

**A Community Growing Apart:
Income Gaps and Changing Needs
in the City of Toronto in the 1990s**

Appendix VI:
Methodology

A report by the Canadian Council on Social Development
for the United Way of Greater Toronto

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Appendix VI

Methodology

Data Sources

Urban planning, social policy, and local strategies to fight against poverty require a comprehensive understanding of regional socio-economic characteristics. This report is mainly based on the Small Area and Administrative Data Division (SAADD) Family databank (Statistics Canada) using family income data compiled from information obtained through annual personal income tax returns.

SAADD compiles family income estimates from a Revenue Canada file which contains the returns of those who filed taxes using the T1 form. Families are formed through a multi-step process by linking information provided by tax filers on their spouses and dependants. The family databank approximates the total Canadian population. It contains information on sources of income (from the tax filers) and some demographic indicators (derived from both the tax filers and the non-filers). The family file covers, without adjustment, 96 % of the Canadian population. Estimates are not adjusted for under-coverage to account for late filers and those who did not file. A minimum amount of editing and imputation is done on the file.

For this report, we used the information built in four custom tables (tables 1, 5, 6 and 17) produced by SAADD looking at census family income for the years 1990, 1995, and 1999. Table 1 provides a summary of the tax filers and their dependants by age and family composition. Table 5 calculates total and median income for husband-wife and lone-parent families. Table 6 gives a detailed breakdown of sources of income by family type and table 17 establishes the numbers of persons and families living with less than half of the median income.

Census Family Concept

The development of the small area family data (called the T1 family file, or the T1FF) is based on the census family concept. This concept, specific to Statistics Canada, is similar to the traditional family concept. However, the small area family data include parent(s) and non-married children (i.e., who reported a marital status other than married on the tax form) living in the same dwelling, whereas the census family includes never-married children living with their parent(s).

The initial population used to develop the family units comprises all tax filers for the reference year and represents approximately two-thirds of the Canadian population. The family units are formed from information obtained on the tax returns of the tax-filing family members.

First, tax filers from the same family, including children, are matched using common links (e.g., spousal social insurance number, same name, same address). Most children do not file because they have low or no income. Prior to 1993, non-filing children were identified from information on their parents from the tax form. Information from the federal Family Allowance Program was used to assist in the identification of children. Since 1993, children are added to the family by using the Canada Child Tax Benefit (CCTB) file, the provincial births files and previous years of the T1FF.

The remaining tax filers who have not been matched in the family formation process become non-family persons. Non-family persons are not living with a spouse or child or parent. They may be living with a family to whom they are related (e.g., brother-in-law, cousin, grandparent) or unrelated (e.g., lodger, roommate). They may be living with other non-family persons or living alone.

Some elderly Canadians receiving only Old Age Security (OAS) and Guaranteed Income Supplement (GIS) do not always file because they have low or no taxable income. However, with the introduction of the Federal Sales Tax (FST) Credit in 1986 and the Goods and Services Tax (GST) Credit in 1989, the percentage of the elderly population filing tax returns has increased. In 1998, 93.9% filed tax returns, up from 75% in 1989 (when comparing tax filers to a population estimate from the Demography Division of Statistics Canada).

Level of Geography

The various databanks compiled from the tax file are available for different levels of geography. For the purpose of this project, we used the Forward Sortation Areas as a level of geography and analysis to compare areas within the city of Toronto.

The first three characters of the postal code identify the Forward Sortation Area (FSA). Individual FSAs are associated with a postal facility from which mail delivery originates. The average number of households served by an FSA in Canada is approximately 7,000 but the number can range from zero to more than 50,000 households. This wide range of households occurs because some FSAs contain only businesses (zero households) and some FSAs serve very large geographic areas. As of May 1996, there were approximately 1,500 FSAs in Canada.

For this report, we used all FSAs for the city of Toronto which begin with the letter “M”. In total, information for 95 FSAs were used and compared throughout the report. Rural FSAs and FSAs containing no household, like Queens Park, were not included in the analysis.

The Low Income Measures (LIM)

Finally, the line used to identify the people and the families who are substantially worse off than the average is the Low Income Measure (LIM).

The low income measure (LIM) is a fixed percentage (50%) of median adjusted family income, where “adjusted” indicates that family needs are taken into account. Adjustment for family sizes reflects the fact that a family’s needs increase as the number of members increases. Most would agree that a family of five has greater needs than a family of two. Similarly, the LIM allows for the fact that it costs more to feed a family of five adults than a family of two adults and three children.

Small Area and Administrative Data Division (SAADD) publish estimates on the low income population using the Low Income Measure (LIM). Beginning with the 1995 data, a 17th table was added to the series; this table looks at low income among families, according to the *Low Income Measure (LIM)*.

Adjustment for family size

When comparing family incomes to study such issues as income adequacy or socioeconomic status, one often wants to take the family size into account. The income amount itself is not sufficient to understand a family’s financial well-being without knowing how many people are sharing it. Two approaches have been used to help with the analysis of family income. One is to produce data by detailed family types, so that within a given family type, differences in family size are not significant. In fact, many income measures have been reported by detailed family types in the published tables.

The other way to take into account family size is to adjust the *income amount*, for the purposes of analysis only. The major challenge of this approach is to select an appropriate adjustment factor. It can be argued, however, that some adjustment is better than none.

The simplest method is to use per capita income, that is, to divide the family income by the family size. A limitation of per capita income, however, is that it tends to underestimate economic well-being for larger families as compared to smaller families. This is due to the fact that it assumes equal living costs for each member of the family, but some costs, primarily those related to shelter, decrease proportionately with family size (they may also be lower for children than for adults). For example, the shelter costs for an adult married couple with no children are arguably not much more than those for an adult living alone.

To take such economies of scale into account, it is common to use an “equivalence scale” to adjust family incomes. Instead of implicitly assuming equal costs for additional family members as the per capita approach does, the equivalence scale is a set of *decreasing* factors assigned to the first member, the second member, and so on. The adjusted income amount for the family is derived by dividing the income value by the sum of the factors assigned to each member.

There is no single equivalence scale in use in Canada. The one used in the published income tables and in concepts such as the low income measure (LIM) has, however, achieved a high degree of acceptance. In this equivalence scale, the factors are as follows:

- the oldest person in the family receives a factor of 1.0;
- the second oldest person in the family receives a factor of 0.4;
- all other family members aged 16 and over each receive a factor of 0.4;
- all other family members under age 16 receive a factor of 0.3.

For example, a couple without children or a single-parent family with one child both have a conversion factor of 1.4. The families are the same size, but differ in composition. However, they rate the same conversion factor, reflecting the assumption that the same level of income will be required to support the same standard of living. The next example shows that it does not always work out this way. The equivalence factor is 2.6 for a family of five adults whereas for a family of two adults and three children, it is 2.3. This reflects the fact that grown children cost more than young children.

A Quick Comparison of SAADD and Census Data Low Income Estimates for 1995 ¹

1 Introduction

Small Area and Administrative Data Division (SAADD) publish estimates on the low income population using the Low Income Measure (LIM). Recently the Canadian Council on Social Development produced a report² using special tabulations of Low Income Cutoffs (LICO) from Census data. While the methods of identifying the low income population are similar, there are methodological and some conceptual differences.

Given this information, it is not surprising that the resulting estimates of the low income population differ between these two sources. The purpose of this short document is to compare the Low Income statistics produced by these two different methodologies.

2 Low Income Estimates

Table 1a outlines selected data reported in *Urban Poverty in Canada* and the most comparable data produced by SAADD on the incidence of low income. SAADD produces data based on the census family while these Census tabulations use the economic family definition. Some family types have been grouped so that comparisons can be more readily made.

Table 2a expresses the same information in a slightly more compact form as the ratio of one low-income incidence estimate to the other.

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² *Urban Poverty in Canada a Statistical Profile* by Kevin K. Lee, Ottawa March 2000.

Table 1a. LIM and LICO Low Income Incidence Levels by Selected Family Types by Province

Canada and the Provinces									
Low Income Measures		Census Family Structure				Individuals			
		HW families without children	HW families with 1 or more children	Lone-Parent families	NF Persons	Persons	Children	65+ persons	
Low Income Cutoff		Economic Family Structure				Individuals			
		Couples with no children < 18	Couples with children < 18	Lone-parent families with children < 18	Unattached Individuals	All persons	Children 0-17 in families	Aged 65+	
Canada	LIM	9.3%	12.8%	44.2%	30.2%	19.1%	25.3%	8.8%	
	LICO	9.6%	14.2%	54.9%	42.2%	19.7%	22.3%	19.3%	
Provinces									
Newfoundland	LIM	13.1%	17.2%	57.2%	44.8%	24.7%	31.1%	19.9%	
	LICO	12.3%	18.6%	66.1%	42.9%	21.4%	26.5%	12.6%	
Prince Edward Island	LIM	7.6%	10.0%	44.4%	36.1%	18.1%	22.6%	15.1%	
	LICO	5.2%	10.1%	56.7%	41.0%	15.2%	18.4%	15.9%	
Nova Scotia	LIM	8.6%	12.2%	53.4%	35.8%	21.0%	28.1%	12.1%	
	LICO	8.4%	12.2%	63.9%	40.8%	18.8%	23.1%	15.1%	
New Brunswick	LIM	9.5%	12.4%	53.8%	38.4%	21.4%	27.6%	13.5%	
	LICO	9.4%	13.9%	61.3%	43.5%	19.0%	22.1%	16.8%	
Quebec	LIM	10.5%	12.2%	46.4%	35.8%	20.7%	25.5%	12.9%	
	LICO	13.2%	16.0%	55.9%	49.7%	23.4%	24.5%	26.9%	
Ontario	LIM	8.6%	11.7%	37.3%	25.7%	16.6%	22.1%	5.4%	
	LICO	8.1%	13.2%	53.6%	37.9%	17.7%	21.2%	16.8%	
Manitoba	LIM	7.9%	15.6%	50.9%	30.6%	22.3%	32.6%	8.3%	
	LICO	8.5%	14.5%	60.0%	44.8%	20.6%	24.1%	21.7%	
Saskatchewan	LIM	8.4%	16.0%	54.8%	27.4%	22.8%	34.2%	7.1%	
	LICO	6.4%	13.1%	58.0%	38.4%	18.3%	22.1%	14.1%	
Alberta	LIM	8.6%	13.4%	46.8%	25.6%	18.8%	26.0%	5.9%	
	LICO	8.3%	13.6%	51.3%	39.2%	18.4%	20.6%	16.1%	
British Columbia	LIM	9.9%	14.3%	46.2%	29.3%	19.9%	26.3%	10.0%	
	LICO	8.7%	14.3%	52.1%	40.2%	19.6%	21.9%	18.1%	
Yukon	LIM	10.6%	12.4%	47.1%	25.6%	21.1%	26.8%	5.7%	
		n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Northwest Territories and Nunavut	LIM	9.6%	21.5%	52.2%	27.1%	27.3%	33.5%	20.0%	
		n/a	n/a	n/a	n/a	n/a	n/a	n/a	

Table 2a. LIM Incidence to LICO Incidence Ratios by Selected Family Types by Province

Table 2a. LIM Incidence to LICO Incidence Ratios by Selected Family Types by Province								
		Census Family Structure				Individuals		
		HW families without children	HW families with 1 or more children	Lone-Parent families	NF Persons	Persons	Children	65+ persons
Ratio of Low Income by LIM to Low Income by LICO		Economic Family Structure				Individuals		
		Couples with no children < 18	Couples with children < 18	Lone-parent families with children < 18	Unattached Individuals	All persons	Children 0-17 in families	Aged 65+
Canada	LIM / LICO	97.3%	89.9%	80.5%	71.6%	97.2%	113.3%	45.6%
Provinces								
Newfoundland	LIM / LICO	106.6%	92.3%	86.6%	104.5%	115.7%	117.2%	158.4%
Prince Edward Island	LIM / LICO	147.3%	99.3%	78.4%	88.0%	119.0%	123.0%	94.8%
Nova Scotia	LIM / LICO	102.4%	99.4%	83.6%	87.8%	111.9%	121.5%	80.2%
New Brunswick	LIM / LICO	101.3%	89.1%	87.8%	88.4%	112.4%	124.8%	80.3%
Quebec	LIM / LICO	79.4%	76.4%	82.9%	72.0%	88.6%	104.2%	48.0%
Ontario	LIM / LICO	105.9%	88.4%	69.7%	67.9%	93.8%	104.3%	32.0%
Manitoba	LIM / LICO	92.7%	107.4%	84.9%	68.3%	108.4%	135.3%	38.1%
Saskatchewan	LIM / LICO	130.1%	122.4%	94.6%	71.2%	124.7%	154.8%	50.2%
Alberta	LIM / LICO	103.5%	98.2%	91.2%	65.4%	102.0%	125.9%	36.5%
British Columbia	LIM / LICO	113.8%	100.0%	88.7%	72.8%	101.2%	119.7%	55.1%
Yukon		<i>LICO data not available</i>						
Northwest Territories and Nunavut		<i>LICO data not available</i>						

3 Comparison of Data Sources, Methodology, and Definitions

The results presented above indicate that, while both are measures of the low income population one using the LIM and the other the LICO, the data are different. The primary reason for this difference is due to the definition of families as census or economic. A second very important reason is that the level of low-income cutoffs varies according to the size of the urban area whereas the level of the low-income measure is set for all of Canada. Within this section, family structures will be defined and a description of data sources, methodologies, and other concepts employed in the production of these statistics will be discussed.

3.1 Data Sources

Small Area and Administrative Data Division's estimates of the low income population are produced from administrative data, the T1 tax file with which it has been possible to create census families. The data used in the CCSD report are extracted from the income levels reported during the 1996 Census. Both are based on the before tax income received in 1995.

3.2 Methodology

SAADD compiles their estimates from a Revenue Canada file which contains the returns of those who filed taxes using the T1 form. Families are formed through a multi-step process by linking information provided by taxfilers on their spouses and dependents. The family file covers, without adjustment, 96 % of the Canadian population. Estimates are not adjusted for undercoverage to account for late filers and those who did not file. A minimum amount of editing and imputation is done on the file. Data are available for the territories.

The Census acquires their data during Enumeration Week from those 20% of households who answer the long-form census questionnaire. In the tables produced for CCSD, residents of the Yukon and Northwest Territories are excluded. The sample is 5.6 million people which are weighted to cover 100% of the Canadian population.

3.3 Concepts

3.3.1 Census Families and Economic Families

SAADD produces low income estimates for families based on the census family concept while, paradoxically the Census used the economic family concept for this study.

A census family is similar to the "nuclear" family while the economic family resembles the "extended" family. A census family refers to a married couple or common-law couple

with or without single³ sons or daughters, or a lone parent with at least one single son or daughter living in the same dwelling. An economic family, on the other hand, refers to a group of two or more persons who live in the same dwelling that are related to each other by blood, marriage, common-law or adoption.

The economic family concept results in larger families because more persons can be attached to extended families. In 1994, according to the Survey of Consumer Finances⁴, 18.4% of those who were classified as non-family persons based on the census family concept, would have been considered part of an economic family.

Direct comparisons of data produced for economic and census families are not valid due to the differences between these two family concepts. However, it is useful to examine the results of the two methodologies. Table 3 outlines how these family types were grouped and compared in the two data series of this document.

While the categories defined for Persons appear identical (and refer to exactly the same individuals), every individual's low-income status is evaluated in his or her family unit and since the Census and Economic Family definitions differ, the incidence levels will vary considerably as well.

3.3.2 Low Income Measures (LIMs) and Low Income Cutoffs (LICOs)

A family is considered to be low income when their income is below the Low Income Measure for their family type and size. LIMs (Low Income Measures) are a fixed percentage (50%) of adjusted median family income for Canada where 'adjusted' indicates a consideration of family 'needs.' The family size adjustment used in calculating the Low Income Measures reflects the precept that family needs increase with family size. For the LIMs, each additional adult, first child (regardless of age) in a lone parent family, or child over 15 years of age, is assumed to increase the family's 'needs' by 40% of the 'needs' of the first adult. Each child less than 16 years of age (other than the first child in a lone parent family), is assumed to increase the family's 'needs' by 30% of the first adult.

LIMs are a relative measure of low income in that they represent a point in the income distribution of a particular data set. This differs from the Census Division's LICOs which are based on actual expenditure patterns in different size cities as measured by the Family Expenditure Survey. If a family's income is such that we expect them to spend 20 percentage points more than the average percentage of gross income spent on food, clothing and shelter, they are deemed low income.

3.3.3 LIM Calculation

³ SAADD uses "single" as a proxy for "never married."

⁴ See *Family Incomes, Census Families 1994*, catalogue no. 13-208 Text Table IV, Statistics Canada.

In 1995, SAADD followed its' standard procedure for calculating LIMs as outlined in the following.

1. Determine for each family the 'adjusted family size' whereby the first adult is counted as 1.0, each additional adult and each child age 16 and over as 0.4 and each child less than 16 years of age as 0.3 (except in a lone parent family where the first child is counted as 0.4). Each non-family person is counted as 1.0.
2. For each family calculate an 'adjusted family income' by dividing their family income by their 'adjusted family size.' For non-family persons, for which the adjusted family size is 1.0, the 'adjusted family income' is the individual's income.
3. Determine the median 'adjusted family income' which is the adjusted family income where 50% of the families, including non-family persons, have a smaller adjusted family income and 50% have a higher one.
4. The LIM for a family of size one is 50% of the median 'adjusted family income' and the LIMs for the other family types are equal to this value multiplied by their 'adjusted family size.'
5. Low income families and low income non-family persons are those whose incomes are below the LIM for their family types. Families and non-family persons whose incomes are equal to or above the LIM for their family types are not considered low income.
6. This process is repeated for each year. Thus, the LIMs for each year are derived from the reported incomes of that year.

3.3.3 LICO calculation

1. Using the Family Expenditures Survey of 1992, for each Economic Family Type in each Size of Urban/Rural Area, calculate
 - a) the average amount spent on food, clothing and shelter
 - b) the average percentage of income spent on those basic necessities
2. Augment the average percentage spent on necessities (calculated in 1 b)) by 20 percentage points. This is the maximum percentage of a family's income that can be spent on basic needs before being considered low-income.
3. Adjust the average amount spent on necessities (calculated in 1 a)) to 1995 dollars using the Consumer Price Index. Divide this dollar amount by the low-income threshold percentage level found in step 2. The resulting amount is the LICO for that Economic Family Type in that specific type of Urban/Rural area.

3.3.4 The 1995 LIMs and LICOs

In 1995, the SAADD LIM for a family size of one was \$11,400 while the Census LICO ranges from \$11,661 to \$16,874 depending on the size of the urban area of residence. Table 4 summarizes 1995 LIMs and LICOs for selected family types.

The LICO levels are in general quite higher than their LIM counterparts (especially in urban areas).

3.3.5 Family Income

Family income from both sources consists of income from wages, salaries, self-employment, investments, dividends, government transfer payments, pensions, alimony and some miscellaneous income from all family members.

Table 3. Census and Economic Family Classes Comparison

CENSUS FAMILIES (SAADD)	ECONOMIC FAMILIES (CCSD)
<p>Husband-wife Families with No Children</p> <p>Include: -married couples, without children, regardless of age of the couples;</p>	<p>Couples with No Children</p> <p>Include: -married couples with head 65 yrs and older, with no children under 18 years of age; -married couples, with head less than 65 yrs of age, with no children under 18 years of age; Children over 17 yrs of age and relatives may be present;</p>
<p>Husband-wife Families with 1 or more Children</p> <p>Include: -married couples, with children, regardless of age of the couples or age of the children;</p>	<p>Couples with Children</p> <p>Include: -married couples, with head less than 65 yrs of age, with at least one child under 18 years of age. Children over 17 years of age and/or relatives may be present.</p>
<p>Lone-parent Families</p> <p>Include: -lone-parent families regardless of age of parent or age of children</p>	<p>Lone-parent Families</p> <p>Include: -lone parents less than 65 yrs of age with at least one child less than 18 years of age. Children over 17 years of age and/or relatives may be present.</p>
<p>Non-Family Persons</p> <p>Include: -individuals who do not belong to a census family.</p>	<p>Unattached Individuals</p> <p>Include: -individuals who do not belong to an economic family.</p>
<p>Persons</p> <p>Include: -individuals from any of the Census Family structures (including Non-Family Persons) regardless of age.</p>	<p>All Persons</p> <p>Include: - individuals from any of the Economic Family structures (including Unattached Individuals) regardless of age.</p>
<p>Children 0-17</p> <p>Include: - all children of 0-17 years of age.</p>	<p>Children 0-17</p> <p>Include: - all children of 0-17 years of age.</p>
<p>Persons 65 +</p> <p>Include: - any persons 65 years of age or more.</p>	<p>Individuals aged 65 or over</p> <p>Include: - any individuals over 65 years of age.</p>

Table 4. SAADD LIMs and Census LICOs 1995

Census Family Type*	LIM	LICO					Persons	Economic Family Type**
		Urban areas				Rural areas		
	Canada	500,000 and over	100,000 to 499,999	30,000 to 99,999	less than 30,000			
Husband-wife with no children	\$15 960	\$ 21 092	\$ 18 091	\$ 17 965	\$ 16 716	\$ 14 576	2	Couples with no children < 18
Husband-wife with:								Couples with children < 18:
- 1 child	\$19 380	\$ 26 232	\$ 22 500	\$ 22 343	\$ 20 790	\$ 18 129	3	- 1 child
- 2 children	\$22 800	\$ 31 753	\$ 27 235	\$ 27 046	\$ 25 167	\$ 21 944	4	- 2 children
- 3 children	\$26 220	\$ 35 494	\$ 30 445	\$ 30 233	\$ 28 132	\$ 24 530	5	- 3 children
Lone Parent with:								Lone Parent with children < 18:
- 1 child	\$15 960	\$ 21 092	\$ 18 091	\$ 17 965	\$ 16 716	\$ 14 576	2	- 1 child
- 2 children	\$19 380	\$ 26 232	\$ 22 500	\$ 22 343	\$ 20 790	\$ 18 129	3	- 2 children
- 3 children	\$22 800	\$ 31 753	\$ 27 235	\$ 27 046	\$ 25 167	\$ 21 944	4	- 3 children
Non-family persons	\$11 400	\$16 874	\$14 473	\$14 372	\$13 373	\$11 661	1	Unattached Individuals

*Children are 0 to 15 years of age in these calculations. The LIM would be slightly higher if the child is 16 or 17.