Economic Growth, Income Distribution and Economic Welfare

in Canada 1975-1994

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Abstract

Assessment of trends in Canadian living standards is incomplete if family money incomes are not adjusted for the shrinking size of Canadian families. This paper uses OECD and Statistics Canada equivalence scales to examine the level and distribution of equivalent money income in 1975, 1981, 1984, 1989 and 1994, using SCF micro-data and concentrates on inequality within and between birth cohorts. Less than 5% of aggregate income inequality is due to intergenerational inequality. From 1975 to 1989, all cohorts experienced rising average incomes, with no trend in intra-cohort inequality, except among senior citizens. The 1990's have, however, been a decade of declining average real equivalent income.

Canada, like the United States, has historically been a country in which the standard of living has increased over time. The inequalities of a capitalist system have only been challenged (somewhat) during periods, like the 1930s, when capitalism has failed to "deliver the goods" - i.e. when the general level of economic well-being has fallen. However, if the historic justification for economic inequality has been the promise that average living standards will rise from one generation to the next, what determines the popular perception of whether or not that promise has been kept? In Canada, the literature on economic inequality has expanded dramatically in recent years and there are now a number of excellent surveys of the major issues[1] to document:

(1)   the trend, since the mid 1970s, to increased inequality and polarization of the earned income of men, combined with stagnation of average real male earnings. (see Beach and Slotsve, 1996:58) Although the same has not been true for women, one might expect such trends to make some men unhappy.

(2)   the fact that the rapid rise in average hourly real wages of the early 1970s has been followed by a twenty year period of stagnation (initially noted by the Economic Council of Canada, 1991:137). Since real interest rates spiked upwards in 1980 and remained at historically high levels until mid 1996, capital has been getting more, while labour has not - which might be expected to create some worker discontent;

(3)   rising differentials in earnings between young and old workers, and an absolute decline in the average real earnings of young workers, (especially those with little education) has been

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[1]Beach and Slotsve (1996), Beach, Slotsve and Vaillancourt (1996), Burbidge, Magee and Robb (1996), Doiron and Barrett (1994), MacPhail (1996), Picot (1996), and Richardson (1994), etc.

combined with persistently high youth unemployment - hence the post-baby boom generation might be thought to have some reason for disenchantment.

However, given the strength and persistence of these trends, the interesting question is - why has there not been more discontent with the distribution of income in Canada?[2]

Even if average incomes are stagnant or falling, it is still possible for each individual to experience, in their own lives, a rising material standard of living, as long as the rate at which earnings increase with age is greater than the rate at which the average earnings of all age cohorts shrink (see Figure 1). As well, although there are many points of comparison in the income distribution debate (e.g. gender, region, race, etc.), a highly salient comparison for most individuals is to compare themselves with other persons of approximately the same age. Individuals who appraise their own economic well-being in terms of lifetime earnings may also be sanguine about age related differences in income, [even if such differentials influence the aggregate inequality of <u>annual</u> incomes] since they may well expect to receive higher incomes as they age themselves. Sociologically, age related income differentials may also be subject to different norms of equity than are applied to income differentials among those of the same age.

For these reasons, although this paper presents estimates of the trend in distribution and average level of equivalent income among all Canadians, its main emphasis is on following the fortunes of birth cohorts of Canadians as they aged from 1975 to 1994. It uses the 1975, 1981, 1984,

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[2]A large majority of Canadians report themselves as "satisfied" or "very satisfied" with their pay. Environics (1995:111) reports the percentage satisfied as:

1977	1978	1984	1987	1988	1991	1996
78%	79%	78%	73%	69%	72%	73%

On the other hand, in recent years a majority have also felt that their pay increases have not kept up with the cost of living(54% in 1988, 55% in 1991, 60% in 1996).

Figure 1
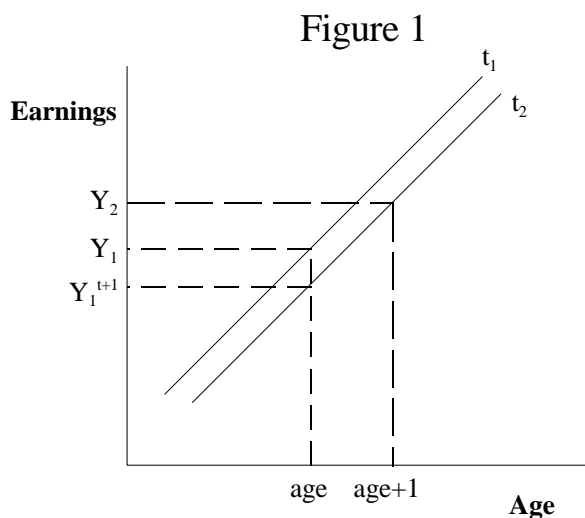
$Y_2 - Y_1^{t+1}$ = age differential in
    earnings

$Y_1 - Y_1^{t+1}$ = secular decline in
    average earnings

$Y_2 - Y_1$ = average personal
    earnings experience
(>0 if $Y_2 - Y_1^{t+1} > Y_1 - Y_1^{t+1}$)

1989 and 1994 Surveys of Consumer Finance of Statistics Canada and the fact that (for example) the baby-boom cohort born 1946 to 1959 was 16-29 in 1975, 22-35 in 1981, 25-38 in 1984, 30-43 in 1989 and 35-48 in 1994 to identify the changing fortunes of birth cohorts in the repeated sampling of the Survey of Consumer Finance. Trends in the equivalent income of baby boomers are compared to trends in the well-being of those born earlier - who can be labelled "Golden Agers" (born before 1930) or "Pre-boomers" (born 1930-1945)- and those born later - the "Generation X", (born 1960-1975) and "Generation Y" (born in 1976 or after). Since the children of 1975 were, 19 years later in 1994, at the age (19 to 34) when they were often starting their own families, the equivalent income of children in 1975 can also be compared to that of their children, in 1994.

Clearly, in 1975 "Generation X" were all under 16 years old. To estimate their equivalent income as children one must make strong assumptions about the distribution of resources within families. Estimates of the total effective resources available to families also depend on the equivalence scale used to translate the total income of families of different sizes into estimates of average economic well-being. Section 2 therefore discusses methodology: the data set used in this

paper, the assumptions underlying the computation of equivalent individual income, the summary

statistics of income distribution used and kernel density methods. Section 3 discusses the trends from

1975 to 1994 in average wellbeing of birth cohorts, and the evolution of the distribution of Canadian

economic well-being, as indicated by summary statistics and the kernel density estimates. Section 4

discusses the implications of these estimates of changing trends in the distribution of well-being in

Canada.

2.   Methodology

2.1   Population

This paper focuses on the distribution of equivalent income among individuals, but its

statistical starting point is the distribution of money income among economic families and unattached

individuals.[3] In Appendix 1, Tables 1.1 to 1.5 present data on the trends in equivalent income as

distributed among all Canadians, and among the members of five birth cohorts -Golden Agers (born

1929 or before), Pre-Boomers (born 1930-1945), Baby-Boomers (born 1946-1959), Generation X

(born 1960-1975) and Generation Y (born 1976 or later). The sections headed "All" refer to the

distribution of income among all Canadian residents, as surveyed by the Survey of Consumer Finance,

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[3]For 1975 and 1994, the data available to us is the household version of the Survey of Consumer Finance. Each household is decomposed into its constituent economic families or unattached individuals, by assigning to each individual in the household who is not a member of the primary economic family the average income differential, for such individuals, between total household income and economic family income . These extra household members, if adults, also do not have an age recorded in the SCF - hence we impute them an age similar to that of the household head and spouse. Unfortunately, the data available to us for 1981 is the Census Family version of the Survey of Consumer Finance. As soon as the Data Liberation Initiative releases the SCF economic family tape for 1981, 1975 and 1994 all figures will be amended to the degree necessary.

excluding only those economic families or unattached individuals who reported a zero or negative before tax money income. In all cases, dollar figures for median and mean income have been converted to current real dollars using the all Canada Consumer Price Index for September 1996.

The focus of this paper is on the changes over time in the real incomes of birth cohorts of Canadians over the period 1975 to 1994, but over this period immigration has had a major influence on Canadian society. In fact, the SCF data indicates that between 1975 and 1994 the number of Canadians born between 1960 and 1975 increased from 6.2 to 7.1 million. Changes of this magnitude are understandable, given the size of immigration flows, and the concentration of immigration among young adults and their families, but including immigrants would blur the focus of this paper on following the fortunes of the same groups of people. Fortunately, the SCF contains a coding for the year of immigration of the family head. In order to focus the analysis on the same cohorts of individuals, this paper excludes from the discussion of cohort outcomes all households whose head immigrated to Canada after 1975. This exclusion does not completely eliminate the effect of migration since recent immigrants who live in households headed by Canadian-borne, or pre-1975 migrant, individuals will still be counted as cohort members. [All recent immigrants are included in tables headed "All".]

2.2   Equivalent Income

Estimates of the economic well-being of individuals within families depend heavily upon the assumptions made about the degree and pattern of economic sharing within families (see Sharif and Phipps, 1994 for estimates of the impact of different sharing assumptions on the prevalence of child poverty). As well, estimates of the total wellbeing of the family depend upon the equivalence scale

which is used to estimate the economies of scale in household consumption.[4] Table I presents the two

equivalence scales used in this paper.

TABLE 1							
OECD and Statistics Canada Equivalence Scales							
Family Size	1	2	3	4	5	6	7
OECD	1	1.7	2.2	2.7	3.2	3.7	4.2
Statistics Canada	1	1.36	1.72	1.98	2.17	2.35	2.53
*assuming two adults in family and the remainder children.							

Using the OECD equivalence scale, for example, the second adult in a household counts as

0.7 and each child receives a weight of 0.5, hence a 4-person household (2 adults, 2 children) is

thought of as having the same relative level of consumption needs as 2.7 adults (i.e. with the same

total money income, 2.7 adults living separately could live as well as the 4-person family living

together). This paper makes the assumption of equal sharing among all family members, and

calculates the equivalent income of each family member as equal to the total money income of the

economic family, divided by the number of equivalent adults in the family. This equivalent income

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[4]Phipps and Garner (1994:13) argue that if one uses the same methodology for estimating equivalence scales, US and Canadian results are statistically and practically indistinguishable. Smeeding et al (forthcoming) emphasize the differences in incidence and patterns of poverty implied by alternative equivalence scale methodologies in use in Germany and the U.S.

is assigned to all family members, and the distribution of equivalent income across individuals is then calculated.

Three income concepts are of interest. Total income before tax is the most commonly presented income concept and consists of total earnings, total investment income, total government transfer payments, retirement pensions, superannuation and annuities and other money income[5]. A second income concept, which corresponds more closely to the purchasing power actually available to individuals in households, is "income after tax", which subtracts total income tax from total income. Both "total income" (before tax) and "income after tax" are directly coded in the SCF. As well, Appendix 1 presents the distribution of "pre-fisc" income - i.e., total income before tax minus all transfer payments from government. Since, in the 1975 SCF data, total transfer payments reported were 62% of total reported payments of income tax (72% in 1994), this "pre-fisc" conception of income is not quite equivalent to assuming a "no government" scenario, but it does serve to indicate trends in the distribution of market income.

As measures of the trend in "average" well being, this paper presents both the mean real equivalent income of each cohort, with current dollar values converted using the Consumer Price Index for Canada to September 1996 prices, and (since the mean of all incomes can be heavily influenced by the fortunes of the top tail) the mean real equivalent income of the fifth decile.

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[5]Other money income includes money received on the care of foster children, foreign incomes, scholarships and bursaries, alimony, royalties on books, oil wells, etc. strike and sick pay from trade unions, payments on income maintenance regard to annual wage plan and severance pay or retirement allowance. The SCF income concept excludes gambling gains or losses, lump sum inheritances, capital gains or losses, receipts from the sale of property or personal belongings, income tax refunds, loans received or repaid, insurance policy settlements, property tax rebates, pension refunds, income in-kind or withdrawals from an RRSP.

2.3   Measures of Poverty and Inequality

The most popular summary statistic of inequality is undoubtedly the Gini index, which is most sensitive to changes in the mid-range of the distribution. The Theil index is more sensitive to the bottom end, and also has the advantage of being additively decomposable (for further discussion see Osberg (1984) or Jenkins (1991)).

This paper measures two alternative conceptualizations of the poverty rate. A frequently used relativistic conception of poverty draws the poverty line at one half the median standard of living. (See Hagenaars, 1991). Since this paper calculates the equivalent income of each individual in each year, it is straightforward to define the poverty line as one half the median equivalent income of all individuals (including recent immigrants).[6]

An alternative approach is to use the low income cut-off (LICO) of Statistics Canada, as an estimate of the "poverty line". The LICO varies with family size and with the size of urban area, and is calculated in terms of before tax income. Since the SCF data contains an explicit flag for economic families below the low income cutoff, the LICO poverty rate for before tax income is easy to calculate. Because the LICO has been revised over time, the LICO which is used in successive versions of the Survey of Consumer Finance is not generally the same in real terms.[7]

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[6]It is worth stressing that the incidence of poverty can fall over time, with this conception of poverty, if the distribution of income becomes more compressed around median income - and in fact this is the case for senior citizens.

[7]Specifically, the LICO used in the 1975 SCF has a 1969 base, the 1981 and 1984 LICO have a 1978 base, the 1989 LICO has a 1986 base and the 1994 LICO uses the 1992 base. Over the past 20 years the slowing of real growth has meant that revisions to the LICO are fairly small - the difference between the 1992 base and the 1986 base amounting to 2.7%, while that between the 1986 and 1978 base was 4.1 %. Statistics Canada cautions that the LICO is not intended to be an "official" poverty line.

To calculate the poverty line corresponding to the after-tax and pre-fisc income concepts, it is necessary to put the poverty line in terms of after tax income. To do this, the average post-tax income of economic families within plus or minus $100 of the LICO for that family size is calculated, and is used as the "after-tax LICO".

This paper takes the view that social norms of poverty may change over time, but at any point in time these norms (which Smith (1776:339) referred to as "those things which the established rules of decency have rendered necessary to the lowest rank of people") apply to all cohorts, and includes recent immigrants - thus the poverty line in real income terms is the same for all birth cohorts in any given year.

A good deal of concern in the recent literature has also focussed on the issue of polarization - often defined in terms of the percentage of the population inhabiting the tails of the income distribution (e.g. the percentage of the population outside a band of plus or minus 50% above or below the median income - .see Beach and Slotsve, 1996:61). In Appendix 1, Tables 1.1 to 1. 5 therefore also report the percentage of each cohort with an equivalent income above 150% of the median equivalent income of all people in that year, to complement the reported poverty rate. Readers can obtain a measure of the fraction of each cohort that inhabits the tails of the Canadian distribution of income by summing the percentages above 150% of the median and below 50% of the median.

Polarization *within each cohort* can be assessed by looking at the "90/10 ratio" - the average equivalent income of the top decile of each cohort, divided by the average equivalent income of the bottom decile of the cohort.

2.4   Demographic Change and Trends in Economic Well-Being - A Cautionary Tale

The two decades from 1975 to 1994 have seen substantial changes in Canadian social institutions, one sign of which is a shrinkage in the average size of Canadian families (from 2.834 in 1975 to 2.412 in 1994). Even if average real income per family were constant, the fact that a given income is shared among fewer individuals within households could be expected to increase average economic well-being - and the effect is quite substantial. Since equivalence scales are non-linear functions of family size,[8] the calculation is not exact, but using both the OECD or the Statistics Canada scale, a decline from 2.83 family members to 2.41 would (holding money income constant) raise equivalent income by about 10%.

Although the average size of Canadian economic families changes rather slowly, change in the family circumstances of individual Canadians is much more rapid, and much more dramatic. As individuals progress through the life cycle, the size of the family unit of which they are a part typically changes. Tables 2 and 3 present the average total income of families and their average size. If one compares the average income of baby boomer families and those families which contained members of Generation X, Table 2 appears to indicate that the average family income of boomers grew in real terms from 1975 to 1994, but the average family income of Generation X fell. However, before one concludes that Generation X has suffered over the years, it is useful to note in Table 3 that in 1994 the members of Generation X shared their family income with substantially fewer people than did the baby boomers.

In some cohorts, the 1975 to 1994 period saw particularly large changes in family size - e.g the average family size of Golden Agers (borne before 1930) fell from 2.52 to 1.68. The magnitude

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[8]In practice, equivalence scales are piece-wise linear and it is the differential equivalencies among families with less than four people which really matter (since most of the population inhabits such family units) - hence equivalence scales are not well summarized by single number such as a "scale elasticity."

TABLE 2 Average After Tax Real Income of Economic Families*				
	1975	**1984**	**1989**	**1994**
All Families	43,588	43,852	47,504	44,237
All excluding recent immigrant families	43,701	44,028	47,345	44,382
Golden Agers (born before 1930)	38,780	36,497	35,852	31,157
Pre- Boomers (born 1930-1945)	47,251	51,449	54,698	47,034
Boomers (born 1946-1959)	44,470	42,668	49,176	49,135
Generation X (born 1960-1975)	45,171	46,806	47,828	42,693
Generation Y (born after 1975)	----	42,558	47,714	45,937

Note: Incomes are expressed in September 1996 dollars (Cdn).

TABLE 3 **Average Economic Family Size[1]**				
	1975	**1984**	**1989**	**1994**
All Families	2.834	2.592	2.507	2.412
All excluding recent immigrant families	2.834	2.577	2.480	2.369
Golden Agers (born before 1930)	2.519	2.027	1.831	1.676
Pre- Boomers (born 1930-1945)*	3.893	3.256	2.824	2.370
Boomers (born 1946-1959)	3.302	3.000	3.150	3.045
Generation X (born 1960-1975)	4.413	3.436	3.018	2.742
Generation Y (born after 1975)	----	4.003	3.990	3.782

Notes: The values for the cohort groups are the average family size of families which contain at least one member of the cohort group.

of the decline in their average family size implied that although average real family money income fell by some 20%, average real equivalent income rose (see Appendix 1, Tables 1.1 to 1.5). For both the youth cohort who are leaving the parental home to set up new households and seniors (who often suffer the death of a spouse), change in family size is particularly large. In general, both seemingly simple statistics and more complex calculations of equivalent income can be heavily affected by demographic change - as a simple example can illustrate.

Suppose that in a family of two-parents and one child, each parent earned $25,000 per year in 1975, for a total family income of $50,000. Suppose that the parents real incomes remained unchanged, but that the child moved out by 1994, and formed a separate household, also with real earnings of $25,000. A number of seemingly simple statistics can be used to present quite different impressions of trends in economic well-being:

(a)   average earnings per employed person remain unchanged (at $25,000) over this 19 year period;

(b)   since three people used to share a real income of $50,000, but total income is now $75,000, per capita real incomes have risen by 50% (from $16,666 to $25,000);

(c)   since one household (income = $50,000) has become two households (income = $50,000 and $25,000), average household income has fallen by 25% (from $50,000 to $37,500).

Note also that in this example, inequality in the distribution of earnings among employees remains unchanged, while inequality in the distribution of individual income among persons decreases and inequality in the distribution of household income increases.

Earnings per worker, income per capita and household income might all seem like plausible simple statistics to describe trends in economic wellbeing - but as this example may illustrate, when households change in size, composition and/or labour force participation, such statistics may simultaneously go up, down or sideways.

In principal, the methodology of equivalence scales is intended to adjust trends in income to take account of the economies of scale in household consumption which influence economic well-being, but the choice of equivalence scale may, in principle, also matter. According to the OECD equivalence scale, the number of equivalent adults in the 1975 family of 2-parents and one child is 2.2, implying an equivalent income of each family member of $22,727. However, the equivalence scales implicit in the low income cut-offs of Statistics Canada embody considerably more economies of scale in household consumption, and would count the three-person family of 1975 as having only 1.72 equivalent adults, which implies a 1975 equivalent income of $29,069 for each family member. In 1994, the OECD equivalence scales would count the two-person household as equivalent to 1.7

adults, while Statistics Canada's estimate would be 1.36. (Both count a single unattached individual as 1.)

It is reasonable to think that parents would be somewhat better off when their $50,000 family income is shared among only 2 people, rather than 3. For the parents, in this example, the choice of equivalence scale affects the measured *level* of wellbeing but makes little difference to the trend rate of change. The OECD equivalence scale would imply that the equivalent income of the parents has risen from $22,727 to $29,411 (an increase of 29.4%) while the Statistics Canada scale would imply that equivalent income has risen from $29,069 to $36,764 (an increase of 26.4%).

For children who move out on their own, the choice of which equivalence scale to use to estimate their well-being as a member of a family, compared to their well-being living alone, can potentially be considerably more important, since it is possible for both the level and qualitative direction of change to be affected. According to the OECD equivalence scale, in this example the 1975 equivalent income of the child was $22,727 (as a member of a 3-person family) while in 1994 they earned $25,000 (as a one person household) - an increase in economic well being of 10%. Since the OECD scale has implicit in it relatively small economies of scale, it tends to produce a relatively low estimate of child well-being as a member of a larger family, and because it produces a low estimate of the starting point, it tends to indicate larger well-being increases over time. However, by the Statistics Canada equivalence scale, the equivalent income of the child, as a member of a 3-person family in 1975, was $29,069 while their income on their own in 1994 was $25,000, implying a 14% decline in economic well-being. Clearly, it is possible for the choice of equivalence scale to matter a great deal for estimates of the trend in cohort economic well being - hence this paper examines the robustness of estimates of trends in cohort well being by presenting estimates based on both the

OECD and Statistics Canada scales. [In practice, however, similar qualitative results are obtained with both scales.]

3. Results

Measurement of the level and trends of average equivalent income and the distribution of equivalent income is potentially sensitive to seemingly innocuous "technical" decisions such as the choice of equivalence scale, the income concept under examination, the definition of the poverty line used and the measure of inequality adopted. This paper has therefore adopted a "belt and suspenders" philosophy and in Appendix 1, Tables 1.1 to 1.5 report the results obtained for alternative choices in each respect. Patterns in the data are, however, most easily perceived using graphical methods.

3.1   Trends in "Average" Equivalent Income

During the 1980's, as Appendix 1 and much other research (- e.g. Beach and Slotsve, 1996) indicates, before tax average incomes in Canada rose more rapidly than after-tax incomes. Rising levels of income taxation were driven partly by a shift in the tax base of the federal government from corporate taxation to the taxation of consumption and income, and partly also by an increase in the aggregate tax load, as Canadian governments attempted to bring their deficits under control. The 1990's have in addition seen a trend to decreased "generosity" of transfer programmes. The trend in average after-tax equivalent income is, therefore, particularly interesting. Charts 1 and 2 follow the average fortunes of each birth cohort of Canadians as they aged over the period 1975-1994. Charts 3 and 4 decompose the trend in average equivalent income into the trends in the average

equivalent income of the top 20%, middle 60% and bottom 20%. By plotting average income against

the mid-point of each age interval, charts 1 to 4 indicate both the "average "experience of each cohort

over time, and how it compared to the income of other cohorts, at a similar age.

As Table 3 has indicated, the average family size of all cohorts shrank over the 1975-1994

period, but babyboomers were at a stage in their life cycle (aging from 16-29 to 35-48) in which the

changes in the average family size were relatively modest, while "Generation X" was more often

establishing an independent household, often by splitting from the households of the pre-boomer

generation.

Since Generation X experienced large declines in the average size of the families to which

they belong, the choice of equivalence scale effects both the calculation of average equivalent income

levels and the perceived trend in average cohort equivalent income. The much greater economies of

scale in household consumption implicit in the Statistics Canada equivalence scale imply a larger fall

in standard of living, ceteris paribus, as average family size shrinks - and this shrinkage in family size

is particularly important to the non-boomer cohorts. With the exception of the 1989-1994 period,

the visual impression of chart 1 (based on the OECD equivalence scale) is of fairly robust growth in

average equivalent incomes from 1975 to 1989, while the impression left by chart 2 (which uses the

Statistics Canada equivalent scale) is of a much more anaemic growth in average equivalent income.

Charts 3 and 4 are useful visual reminders of the limitations of looking at over-all averages,

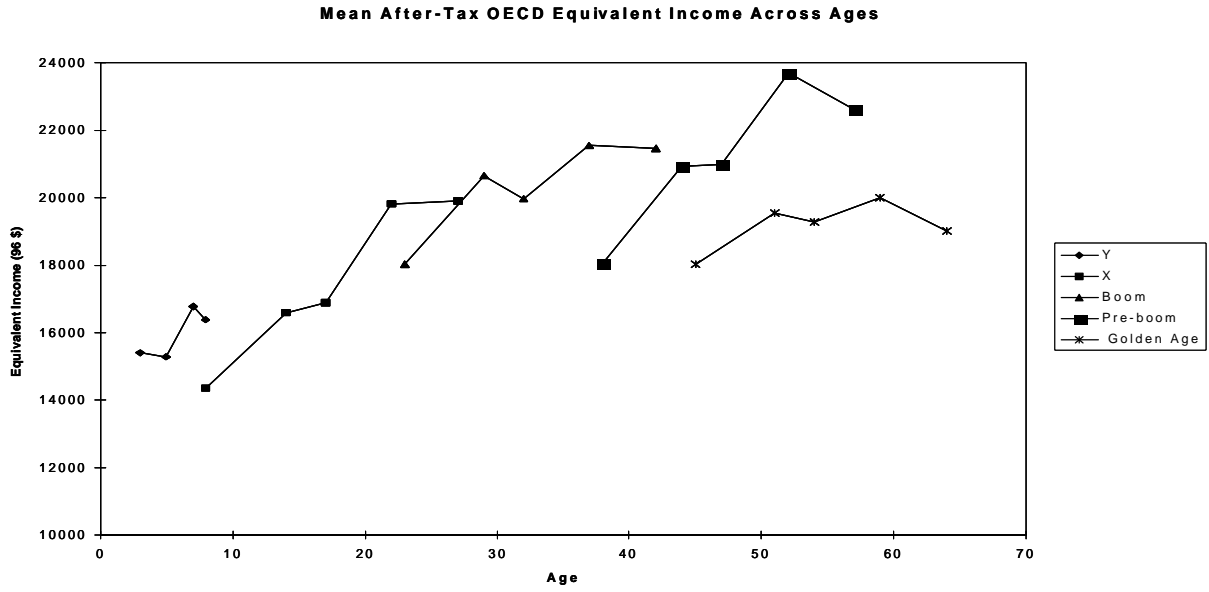since they indicate that the growth in the average income of the top 20% up to 1989 is much more

Mean After-Tax OECD Equivalent Income Across Ages

Chart 2
Chart 3

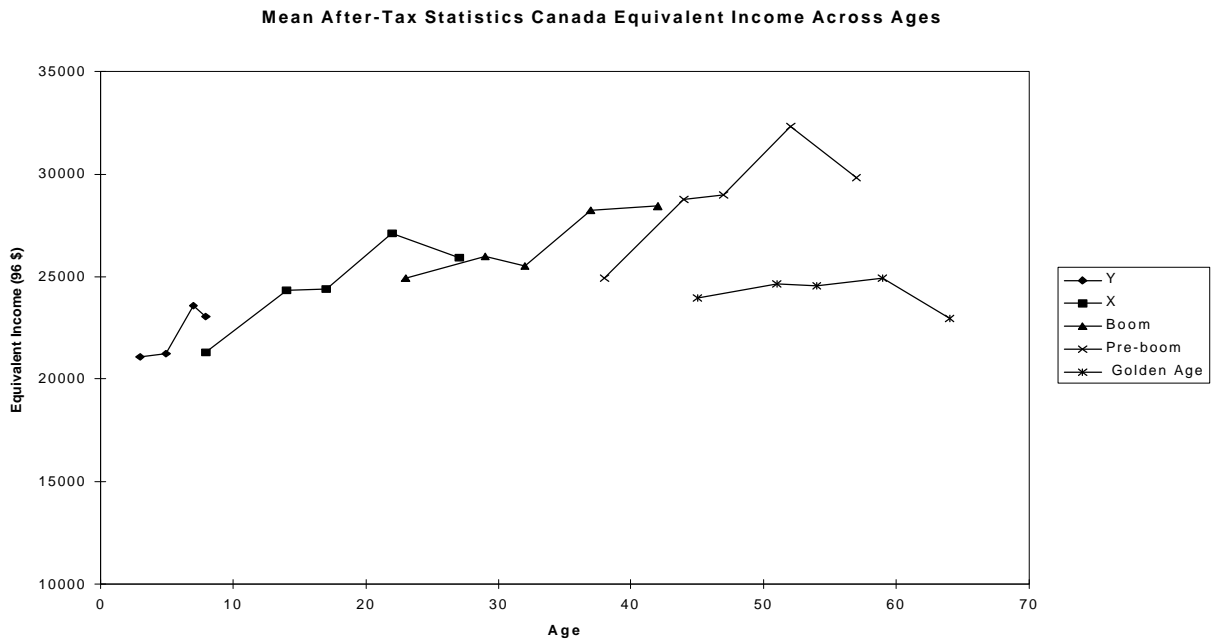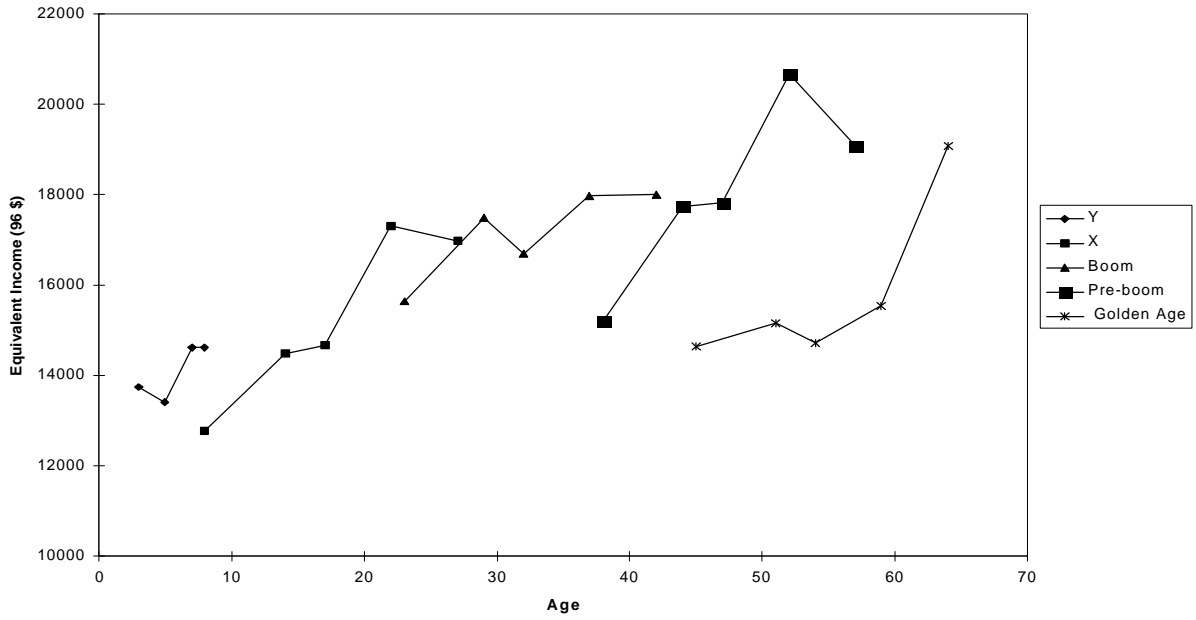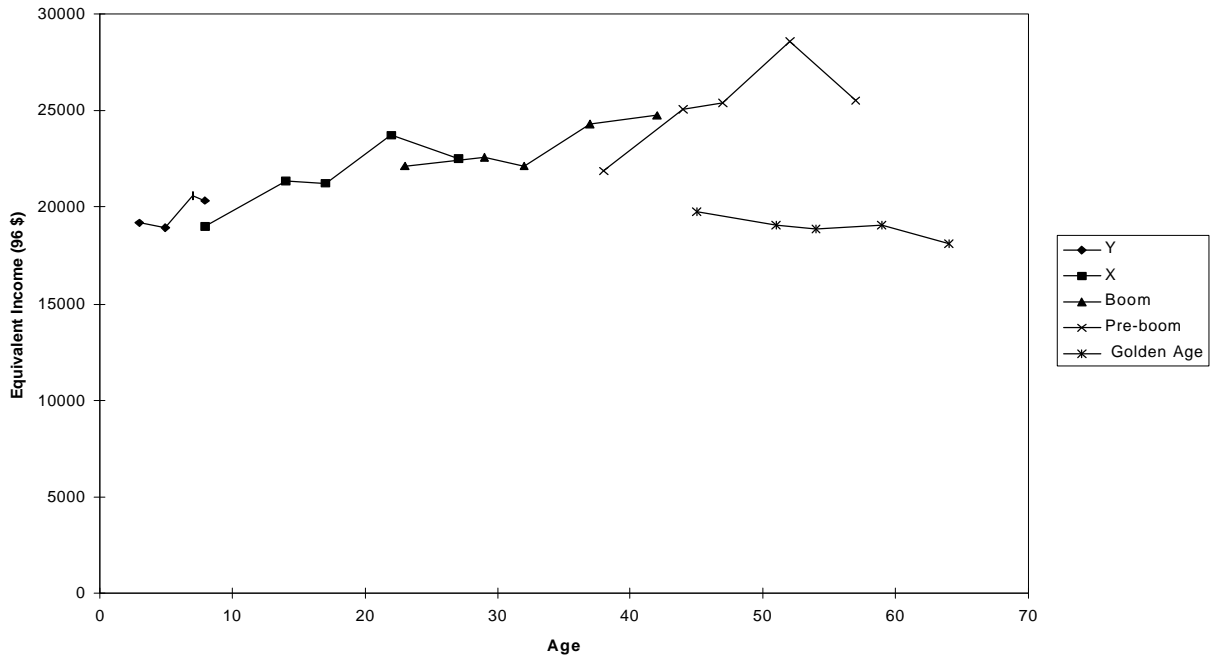**Mean After-Tax Statistics Canada Equivalent Income Across Ages**

Chart 4

Mean After-Tax OECD Equivalent Income of the 5th Decile Across Ages

Mean After-Tax Statistics Canada Equivalent Income of the 5th Decile Across Ages

noticeable than trends to increased well being among the less well-off. Indeed, the bottom quintile

of all chorts of the non-elderly has essentially no increase in real equivalent income over time.

However, if the basic question is "has the growth of average incomes stopped?", a consistent theme

of charts 1-4 is the difference between the 1975-1989 experience, and the 1990's. The impact of the

recession of the early 1980's shows up in the stagnation of average income growth for all cohorts

from 1981 to 1984 (and a short, sharp drop for the baby-boom cohort) but the economic

expansion of 1984-1989 clearly benefitted all cohorts. Indeed, it is notable that the rate of growth

of average equivalent income in the babyboom cohort appears to lag the rate of increase of incomes

of both the preboomer cohort and Generation X during the 1984 to 1989 expansion.

 However, by all measures the 1990's are a new ball game. Declines in average equivalent

income are widespread and although the babyboom cohort continues to earn more, on average, than

the preboomer cohort at a similar age, Generation X - who are now in their twenties and early thirties

- have average real equivalent incomes which are no greater than that of the preceding generation,

at a similar age. In terms of either "how well has my generation done, compared to its own

experience in the recent past?" or "how well has my generation done, compared to other generations

at a similar age?" the 1990's have been a disappointing decade.

3.2   Trends in Economic Inequality

        Charts 5 and 6 examine trends in the inequality of the distribution of equivalent money income

among individuals, by birth cohorts and for all Canadians. With the exception of the oldest cohort,

born before 1930, there is little difference in the point estimates[9] of intra-cohort inequality and little

evidence of a long run secular trend. The influence of the recession of the early 1980's, the expansion

of the 1984 to 1989 period and the contraction of 1989-1994 show up in the fluctuations of both the

Theil and the Gini index, but over the 1975 to 1994 period as a whole there is little change - with the

clear exception of the "golden age" cohort.

Since a strong downward trend in intra-cohort inequality is clearly evident among the cohort

born before 1930.[10],   a closer look seems in order. Figure 2 presents two graphs of kernel density

estimates[11] of the distribution of equivalent income among the pre-1930 cohort. In 1975, this cohort

included all those aged over 45, and therefore reflected the incomes of both the retired and those in

their peak earning years. By 1994, this cohort is all aged over 64, and is almost entirely retired. The

transition into retirement produces a substantial fall in the income of upper deciles while the eligibility

of senior citizens for transfer payments under the Canada Pension Plan, Old Age Security and the

Guaranteed Income Supplement places a floor under the real incomes of the senior citizens - the

result is a very substantial compression of the distribution of income of this cohort.

However, although there has been an increasing level of discussion in Canada concerning

issues of inter-generational equity, the differences in average equivalent income between cohorts are

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[9]The standard error of measures of inequality, which are based on a *sample* drawn from the population and are therefore susceptible to sampling variation, can be assessed using bootstrap methods - see Xu and Osberg (1997).

[10]Chart 2 also indicated, for the golden age cohort, a significant difference between the experience of the fifth decile and of the average income of all cohort members, over the period 1989-1994.

[11]Cowell et al (1996) provide a nice discussion of kernel density methods. Burkhauser et al (1996) and DiNardo et al. (1996) are examples of their use.

Chart 5

Inequality of the Equivalent Income of Individuals
Gini and Theil Coefficients
Statistics Canada Equivalence Scale - After Tax Money Income

Chart 6

Inequality of the Equivalent Income of Individuals
Gini and Theil Coeficients
OECD Equivalence Scale - After Tax Money Income

Figure 2

Golden Agers – Before-Tax OECD Equivalent Income
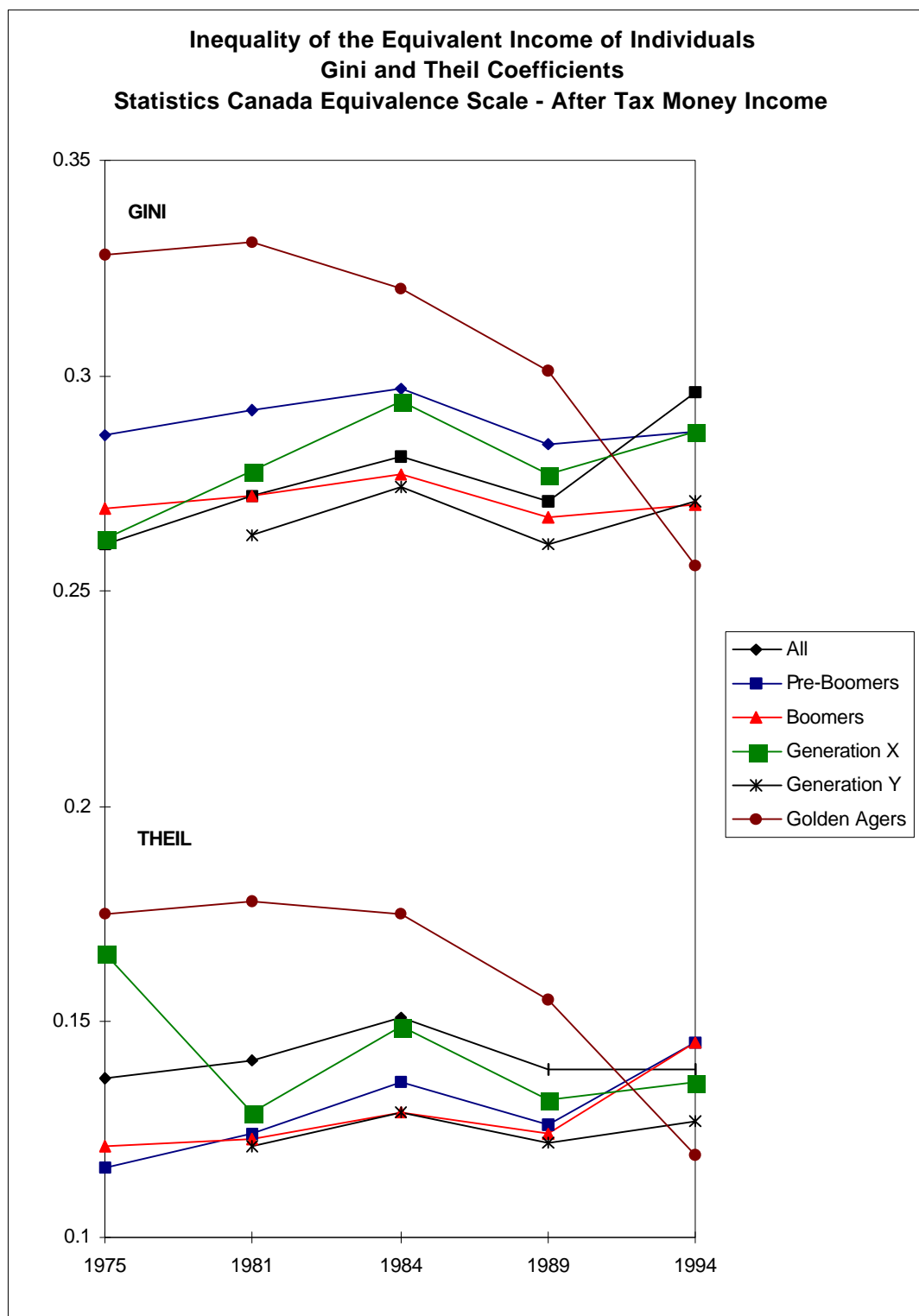

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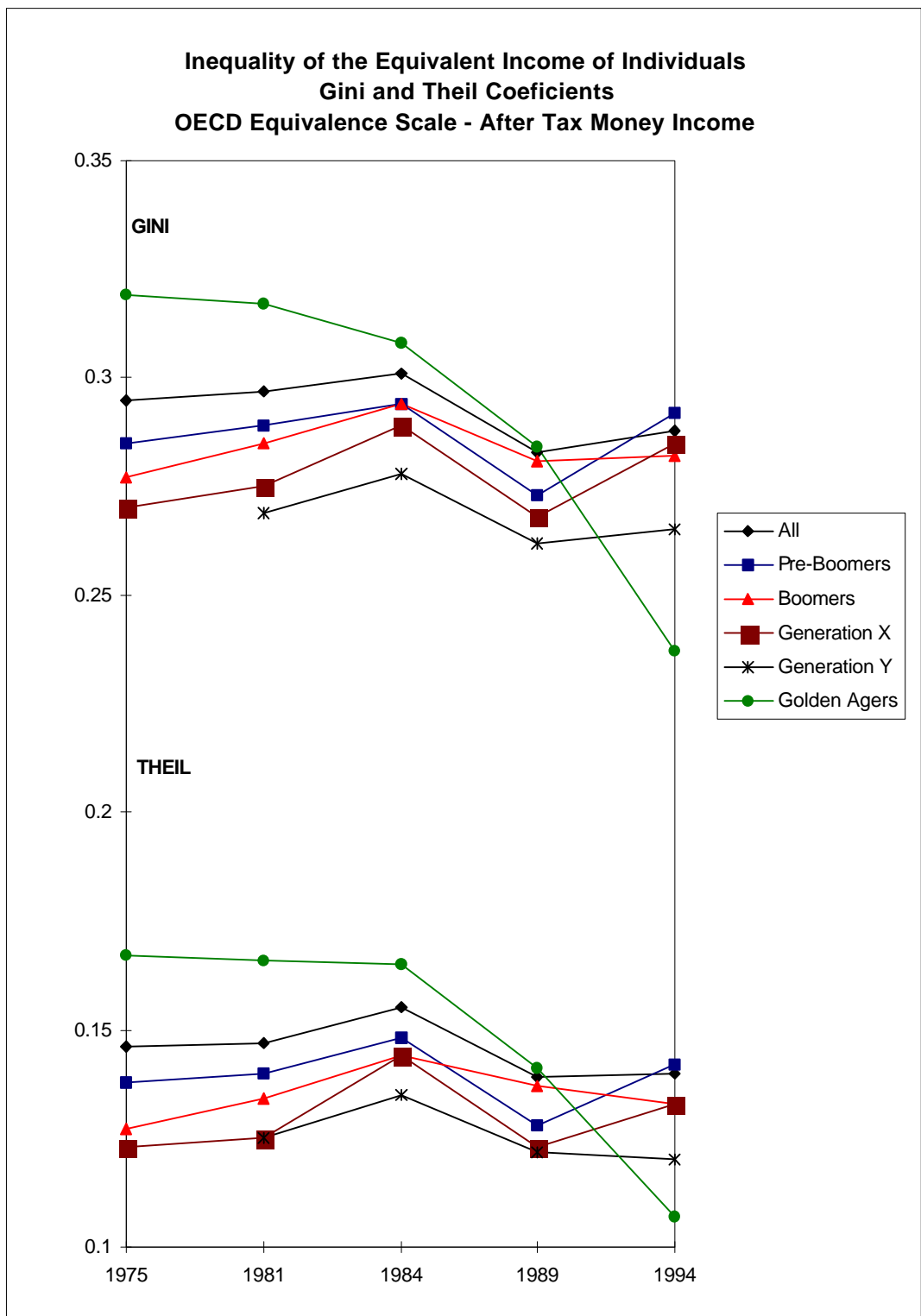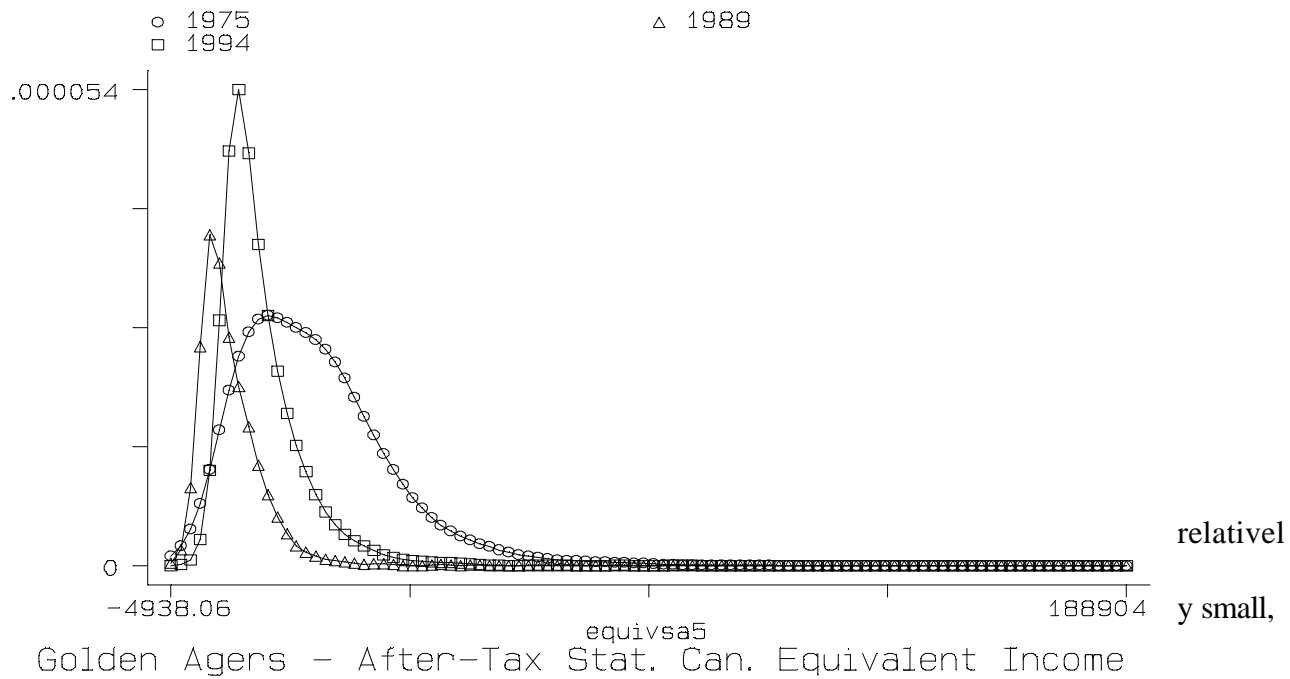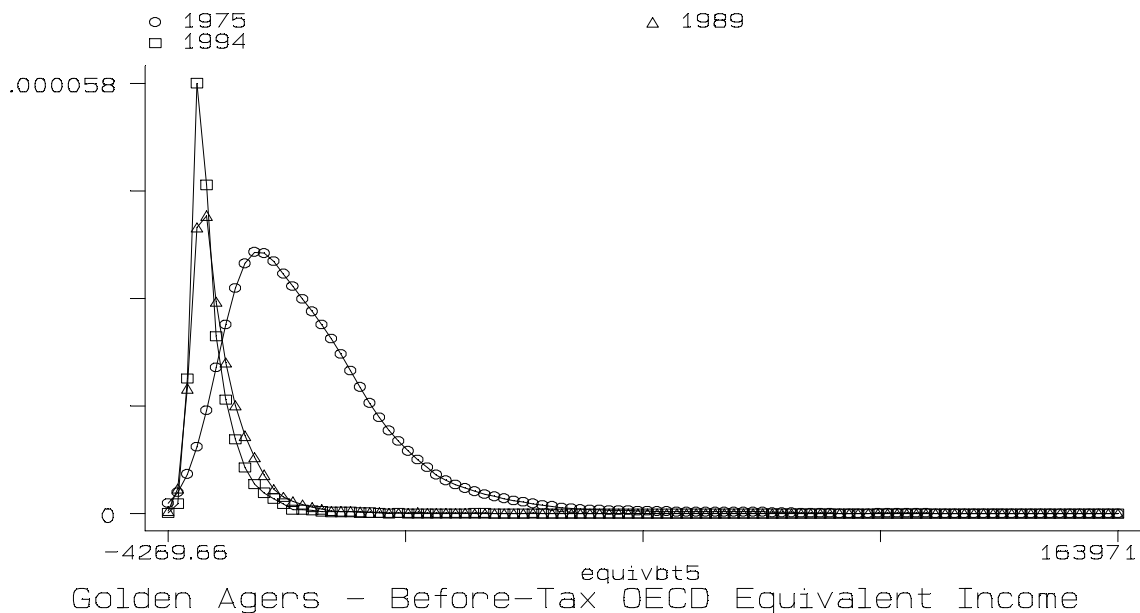
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Golden Agers – After-Tax Stat. Can. Equivalent Income

compared to the dispersion of incomes within cohorts. Among babyboomers and Generation X, for example, the 90/10 ratio of the average equivalent income of the top decile to the average equivalent income of the bottom decile is over nine (in pretax equivalent income, according to the OECD equivalence scale) but the ratio of the average equivalent incomes of the two cohorts is 1.1. Table 4 uses the fact that the Theil index of entropy is additively decomposable into the proportions of aggregate inequality which are due to within group inequality in income and the proportion due to the differences between groups in average income. Although there is some upward trend in the proportion of aggregate inequality of equivalent income in Canada which is due to between group differences, in all cases over 95% of aggregate inequality in the distribution of equivalent income among individuals can be ascribed to intra cohort inequality.

Table 4
Decomposition of the Theil Measure of Inequality
After Tax Money Income

	OECD Equivalence Scale			Statistics Canada Equivalence Scale		
	Theil	Percentage Within Cohort Groups	Percentage Between Cohort Groups	Theil	Percentage Within Cohort Groups	Percentage Between Cohort Groups
1975	0.145	96.577	3.423	0.135	98.438	1.562
1981	0.146	95.904	4.096	0.140	97.500	2.500
1984	0.154	96.367	3.633	0.149	97.371	2.629
1989	0.136	95.591	4.409	0.136	95.903	4.097
1994	0.136	95.328	4.672	0.135	97.354	2.646

3.3   Trends in Poverty

It is probably not surprising that alternative definitions of the poverty line affect the measured level of poverty rate, but it is disconcerting to find that the definition of the poverty line can also affect perceived trends in the rate of poverty. As Appendix Table 1.1 indicates, by the Low Income Cut Off measure of Statistics Canada, poverty in Canada increased from 12.9% in 1975 to 16.7% in 1994. However, if the poverty line is drawn at half the median equivalent income of all Canadians, it could be argued that the poverty rate fell marginally over the 1975 to 1994 period.[12]   T h e definition of the poverty line is particularly important to perceptions of poverty among senior citizens. Whether one views poverty among the cohort born before 1930 as "high and stable" or "low and declining rapidly" depends entirely on the income concept used, the equivalence scale adopted and the poverty line (LICO or one-half the median)adopted. Using pre-tax income and the Statistics Canada equivalence scale, the poverty rate among senior citizens in 1994 was 18.2% according to the LICO definition, but 8.5% using the one-half the median criterion. In the same year, however, the OECD equivalence scale and use of after-tax income as the measure would produce a rate of poverty among senior citizens of 27.6%, according to the LICO conception, but only 1.5%, according to the one-half the median definition. The basic moral appears to be that when the distribution of income becomes highly compressed, as indicated by the kernel density estimates, small variations in

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[12]Both the level of poverty, and the size of its decline is somewhat sensitive to the income concept adopted (pre or post income tax) and the equivalence scale used (OECD or Statistics Canada). For all Canadians, comparing 1975 and 1994, and using pre-tax income and the Statistics Canada equivalence scale, the decline in the poverty rate is 13.4% to 13%. Using post-tax income and the Statistics Canada equivalence scale the decline is from 11.5% in 1975 to 9.6% in 1994, while the OECD scale produces an estimated drop from 14.1% to 13.0% (pre-tax income) and 11.9% to 10.1% (post-tax income).

the definition of the poverty line can have large consequences in the percentage of the population identified as poor.
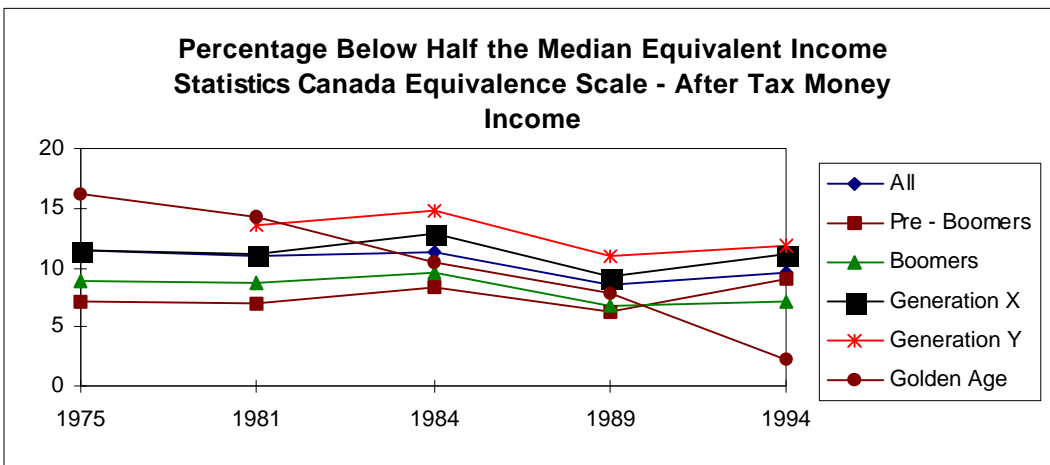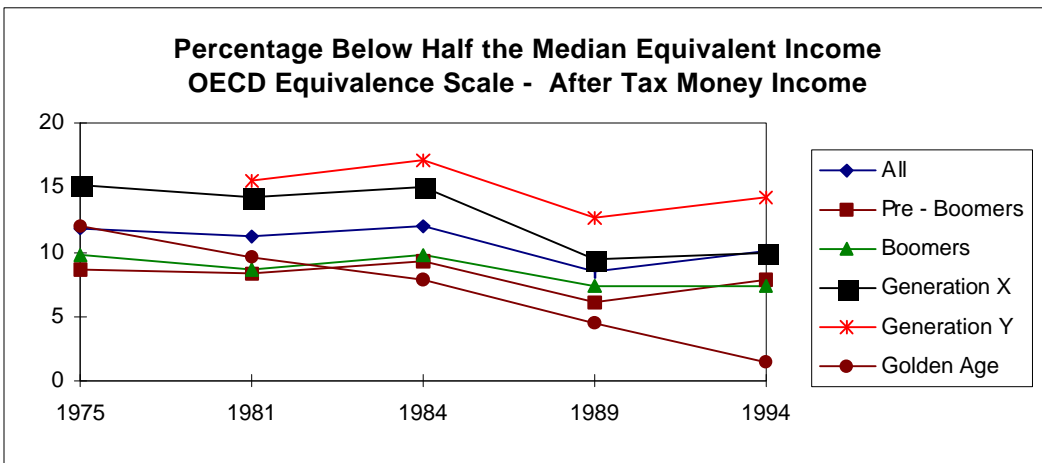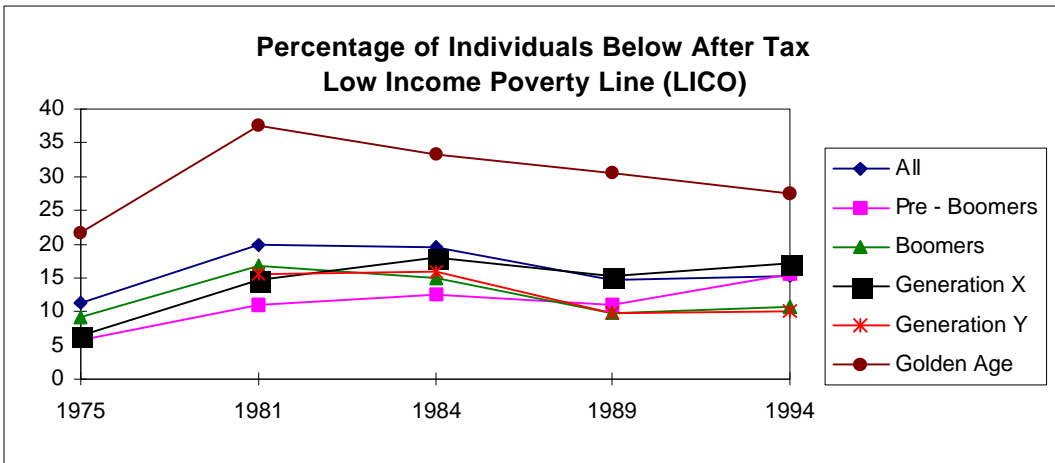
With the exception of the oldest cohort, however, there is no substantial secular trend in poverty rates to be seen in Chart 7. The poverty rate among all the younger cohorts does fluctuate with the business cycle, but each cohort ends the period with roughly similar poverty to its initial level. By the criterion of one-half the median equivalent income, it is notable that poverty is highest among the children born after 1975, compared to all other cohorts.

4.   Caveats and Conclusions

Although the calculation of equivalent income represents an important improvement over average income per household, or the distribution of per capita income, the average equivalent income of each household member is <u>not</u> a full measure of economic well-being. One must underline that this paper has ignored inequalities within the family and has <u>assumed</u> that all family members receive the same equivalent annual income. In common with other calculations of equivalent income, no account has been taken of personal characteristics (e.g. disability) which might reasonably be expected to influence a family's cost of living and the equivalence scale has not been allowed to vary with income (although it might be argued that the elements of the family budget that have greatest economies of scale - such as housing or food - are of greatest relative importance to low income families).

This paper also takes family size as exogenous to trends in equivalent income. In a cohort context, the equivalence scale adjustment for family size is particularly problematic when

Chart 7

Percentage of Individuals Below After Tax Low Income Poverty Line (LICO)

Legend: All, Pre - Boomers, Boomers, Generation X, Generation Y, Golden Age

Percentage Below Half the Median Equivalent Income OECD Equivalence Scale - After Tax Money Income

Legend: All, Pre - Boomers, Boomers, Generation X, Generation Y, Golden Age

Percentage Below Half the Median Equivalent Income Statistics Canada Equivalence Scale - After Tax Money Income

Legend: All, Pre - Boomers, Boomers, Generation X, Generation Y, Golden Age

considering the economic well being of adult children who reside with their parents. In actual life, the objective needs, as well as subjective expectations, of twenty six year olds are clearly greater than those of six year olds - but the family size adjustment used here takes no account of age. Nor is there any recognition of any possible disutility of continuing to depend on parental income - to the extent that adult children in the 1990's are forced by economic circumstance to stay at, or return to, the parental home, this paper will over-estimate the well being of Generation X. As well, to the extent that younger Canadians are delaying family formation, or reducing their child bearing, because of economic insecurity, this paper's calculation of equivalent income will overstate their economic well being.

As well, the calculation of equivalent family money income is based on the SCF definition of measured family money income, which ignores the economic well-being entailed by the ownership of wealth, or the receipt of in-kind income. In the comparison of birth cohorts of Canadians, a particularly important issue is the imputed rent and capital gains arising from home ownership. The cohort of Canadians who were fortunate enough to purchase their homes during the era of low real interest rates and low housing prices (i.e., pre-1975) benefitted significantly from the capital gains in housing equity of the late 1970's and early 1980's. However, the stagnation of real housing prices since the early 1980's has meant that younger cohorts have not received comparable capital gains[13]. As well, older cohorts who have retired their mortgage debt benefit annually from a stream of housing services, while most of the members of the younger cohorts are either paying rents or mortgages.

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[13]Part of capital gains will presumably be spent on current consumption and part will pass by inheritance to subsequent generations. Evaluation of the impact on measured intergenerational inequality of the omission of capital gains must therefore consider the mediating role of intergenerational transfers within families.

The calculation of household money income also ignores the opportunity cost of the time supplied by households to the paid labour market in order to earn income. Over the 1975 to 1994 period, a substantial increase in labour force participation rates among married women meant that although families had more money income, they also have had less leisure, and less opportunity for home production. Since the change in labour force participation rates among married women with young children has been particularly dramatic, omission of the opportunity cost of time from this paper's calculation of trends in equivalent income is likely to be of greatest importance for the perceived well being of younger cohorts.

Finally, the period of 1975 to 1994 has seen a substantial increase in economic insecurity, which is greatest among youth (see Osberg et al, 1994a). Canadians who entered the labour market during the 1960's and 1970's entered a labour market in which unemployment was relatively low and jobs with contractual guarantees of continued employment were relatively abundant. After 1971, the potential costs of unemployment were cushioned by a relatively generous unemployment insurance system. In the 1990's, however, double digit unemployment rates have become the norm, jobs with employment security have become rare[14] and unemployment insurance has been drastically cut in benefits, coverage and eligibility. Many older Canadians have by now worked their way up the seniority ladder into positions of relative job security, but younger Canadians are highly exposed. The combination of higher unemployment, decreased private sector guarantees of job security and

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[14]In fact, between March 1990 and March 1997, all the net growth of employment was in "self-employment."

decreased income protection from unemployment insurance has produced a pervasive sense of economic insecurity in the Canadian labour force.[15]

In successive cross-sectional samples from the population, such as the SCF, one cannot observe either the ex-post realized fluctuations of money income over time or any ex-ante anxieties about possible future income fluctuations. Nevertheless, risk averse individuals are willing to pay an insurance premium for greater income certainty, and rising levels of income uncertainty can be expected to have a utility cost - which this paper does not attempt to measure.[16]

Implicit income from home ownership, increasing time pressures on Canadian families and the greater economic insecurity of a labour market environment of higher unemployment and decreased social protections - all three issues represent important aspects of economic well being which are unmeasured in this paper's calculation of trends in the distribution of equivalent income.

Although the distribution of equivalent money income is only part of the wider issue of the distribution of economic well being, the results of this paper would indicate that in terms of annual equivalent money income, inter-generational inequality in Canada is a rather small fraction (less than 5%) of aggregate inequality. It would therefore be useful to reorient discussions of inter-generational equity, and policies to deal with inter-generational inequities, to focus on those

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[15]EKOS Research Associates has repeatedly asked a sample of Canadians to agree or disagree with the statement "I feel I have lost all control over my economic future." Although this must be considered a toughly worded statement, the percentage agreeing was 43% in February 1994, 47% in November 1994 and 48% in August 1995. In April 1996 42% agreed. (A further 16% neither agreed nor disagreed in April of 1996 - leaving only 42% of Canadians who were willing to say that they felt they had any control at all over their economic future). The percentage agreeing with the statement. "I think there's a good chance I could lose my job in the next couple of years" was, at the same dates, 41%, 42%, 44% and 44%. EKOS Research Associates (1996:82,84).

[16]See Osberg, Erksoy and Phipps (1994a, 1994b) for a model of the change in certainty equivalent income associated with greater income risk due to higher unemployment and decreased unemployment insurance coverage.

dimensions of economic well-being (e.g., wealth, security) which do have an important inter-generational dimension.

As older cohorts of Canadians age, and move from their peak earning years into retirement, the intra-cohort distribution of equivalent income becomes highly compressed. This compression is due to both private sector influences (as earnings are replaced by pensions at the top end of the distribution) and public sector policies (as Canada Pension Plan, Old Age Security and the Guaranteed Income Supplement maintain incomes at the low end).[17] The compression of the distribution of annual equivalent money income among senior citizens implies, however, that perceptions of the level and trend of poverty among senior citizens is remarkably sensitive to measurement choices - creating a significant dilemma for public policy formation. Issues of "intergenerational equity" are clearly moving onto the social and political agenda and a major element of the debate is whether or not poverty among the elderly remains a significant problem - but the answer depends very much on how one measures poverty. Trends in the prevalence of poverty in the wider population are also somewhat sensitive to measurement choices (especially the choice of equivalence scale) but to a far lesser extent.

With respect to inequality in the distribution of equivalent money income among individuals, there is no clear trend in intra-cohort inequality over the 1975-1994 period for younger cohorts of Canadians. Although the rate of increase in the "average" income of birth cohorts is somewhat sensitive to the equivalence scale used, there is a clear upward trend in average cohort income until the 1990's. For all younger cohorts, however, the 1990's have been a disappointing decade.

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[17]In 1994, 54.5% of Canadians over 65 depended on OAS, GIS and CPP for 50% or more of their incomes.

To return, therefore, to the motivating question of this paper - "why has there not been more discontent with the distribution of income in Canada?" - the answer appears to be that inequality within working age cohorts has not changed much and adverse outcomes in growth of average incomes are a 1990's phenomenon. Presumably, the extent of discontent with Canada's distribution of income that is observed in future years will depend heavily on whether the trend in average incomes continues to be disappointing.[18]

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[18]In 1995, average real family income remained virtually unchanged from 1994. Transfer payments fell by 3.8% and average family earnings fell by 0.8% but real investment income rose. By the LICO criterion, poverty rose from 17.1% in 1994 to 17.8%. See Statistics Canada - The Daily Dec. 11,1996

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