Household Income Data and Inequality Measures

The household income data used in this analysis are from internal Census Bureau files developed from the March supplement of the Current Population Survey (CPS). The income data relate to the annual "money" income received in the previous calendar year and by definition exclude any noncash income items such as employer provided health benefits or food stamps.

Like most income data derived from a household survey, the CPS money income data have limitations. These limitations can affect intertemporal comparisons of summary estimates including measures of inequality. For example, income under reporting, the top-coding of income amounts, the imputation of missing income items, and other survey procedures can all produce biases in the data. 3/

By focusing on the 1987-91 period, some of these potential problems are mitigated. This is because beginning with the March 1989 CPS (for income year 1988) a new computer processing system was introduced and data from the March 1988 CPS were also reprocessed with this system at that time. That means the income data for the years 1987 to 1991 have been processed under a consistent imputation and weighting system. Moreover, these improvements also reflect the CPS questionnaire changes that were

introduced since the last major revision in 1976. 4/

The basic income recipiency unit analyzed in the paper is the household. The household is defined as all persons who occupy a housing unit, whether it be a house, apartment, or some other housing unit intended for occupancy as separate living quarters. It includes related family members and any unrelated persons; unrelated individuals sharing a housing unit as partners would also be counted as a household. Other researchers have focused on families (persons living together related by birth, marriage, or adoption) and unrelated individuals. In these analyses, unrelated individuals are frequently treated as "one-person families," (e.g., Williams, 1993) an approach which ignores the large proportion of such individuals who share resources. Other analyses focus only on families (e.g., Horrigan and Haugen, 1988), or married-couple families (e.g., Joint Economic Committee, 1992), another practice which ignores a large segment of the population.

The household income data have been adjusted to reflect household size differences and the presumed economies of scale associated with these differences. Many studies have relied on the equivalency scales implicit in the official U.S. Government poverty thresholds. As Ruggles (1990) pointed out, however, certain "irregularities" exist in them with respect to the implied elasticity of needs-to-family size. For this reason an alternative equivalence scale, suggested by Ruggles, is used to adjust incomes which does not have the irregularities. It should be acknowledged, however, that some economists have questioned

the usefulness of equivalency adjustments in income distribution analyses (e.g., Pollack and Wales, 1979).

In this paper, adjusted household income distributions for 1979, 1983, and 1987 to 1991 are analyzed. The earliest year, 1979, represents the year before the economic recessions of the early 1980s after which income inequality began to accelerate. The year 1983 represents the first full year of economic recovery, while the period 1987 to 1991, of course, includes the closing years of the 1980s' expansion and the following recession years of 1990 and 1991. 5/

A number of inequality measures have been used by researchers to document the rise in income and earnings inequality. The Census Bureau relies basically on two related measures, the Gini index and quintile shares of aggregate income. So as to evaluate the robustness of these two measures of the inequality trend between 1987 and 1991, several other measures will be estimated. 6/ They can be categorized into three broad classes: shares, percentiles, and summary measures. The share measures here show the percentage of aggregate income received by quintiles of households and the percentage of households above and below arbitrarily defined absolute income cutoffs. Percentiles of the distribution enable one to observe whether the income distribution changed at certain points of the distribution and are typically expressed as ratios so as to reflect distribution distances. And five summary measures (in addition to the Gini index) are presented: the variance of the natural logarithm of income, the coefficient of variation, Theil's

entropy index, and two Atkinson measures. As often discussed in the literature, these summary measures have unique properties because of the way they are calculated. For example, the variance of the logarithm is most sensitive to changes in the low end of the distribution, the Gini index is most sensitive to changes in the middle of the distribution, while the coefficient of variation is most sensitive to changes in the upper end of the distribution. Atkinson's measures are also unique in the sense that one can select the part of the distribution to be made most sensitive to changes in incomes. This is done by varying the epsilon parameter in the Atkinson measure (the greater the epsilon the more sensitive the measure is to changes occurring at the low end of the distribution). 7/

IV. The Income Distribution, 1987 to 1991

Results. The top panel of Table 2 presents shares of adjusted aggregate money income received by quintiles of households. 8/ It shows that the percentage of adjusted aggregate income received by the top quintile rose from 42.7 percent to 44.7 percent between 1979 and 1987 and the share received by the top 5 percent of households rose from 16.3 to 17.7 percent. 9/ At the same time, the shares received by the middle three quintiles and the lowest quintiles declined.

Between 1987 and 1991 there was much less change in the shares of aggregate income received by these quintiles. Indeed, the share received by the lowest quintile in this period remained at 4.6 percent, and the middle three quintile's share remained

Table 2. Shares of Aggregate Adjusted Money Income Received by Quintiles of the Household Income Distribution and Proportion of Households in Constant Dollar (1991 dollars) Income Classes, 1979, 1983 and 1987 to 1991

SHARES OF AGGREGATE ADJUSTED MONEY INCOMES

(In percent)

Year	Total	Lowest Quintile	Middle Three Quintiles	Highest Quintile	Top 5 Percent
1979	100.0	5.2	52.1	42.7	16.3
1983	100.0	4.8	51.4	43.8	16.7
1987	100.0	4.6	50.7	44.7	17.7
1988	100.0	4.6	50.4	45.0	17.9
1989	100.0	4.6	49.8	45.6	18.6
1990	100.0	4.6	50.1	45.3	18.2
1991	100.0	4.6	50.2	45.2	17.9

PROPORTIONS OF HOUSEHOLDS IN CONSTANT DOLLAR INCOME CLASSES

(In percent)

Year	Total	$1-24,999	$25,000-74,999	$75,000 or More
1979	100.0	29.8	56.5	13.7
1983	100.0	31.6	54.0	14.4
1987	100.0	28.5	53.0	18.4
1988	100.0	28.4	52.6	19.0
1989	100.0	27.9	52.5	19.6
1990	100.0	28.2	53.1	18.7
1991	100.0	29.2	52.9	17.9

relatively stable. The share received by the highest quintile and top 5 percent of households inched up between 1987 and 1989, but then receded in 1990 and 1991, perhaps reflecting the impact of the recession.

The bottom panel contains proportions of households in three constant dollar (1991 dollars) adjusted income classes: Households with less than $25,000 in adjusted money income, households with adjusted incomes between $25,000 and $74,999, and households with adjusted incomes over $75,000. 10/ These classes were chosen arbitrarily (as many researchers have done) to reflect the lower, middle, and upper income classes of society but should not be construed as definitions of various social strata.

Between 1979 and 1983, households with constant dollar incomes below $25,000 increased from 29.8 to 31.6 percent, middle income households declined from 56.5 to 54.0 percent and the proportion of upper income households rose from 13.7 to 14.4 percent. In the ensuing economic expansion between 1983 and 1987, the data indicate that the proportion of low income households declined while the proportion of upper income households increased dramatically from 14.4 to 18.4 percent of all households. Households with money incomes between $25,000 and $74,999 continued to decline slightly.

As was the case with the shares of aggregate income, during the 1987 to 1991 period the proportion of households in these income classes changed much less. The proportion of households with adjusted incomes below $25,000 at first began to decline

from 28.5 percent to 27.9 percent between 1987 and 1989 but then increased to 29.2 percent by 1991, no doubt reflecting the recession. The middle income category remained fairly stable throughout the period, while the upper income class inched up to 19.6 percent by 1989 and then declined to 17.9 percent of all households, again perhaps reflecting the 1990-91 recession.

Table 3 contains ratios of household income percentiles of the adjusted income distributions--the 10th-to-median, the 25th-to-median, the 75th-to-median, the 90th-to-median, and the 90th-to-10th. Changes in these ratios provide an indication of where dispersion was occurring in the adjusted household income distribution between 1979 and 1991. Figure 2 displays these ratios in relative terms, as Karoly (1992c) has, where the actual 1979 ratio is set equal to 100.0.

Between 1979 and 1983, dispersion occurred in both halves of the distribution, with an especially large increase at the top end. In the following period, 1983 to 1987, both tails of the distribution continued to pull apart, as reflected in the 90th-to-median ratio and 10th-to-median ratio. The ratios reflecting income changes at the 25th and 75th percentiles changed much less.

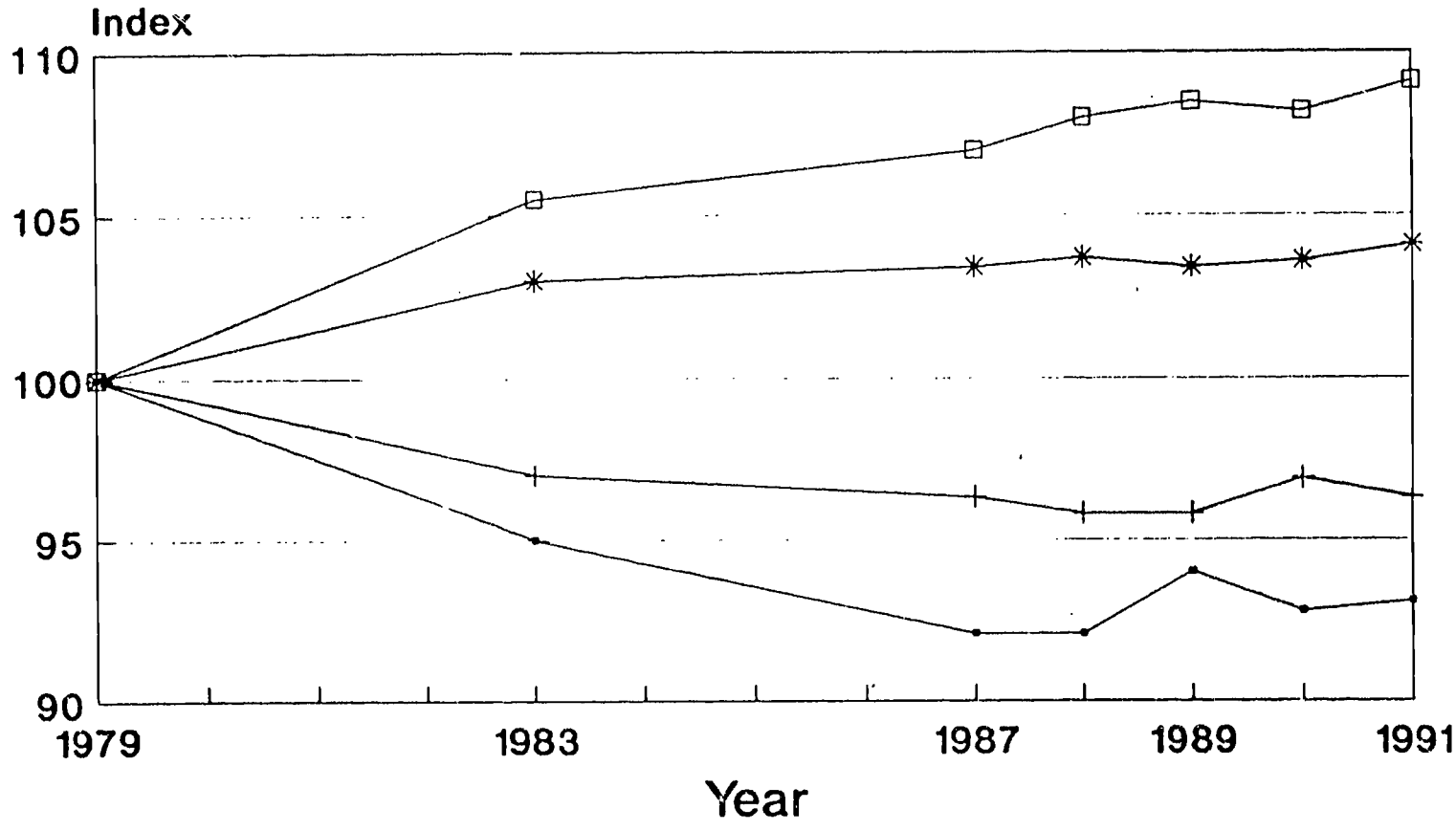
In the years 1987 to 1991, incomes at the 75th and 90th percentiles grew a little more distant from the median. At the 25th percentile, however, there was little change in distance and at the 10th there was some slight reduction.

Table 4 shows six summary measures of these adjusted income distributions, the variance of the logarithm of income, the

Table 3. Selected Ratios of Income Percentiles of the Household Income Distribuiton, 1979, 1983, and 1987 to 1991

Year	10th/Med.	25th/Med.	75th/Med.	90th/Med.	90th/10th
1979	.318	.573	1.543	2.176	6.848
1983	.302	.556	1.590	2.296	7.599
1987	.293	.552	1.596	2.328	7.934
1988	.293	.549	1.600	2.351	8.033
1989	.299	.549	1.596	2.360	7.906
1990	.295	.555	1.598	2.354	7.973
1991	.296	.552	1.606	2.374	8.012

Figure 2. Selected Income Percentile Ratios, 1979, 1983, and 1987 to 1991



Note: Percentile ratios have been standardized to 1979 = 100.0.

Table 4. Selected Measures of Income Inequality, 1979, 1983, 1987 to 1991

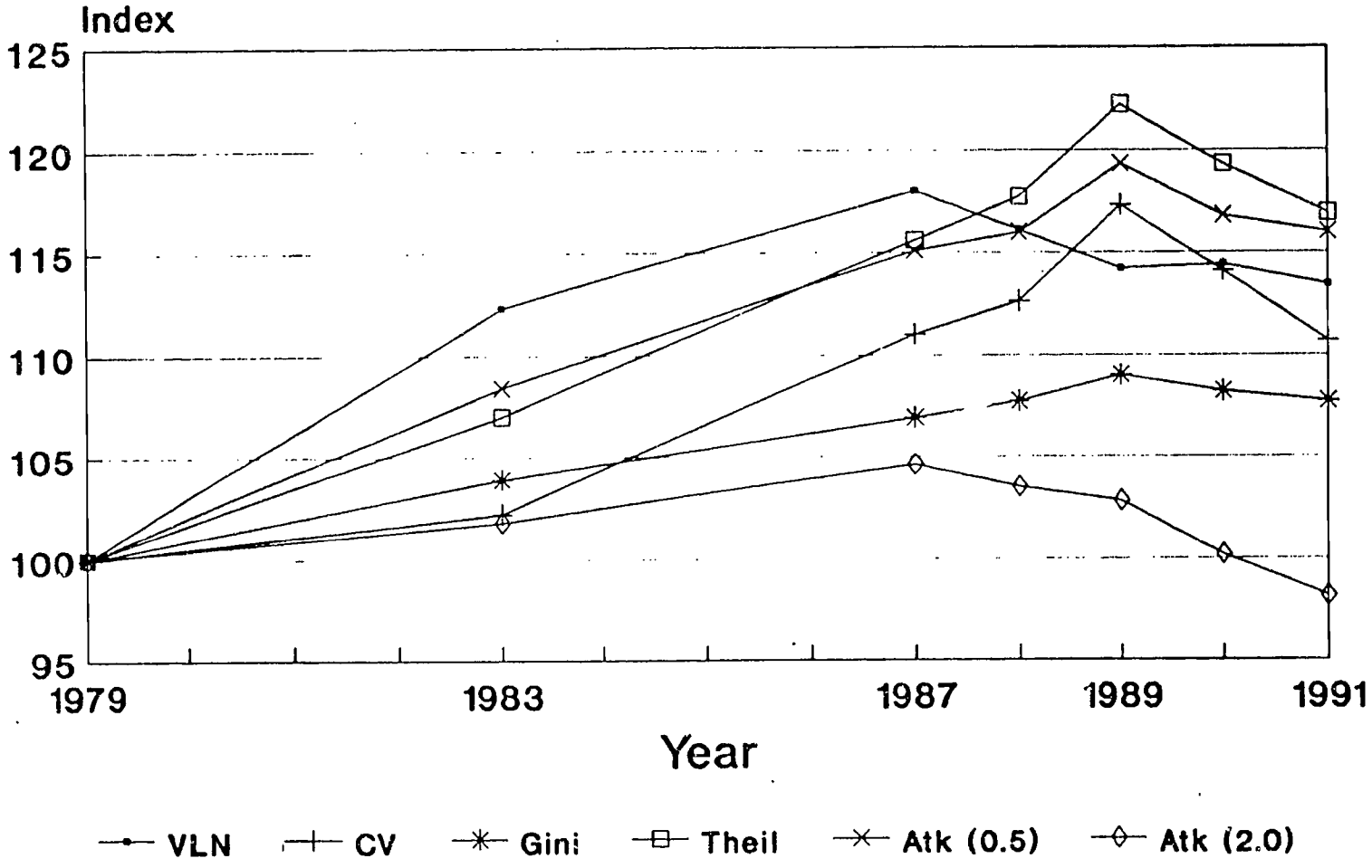
Year	VLN	CV	Gini	Theil	Atk (0.5)	Atk (2.0)
1979	.685	.775	.376	.243	.119	.882
1983	.769	.792	.391	.260	.129	.898
1987	.808	.860	.402	.281	.137	.923
1988	.795	.873	.405	.286	.138	.913
1989	.782	.909	.410	.297	.142	.907
1990	.784	.884	.407	.290	.139	.884
1991	.777	.858	.405	.284	.138	.865

coefficient of variation, the Gini index, the Theil index, and two Atkinson measure (epsilons of 0.5 and 2.0). All of the measures record increases between 1979 and 1983, as well as between 1983 and 1987, indicating growing inequality. The degree to which these measures were recording rising inequality, however, differed as is depicted in Figure 3, where they are shown in relative terms.

In the 1987 to 1991 period, the changes in each of these measures took on a different character. Between 1987 and 1989, the coefficient of variation, the Gini index, the Theil, and the Atkinson-0.5 epsilon measure all continued to move upward, but by 1991 had fallen back to their levels of 1987-88 (changes in the Gini index were not statistically significant). The Atkinson-2.0 epsilon measure and the variance of the logarithm declined slightly between 1987 and 1989 (Figure 3) probably reflecting the slight improvement in relative incomes at the 10th percentile. Thereafter, the variance of the logarithm measure showed little change while the Atkinson-2.0 epsilon measure continued to fall and by 1991 was below its 1979 level. These two measures, of course, are the most sensitive to changes in the lower end of the distribution.

The share measures, percentile ratios, and summary measures demonstrate quite convincingly that the income distribution stabilized during the 1987-91 period relative to the 1979-87 period. There does appear to have been some slight increase in inequality between 1987 and 1989 that was picked up by some of the indices in each broad class of inequality measure. (Indeed,

Figure 3. Selected Inequality Measures, 1979, 1983, and 1987 to 1991



Note: Inequality meaasures have been standardized to 1979 = 100.0.

incomes at the 75th and 90th percentiles continued to grow further from the median even through 1991). However, these increases were short-lived and by 1991 most of the indices were back to their 1987 levels. Evidence of the 1990-91 recession was also apparent at the low end and, surprisingly, upper end of the income distribution.

Discussion. As suggested in Section II, the factors underlying changes in the distribution of household income are complex and interrelated, and researchers have yet to fully understand the secular increase in inequality, no less understand why it has recently stabilized. Furthermore, a four-year period such as the one under examination, is a very short amount of time from which to draw conclusions about whether or not fundamental changes have taken place in the long-term trend of inequality.

It is possible, however, to examine some of the principal economic factors that have been thought to be related to rising inequality, specifically, changes in the distribution of wages and earnings. Levy and Murnane (1992) recently reviewed the literature dealing with the rise in earnings inequality over the years. As they point out, researchers have typically framed their analysis in the context of changes in labor supply and labor demand using a variance of analysis approach to decompose the inequality trend occurring between and within groups. These groups have been identified by age and/or experience, education, and other characteristics, such as industry and plant size. And as they report, many researchers have observed that increased wage and earnings inequality during the 1980s occurred both

between and within such groups.

With respect to between group inequality, Levy and Murnane (1992) present median annual earnings ratios which reflect the relative earnings of persons over the 1971-87 period by three age classes (25 to 34, 35 to 44, and 45 to 54) and two education classes (12 and 16 years of school completed). Table 5 contains an update of those data for the 1987-91 period (earning are for those working 35 hours a week or more, 50 to 52 weeks a year).

The data for the 1971-79 period show that while the relative wage between education groups--the education premium--was dropping in the 1970s, the relative wage between age groups--the experience premium (as proxied by age)--was rising, especially for men. Consequently, earnings inequality rose only moderately in the 1970s. In the 1980s, on the other hand, the education premium began to increase for both sexes and the experience premium, especially for those with high school educations, increased, resulting in an acceleration in inequality. This acceleration was driven, according to Levy and Murnane (1992), by changes taking place in the supply of college-educated young workers: during the 1970s they flooded the labor market and the education premium declined, but between the 1979-87 period the supply of college educated young persons slowed and the education premium rose.

The data for 1987 to 1991 show that some of the earnings ratios based on education classes--the education premiums--continued to increase. For men age 35 to 44 the ratio rose from 1.38 in 1987 to 1.53 by 1991 and the ratio for younger men

Table 5. Median Earnings Ratios for Full-Time, Year-Round Workers With Selected Characteristics, 1971, 1979, and 1987 to 1991

CHaracteristics	1971	1979	1987	1988	1989	1990	1991
EARNERS WITH 16 YEARS OF EDUC./EARNERS WITH 12 YEARS OF EDUC.							
Men							
Age 25-34	1.22	1.13	1.38	1.39	1.42	1.41	1.44
Age 35-44	1.50	1.35	1.38	1.38	1.43	1.51	1.53
Age 45-54	1.55	1.36	1.50	1.48	1.50	1.44	1.46
Women							
Age 25-34	1.41	1.23	1.45	1.51	1.56	1.58	1.52
Age 35-44	1.47	1.30	1.47	1.55	1.56	1.58	1.62
Age 45-54	1.50	1.35	1.47	1.48	1.53	1.45	1.58
EARNERS AGE 45-54/EARNERS AGE 25-34							
Men							
12 Years Educ.	1.08	1.23	1.33	1.35	1.41	1.40	1.37
16 Years Educ.	1.36	1.47	1.45	1.43	1.44	1.43	1.39
Women							
12 Years Educ.	1.02	1.02	1.08	1.12	1.09	1.14	1.09
16 Years Educ.	1.08	1.12	1.10	1.09	1.07	1.05	1.13

SOURCE: Data for 1971, 1979, and 1987--Levy and Murnane (1992), p. 1355.
Data for 1988 to 1991--Author's calculations from tabulations of the March Current Population Survey.

Note: The ratios for 1987 from Levy and Murnane are slightly different from those calculated from unpublished data of the revised March 1988 Current Population Survey.

continued to inch upward although the change over the period was not statistically significant. (The decline in the ratio for men age 45 to 54 was not statistically significant). Among women, especially those in the 35 to 44 and 45 to 54 age groups, the earnings ratios rose quite strongly over this period as earnings for college educated women rose almost twice as fast as for high school educated women. On the other hand, the earnings ratios based on the age classes--the experience premiums--changed very little (the one exception was the relative wage between high school educated older men and high school educated young men, which continued to move upward).

These developments suggest that one of the important forces behind growing wage and earnings inequality--rising relative wage differences between groups differentiated on the basis of education and experience--was still operative in the 1987-91 period. To further substantiate this finding, but in the context of the household income distribution, a log income model was estimated for 1979, 1983, and 1987 to 1991, using ordinary least squares. The natural logarithm of household income was regressed on a set of independent variables chosen using the human capital model as a guide and included as independent variables the education, age, household type, race, and industry characteristics of the head of the household. While the model's explanatory power (adjusted R-square) ranged from a low of .390 in 1983 to a high of .434 in 1991, coefficients on the education variables were highly significant (as they were on other independent variables). Table 6 shows the estimated education

Table 6. Estimated Coefficients on Householder's Education Class: Less than 12 Years, 13 to 14 Years, 16 Years, and 17 Years or More, 1979, 1983, and 1987 to 1991

Education Classes	1979	1983	1987	1988	1989	1990	1991
Less than 12	-.313	-.341	-.301	-.322	-.331	-.321	-.329
	(.008)	(.009)	(.009)	(.010)	(.009)	(.009)	(.009)
13 - 15 Years	.099	.145	.168	.176	.182	.186	.176
	(.009)	(.010)	(.010)	(.011)	(.009)	(.00[illegible])	(.009)
16 Years	.278	.360	.390	.393	.414	.426	.428
	(.012)	(.012)	(.011)	(.012)	(.012)	(.011)	(.010)
17 Years or More	.382	.451	.502	.530	.531	.528	.574
	(.013)	(.013)	(.012)	(.013)	(.013)	(.013)	(.014)

Note: The dependent variable was the natural logarithm of annual household income and other independent variables of the householder were age, race, household type, and industry of attachment. The reference group was a white married person who had 12 12 years of education, and worked in the goods-producing industries (manufacturing, construction, mining, or agriculture). Standard errors are shown in parentheses and have been adjusted to reflect a sample design effect.

coefficients for those household heads with less than 12 years of education, those with 13 to 15 years of education, those with 16 years of education, and those with 17 years or more. 11/ (The reference group was a white, married person, with 12 years of education, who worked in the goods-producing industries--manufacturing, construction, mining, or agriculture). The coefficients (interpreted as the percentage change in the reference group's household income if a different level of schooling had been achieved) indicate that the gap in incomes between households with high school educated and college educated householders continued to widen between 1987 and 1991. For example, for a person with 16 years of education (all other characteristics the same) household income would have been 39 percent higher in 1987 and by 1991 the differential would have risen to almost 43 percent.

As Levy and Murnane (1992) also point out, studies that have explained growing inequality on the basis of education and age/experience alone, still do not explain all the variation in earnings. Other factors affecting it appear within groups. For example, Katz and Murphy (1992), estimated that inequality within such groups increased by 30 percent between 1970 and 1987. They suggested that demand shifts for highly skilled workers (whose skills are not necessarily proxied with educational attainment data) were operating to create further wage dispersion within specific groups.

Some preliminary evidence with respect to within group inequality during the period under investigation is presented in

Table 7. Gini indexes, based on the earnings of men and women, who worked full time, year round, in three age classes (25 to 34, 35 to 44, and 45 to 54) and two education classes (12 and 16 years of education) are shown for 1979 and the years 1987 to 1991. 12/ While the Gini indexes between 1979 and 1987 for all the groups changed and in the expected direction, 13/ in the ensuing period of 1987 to 1991, all the changes were considerably smaller and not statistically significant. Obviously, one would want to corroborate these data with other measures and techniques, but this suggests that increases in within group inequality may have at least moderated in recent years. 14/

V. Conclusions

The measures of income inequality presented by the Census Bureau--the Gini index and the shares of income received by quintiles of households--indicate that the long-term rise in the dispersion of incomes may have stabilized or paused between 1987 and 1991. A variety of other measures of inequality presented in this paper corroborate this development. Indeed, some of the summary measures used in the analysis indicated that there may have been an actual decline in inequality as we moved from the 1980s into the 1990s.

During these years, changes were taking place in economic, social, and demographic factors often associated with the long-run trend in inequality. Within the labor market, the upward trend in wage inequality slowed significantly in the 1987-91 period just at the same time the Nation's trade imbalance began

Table 7. Gini Indexes of Earnings of Full-Time, Year-Round Workers by Selected Characteristics, 1979 and 1987 to 1991

Characteristics	1979	1987	1988	1989	1990	1991
Men						
12 Years Educ.						
Age 25-34	.237	.258	.258	.262	.259	.259
Age 35-44	.248	.258	.262	.263	.266	.261
Age 45-54	.241	.257	.277	.294	.278	.273
16 Years Educ.						
Age 25-34	.250	.253	.272	.266	.290	.263
Age 35-44	.285	.312	.317	.301	.335	.295
Age 45-54	.288	.331	.312	.344	.335	.327
Women						
12 Years Educ.						
Age 25-34	.219	.241	.247	.239	.240	.245
Age 35-44	.240	.257	.260	.267	.265	.258
Age 45-54	.242	.262	.276	.278	.268	.277
16 Years Educ.						
Age 25-34	.208	.220	.228	.224	.231	.229
Age 35-44	.238	.256	.251	.264	.253	.263
Age 45-54	.246	.266	.260	.257	.275	.269

Note: The Gini indexes for 1979 were derived from micro-sorted data; indexes for 1987 to 1991 were derived from grouped data.

to improve. Other economic changes, as well as social and demographic changes taking place in these years, were also discussed as possibly influencing the trend in household income inequality.

One change which occurred, of course, was in the health of the economy. The recession of 1990-91, however, did not appear to cause further inequality in the distribution. This was unusual since recessions typically have a greater impact on the incomes of blue-collar workers and those with below-average incomes. Indeed, the recession appeared to have a strong effect on white-collar workers and those with above-average incomes and this may have muted (at least temporarily) the anticipated cyclical effect on the household income distribution.

The change in the economic climate of the last few years only adds to the complexity and interrelatedness of the factors affecting the income distribution. It also makes the task of determining whether the recent change in the trend in inequality is of a temporary or more permanent nature. It was shown, for example, that relative wage and income differences between groups differentiated by education continued to widen in the 1987-91 period, but that this upward pressure towards greater inequality may have been offset by the more moderate trend in within group inequality. Another, more recent development, which further complicates any effort at speculation (and further illustrates the complexity of this issue) involves the Nation's international trade situation and competitive position. The trade deficit, after improving markedly in recent years, deteriorated in 1992,

because of slower export growth and a significant increase in imports (Council of Economic Advisers, 1993). Consequently, while the upward trend in household income inequality appears to have at least paused in the 1987-91 period, whether or not this is a permanent development requires greater understanding of the factors responsible for the long-run rise in inequality.

FOOTNOTES

1/ The Gini index for the household income distribution shown in Figure 1 is calculated from sorted microdata for those households reporting nonnegative money incomes in the March Current Population Survey (CPS). Those households reporting negative incomes are given incomes of zero. The CPS is one of the major sources of data relating to the income of persons, families, and households. Each March, income data relating to the previous calendar year are collected from a scientifically designed sample of 60,000 households from around the country.

2/ The standard error on the Gini index for all households is approximately $\pm$ .004. Therefore, none of the changes in this index between 1987 and 1991 would be considered statistically significant.

3/ The issue of top-coding, and possible truncation bias, is less problematic when the Bureau's internal files are used. The one major change in top-coding that had an impact on Census Bureau's measures of income inequality was the change in the CPS questionnaire that took place in the March 1986 CPS, which affected data for calendar year 1985. For that year, CPS interviewers were able to record on the questionnaire the earnings from the longest job up to $299,999; the previous maximum amount that could be recorded was $99,999. The effect on the 1985 Gini index for families was to increase it from .383 to .389; for unrelated individuals the Gini rose from .441 to .443 (U.S. Bureau of the Census, 1987).

4/ Details of the differences in income estimates for 1987 using the new and old processing systems were presented by the Census Bureau (U.S. Bureau of the Census, 1989). (The major questionnaire changes over the years involved the expansion of the number of income types from 8 to 46.)

5/ According to the National Bureau of Economic Research, the business cycle trough-to-peak in the 1970s ran from March 1975 to January 1980; the business cycle trough-to-peak in the 1980s extended from November 1982 to July 1990.

6/ All estimated inequality measures are weighted by the appropriate household weight which reflects the household's representation in the population.

7/ For a thorough discussion of these measures and the measurement of inequality in general see Jenkins (1991).

8/ Households reporting zero or negative incomes (about 0.5 percent of all households in these years) were deleted from the distributions. Conclusions reached, however, would not differ substantially had these households been assigned incomes of $1.

9/ All changes in the shares of aggregate income, proportions of households in income classes, and the Gini indexes were tested for statistical significance at the 10-percent level.

10/ Household money incomes were adjusted for inflation by the CPI-U-X1 of the Bureau of Labor Statistics (BLS).

11/ The education variable in the March 1992 CPS (income year 1991) was based on a different set of education questions than in previous year. Specific educational levels achieved (e.g., high school diploma, specific college degrees) are now identified.

12/ The data for 1988 to 1991 are published in the Census Bureau's annual reports, Money Income of Households, Families, and Persons in the United States, Series P-60, and were derived from grouped data for persons with positive earnings; the data for 1987 are from unpublished tables, but were derived as above; the data for 1979 were derived from micro-sorted data for persons with positive earnings.

13/ Standard errors for these groups are large and the changes in the Gini indexes between 1979 and 1987 were presumed not to be statistically significant. For example, for men, age 35 to 44, with 16 years of education, the standard error on the Gini index for 1987 was ± .024 and the Gini index was .312. Standard errors for the 1979 estimates were not available but if one assumed that the standard error for 1987 would be a close approximation for the 1979 Gini index, the 1979-87 change would not be statistically significant.

14/ Gini indexes for men and women working full time, year round by industry in the 1987-91 period were examined also. Only one group--women working in professional and related services--had an increase in a Gini index between 1987 and 1991 that was statistically significant at the 10-percent level. Their Gini index rose from .266 (± .011) to .297 (± .010).

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