

Income Statistics Division

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Should the Low Income Cutoffs be updated? A Discussion Paper

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Statistics Canada
Income Statistics Division

Should the Low Income Cutoffs be Updated? A Discussion Paper

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I. Background

Statistics Canada has produced information on low income since the 1960s using low income cutoffs or LICOs. The LICOs are used to calculate low income rates and estimates that are continuously in the public eye. In recent years, the LICO methodology has been frequently questioned in the media and it certainly has its detractors. At the same time, Statistics Canada is often urged to continue producing this information, for two reasons: it focuses public attention on groups in society that are the most disadvantaged and, because of the long-standing time series, it can be used to monitor trends.

At the heart of the LICOs is what the average family spends in a year on food, shelter and clothing as a proportion of their annual income. Periodically, LICOs are “rebased”, that is, updated to reflect the most recent information on family spending. The spending data came historically from the Family Expenditure Survey (FAMEX), generally conducted every four years. The last FAMEX was conducted in 1996. In 1997, Statistics Canada began collecting annual expenditure data via the Survey of Household Spending. While both surveys cover all expenditures, they differ in some respects. First the number of expenditure categories in SHS was reduced by about one-third, to alleviate respondent burden. The SHS sample is about 75% larger. Finally, SHS produces data every year, rather than every four years.

Currently, Statistics Canada uses LICOs based on 1992 family expenditure data. Every year, the LICOs are updated for inflation using the Consumer Price Index. However, any changes in spending patterns that have occurred since 1992 are not reflected in the LICOs, or the associated low income rates. (Although the information is not highlighted in data releases, LICOs and low income rates are also published on the basis of 1986 FAMEX data.)

Statistics Canada has been examining options with respect to updating the LICOs. This report describes the issues and findings, and proposes a course of action. Data users interested in low income measurement are invited to express their views to the Agency, as indicated at the end of the report.

II. Low Income Cutoffs: Methodology

This section describes the method of calculating LICOs, and discusses the behaviour of low income rates. The intention is not only to provide a technical explanation but also to shed some light on what causes low income rates to move up or down.

How low income cutoffs are calculated

A low income cutoff is an income threshold below which a family is likely to spend significantly more of its income on food, shelter and clothing than the average family. When this measure was first developed using 1959 Family Expenditure Survey data, the average family spent 50% of its pre-tax income on food, shelter and clothing. Twenty percentage points were added to this figure, on the rationale that a family spending over 70% of its income on these essentials would be in “straitened circumstances”. This 70% threshold was then converted to a set of low income cutoffs that varied by family size and community size.

Since the LICOs were first introduced, average family income has increased, and the proportion of income spent on food, shelter and clothing has declined. Because the cutoffs are by design hinged to what the average family spends, they have periodically been “rebased”, that is, recalculated to reflect more current spending patterns. The most recent

rebasings occurred following the 1992 Family Expenditure Survey. The 1992 FAMEX results showed that the average family spent 35% of its pre-tax income on food, shelter and clothing.

Chart 1 illustrates how a LICO is calculated, using a family of four living in an urban area of 30,000 to 99,000 as an example. The 55% line represents the average proportion of pre-tax income spent by all families (regardless of size) on food, shelter and clothing in 1992, plus the 20 p.p. margin. The points on the diagram show the actual observed proportion of income spent on these basics by families of four in mid-size cities, according to the 1992 FAMEX. A regression line is fitted to the distribution and the intersection of that curve and the 55% line defines the LICO. In this case, it is about \$25,000. This amount has increased somewhat since 1992 due to the CPI adjustment.

The low income cutoffs for 1997 are presented in Table 1.

Chart 1
Calculation of a Low Income Cutoff

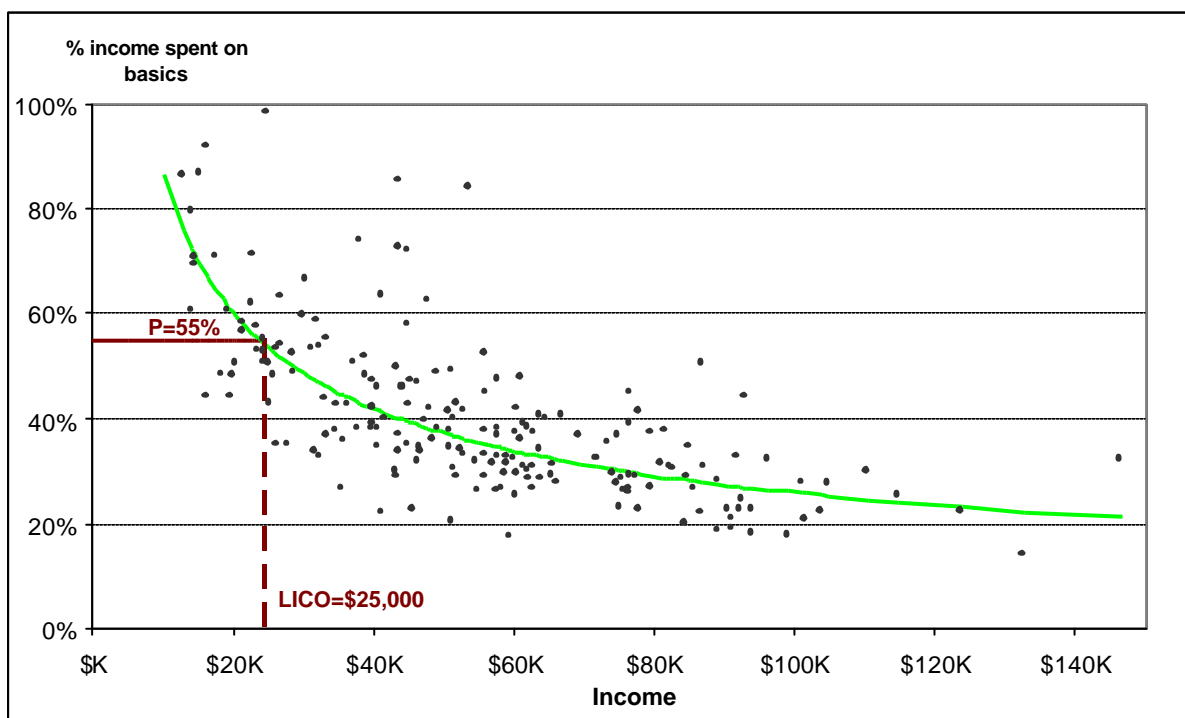


Table 1
Before-tax low income cutoffs for 1997 (1992 base)

Family Size	Rural Areas	Less than 30,000	30,000 to 99,999	100,000 to 499,999	500,000 and over
1 person	12,030	13,796	14,827	14,931	17,409
2 persons	15,038	17,245	18,534	18,664	21,760
3 persons	18,703	21,448	23,050	23,213	27,063
4 persons	22,639	25,964	27,903	28,098	32,759
5 persons	25,307	29,023	31,191	31,409	36,618
6 persons	27,975	32,081	34,478	34,720	40,479
7+ persons	30,643	35,140	37,766	38,032	44,339

LICOs are calculated on the basis of after-tax as well as before-tax income¹. The derivation of after-tax LICOs starts with the average family's spending on food, shelter and clothing, as a proportion of their after-tax income. Average after-tax income is lower than before-tax income. The result is that after-tax LICOs are lower than before-tax LICOs. For example, the before-tax LICOs for 1997 (based on 1992 FAMEX results and updated using CPI) varied from about \$12,000 for an unattached individual living in a rural area to \$44,300 for a family of seven or more living in a city of 500,000+. On after-tax basis, the range was from \$9,400 to \$37,400. Table 2 shows the 1997 after-tax LICOs for all family and community sizes.

Table 2
After-tax low income cutoffs for 1997 (1992 base)

Family Size	Rural Areas	Less than 30,000	30,000 to 99,999	100,000 to 499,999	500,000 and over
1 person	9,426	10,894	11,923	12,110	14,376
2 persons	11,501	13,294	14,547	14,776	17,542
3 persons	14,546	16,814	18,400	18,689	22,186
4 persons	18,117	20,941	22,916	23,277	27,633
5 persons	20,250	23,405	25,613	26,016	30,885
6 persons	22,382	25,870	28,310	28,755	34,137
7+ persons	24,516	28,333	31,006	31,494	37,388

¹ Before-tax income refers to market income – that is, earnings and investment income – plus government transfers, such as Old Age Security, Employment Insurance and social assistance. Before-tax (or total) income minus income tax equals after-tax income.

After-tax low income rates have been available since the early 1990s and have been extended back to 1980. After-tax information has not received as much attention as before-tax information because it has been released at a later date. As discussed later in this report, after-tax information will in future be available at the same time as the before-tax results. This makes it possible to shift the focus to after-tax low income rates, which are more meaningful because after-tax income is a closer approximation of disposable income.

Rebasing low income cutoffs

LICOs are periodically “rebased” to reflect changes in average family spending on food, shelter and clothing. Before the 1992 Family Expenditure Survey was conducted, LICOs were based on the 1986 FAMEX. Prior to that, 1978 expenditure patterns were used. Since LICOs were first devised, the average proportion of pre-tax income spent on food, shelter and clothing has dropped considerably (Chart 2).

Chart 2 shows that average spending on necessities increased from 1996 to 1997. However, this is due to the change in the definition of shelter costs. In particular, for home owners, shelter costs in SHS do not separate mortgage payments into principal and interest; instead, the two are collected as a lump sum. Under FAMEX, principal and interest are collected separately and shelter costs cover only the interest portion of the mortgage, not the principal. This change was made because it was very difficult for respondents to report separate amounts for the interest and principal portion of their mortgage payments.

Chart 2

Average proportion of pre-tax income spent on food, shelter and clothing + 20pp, 1959-1997

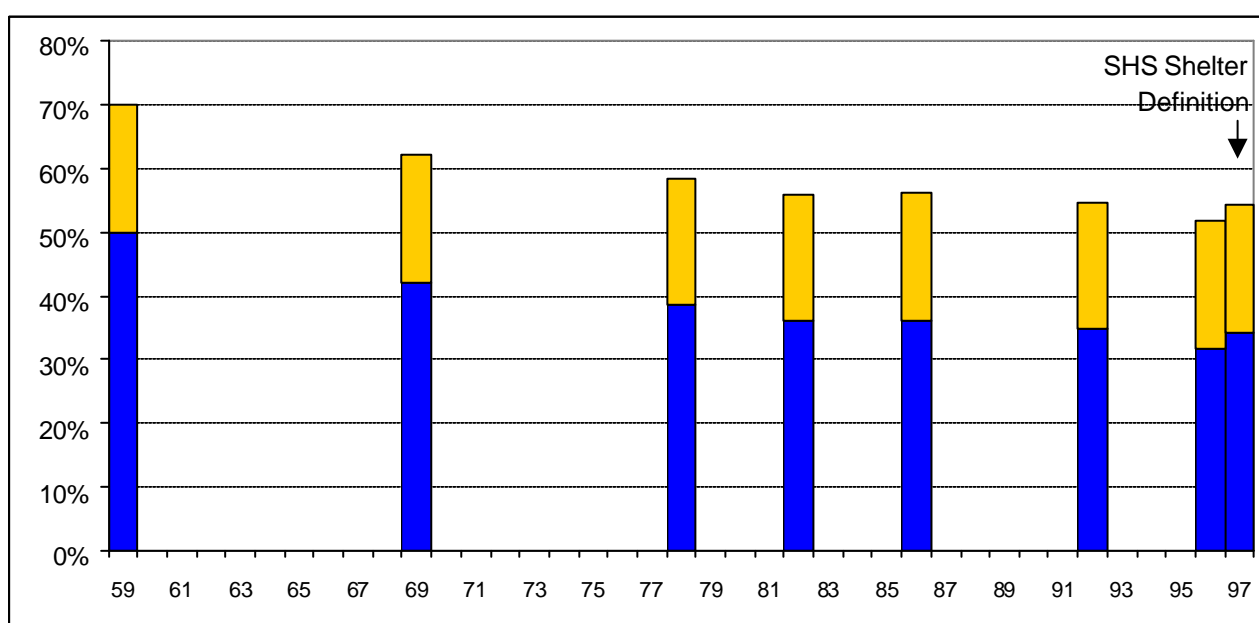


Table 3 shows that the average proportion of pre-tax income spent on necessities actually declined from 1996 to 1997, when the SHS definition is applied to the earlier data. In other

words, the 1997 increase shown in Chart 2 is due solely to this change in the definition of shelter costs.

Table 3

Average before-tax spending on food, shelter and clothing, FAMEX definition and SHS definition

	FAMEX definition	SHS definition
1982	36.0%	38.1%
1986	36.2%	36.5%
1992	34.7%	35.1%
1996	31.9%	34.4%
1997	not available	34.3%

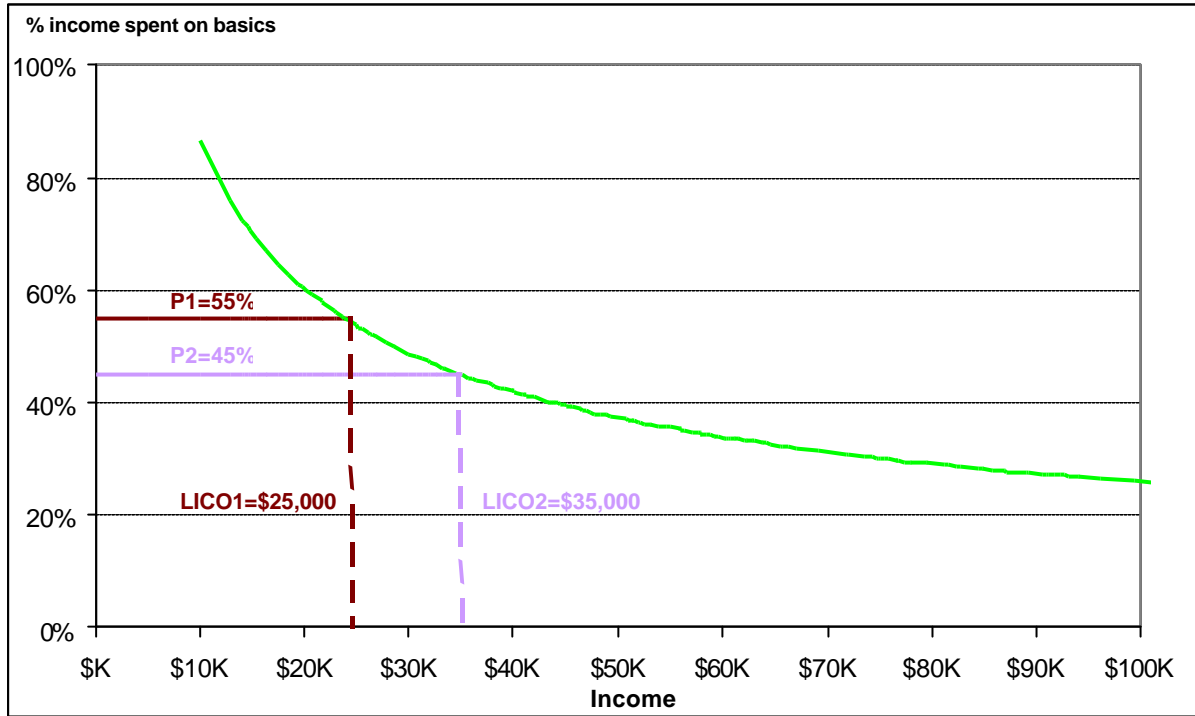
Notwithstanding the change in definition of shelter costs, it is clear that the proportion of income being spent on food, shelter and clothing has declined substantially over time. Other things being equal, as average income goes up and the proportion of income spent on essentials declines, the low income cutoffs rise. This relationship, which underscores the fact that LICOs are a *relative* measure of income deficiency, is illustrated in Chart 3.

The chart can be interpreted as follows. Say that the average spent on necessities has been established at 35%. According to the LICO methodology, 20 percentage points are added to that figure to give P1, 55%. The LICO can be seen in Chart 3 by following the P1=55% line across to the regression line drawn through the actual observed proportions of family income spent on essentials (in this case, families of four in mid-size cities). The LICO is approximately \$25,000.

Now suppose that average income goes up and the proportion spent on necessities decreases, to 25%. (A change of such magnitude is more likely to occur gradually over a long period of time, but is used here for illustration only.) As before, 20 percentage points are added to give 45%. The LICO corresponding to this new proportion is about \$35,000. The LICO increases because the proportion spent on necessities decreases. (In reality, the situation is more complex because the whole curve is likely to shift as well, but this example illustrates the principle.)

Chart 3

Impact on the LICO of a reduction in the proportion of income spent on essentials



Against this backdrop, it is not surprising that the LICOs have increased over time. However, in the last rebasing – from 1986 to 1992 – the impact was relatively small. Table 4 compares the 1992-base LICOs to the 1986-base ones. In both cases, the LICOs are for the 1997 reference year, and have been updated using CPI.

Table 4 Comparison of 1997 LICOs, 1992 base vs. 1986 base (before-tax)

Family size	Size of Area of Residence				
	Rural	Urban<30K	30K-99K	100K-499K	500K+
1997 LICOs, 1992 base (\$)					
1	12,030	13,796	14,827	14,931	17,409
2	15,038	17,245	18,534	18,664	21,760
3	18,703	21,448	23,050	23,213	27,063
4	22,639	25,964	27,903	28,098	32,759
5	25,307	29,023	31,191	31,409	36,618
6	27,975	32,081	34,478	34,720	40,479
7+	30,643	35,140	37,766	38,032	44,339
1997 LICOS, 1986 base (\$)					
1	11,110	12,766	14,004	14,335	16,320
2	15,062	17,302	18,982	19,432	22,121
3	19,143	21,994	24,128	24,700	28,119
4	22,040	25,325	27,780	28,434	32,377
5	24,082	27,668	30,351	31,068	35,373
6	26,140	30,031	32,944	33,721	38,397
7+	28,115	32,303	35,435	36,273	41,297
Ratio of 1992 base to 1986 base LICOs (for 1997 reference year)					
1	1.08	1.08	1.06	1.04	1.07
2	1.00	1.00	0.98	0.96	0.98
3	0.98	0.98	0.96	0.94	0.96
4	1.03	1.03	1.00	0.99	1.01
5	1.05	1.05	1.03	1.01	1.04
6	1.07	1.07	1.05	1.03	1.05
7+	1.09	1.09	1.07	1.05	1.07

Rebasing generally has a more muted effect on after-tax LICOs, because after-tax income is more stable through time. Spending on essentials, as a proportion of before-tax income fell from 50% in 1959 to 34% in 1997. The corresponding decline based on after-tax income was from 52% to 43% (Chart 4).

As was described in Chart 3, spending on necessities is based on the FAMEX definition of shelter up to 1996 and is based on the SHS definition for 1997. Table 5 shows the average spending on food, shelter and clothing with the SHS definition applied to data from 1982 onward. If the definitional change is adjusted for, the 1996 to 1997 increase disappears.

For reference, Table 6 shows the change in 1997 after-tax LICOs, on both the 1992 and the 1986 base – this is the after-tax equivalent to Table 4. On a after-tax basis, many of the LICOs actually declined as a result of rebasing.

Chart 4

Average Proportion of after-tax income spent on food, shelter and clothing + 20 pp, 1959-1997

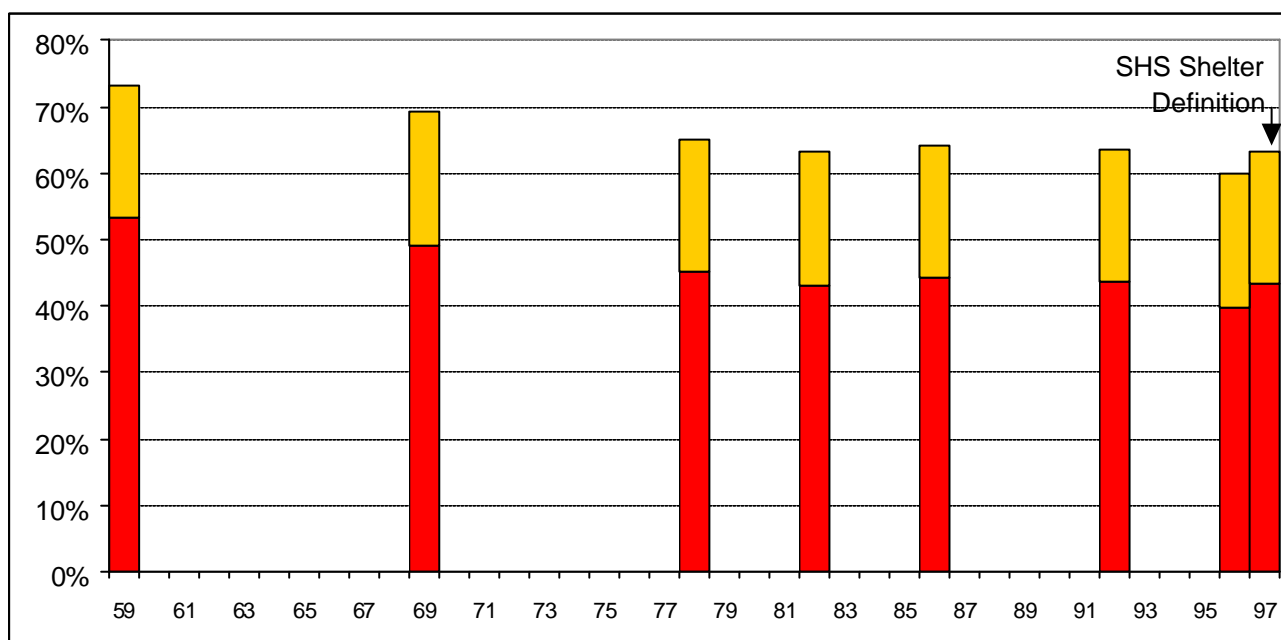


Table 5

Average after-tax spending on food, shelter and clothing, FAMEX definition and SHS definition

	FAMEX definition	SHS definition
1982	43.2%	45.7%
1986	44.3%	45.6%
1992	43.6%	44.0%
1996	39.9%	43.7%
1997	not available	43.3%

Table 6 Comparison of 1997 LICOs, 1992 base vs. 1986 base (after-tax)

Family size	Size of Area of Residence				
	Rural	Urban<30K	30K-99K	100K-499K	500K+
1997 LICOs, 1992 base (\$)					
1	9,426	10,894	11,923	12,110	14,376
2	11,501	13,294	14,547	14,776	17,542
3	14,546	16,814	18,400	18,689	22,186
4	18,117	20,941	22,916	23,277	27,633
5	20,250	23,405	25,613	26,016	30,885
6	22,382	25,870	28,310	28,755	34,137
7+	24,516	28,333	31,006	31,494	37,388
1997 LICOS, 1986 base (\$)					
1	8,836	10,377	11,546	11,860	13,838
2	11,981	14,067	15,657	16,076	18,765
3	15,511	18,214	20,265	20,814	24,291
4	18,242	21,423	23,839	24,478	28,572
5	19,846	23,308	25,936	26,634	31,085
6	21,214	24,911	27,723	28,468	33,227
7+	22,553	26,487	29,472	30,266	35,324
Ratio of 1992 base to 1986 base LICOs (for 1997 reference year)					
1	1.07	1.05	1.03	1.02	1.04
2	0.96	0.95	0.93	0.92	0.93
3	0.94	0.92	0.91	0.9	0.91
4	0.99	0.98	0.96	0.95	0.97
5	1.02	1.00	0.99	0.98	0.99
6	1.06	1.04	1.02	1.01	1.03
7+	1.09	1.07	1.05	1.04	1.06

From LICOs to low income rates

Low income rates can be calculated for persons (that is, the proportion of persons below the LICO) or for families. In either case, the income amount referred to is the income of the family. "Persons in low income" should, strictly speaking, be interpreted as "persons who are part of low income families". Similarly, "children in low income" really means "children in low income families". The family concept used is the economic family, that is, all persons living in the same dwelling and related by blood, marriage, common-law relationship or adoption.

To calculate low income rates, each family's income is compared to the appropriate cell in the matrix of 35 LICOs. For persons, the low income rate is the sum, over all 35 cells, of persons in each family size and community size whose family income is below the LICO, divided by the sum, over all 35 cells, of all persons in each family size and community size.

What happens to low income rates when LICOs are rebased? Logically, if rebasing results in an "across the board" increase in LICOs, the low income rate will increase. However, if some LICOs rise and others fall, the impact is difficult to predict because the population is not distributed uniformly across the 35 family size and community size groups. Moreover, the two groups that are most closely watched – children under 18 and seniors – are distributed very differently. Children (Chart 5) are concentrated in families of sizes 3, 4 and 5, while seniors (Chart 6) are concentrated in families of sizes 1 and 2. The result is that the low income rate for one group may rise as a result of rebasing while the rate for another group falls. We will return to this question later.

Chart 5

Distribution of children under 18 by family and community size, 1997

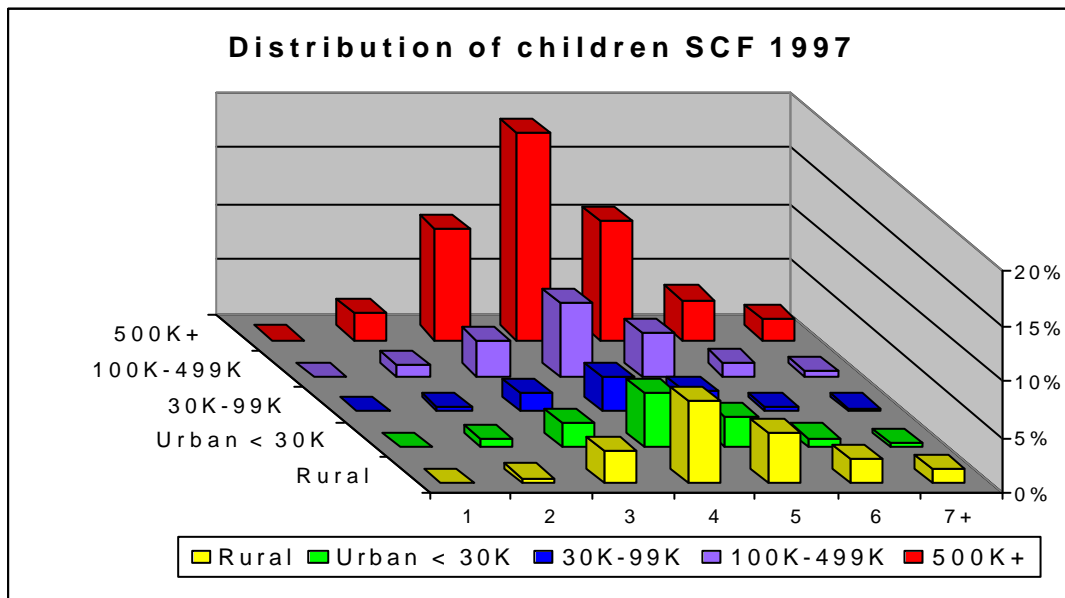


Chart 6

Distribution of seniors 65+ by family and community size, 1997

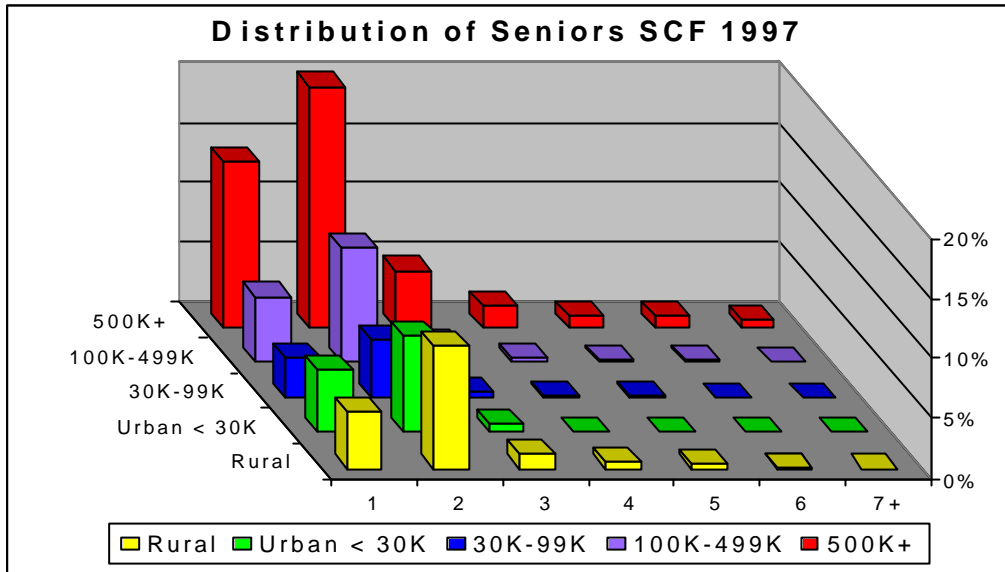


Chart 7

Distribution of persons 18-64 by family and community size, 1997

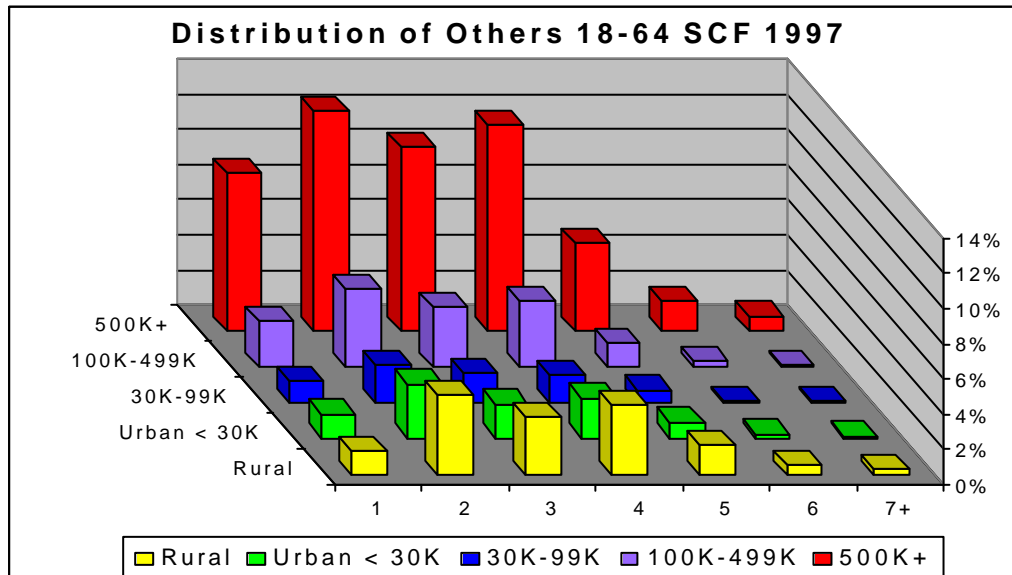
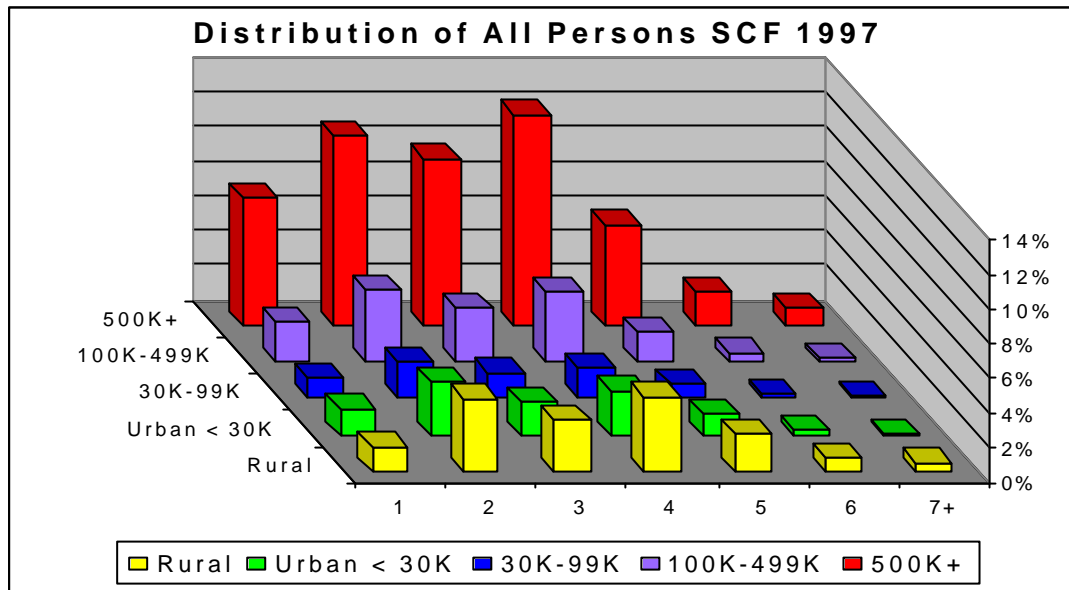


Chart 8

Distribution of all persons by family and community size, 1997



Why are after-tax low income rates lower than before-tax rates?

While it is intuitively easy to understand why after-tax low income cutoffs are lower than their before-tax counterparts, it is not so obvious why after-tax low income *rates* are lower than the corresponding before-tax rates (Chart 9 to Chart 12).

Chart 9

Prevalence of Low Income, Children, Before and After Tax

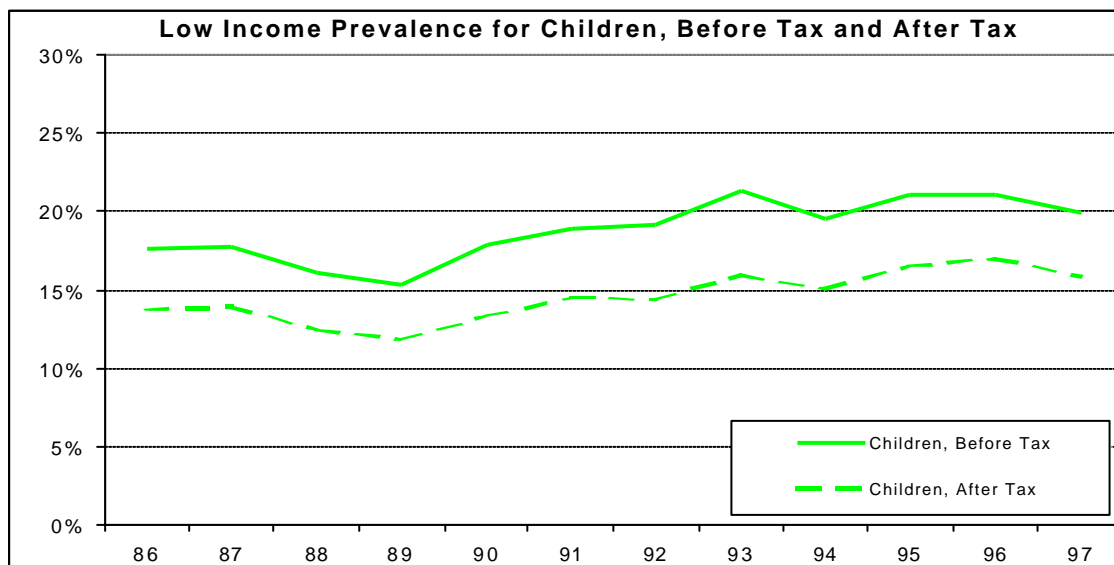


Chart 10
Prevalence of Low Income, Seniors, Before and After Tax

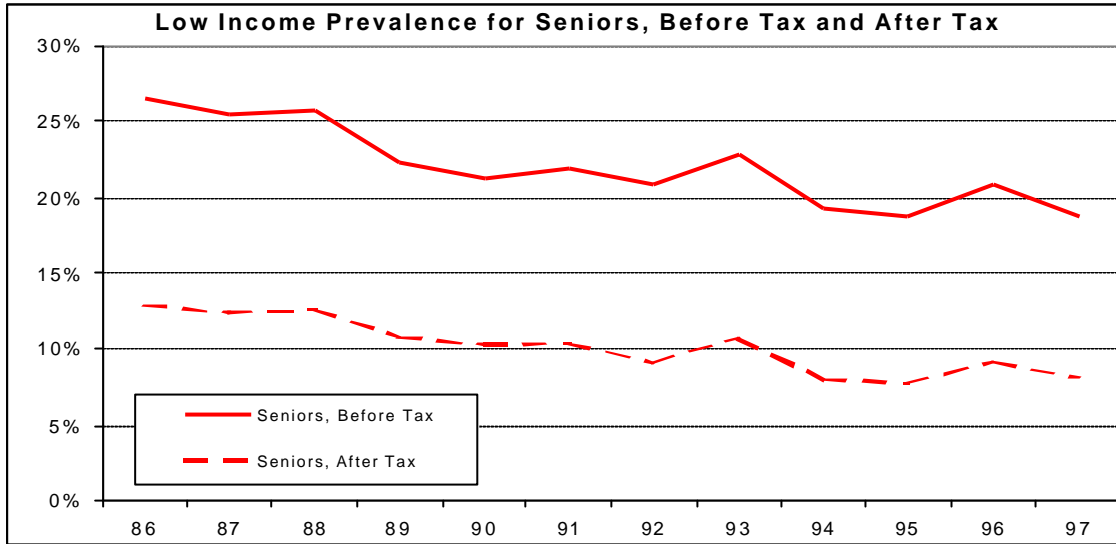


Chart 11
Prevalence of Low Income, Others, Before and After Tax

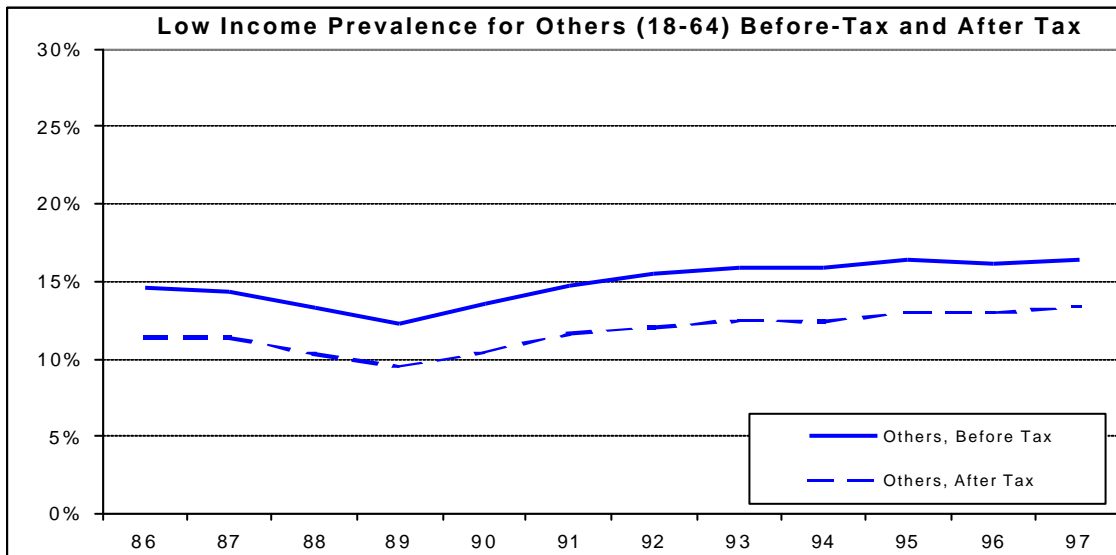
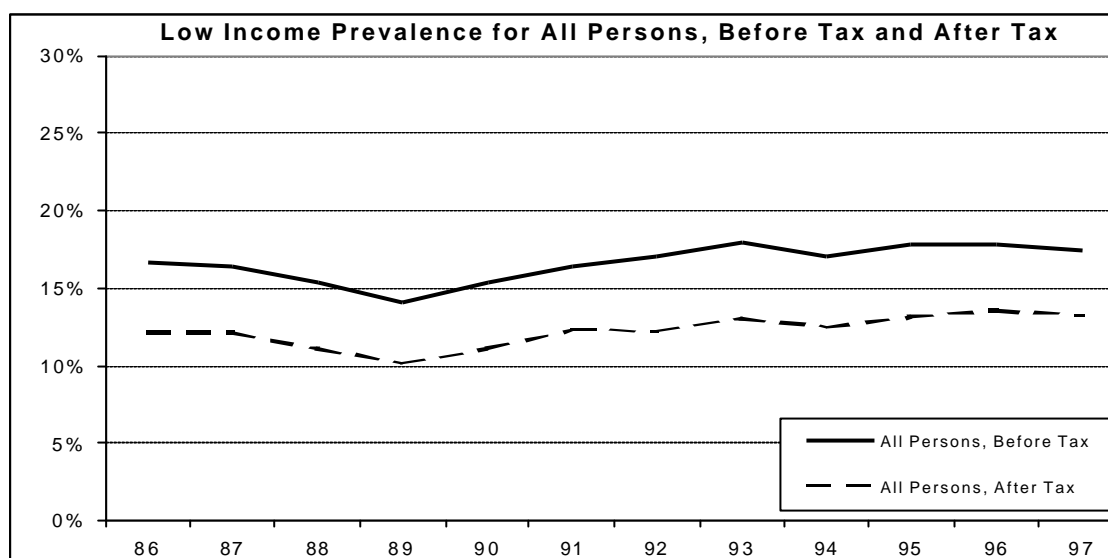


Chart 12

Prevalence of Low Income, All Persons, Before and After Tax



The best intuitive explanation is that the low income rates, as a relative measure, are hinged to the *average* proportion of income spent on food, shelter and clothing, across all families. The impact of the tax system is to reduce inequality in the distribution of income. As the average income declines, some families just below the line on a before-tax basis will be above it on an after-tax basis. The effect is depicted in the series of charts below.

First, the average proportion of after-tax income spent on necessities is higher than the corresponding before-tax proportion, so the LICO is lower – in this case, \$23,000 versus \$27,700 (Chart 13). This means that a family of four living in a mid-size city needs a before-tax income of \$27,700 and an after-tax income of \$23,000 to not be considered in low income.

To understand the effect on low income rates, one needs to consider the difference in the shape of the before-tax and after-tax income distributions. Chart 14 shows the full cumulative distribution. The after-tax distribution levels out earlier because income taxes are progressive. Chart 15 is a close-up of the lower part of Chart 14. To determine the prevalence of low income graphically, begin with the cutoff – for example, the after-tax cutoff of \$23,000 – and follow that income value to the cumulative income line. The proportion of persons whose income is below the cutoff can be read off the vertical axis – about 10%. Just by looking at the chart, one can see how the difference in shape between the before-tax and after-tax income distribution curves affects the low income rates.

Chart 13
Derivation of before-tax and after-tax LICOs

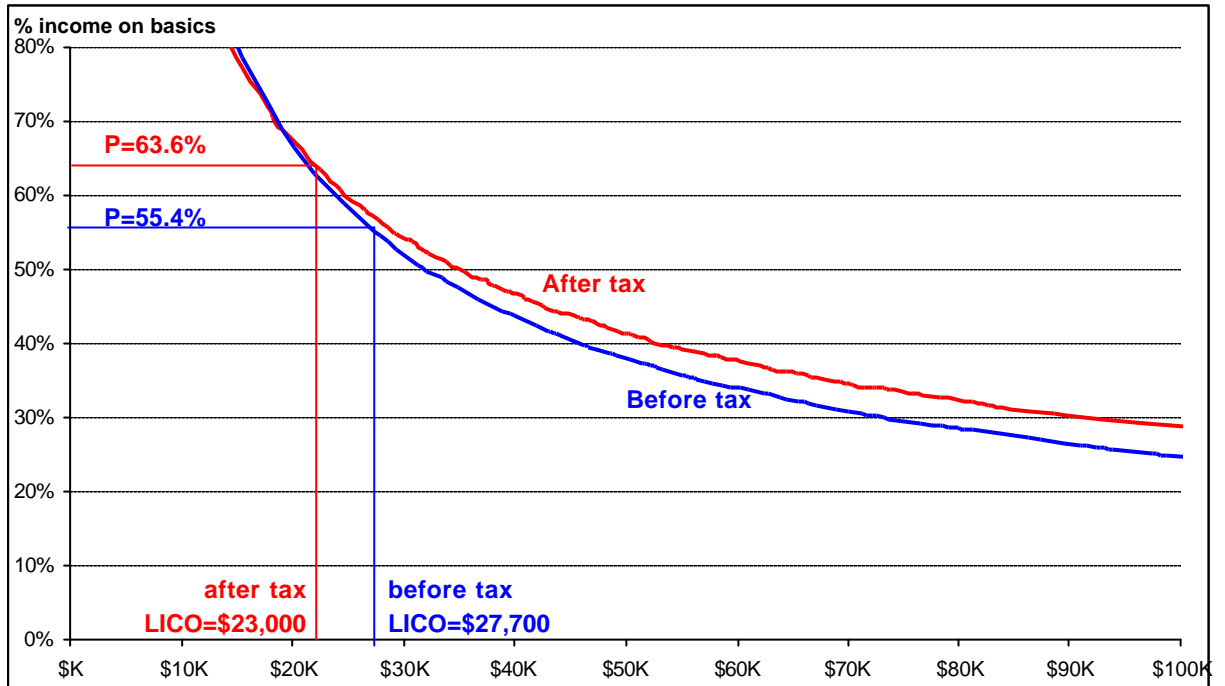


Chart 14
Cumulative before-tax and after-tax income distribution

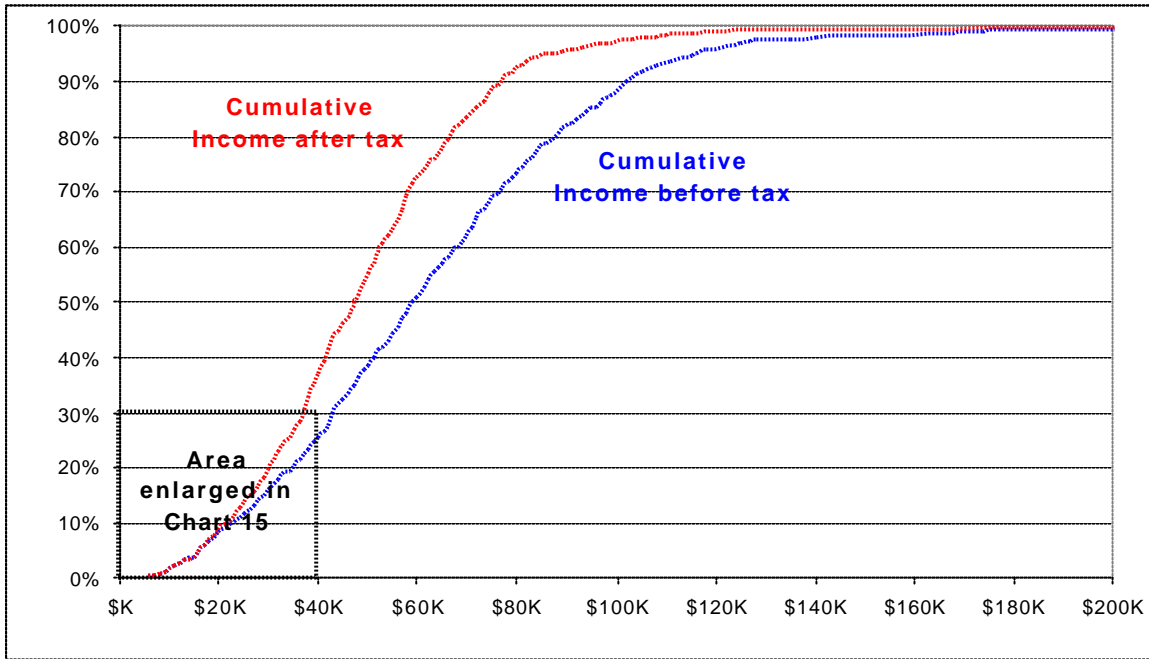
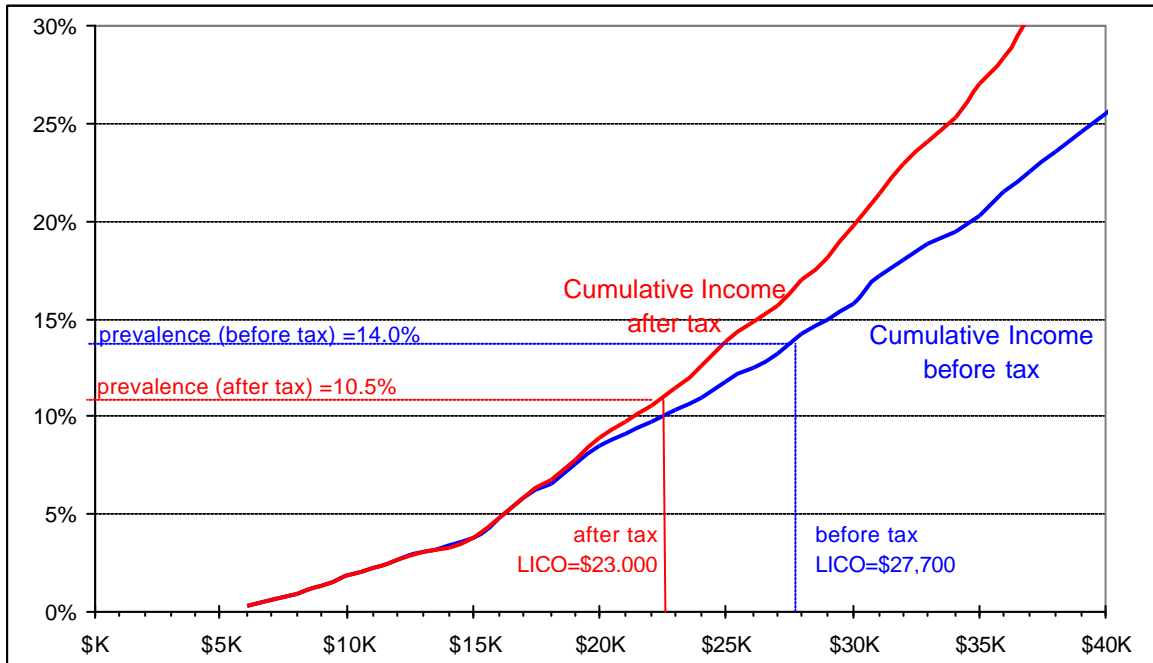


Chart 15
Determining prevalence of low income using LICOs and cumulative income distribution



III. Major Events in the History of Low Income Measurement

This part of the report sets out, in rough chronological form, the major events in the history of the low income rates. First, the four rebasing events are described. Then, the results of a major public consultation launched in 1989 are discussed. The last two sections outline recent developments that are likely to affect the LICOs in the future, in one way or another.

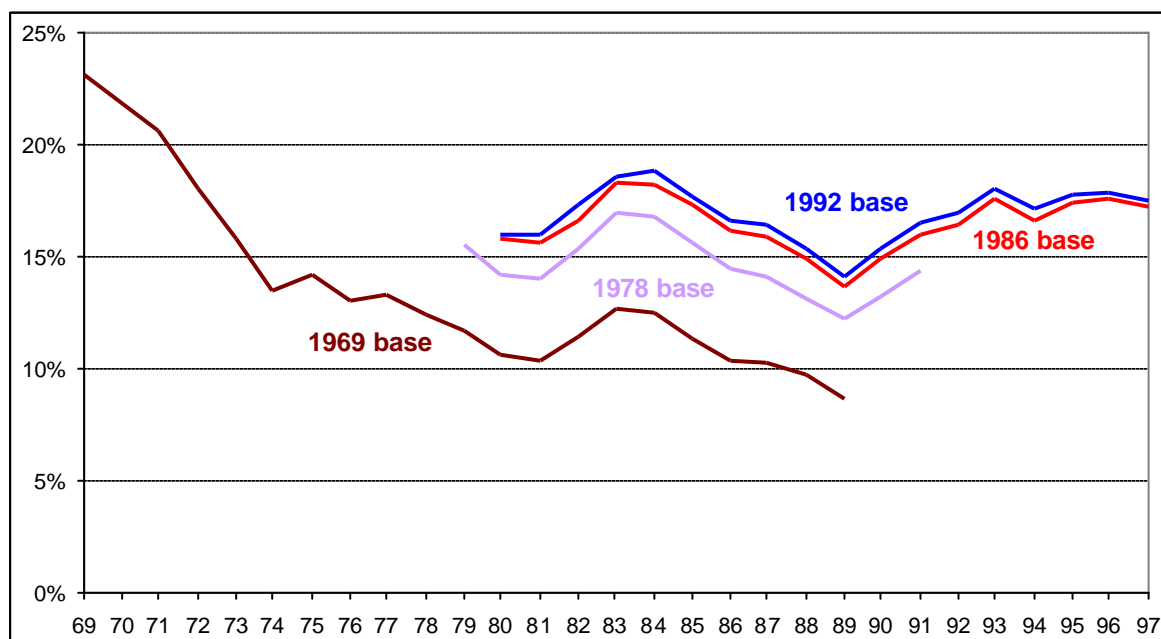
Four revisions in past 30 years

The low income cutoffs were first published in 1967. They appeared in **Incomes of Canadians**, written by Jenny Podoluk as part of the 1961 Census monograph series. These LICOs were based on the 1959 FAMEX data. Initially, only pre-tax low income rates were available since the SCF did not at that time collect information on post-tax income. The cutoffs were adjusted annually for the cost of living, using CPI.

In 1971, a Special Senate Committee on Poverty in Canada, chaired by Senator Croll, took issue with the practice of updating using CPI, because it did not reflect changes in spending patterns. With the passage of time, the link to what the average family was spending on food, shelter and clothing would be increasingly eroded.

This triggered a procedure of routinely “rebasing” the cutoffs using the most recent FAMEX data. Chart 16 shows the low income rates (before tax, for all persons) that have been published since 1969.

Chart 16
Published before-tax, low income rates



The chronology over the past thirty years can be summarized as follows:

- 1973 reference year: For the first time, LICOs were published on the basis of 1969 FAMEX data. The low income time series were regenerated on this base from 1969 onward.

- 1980 reference year: Statistics Canada began producing low income rates based on 1978 FAMEX data. From this point onward, low income rates were also calculated on the basis of after-tax income. The series were backdated to 1978. The Agency also continued to publish 1969-base rates, up to 1989 reference year.
- 1987 reference year: Low income rates based on 1986 spending data were introduced. For two years – from 1987 to 1989 – rates were actually published for three base years. The low income cutoffs based on 1986 spending patterns were projected *backward* to 1980 resulting in a series of low income rates going back to 1980, a first in the history of the LICOs.
- 1989: Statistics Canada began an extensive review and user consultation process regarding the publication of low income information. This process, discussed below, continued until 1991.
- 1992 reference year: Low income rates were once again rebased, using 1992 FAMEX results. Rates on this base year were projected backward to 1980. Ever since then, rates have been published each year based on both 1992 and 1986 spending patterns.

To avoid confusion, the SCF publications have always highlighted one particular base year in their high-profile releases. Currently, the 1992 base year is highlighted; low income rates on the 1986 base are published but not typically used in Statistics Canada analyses.

Major public consultation in 1989

The user consultation that took place around the beginning of the decade was launched with the release of a discussion paper by Michael Wolfson and John Evans entitled **Statistics Canada's Low Income Cutoffs: Methodological Concerns and Possibilities**. The paper, which was widely distributed, examined some of the shortcomings of the LICOs and discussed alternative approaches. In particular, it looked at the possible replacement or addition of a more conventional relative measure, based on 50% of median family income, where the income distribution has been adjusted for family size and composition. (This measure ultimately became known in Canada as the Low Income Measure or LIM).

The most important recommendations emerging from the consultation were that Statistics Canada should continue to produce low income information; that a single measure should be highlighted; but that none of the measures discussed was unambiguously superior to the others. In addition, the Agency was asked to provide more information on the “depth” of low income² and on the characteristics of low income persons, and to give more prominence to low income rates based on after-tax income.

Statistics Canada accordingly continued to produce, and highlight, LICO-based low income information. Over time, the publication program was expanded to cover low income based on LIMs, on after-tax income and the depth of low income. However, these supplementary estimates have not been highlighted and their release has generally lagged the low income rates based on before-tax LICOs. Perhaps for these reasons, they have never gained much prominence. To a certain extent, Statistics Canada's capacity to shift the focus has been constrained by the production environment. As discussed later, this is about to change.

Since the public review in 1989, the before-tax low income rate has risen from 14% to nearly 18% in 1997. Over the same period, low income among seniors dropped but the rate for children under 18 has grown from 15% to almost 20%. This increase, and the commitment of governments to address child poverty, has led to intense public scrutiny of the LICOs and their appropriateness for evaluating the effectiveness of poverty-reduction policies and

² This is a measure reflecting the amount of money needed, on average, to pull families out of low income.

programs. Some have called for a public debate on how poverty should be measured. Others have expressed anxiety over the fact that the focus on measurement detracts from the underlying phenomenon of income inadequacy.

Statistics Canada continues to correct media commentary that portrays low income estimates as a measure of poverty. The Agency's position is summarized in a note written by the Chief Statistician earlier in 1999, reproduced here in an appendix.

Advent of the Market Basket Measure of Poverty

Human Resources Development Canada has been collaborating with the provincial and territorial ministries of social service to develop a "Market Basket Measure of Poverty" or MBM. The objective is to produce a measure that is:

- credible with respect to the severity of poverty
- related to changes in the cost of consumption
- easy to understand (though not necessarily easy to calculate)
- sensitive to geographical differences

The approach is to cost out a "basket" of necessary goods and services including food, shelter, clothing and transportation and a "multiplier" to cover other essentials. The data would come from various sources – the best available for the purpose. The results would be used to define levels of disposable income needed to cover the cost of the basket. The income levels would be calculated for each province and for different sizes of community *within* each province. The measure of disposable income envisaged is more restrictive than after-tax income. It excludes such expenses as support payments, work-related child care costs and employee contributions to pension plans and Employment Insurance.

Since an article on the MBM appeared in the HRDC's *Applied Research Branch Bulletin* in the autumn of 1998, the MBM has received a great deal of public attention. Based on the proposed methodology, the MBM would generate an average poverty rate below the before-tax low income rate, although not that different from the after-tax rate or the LIM-based rate.

One of many themes in the ensuing debate is that, even if the MBM should be produced regularly, it would be beneficial for Statistics Canada to continue producing LICO-based low income information as a point of comparison and for longer-term trends.

Survey of Household Spending

The move from FAMEX to SHS affects the LICOs in two ways:

- The existence of an annual survey means that we could in principle update the LICOs annually using SHS. If this approach were adopted, it would obviate the need for updating using CPI.
- The streamlined SHS does not split the mortgage payment into principal and interest. This decision was taken because separate reporting of principal and interest is very difficult for respondents – this was one of the hardest parts of the survey.

Although the analysis is still preliminary, it looks like the reduction in content has not had a major impact on the expenditure data for broad commodity categories, apart from the mortgage measurement issue noted above.

IV. Options for the Future

We have examined three basic options, and variations on them.

The first option is **status quo**. We would continue to produce low income information based on 1992 and 1986 spending patterns, updating the LICOs annually with CPI. With this option we would defer a decision on rebasing to some unspecified date in the future.

The second option is to **shift to a 1997 base**. In other words, LICOs would be calculated using 1997 Survey of Household Spending, perhaps back to 1990. For historical continuity, we would continue to produce low income rates using the 1992 base, but we would drop the 1986 base. This approach to rebasing is consistent with past rebasing activities.

The third option is to take advantage of the fact that we now have an annual expenditure survey and **update cutoffs annually using current expenditure data**.

The three options and their implications are discussed in detail in the following sections.

Option 1: Status quo

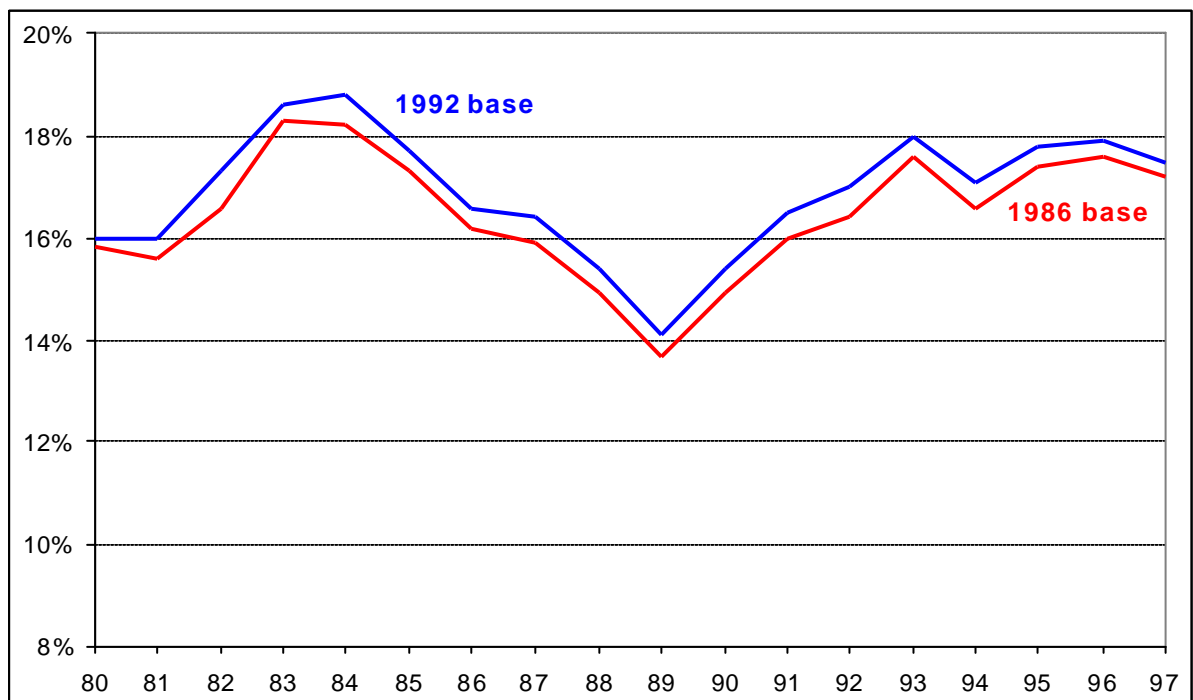
This option maintains the current series. Low income cutoffs based on the 1992 and 1986 spending patterns would continue to be updated using the CPI, and the 1992 based and 1986 based low income prevalence rate series would be continued.

The current methodology recognizes the need for the periodic introduction of a new base. This principle would be retained, but not on a fixed schedule. Instead, the impact of new spending patterns would be monitored and a new base would be implemented after consultation with the user community.

Chart 17

Option 1: Status quo

Low income rates, before-tax, all persons



The advantage of this option is that the current analytical environment remains unchanged. The possible introduction of the Market Basket Measure for the 1999 reference year makes the stability of the current LICO methodology particularly attractive.

The disadvantage of this option is the aging of the bases, especially the 1986 base. A 1997 low income rate that is based on 1986 can be interpreted as the percentage of families that spent significantly more on essentials in 1997 than the average family spent on essentials in 1986. There is no established rule on how frequently the cutoffs should be rebased, though the suitability of a base depends more on the changes in average spending on food, shelter and clothing than on the actual age of the base.

Option 2: Shift to 1997 base

The second option is to shift to a new 1997 base. Following the same approach that has been used in the past when new bases have been introduced, the 1997-based series would be featured in Statistics Canada releases and would be extended back in time, perhaps to 1990. In this option, the 1992 base would be maintained and the 1986 base would be dropped.

The attraction of this option is that it uses data on recent spending patterns while providing the continuity of the 1992 base. However, the loss of the 1986 base would be a disadvantage for certain users.

Table 7 and Table 8 compare 1997 LICOs for two different base years – 1997 and 1992. The 1992-base LICOs show what was actually published for 1997. The 1997- base shows what we would publish if 1997 SHS results were used to create a revised series.

Chart 18

Option 2: Shift to 1997 base

Low income rates, before-tax, all persons

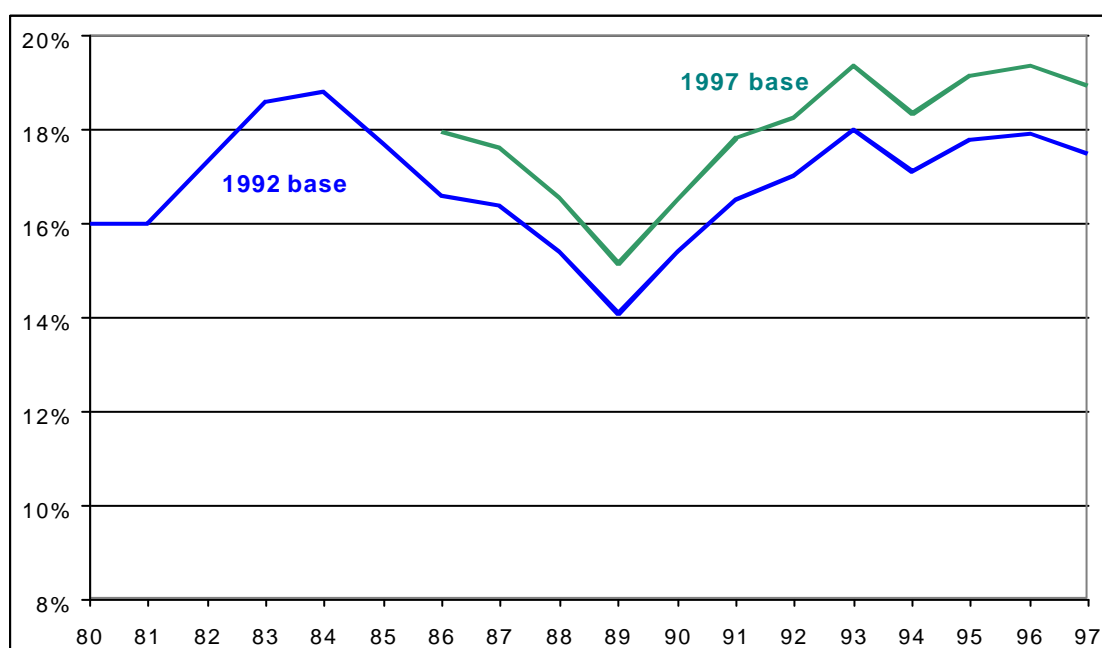


Table 7 Comparison of 1997 LICOs, 1997 base v. 1992 base (before-tax)

Family size	Size of Area of Residence				
	Rural	Urban<30K	30K-99K	100K-499K	500K+
1997 LICOs, 1997 base (\$)					
1	12,311	13,772	15,011	15,649	17,136
2	15,901	17,788	19,389	20,213	22,134
3	21,121	23,627	25,753	26,848	29,399
4	23,964	26,807	29,219	30,462	33,356
5	27,297	30,536	33,284	34,700	37,996
6	29,736	33,264	36,257	37,799	41,390
7+	32,522	36,381	39,655	41,341	45,269
1997 LICOS, 1992 base (\$)					
1	12,030	13,796	14,827	14,931	17,409
2	15,038	17,245	18,534	18,664	21,760
3	18,703	21,448	23,050	23,213	27,063
4	22,639	25,964	27,903	28,098	32,759
5	25,307	29,023	31,191	31,409	36,618
6	27,975	32,081	34,478	34,720	40,479
7+	30,643	35,140	37,766	38,032	44,339
Ratio of 1997 base to 1992 base LICOs (for 1997 reference year)					
1	1.02	1.00	1.01	1.05	0.98
2	1.06	1.03	1.05	1.08	1.02
3	1.13	1.10	1.12	1.16	1.09
4	1.06	1.03	1.05	1.08	1.02
5	1.08	1.05	1.07	1.10	1.04
6	1.06	1.04	1.05	1.09	1.02
7+	1.06	1.04	1.05	1.09	1.02

Table 8 Comparison of 1997 LICOs, 1997 base v. 1992 base (after-tax)

Family size	Size of Area of Residence				
	Rural	Urban<30K	30K-99K	100K-499K	500K+
1997 LICOs, 1997 base (\$)					
1	9,760	11,139	12,226	12,831	14,259
2	12,483	14,247	15,638	16,412	18,238
3	16,808	19,183	21,056	22,098	24,556
4	19,383	22,121	24,281	25,483	28,318
5	22,099	25,221	27,683	29,053	32,285
6	23,830	27,197	29,852	31,330	34,815
7+	25,876	29,532	32,415	34,019	37,804
1997 LICOS, 1992 base (\$)					
1	9,426	10,894	11,923	12,110	14,376
2	11,501	13,294	14,547	14,776	17,542
3	14,546	16,814	18,400	18,689	22,186
4	18,117	20,941	22,916	23,277	27,633
5	20,250	23,405	25,613	26,016	30,885
6	22,382	25,870	28,310	28,755	34,137
7+	24,516	28,333	31,006	31,494	37,388
Ratio of 1997 base to 1992 base LICOs (for 1997 reference year)					
1	1.04	1.02	1.03	1.06	0.99
2	1.09	1.07	1.07	1.11	1.04
3	1.16	1.14	1.14	1.18	1.11
4	1.07	1.06	1.06	1.09	1.02
5	1.09	1.08	1.08	1.12	1.05
6	1.06	1.05	1.05	1.09	1.02
7+	1.06	1.04	1.05	1.08	1.01

The impact of a shift to a 1997 base (option 2) on low income rates is shown in Table 9. The greatest change, both before-tax and after-tax is in the low income rate for children. This could be predicted by examining the ratios in last part of Table 7 and Table 8. The ratios show that the largest increases in the cutoffs are for families of size 3 and 5, and children are concentrated in families of size 3, 4 and 5. The composition of families is also changing, particularly for families of size 3. In 1982, single parents with two children made up 8% of families of size 3. By 1997 this had increased to 12%.

Table 9
Comparison of low income rates, 1992 base and 1997 base

	Before Tax			After tax		
	1992 base, as published	1997 base	difference	1992 base, as published	1997 base	Difference
All persons	17.5%	18.9%	+ 1.4	13.3%	14.9%	+ 1.6
Children	19.8%	21.8%	+ 2.0	15.8%	18.1%	+ 2.3
Seniors	18.7%	20.3%	+ 1.6	8.1%	9.1%	+1.0
Others	16.4%	17.7%	+ 1.3	13.4%	14.7%	+1.3

How much of the increase in Table 9 would be due to the new definition of shelter costs? As noted earlier, a new 1997 base would differ from earlier bases in that it would be derived from the Survey of Household Spending rather than the Family Expenditure Survey. As far as the LICO methodology is concerned, the main difference is in the treatment of mortgage payments. The effect of this change has been studied by applying both shelter definitions to the 1992 base and deriving low income rates from 1986 to 1997. This accounts for an average of 0.3 pp of the increase in the before-tax rate and 0.5 pp of the increase in the after-tax rate. In other words, the increases shown in Table 9 are not primarily due to the new definition of shelter costs.

Option 3: Status quo + current spending patterns

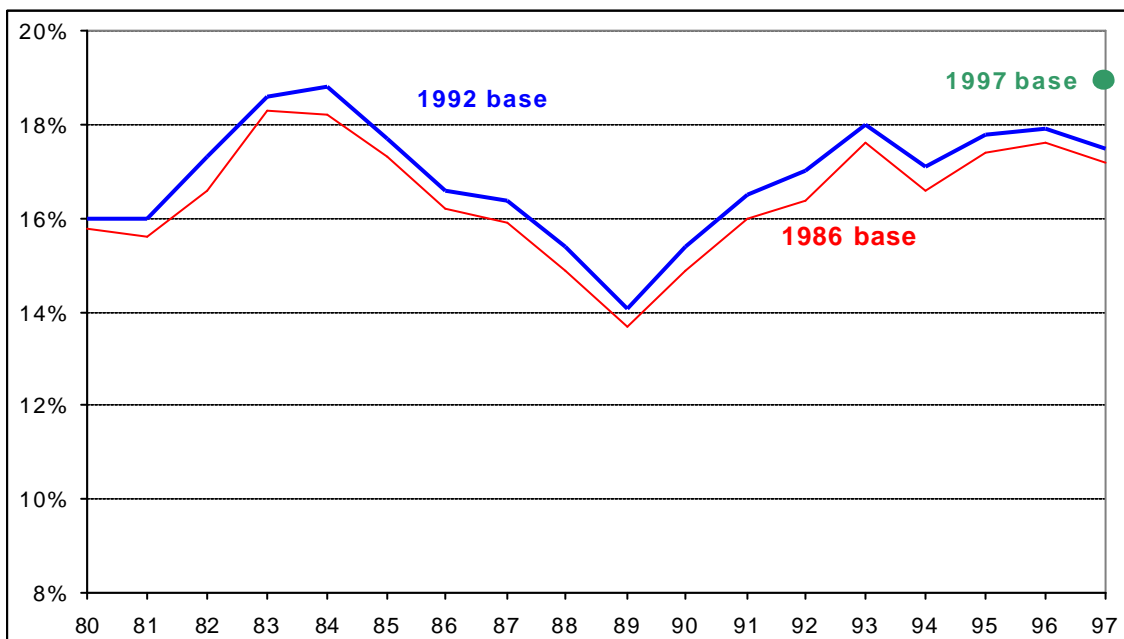
The third option introduces 1997 data based on 1997 spending patterns, as well as continuing the 1992 base series. The difference between this option and option 2 is that the 1997 spending on necessities does not generate a new base with backcasting into the past and extension into the future. Instead, the 1997 spending data are used as a “base” for low income rates for 1997 only. Similarly, 1998 spending data would be used as a “base” for low income rates in 1998 only. Eventually, these rates would form a “series” of low income rates based on the expenditure patterns in the corresponding year. The question of replacing the 1992 based series would eventually arise, and as in option 1, this question would be decided after examination of the new spending patterns and consultation with the user community.

This approach gives users the continuity of the familiar 1992 based series and also provides current low income rates based on the expenditure data of the same reference year. For some purposes users might use the 1992 series to compare two years, keeping the spending on basics constant. For other purposes, users might want to make use of the most recent spending patterns as they relate to the most recent income data.

The average expenditure on food, shelter and clothing followed a downward trend in the four-year FAMEX cycle. The annual SHS cycle may bring more instability in these estimates. If that is the case, a method such as a moving average would be considered to stabilize the cutoffs.

Chart 19

Option 3: Annual updating using current spending patterns
Low income rates, before-tax, all persons



Recommended approach for 1998 and onward

Statistics Canada proposes that option 3 be adopted. This would provide the historical continuity of the 1992 base and would also give a second series based on up-to-date expenditure data. Low income rates based on 1986 and low income measures (LIMs) would not be highlighted on release day, but would be available on CD-ROM.

V. Transition from SCF to SLID and Other Changes

Since 1995, Statistics Canada has been working towards the integration of the Survey of Consumer Finances with the Survey of Labour and Income Dynamics. Both include detailed information on the incomes of Canadian families. SCF produced purely cross-sectional data while SLID was designed to provide both cross-sectional and longitudinal data. On the other hand, SLID is a newer survey – it only reached its full target sample in 1996 – and needed some time to stabilize. From 1995 to 1998, results from the two surveys were compared and sources of difference either eliminated or documented. This process culminated in 1999 with a report comparing results for all the major time series (including low income rates) over a five-year period, entitled **A Comparison of the Results of the Survey of Labour and Income Dynamics and the Survey of Consumer Finances, 1993-1997**. The surveys track each other very well, and, accordingly, the decision was taken to not conduct SCF in April 1999. The results for the 1998 reference year will come instead from SLID.

There are several facets of the transition from SCF to SLID that have a bearing on low income information.

First, when the 1998 data are released, the time series back to 1996 will be based on SLID, while results prior to that will come from SCF. Thus the 1997-1998 changes in low income will be based solely on SLID data.

Second, SLID makes use of tax data with the permission of respondents, and conducts an income interview only when the respondent has not filed a return or would prefer to provide the information by interview. About 80% of SLID income data come from tax records. This helps to reduce response burden and sample attrition, and improves the precision of income reporting. However, the tax data only become available in the autumn of the year following the reference year. The target date for the release of SLID data is 15 months after the end of the reference year, or about 5 months after the receipt of tax data. On release day, the full data set will be available including:

- before-tax and after-tax income
- cross-sectional and longitudinal data
- the full range of associated labour-market and family information.

Third, data will be disseminated via five main products and services, released over a three- or four-month period:

- an overview publication and set of electronic tables, available on release day
- a CD-ROM with a very extensive set of tables going back to 1980, interfaced with Beyond 20/20
- a cross-sectional, public use microdata file, modeled on the SCF file
- a “remote access” service for longitudinal data users and for those wishing to exploit the full potential of the cross-sectional data, available on release day
- a custom retrieval service, also available on release day

Fourth, there are several adjustments to the sample weights that will be implemented, for the 1999 reference year. Both SLID and SCF have benchmarked their sample results to independent estimates of the population by age, sex and province. These estimates come from the Census and are updated using administrative and survey data on demographic change. Currently, the population estimates used for benchmarking are based on the 1991 Census. Many surveys, including the Labour Force Survey, will begin using 1996 Census-based estimates in January 2000. This entails revisions of the historical series to avoid an abrupt change. In the case of income survey data, revisions must be made to both SLID and SCF. This work will not be completed in time for implementation with the 1998 results, but will be implemented for 1999.

Another planned adjustment to the sample weights will help to stabilize the number of families and unattached individuals from year to year and from one survey to another. Currently, surveys like SLID, SCF and SHS, which produce estimates at the family or household level, do not yield similar counts of families or households. Statistics Canada has recently developed estimates of the number of households and "families" of one person, two persons and three or more persons. Household surveys can now benchmark their sample results to these estimates. Again, when this is implemented, the historical series require revision.

The final development, still in the planning stages, is to adjust the sample weights so that the income distribution produced by the survey corresponds better to tax data. SLID and SCF over-estimate the number of middle income families, and underestimate both "tails" of the income distribution. One of the effects is that the estimates of aggregate income exceed the estimates produced via tax data or in the National Accounts.

These adjustments to the sample weights will all be introduced in the same year to reduce the impact on data users.

The fifth and final point relating to the move to SLID is that Statistics Canada will be able to produce information on low income dynamics as part of its regular program of data releases. The focus until now has been on ensuring that the switch is as seamless as possible, but SLID has a great deal to offer on income stability, low income persistence, and on the labour market and family events associated with movements into and out of low income.

VI. What Should Be Highlighted on “Release Day”

The long-standing SCF practice of highlighting one base rate will continue under SLID. This seems a very good idea, given the potential for confusion. However, with SCF, releases occurred over a period of many months and were basically organized by income concept – income before tax, earnings, income after tax, and so on. Beginning in 1998, the plan is to provide before- and after-tax results in the initial data release, and to analyze the two together. Also, as noted earlier, the focus will shift from before-tax to after-tax low income rates because we now have the capacity to do this.

More specifically, although the content has not yet been finalized, the initial release will likely contain summary results on:

- trends in market income (earnings plus investment income), government transfers and total income
- trends in income taxes and after-tax income
- trends in low income, based on after-tax income
- trends in the severity and persistence of low income
- trends in income inequality based on market income and after-tax income
- results for Canada, the provinces and major cities.

The Daily will highlight after-tax low income rates (calculated using 1992-base LICOs), but the tables available on release day will also include before-tax low income rates. Other measures of low income, including 1986-base estimates, Low Income Measures and the new measure based on “current spending patterns” will not be available on release day but will follow later on the CD-ROM. (See Part V for details on the planned products and services.)

VII. Future Research

Low Income Cutoffs are produced for seven family sizes (1 to 7+) and for five community sizes (rural to cities of more than 500,000). Since 1969, average family size has decreased and urbanization has increased, causing the distribution of Canadians to become more concentrated in a few of the 35 combinations. As shown in Chart 8, 46% of Canadians live in five of these groups, i.e. in families one to five persons in cities of more than 500,000.

Underlying the LICO methodology is the assumption that families of the same size in the same size of area of residence can achieve a similar standard of living with the same income. But what happens when the costs vary considerably across a category? In particular, the cost of shelter in Montreal is quite different from the cost of shelter in Toronto and Vancouver, yet the same cutoffs are applied to residents of these three cities, along with residents of Ottawa-Hull, Edmonton, Calgary, Hamilton, Winnipeg and Quebec City.

A possible area of future research would be to restructure the 35 cell matrix of LICOs by adding city-specific LICOs for Toronto, Montreal and Vancouver. To balance this increase, some of the existing sizes of area of residence could be combined, and the number of family sizes could be reduced. Statistics Canada intends to investigate this issue, although other planned tasks make it unlikely that the research could be carried out until late in the 2000/2001 fiscal year.

VIII. How To Contact Us

Some of the documents referred to in this report can be obtained on the Statistics Canada website. Those who wish to comment on the plans outlined in the report are invited to contact the following persons by March 1, 2000.

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Appendix

On Poverty and Low Income

Ivan P. Fellegi
Chief Statistician of Canada

Recently the news media have provided increasing coverage of Statistics Canada's low income cutoffs and their relationship to the measurement of poverty. At the heart of the debate is the use of the low income cutoffs as poverty lines, even though Statistics Canada has clearly stated, since their publication began over 25 years ago, that they are not. The high profile recently given to this issue has presented Statistics Canada with a welcome opportunity to restate its position on these issues.

Many individuals and organizations both in Canada and abroad understandably want to know how many people and families live in "poverty", and how these levels change. Reflecting this need, different groups have at different times developed various measures which purported to divide the population into those who were poor and those who were not.

In spite of these efforts, there is still no internationally-accepted definition of poverty - unlike measures such as employment, unemployment, gross domestic product, consumer prices, international trade and so on. This is not surprising, perhaps, given the absence of an international consensus on what poverty is and how it should be measured. Such consensus preceded the development of all other international standards.

The lack of an internationally-accepted definition has also reflected indecision as to whether an international standard definition should allow comparisons of well-being across countries compared to some international norm, or whether poverty lines should be established according to the norms within each country.

The proposed poverty lines have included, among others, relative measures (you are poor if your means are small compared to others in your population) and absolute measures (you are poor if you lack the means to buy a specified basket of goods and services designated as essential). Both approaches involve judgmental and, hence, ultimately arbitrary choices.

In the case of the relative approach, the fundamental decision is what fraction of the overall average or median income constitutes poverty. Is it one-half, one-third, or some other proportion? In the case of the absolute approach, the number of individual judgements required to arrive at a poverty line is far larger. Before anyone can calculate the minimum income needed to purchase the "necessities" of life, they must decide what constitutes a "necessity" in food, clothing, shelter and a multitude of other purchases, from transportation to reading material.

The underlying difficulty is due to the fact that poverty is intrinsically a question of social consensus, at a given point in time and in the context of a given country. Someone acceptably well off in terms of the standards in a developing country might well be considered desperately poor in Canada. And even within the same country, the outlook changes over time. A standard of living considered as acceptable in the previous century might well be viewed with abhorrence today.

It is through the political process that democratic societies achieve social consensus in domains that are intrinsically judgmental. The exercise of such value judgements is certainly not the proper role of Canada's national statistical agency which prides itself on its objectivity, and whose credibility depends on the exercise of that objectivity.

In Canada, the Federal/Provincial/Territorial Working Group on Social Development Research and Information was established to create a method of defining and measuring poverty. This group, created by Human Resources Development Canada and social services ministers in the various jurisdictions, has proposed a preliminary market basket measure of poverty - a basket of market-priced goods and services. The poverty line would be based on the income needed to purchase the items in the basket.

Once governments establish a definition, Statistics Canada will endeavour to estimate the number of people who are poor according to that definition. Certainly that is a task in line with its mandate and its objective approach. In the meantime, Statistics Canada does not and cannot measure the level of "poverty" in Canada.

For many years, Statistics Canada has published a set of measures called the low income cutoffs. We regularly and consistently emphasize that these are quite different from measures of poverty. They reflect a well-defined methodology which identifies those who are substantially worse off than the average. Of course, being significantly worse off than the average does not necessarily mean that one is poor.

Nevertheless, in the absence of an accepted definition of poverty, these statistics have been used by many analysts to study the characteristics of the relatively worst off families in Canada. These measures have enabled us to report important trends, such as the changing composition of this group over time. For example, 20 to 30 years ago the elderly were by far the largest group within the "low income" category, while more recently lone-parent families headed by women have grown in significance.

Many people both inside and outside government have found these and other insights to be useful. As a result, when Statistics Canada carried out a wide-ranging public consultation a decade ago, we were almost unanimously urged to continue to publish our low income analyses. Furthermore, in the absence of a generally accepted alternative methodology, the majority of those consulted urged us to continue to use our present definitions.

In the absence of politically-sanctioned social consensus on who should be regarded as "poor", some people and groups have been using the Statistics Canada low income lines as a de facto definition of poverty. As long as that represents their own considered opinion of how poverty should be defined in Canada, we have no quarrel with them: all of us are free to have our own views. But they certainly do not represent Statistics Canada's views about how poverty should be defined.

Bibliography

Cotton, C., Giles, P. and Hewer, P. (1999), "A Comparison of the Results of the Survey of Labour and Income Dynamics (SLID) and the Survey of Consumer Finances (SCF) 1993-1997", Statistics Canada, Income Research Paper Series, 7F002M-99007.

Podoluk, J.R. (1967), Income of Canadians, 1961 Census Monograph, Dominion Bureau of Statistics, Ottawa

Wolfson, MC and Evans, J.M. (1989), "Statistics Canada Low Income Cut-Offs Methodological Concern and Possibilities", Statistics Canada, discussion paper"