

Family income inequality in the 1980s

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The 1980s was a time of demographic and economic changes: the recession, high interest rates, an aging population, and continuing increases in the number of multiple-earner families. As a result, there has been considerable interest about what has happened to family income ⁽¹⁾ during this period. How has income grown and how has it been distributed among families? ⁽²⁾ Did society become more polarized into "the haves" and "the have-nots" during the decade? Some labour market analysis of jobs has suggested the emergence of a "good jobs/bad jobs" society, resulting in fewer "middle class" jobs. ⁽³⁾ Does this characteristic extend to the distribution of family income? Have "middle class" families become less prevalent leading to more families at the "rich" and "poor" ends of the income spectrum?

In addressing these questions, this paper shows that 1989 average family income was essentially unchanged from 1980. This experience contrasts sharply with earlier decades where family income at the end of the decade was substantially higher than at the beginning. Additionally, shifts in the distribution of family income over the 1980s were not substantial. However, there was evidence of increased income inequality in the early part of the decade followed by a period of declining inequality for the latter years.

Family income after tax - little change

Average family income after tax - the income remaining after receipt of government benefits and the payment of income taxes - was \$40,400 in 1989, hardly changed from its value of \$40,200 in 1980. There were, however, important offsetting trends in the interim years: a decline of 6% from 1980 to 1983 and an increase of 7% from 1984 to 1989. The recession of the early 1980s and the subsequent recovery have obviously had an important influence on this trend.

This pattern of little overall growth in average income during the 1980s was substantially different from that experienced in earlier decades. Between 1971 and 1979, for example, average family income increased by 22%. Although after-tax income data are not available prior to 1971, pre-tax family income had notable increases in the 1950s and 1960s (up by 27% and 34% respectively).

Median income tells a similar story during the 1980s

Although mean income is an important summary statistic, it can be influenced by a few very large incomes. Therefore, it may not accurately reflect the change experienced by a typical family. A measure that is not so affected is median income, that is, the income at which 50% of families have higher incomes and 50% have lower incomes.

Over the decade, median family income followed the general pattern shown by mean family income: it decreased 8% from 1980 to 1983 and increased 6% in the remaining years. However, the fall was steeper and the increase less than that for mean family income. As a result, the 1989 median of \$36,800 was less than the \$37,300 recorded in 1980. Also, there was a slight tendency for the median to decline relative to the average income suggesting larger changes for higher income families.



Chart **Median and mean after-tax family income in 1989 constant dollars.**

Source: Survey of Consumer Finances

Tax increases constrain growth in average family income

Factor income ⁽⁴⁾ represents the income that a family receives through the labour market activity of family members plus investment income and rent (income of the factors of production). The government augments factor income through transfer payments (such as Old Age Security and Unemployment Insurance benefits), resulting in money income. It then "takes away" through taxes, resulting in after-tax income. The relationship between income after tax and factor income represents what is left, after government intervention, of the income a family "earns" through its own efforts.

The relationship between after-tax and factor income changed during the 1980s. In the early years, after-tax income increased relative to factor income. This was primarily due to the recession, which led to a decline of factor income and an increase in government transfer payments, especially Unemployment Insurance benefits and social assistance. Later in the decade, after-tax income declined as a proportion of factor income (from 94% to 90%). As a result, for the last half of the decade families were keeping a smaller percentage of what they "earned" (factor income). However, the percentage was about the same in 1989 as it was in 1980.

Underlying this relationship between factor income and after-tax income were changes in income taxes and government transfer payments. In 1989 constant dollars, average transfers increased from \$3,500 in 1980 to \$5,000 in 1989. Average taxes decreased from \$7,300 in 1980 to \$7,100 in 1982 and then consistently increased, up to \$9,600 in 1989. Transfers as a percentage of factor income rose until 1984 (when they reached 12%) and then slowly, but steadily, fell to 11% in 1989 (compared with about 8% in 1980). Taxes as a percentage of money income were 15% in 1980. They changed little in the first part of the decade but increased sharply in the later years, reaching 19% in 1989.



Chart **Money income and after-tax income as a ratio of factor income.**

Source: Survey of Consumer Finances

Taxes and transfers reduce income inequality

To the extent that some families receive less than the average or median income, while others receive more, there are income differences, disparities or inequalities. These differences are interesting because they indicate how the nation's income is shared by the members of society. Although it is relatively simple to describe how income is distributed, it is difficult to interpret whether a distribution is "good" or "bad" because there is no objective standard or community consensus about how much income inequality is undesirable. For example, income differences due to individual free choice related to different labour/leisure or consumption/saving decisions, and the fact that families are at different life-cycle stages may be considered desirable. However, it is important to describe the income distribution and how it changes as a basis for informed policy discussion.



Chart **Tax and transfer trends.**

Source: Survey of Consumer Finances

A useful way to describe the income distribution, especially in the analysis of historical changes, is to rank families according to the size of their incomes, divide them into 10 equal groups (deciles) and then calculate the share of total income received by each group. In 1989, after-tax income shares ranged from 2.9% in the lowest decile (in other words, the lowest 10% of families according to income) to 22.0% in

the highest decile. Stated in more familiar terms, the average income of the top decile was \$88,800 compared with \$11,600 for the lowest decile.

As one moves from factor income to money income to after-tax income, the degree of income inequality declines (see [Technical notes](#)). For example, in the absence of taxes and transfers, the lowest and highest deciles would have received 0.4% and 26.0% of income respectively. After transfer payments, the corresponding income shares were 2.4% and 23.9%, and after taxes and transfers, 2.9% and 22.0%. In other words, as a result of these taxes and transfers, the ratio of the mean income in the highest decile to that of the lowest decile declined substantially, from 65 to 1 to 8 to 1. Additionally, the Gini coefficient diminished from .395 to .292, which is another indication of improved income inequality attributable to taxes and transfers.



Chart **Impact of taxes and transfers on family income distribution, 1989.**

Source: Survey of Consumer Finances

Income inequality in the 1980s

It should be noted that there were only minor changes in decile income shares during the 1980s ([Table 1](#)). In fact, when rounded to the nearest percentage point, the shares were almost identical. Based on decile shares rounded to one decimal place, the largest changes between 1980 and 1989 were in the highest decile (from 21.6% to 22.4%) and the lowest decile (from 2.5% to 2.9%).



Table 1 **After-tax income shares of families**

Source: Survey of Consumer Finances

Even though the variations in income shares were not large, the pattern of change suggests that income inequality increased during the first three (or four) years of the decade, followed by a declining inequality trend. ⁽⁵⁾ The income shares of the three top deciles generally increased until 1983, while those for the five lowest deciles declined. Consistent with these changes in income shares, the Gini coefficient increased from .293 to .302.

Starting in 1984, this pattern reversed and there was a general decline in income inequality for the remainder of the decade. The top decile's share declined slightly, from about 22.2% to 22.0%, and shares in the bottom three deciles clearly increased; for example, the bottom decile's share went from about 2.6% to 2.9%. Over this period, the Gini coefficient declined from .302 in 1984 to .292 in 1989, a level almost identical to that during 1981 and 1982.

Although the Gini coefficients were almost the same in 1980 and 1989, it is a mistake to conclude that the income distributions, and consequently inequality, were identical in the two years. This is because the underlying Lorenz curves for these two years "cross", meaning that both some higher and some lower income deciles have increased their income shares. The end result was that the 1989 income shares for both the bottom two and top two deciles were higher than in 1980. Consequently, it is not possible to say whether 1989 income inequality was less or greater than in 1980.

The middle class

There is continuing concern about how the condition of the "middle class" changed in the 1980s. One way to examine this group is to look at the income shares received by the middle six deciles (the middle 60% of families ranked according to income). Over the decade the income share of this group was in the 55% to 56% range - somewhat less than the proportion of families in the group. The income share declined from 56.2% in 1980 to 55.1% in 1987 and rebounded somewhat thereafter to 55.4% in 1989.

Since there are always 60% of families in the middle six deciles, this view of the middle does not identify the proportion of families in a middle-income range. An alternative perspective on the middle class is to examine changes in the proportion of families within a fixed percentage of the median income. In other words, how many families are a selected percentage above and below the median income? For this study, the middle-income group is defined as that group between 60% and 150% of the median income. (These limits were chosen because they are close to the income limits that separate the middle 60% of families from the top and bottom 20%. Because of this, the upper and lower limits are not the same distance from the median.)

Based on this approach, for the period 1980 to 1984, there was evidence of a declining proportion of families in the middle-income group. There were also increases in the top (those with incomes greater than 150% of the median) and bottom (those with incomes less than 60% of the median) groups, reflecting increased polarization in the distribution of income ([Table 2](#)).



Table 2 **Distribution of families within selected limits of median after-tax income, 1980-1989**

Source: Survey of Consumer Finances

Since 1984, the proportion of families in the middle group increased, although it did not reach the level of the early 1980s. Associated with this increase was a continuing decline in the proportion of families with incomes less than 60% of the median and little change in the top group. Consequently, there is no evidence of increased polarization since 1984.

Summary

Average after-tax family income at the end of the 1980s was basically unchanged from 1980. This is in contrast to earlier decades (since the 1950s) where substantial increases in real income were observed.

The government, by the imposition of income taxes and the payment of program benefits, has reduced inequalities in the distribution of income.

Income inequality increased marginally during the early 1980s and declined somewhat later in the decade. However, because of the way the distributions have changed, it is not possible to determine if the 1989 distribution is more equal than the one in 1980.

The share of total income received by the middle 60% of families declined until 1987 and increased marginally thereafter.

The proportion of families with incomes between 60% and 150% of the median income declined during the early 1980s, but has not declined since 1984. This analysis does not provide evidence of a persistent decline in middle class families during the 1980s.

Technical notes

Lorenz curve

A Lorenz curve is a useful way to summarize income distribution data for evaluating differences and changes in income inequality. The Lorenz curve is the cumulative distribution of families according to income compared to the cumulative distribution of income that they receive. Using decile data, the Lorenz curve gives the share of income of the bottom 10%, bottom 20%, and so on, up to the bottom 100% of families. Graphically, the Lorenz curve will generally be a curve concave to the 45° line (see

[graph](#) for the 1989 Lorenz curve represented by curve A). If the Lorenz curve coincides with the 45° line, sometimes called the line of complete equality, every family has the same income. At the other extreme, if one family has all the income, the Lorenz curve would coincide with the lower horizontal axis and the right vertical axis. In comparing income inequality based on two Lorenz curves, distribution A will be more equal than distribution B (see [graph](#)) if its Lorenz curve is closer to the 45° line. This means distribution A has larger income shares for lower deciles and smaller income shares for higher deciles. If the Lorenz curves cross it is not possible, without further assumptions, to say which distribution is more equal. In this case, a comparison of the two distribution does not indicate a clear advantage of one over the other in terms of the income shares. For example, if distribution A has larger income shares at the top and bottom deciles, then for part of the distribution, A is more equal, while for another part, B is more equal.



Chart Lorenz curve showing the distribution of after-tax income among families.

Gini coefficient

A summary measure of income inequality based on the Lorenz curve is the Gini coefficient, which varies from zero, when all families have the same income, to one, when one family has all the income. The Gini is the ratio of the area between the Lorenz curve and the 45° line to the total area under the 45° line. When Lorenz curves do not cross, the direction of the Gini coefficient reflects the direction of income inequality as indicated by the Lorenz curves.

Notes

Note 1

The term "income" is sometimes used instead of the technically correct phrase "income after tax" or "after-tax income". After-tax income refers to money income from all sources (earnings, investment, government transfer payments) minus federal and provincial income taxes. All incomes are expressed in 1989 constant dollars.

Note 2

In this paper, a family refers to the economic family concept. It is composed of all members who live together and are related by blood, marriage or adoption. Unattached individuals are excluded from the analysis, because their characteristics differ from those of families. This makes income comparisons more uniform.

The data used in this paper originate from the Survey of Consumer Finances, an annual supplement to the Labour Force Survey.

Note 3

See [G. Picot, J. Myles and T. Wannell](#), *Good jobs/bad jobs and the declining middle: 1967 to 1986* (1990).

Note 4

The term "factor" is commonly used in economic literature to refer to output as determined by the "factors" of production: land, capital and labour.

Note 5

Applying traditional Lorenz curve methodology to the data (see [Technical notes](#)) and examining the year-to-year changes does not give a pattern of a clear decline or increase in inequality every year. The exceptions (four years) are cases of crossing Lorenz curves. These Lorenz curve crossings are not important because the extent of crossing tends to be minor in magnitude, and random in occurrence. If the crossings happened in four consecutive years the effect might have been important. The crossing Lorenz curves are best interpreted as indicating no change in the distribution between the two years.

Reference

Picot G., J. Myles and T. Wannell. *Good jobs/bad jobs and the declining middle: 1967 to 1986*. Research paper no. 28, Business and Labour Market Analysis Group, Analytical Studies Branch, Ottawa: Statistics Canada, 1990.

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Source

Perspectives on Labour and Income, Autumn 1991, Vol. 3, No. 3 (Statistics Canada, Catalogue 75-001E). This is the fifth of five articles in the issue.

 HIGHLIGHTS

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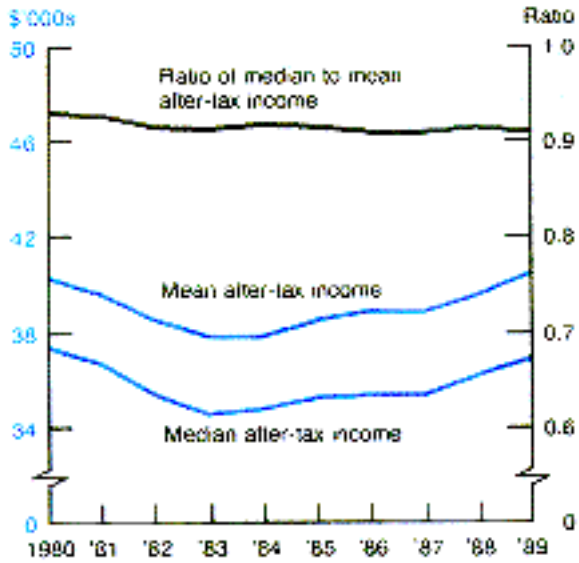
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Median and mean after-tax family income in 1989 constant dollars

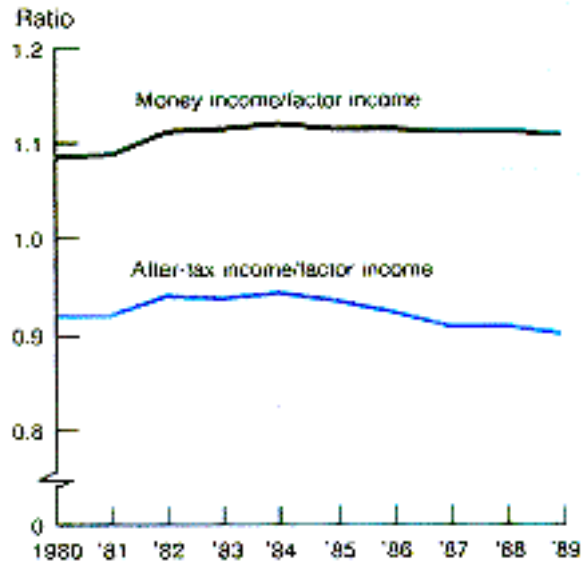
In 1989, mean income had returned to its 1980 level while median income had not.



Source: Survey of Consumer Finances

Money income and after-tax income as a ratio of factor income

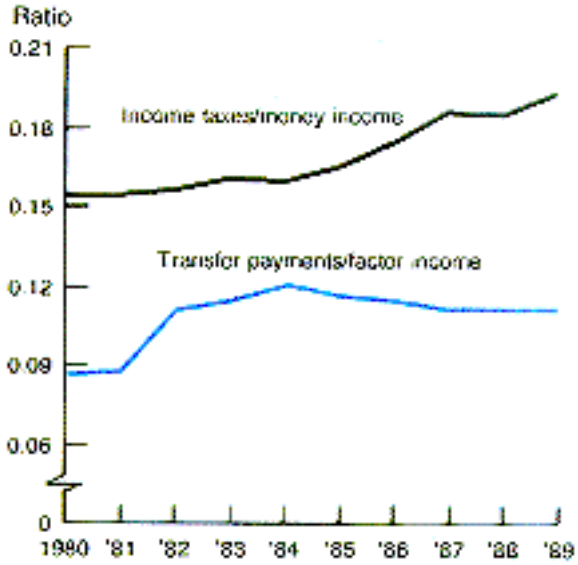
For the last half of the decade, families kept a declining proportion of what they "earned".



Source: Survey of Consumer Finances

Tax and transfer trends

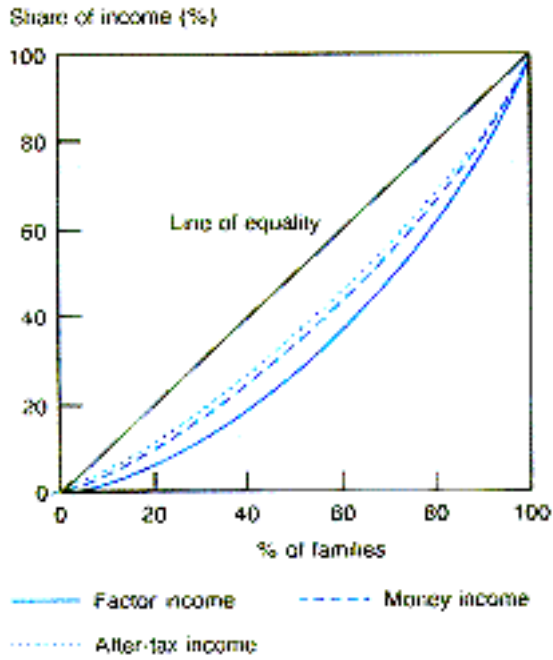
Transfers increased at the beginning of the decade, whereas taxes rose sharply in the last half.



Source: Survey of Consumer Finances

Impact of taxes and transfers on family income distribution, 1989

Transfers and taxes reduce income inequality.



Source: *Survey of Consumer Finances*

Table 1

After-tax income shares of families

Deciles	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Lowest	2.5	2.7	2.7	2.6	2.6	2.7	2.8	2.9	2.9	2.9
2nd	4.7	4.7	4.7	4.6	4.6	4.7	4.7	4.8	4.8	4.8
3rd	6.3	6.2	6.1	6.0	6.0	6.0	6.0	6.0	6.1	6.2
4th	7.6	7.5	7.4	7.3	7.4	7.3	7.3	7.3	7.4	7.4
5th	8.8	8.7	8.6	8.5	8.6	8.5	8.5	8.5	8.5	8.5
6th	9.9	9.8	9.8	9.7	9.8	9.8	9.7	9.7	9.7	9.7
7th	11.1	11.1	11.1	11.1	11.1	11.1	11.0	11.0	11.0	11.0
8th	12.6	12.7	12.7	12.8	12.7	12.7	12.7	12.6	12.6	12.6
9th	14.8	14.9	15.1	15.1	15.0	15.0	14.9	15.1	15.0	15.0
Highest	21.7	21.6	21.9	22.3	22.2	22.2	22.4	22.2	21.8	22.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gini coefficient	0.293	0.291	0.296	0.302	0.302	0.299	0.299	0.296	0.291	0.292

Source: Survey of Consumer Finances

Table 2

Distribution of families within selected limits of median after-tax income, 1980-1989

	Percentage of families			Total
	Less than 60% of the median	60% to 150% of the median	More than 150% of the median	
1980	20.1	61.8	18.1	100.0
1981	20.1	61.2	18.7	100.0
1982	20.6	59.7	19.7	100.0
1983	21.1	58.1	20.8	100.0
1984	21.6	58.8	19.6	100.0
1985	21.0	59.3	19.7	100.0
1986	20.7	59.5	19.8	100.0
1987	20.6	59.6	19.8	100.0
1988	20.1	60.1	19.8	100.0
1989	19.6	60.8	19.6	100.0

Source: Survey of Consumer Finances

Lorenz curve showing the distribution of after-tax income among families

