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Changing Income Inequality and Immigration in Canada 1980-1995

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SEDAP Research Paper No. 85

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CHANGING INCOME INEQUALITY AND IMMIGRATION IN CANADA 1980-1995

by

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Abstract

While there is a general consensus that income inequality has increased in most developed countries over the last two decades, the analytical focus has been at the national scale. However, these increases in inequality have not been uniform across different segments of society, either in terms of social group or geographic region. In particular, the high levels of immigration to metropolitan Canada have contributed to growing inequality. Using micro-level data on household income from the 1981,1986,1991 and 1996 censuses, this paper identifies the role of immigration and its differential impact on metropolitan and non-metropolitan areas. The impacts accelerated during the first half of the 1990s when immigration remained high yet the economy slowed. The evidence suggests that the overall impact of immigration is a relatively short-run phenomenon as recent immigrants take time to adjust to the labour market. If recent immigrants are excluded, inequality is still increasing, but at a slower rate, especially in the largest metropolitan areas.

CHANGING INCOME INEQUALITY AND IMMIGRATION IN CANADA 1980-1995

1. INTRODUCTION

Popular wisdom asserts that the gap between rich and poor Canadians has increased substantially in the last two decades. This is not just attributable to increases in poverty levels, such as those noted in the United Nations measures of national quality of life (UNDP, 2001). The proportion of the population enjoying very high incomes has also grown. Such changes have more than anecdotal importance. The degree of income inequality has policy implications, both in terms of its links to overall need for public assistance and services and the redirection of resources to less well-off populations and geographic areas. Furthermore, increased income inequality has deeper social implications. Redistributive mechanisms in a society may reflect or encourage a sense of common destiny and substantive equality, linking inequality to social cohesion and stability (Osberg 2000). Relative inequality, rather than the specific amounts people earn, may be related to worsening future mortality and morbidity (Wilkinson 1996), although this linkage is subject to much debate (Deaton and Paxson, 2001; Lynch and Davey Smith, 2002) Lastly, there may be a reinforcing relationship between more equal income distributions and economic growth, countering the trade-off between equality and efficiency that previously dominated conventional economics (Osberg 1995).

In a previous paper we documented the basic changes in the social and geographic dimensions of income inequality in Canada from 1980 to 1995 (Moore and Pacey, 2001).

Nationally, income inequality among Canadian households increased by 11.7% between 1980 and 1995 and by 6.4% between 1990 and 1995 using Theil's information theoretic measure of inequality (1979). The major changes in income inequality are concentrated among those in the labour force years, while the social benefits and guaranteed pensions of many older Canadians have provided a significant protection and contributed to a minor reduction in income inequality in this group in the later years of the period. Beyond the national level, inequalities in household income at the provincial and metropolitan scales vary considerably, and in some cases actually lessened during the 1980s. Where we have data for individual metropolitan areas, increases in household income inequality are also strongly focused on major metropolitan areas with Toronto leading the way, while small urban areas and rural parts of Canada have experienced much lower increases.

The strong metropolitan focus of increasing income inequality leads to specific questions about the role of immigration. During the last two decades, immigration has been a major contributor to population growth, although the annual variations have been substantial and there has been a significant and growing concentration in metropolitan areas, particularly in Toronto and Vancouver (Figure 1). Toronto and Vancouver have also been the locus of the largest increases in income inequality. In the U.S., Reed (2001) has shown that recent immigrants have contributed up to 25 percent of recent increases in income inequality, a situation which has been attributed to the significantly lower levels of education among immigrants than the native-born. The immigrant context is somewhat different in Canada, where immigration is relatively twice as large as it is in the United States and the immigrant population is better educated than the native born population.

The focus of this paper is on the role played by immigrant-led households in changes in income inequality among Canadian households and its impact geographically on the variation in

income inequality between 1980 and 1995. The next section considers the measurement of income inequality in the Canadian context. Section 3 presents the results of empirical analysis of the structure and change in inequality in household income between 1980 and 1995 using data from the 1981, 1986, 1991 and 1996 Census of Canada Public Use Microdata Files (PUMF) for households[1]. The final section discusses the broader implications of these findings.

2. *MEASURING INEQUALITY*

While the Gini coefficient is the most commonly-used inequality measurement (Wolfson, 1998), a problem arises if one wishes to disaggregate the structure of inequality across population subgroups, whether defined socially or geographically. The Gini is not decomposable (Cowell, 1995). Two strong candidates exist among decomposable indices: the Theil index (Theil, 1979) which is based on information theory and which measures the departure of the income distribution from the a state where all units have the same income; and the Atkinson index (Atkinson,1970) which measures the difference between observed social utility and the potential social utility if income were distributed equally. In our research we calculated all three measures, but, with the exception of an initial comparison, we only present results for the Theil index. The Theil values are intermediate between the other two and the rank ordering of all results are virtually identical across the three measures. Equations [1] – [3] present a consistent formulation of the three measures.

(i) The Theil Index:

For a population of households with income y_i, $i = 1,..,n$ and weight w_i, let $f_i = w_i/N$, where $N = \sum_i w_i$. The arithmetic mean of income is m. Theil's measure of inequality T is given by:

[1] Note that income reported in the Census is for the prior calendar year. Thus 1980 income is reported in 1981 and so forth.

$$T = \sum_i f_i.(y_i/m).\log(y_i/m) \qquad [1]$$

(ii) The Gini Coefficient:

The Gini coefficient, **G,** is defined by

$$G = 1 + 1/N - 2mN^2.\ \sum_i (N - i + 1).\ y_i \qquad [2]$$

(iii) The Atkinson Index:

The Atkinson coefficient[2], **A**, is given by

$$A = 1 - 1/m.\ \sum_i f_i \log(y_i) \qquad [3]$$

Both Theil and Atkinson can be decomposed into within and between-group components using the methods described in Cowell (1995) and implemented in the STATA computer package by Jenkins (2001).

Inequality research has utilized a number of different income measurement concepts: gross household income (MacLachlan and Sawada 1997), household post-tax net income (Smeeding and Gottschalk 1999), gross family income (Levenier et al, 1998; Zyblock and Lin 1997), and individual income (MacPhail 2000). While the choice of income definition is somewhat dependant on the availability of data and the scale of study, it also makes a difference in the interpretation of inequality results. In this paper, we follow recent practice in using household rather than individual income and, because we use the Census of Canada Public Use Microdata files (PUMF) we are restricted to using pre-tax incomes. We use the PUMF files because they are much larger than the Survey of Household Spending files (SHS), which do contain after-tax

incomes, and the size of the PUMF files permits disaggregation by social characteristics and, more importantly, by metropolitan area. We note, however, that analysis of the SHS at the national level shows that, although inequality is lower using after-tax than before-tax income, the trends are virtually identical (Moore and Pacey, 2001) such that inferences regarding the structure of change in inequality as measured here will be relatively unaffected by using before-tax as opposed to after-tax income.

Measures of inequality are indicators of the differentials in financial circumstances under which people live. If this is of concern, then households of different sizes with the same income are not equally well off. Larger households need more income to sustain the same living standards but this is not a linear relationship. There are many schemes to 'equivalize' income, some of which take into account the detailed composition of the household as well as size (Coulter et al., 1992). The simplest approach is to create the equivalized income (EI) for each household, where

$$\mathbf{EI = Total\ income\ /\ sqrt\ (Household\ Size)} \qquad [4]$$

When the income inequality measures are calculated, each value of EI is then weighted by the corresponding household size (Cowell, 1995, p.98). The resulting inequality measures are then defined among persons rather than households.

For each census year, 1981, 1986, 1991 and 1996, we estimated the Gini, Theil and Atkinson measures for equivalized household incomes for those households headed by individuals over 25. Those under 25 were excluded as the role of student-headed households is ambiguous and we could not explicitly identify students in 1981. In each year we also

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[2] The Atkinson coefficient is a specialized case of the generalized coefficient with the income aversion coefficient equal to 1 (Cowell, 1995). These formulae are based on the notes associated with the *Ineqdeco* module in STATA (Jenkins, 2001)

calculated the inequality measures and the between group and within group inequalities for the following disaggregation:

1. by age for those households with heads over 65 and those under 65 ;
2. by household type using the classification: single male, single female, male-headed families; female-headed families and other;
3. by immigrant status using the classification: non-immigrant, immigrant for more than 5 years; immigrant for less than 5 years;
4. by province;
5. by metropolitan area.

3. INEQUALITY AT THE NATIONAL SCALE

3.1 National and Provincial Levels

At a national scale, inequality in pre-tax household income has increased continually since 1980,

TABLE 1: INDICES OF INEQUALITY FOR EQUIVALIZED HOUSEHOLD INCOMES - CANADA, 1980-1995

	1980	1985	1990	1995
Theil	**0.183**	**0.185**	**0.193**	**0.205**
Gini	**0.330**	**0.331**	**0.336**	**0.348**
Atkinson	**0.195**	**0.198**	**0.201**	**0.221**

	Percent Change in Inequality			
	1980-85	**1985-90**	**1990-95**	**1980-95**
Theil	**1.0%**	**4.0%**	**6.4%**	**11.7%**
Gini	**0.2%**	**1.7%**	**3.3%**	**5.3%**
Atkinson	**1.6%**	**1.5%**	**9.9%**	**13.4%**

Source: Census of Canada, Public Use Microdata Files for Households 1981, 1986, 1991, 1996

although the rise has been sharper in the final five years, 1990-1995. Each of the inequality measures is given in Table 1 together with percentage change over the whole period and eachindividual five year period. The Theil and Atkinson values are larger than the Gini. The Gini is more sensitive to what goes on in the middle of the income distribution relative to the other measures which respond more to changes in the tail. This is particularly true of the Atkinson measure which is most sensitive to what occurs at the low end of the distribution. It is noteworthy that the Atkinson increases most strongly in the last five-year period, suggesting that economically disadvantaged households were affected more during the first half of the 1990s when the Canadian economy as a whole was not performing strongly. More insight is gained by looking at the actual income distributions (Appendix: Figure A1), in which inequality increases from 1980 to 1990 largely as a function of growth in the proportion of higher income households. However, between 1990 and 1995 there is a sharp move to concentrations in lower income categories, which is reflected in the noticeable increase in the Atkinson measure.

Within the overall population there are important differences in the inequality among population sub-groups. Perhaps the most important is between the elderly (those over 65) and the non-elderly reflecting the significant growth in both public and private pension support during this period. Particularly significant was the growth in Canada/Quebec Pension Plans (CPP/QPP) which provide guaranteed public pensions based on employment experience. The CPP/QPP came into force in 1966 and the early recipients were coming on stream during the 1980s. The importance of these changes is reflected in the inequality indices (Table 2) that move in opposite directions during the 15-year period for the elderly and non-elderly. For these and the remainder of the paper we present only the Theil indices as they are intermediate between the Gini and Atkinson measures, the rank ordering of the outcomes are virtually identical across all

three measures, and they are decomposable. The marked declines for the elderly mask some of the dramatic increases in inequality for the non-elderly if inequality measures are only reported for the total population.

The Theil measures allow the decomposition of inequality between different population categories. The decomposition measures the impact on overall inequality so it is sensitive to both the relative

TABLE 2: THEIL INDICES OF INEQUALITY FOR EQUIVALIZED HOUSEHOLD INCOMES BY AGE CANADA, 1980-1995

Age of Household Maintainer	1980	1985	1990	1995
Aged 25-64	0.157	0.180	0.187	0.204
Aged 65 and over	0.265	0.212	0.221	0.203
% Inequality between categories	2.7%	1.1%	0.7%	0.6%
		Percent Change in Inequality		
		1980-85	1985-90	1990-95	1980-95
Aged 25-64		14.9%	4.1%	8.8%	30.2%
Aged 65 and over		-20.1%	4.4%	-8.3%	-23.5%

Source: Census of Canada, Public Use Microdata Files for Households 1981, 1986, 1991, 1996

income distributions and the relative sizes of the population subgroups. Most decomposition produce quite small fractions of inequality attributed to between group differences (5% is large). The between group inequality for elderly/ non-elderly differences has declined consistently over the 15 years responding to the convergence of the two sets of inequality measures. What is noticeable from the changes in the overall income distributions (Appendix: Figure A2) is that

while inequality has declined it is the reduction in the proportions of elderly-led households with very low incomes which stands out. In other words, the social safety net for the elderly has been a critical contributor to declines in inequality although this does not mean that there are not still significant numbers of elderly who lie below Statistics Canada's low-income cut-off (Moore and Pacey, 2001).

We would expect the composition of inequality to reflect the differences in types of household with single individuals and single-parent families having higher degrees of inequality than other families. Unfortunately, in the household files we cannot explicitly identify single-parent families in the earlier years so we use male and female-headed families as a proxy. The decomposition of inequality over the 15 years is instructive (Table 3). There is considerable variability over both age and type of household. While older households in each category experienced declining inequality, there was a major jump in inequality among younger female-headed households between 1980 and 1985, although the between group inequality did decline. The inequality continued to rise among younger single individuals[3] throughout, with particularly sharp rises in the last inter-censal period. For the last three censuses, the percent of total inequality attributable to group differences was more than twice that attributable to the elderly/non-elderly contrast. This difference underscores the importance of disaggregating inequality by a more detailed classification which identifies the younger households as well as that of the household classes themselves.

Discussions of increases in inequality have emphasized the role played by recent immigrants (Reed, 1999, 2001), although the reasons for their impact on inequality may vary considerably between countries. In Canada, immigration sits at a relatively higher level than in

[3] In the 1990-1995 period when it was possible to exclude student-led households among the age-group 15-24, the rise in inequality was even more dramatic, increasing by 33% among young males and by 28% among females.

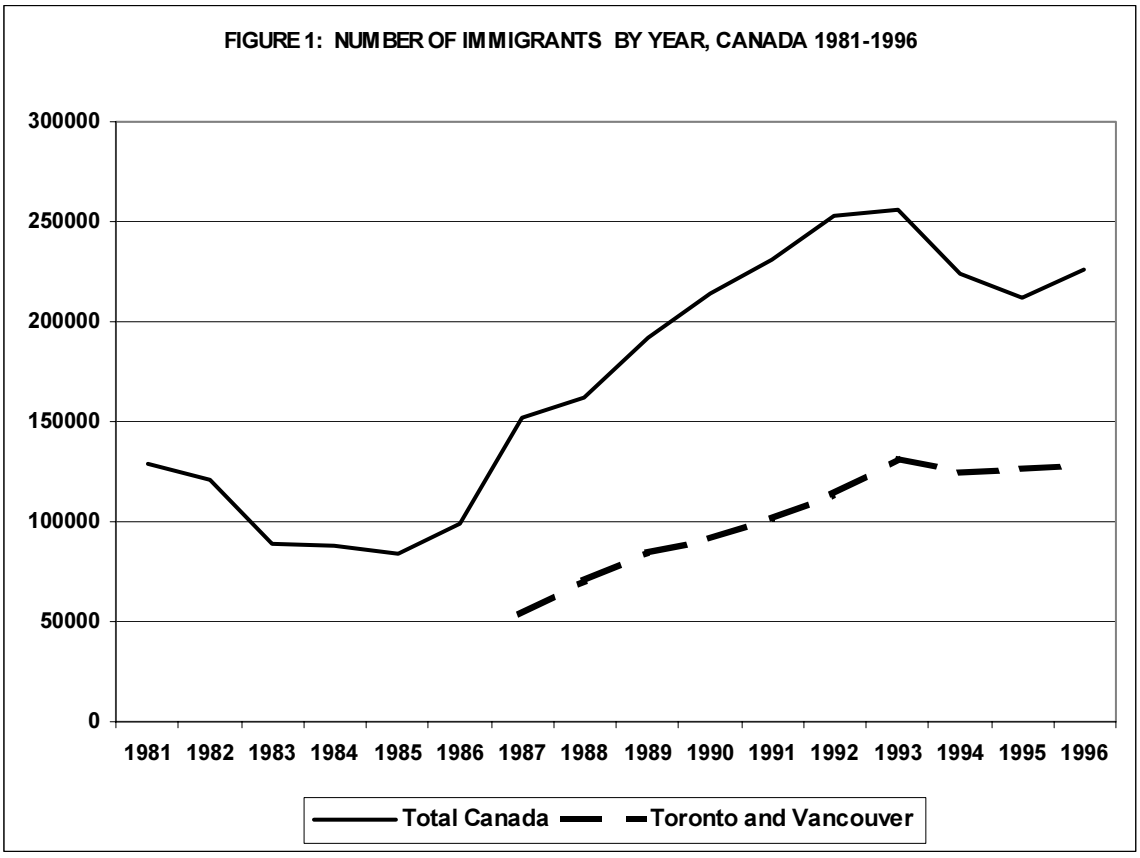
TABLE 3: THEIL INDICES FOR INCOME INEQUALITY BY AGE AND HOUSEHOLD TYPE, 1980-1995

	1981	1986	1990	1995	1985/1980	1990/1985	1995/1990	1995/1980
Overall	**0.185**	**0.184**	**0.189**	**0.205**	**-0.14%**	**2.51%**	**8.54%**	**11.1%**
male single 25-44	**0.203**	**0.220**	**0.228**	**0.288**	**8.5%**	**3.7%**	**26.0%**	**41.8%**
male single 45-64	**0.315**	**0.323**	**0.335**	**0.379**	**2.8%**	**3.6%**	**13.1%**	**20.5%**
male single 65+	**0.316**	**0.275**	**0.280**	**0.259**	**-12.9%**	**2.0%**	**-7.7%**	**-18.0%**
female single 25-44	**0.152**	**0.190**	**0.192**	**0.247**	**24.7%**	**1.0%**	**28.6%**	**62.0%**
female single 45-64	**0.307**	**0.312**	**0.281**	**0.314**	**1.8%**	**-9.9%**	**11.6%**	**2.4%**
female single 65+	**0.212**	**0.188**	**0.205**	**0.169**	**-10.9%**	**9.0%**	**-17.7%**	**-20.1%**
male PM* Fam 25-44	**0.146**	**0.146**	**0.147**	**0.167**	**0.0%**	**0.5%**	**13.7%**	**14.3%**
male PM Fam 45-64	**0.166**	**0.163**	**0.167**	**0.177**	**-1.8%**	**2.7%**	**5.7%**	**6.6%**
male PM Fam 65+	**0.252**	**0.197**	**0.212**	**0.195**	**-21.7%**	**7.5%**	**-8.0%**	**-22.5%**
female PM Fam 25-44	**0.145**	**0.282**	**0.258**	**0.256**	**94.6%**	**-8.3%**	**-1.0%**	**76.5%**
female PM Fam 45-64	**0.161**	**0.242**	**0.220**	**0.221**	**50.3%**	**-9.2%**	**0.5%**	**37.0%**
female PM Fam 65+	**0.178**	**0.180**	**0.182**	**0.171**	**1.1%**	**1.5%**	**-6.0%**	**-3.6%**
Within Group	**18.373%**	**17.503%**	**17.843%**	**19.377%**	**-4.7%**	**1.9%**	**8.6%**	**5.5%**
Between Group	**1.742%**	**0.932%**	**1.055%**	**1.135%**	**-46.5%**	**13.2%**	**7.6%**	**-34.8%**
% Between	**9.5%**	**5.3%**	**5.9%**	**5.9%**				

* Primary Maintainer

Source: Census of Canada, Public Use Microdata Files for Households
1981, 1986, 1991, 1996

the United States and is associated with educational levels which, when measured in terms of the proportion with post-secondary education, are higher than those for the Canadian-born population (the situation is reversed in the U.S. where education level of immigrants are lower than the general population: Reed(1999)). However, recent migrants experience significant problems with accreditation of overseas qualifications and it takes time for them to adjust to the Canadian employment context, particularly when the economy is performing poorly and the job market is tight. Recent immigrants to Canada are paid significantly less than other groups even when age, sex and educational level are taken into account (Appendix: Table A1).



Source: Statistics Canada (2002) ; CANSIM files C354144, C354146, D74

The Theil indices show clearly that there are strong differences in inequality by immigrant status and that these differences have increased over the 15 year period, with the

biggest changes having occurred in the last five year period (Table 4). While inequality has increased only modestly for non-immigrant households, it has increased more sharply for longer-term immigrants while the increase in inequality has been particularly noticeable for recent immigrants. The income distributions (Appendix, Figure A3) show that between 1990 and 1995 there was a significant shift to the left in income of recent immigrants and, overall, much lower

TABLE 4: THEIL INEQUALITY MEASURES - BY IMMIGRANT STATUS CANADA, 1980-1995

Immigrant Status					Percent Change		
	1980	1985	1990	1995	1980-85	1985-90	1990-95
Non-Immigrant	0.187	0.190	0.191	0.197	1.6%	0.4%	3.0%
Immigrant > 5 Years	0.175	0.178	0.183	0.205	1.5%	3.0%	12.0%
Immigrant < 5 Years	0.240	0.243	0.259	0.300	1.7%	6.3%	16.0%
Percent Inequality between groups	0.4%	0.5%	1.0%	1.7%			

Source: Census of Canada, Public Use Microdata Files, Households, 1981, 1986, 1991, 1996

incomes for recent immigrants than for the rest of the population. In part, these differences are confounded by the difference in age structures of primary maintainers who are recent immigrants and the rest of the household maintainers.

TABLE 5: THEIL INDICES BY AGE AND IMMIGRANT STATUS, 1990-95

Age/Immigrant Status	1990	1995	% Change 1991-95
Non-immigrant<65	0.181	0.196	8.2%
Non-immigrant>65	0.218	0.199	-8.7%
Immigrant > 5 yrs<65	0.171	0.204	19.1%
Immigrant > 5 yrs>65	0.228	0.205	-10.2%
Recent Immigrant<65	0.253	0.296	17.0%
Recent Immigrant>65	0.365	0.407	11.7%
Percent Inequality between groups	2.0%	2.3%	

Source: Census of Canada, Public Use Microdata Files for Households
1981, 1986, 1991, 1996

If we differentiate immigrant status by age for the most recent period (Figure 5), we can see two important trends. The first is that both longer-term and recent immigrants experienced twice the rate of growth in inequality compared with non-immigrants, although even for that group the increase was noticeable. Among the elderly, the story is somewhat different. Both non-immigrant and long-term immigrant elderly experienced declines in inequality, while it grew substantially among the recent immigrant elderly, although the numbers are small. This is to be expected as government benefits are largely denied to recent immigrants who must meet a ten year residency requirement to be eligible for many benefits. As Boyd (1989) points out, these exclusions create severe financial hardships for elderly immigrants, particularly females.

Overall, at the national level, the period from 1981 to 1996 saw a consistent increase in income inequality as measured by equivalized incomes for persons within households[4], with the sharpest increases occurring during the most recent five year period. However, this picture masks more complicated changes among population sub-groups. The growth in inequality lies primarily in the wage-earning population, while the social safety net with its associated benefits has offered significant protection for the elderly. The major growth in inequality among the population under 25 was between 1980 and 1985 and, secondarily, between 1990 and 1995 with both periods experiencing a recession. In contrast, this period, especially at the beginning of the 1980s, saw a sharp growth in both public and private pensions and both 1980-85 and 1990-95 saw marked reductions in inequality among the elderly.

Immigration is a second demographic component with a significant impact on inequality. Despite the high levels of education among immigrants to Canada, it takes a while to adjust to the Canadian labour market and recent immigrants, whatever their educational background, are paid less on average than the rest of the population. Furthermore, recent immigrants are eligible

for few benefits and, as a result, elderly recent immigrants to not receive the same protection as others. These two factors produce markedly higher inequality among all recent immigrants with particularly high levels among households with older primary maintainers. It is also true that many older immigrants live with younger family and, the more significant this trend, the greater will be the impact on equivalized incomes among younger immigrants, although the available data do not permit an analysis of these outcomes.

4. INEQUALITY AT PROVINCIAL AND METROPOLITAN SCALES

The national picture comprises many local variations reflecting economic, social and geographic realities. The major metropolitan areas (Montreal, Toronto and Vancouver) and the provinces in which they are located (Quebec, Ontario and British Columbia) have been the primary recipients of growth through both international and internal migration reducing the average age of the local population as the migrations flows are primarily made up of individuals in their labour force years. The focus of both immigrants and younger migrants on these areas places a double demographic pressure on inequality and we would expect it to rise more in these locales than in other areas.

At the provincial level there are marked differences in the impacts of immigrants and the elderly on household demography. In relative as well as absolute terms, Ontario and British Columbia dominate in terms of immigrant concentrations and this has increased during the period with British Columbia overtaking Ontario in the first part of the 1990s (Table 6). At the same time these provinces remain relatively young, although Alberta and Quebec along with

[4] The general story remains virtually unchanged if total household income or family income is used although the specific numbers will change.

Newfoundland and Yukon/NWT have lower proportions of individuals in senior-led households.

For almost half the provinces, inequality declined between 1980 and 1985 and again in 1985-90. Between 1990 and 1995 inequality then accelerated sharply, with Ontario leading the way (Table 7). Inequality had not declined in British Columbia during the earliest period, but inequality dropped in 1986-1991 and then increased again in 1991-96.

With fairly widespread declines in inequality in the 1980s, we need to construct a general measure of the impact of immigration at the sub-national level. For each census we can recalculate inequality in each province (and for Canada as a whole) based on those households headed by individuals who had immigrated to Canada more than 5 years before that census. If the total inequality for the i^{th} province in the k^{th} census is T_{ik} and the inequality for longer term immigrants (>5 years) and non-immigrants is L_{ik}, then the *absolute* contribution of recent

TABLE 6: RECENT IMMIGRANTS (LAST 5 YEARS) BY PROVINCE CANADA, 1991-1996

	Percent PM who are Recent Immigrants		Percent population in households where PM is Recent Immigrant	
Province	**1991**	**1996**	**1991**	**1996**
Newfoundland	**0.2%**	**0.3%**	**0.2%**	**0.6%**
PEI	**0.2%**	**0.2%**	**0.2%**	**0.2%**
Nova Scotia	**0.4%**	**0.5%**	**0.4%**	**1.0%**
New Brunswick	**0.3%**	**0.2%**	**0.3%**	**0.9%**
Quebec	**1.3%**	**1.7%**	**1.6%**	**1.8%**
Ontario	**3.3%**	**3.9%**	**4.0%**	**3.7%**
Manitoba	**1.6%**	**1.0%**	**2.2%**	**1.4%**
Saskatchewan	**0.5%**	**0.6%**	**0.7%**	**0.8%**
Alberta	**1.9%**	**1.9%**	**2.3%**	**2.5%**
British Columbia	**2.6%**	**4.0%**	**3.4%**	**5.3%**
Yukon/NWT	**0.8%**	**0.4%**	**0.8%**	**0.7%**

PM - primary maintainer

Source: Census of Canada, Public Use Microdata Files for Households 1981, 1986, 1991, 1996

immigrants to change in inequality C_{ik} is given by

$$C_{ik} = (T_{ik} - L_{ik}) / T_{i(k-1)} * 100 \qquad [4]$$

If $T_{ik} > L_{ik} > T_{i(k-1)}$ then the *relative* contribution to change, RC_{ik}, is given by

$$RC_{ik} = [1 - (L_{ik} - T_{i(k-1)}) / (T_{ik} - T_{i(k-1)})] * 100 \qquad [5]$$

When $T_{i(k-1)} > T_{ik} > L_{ik}$, then

$$RC_{ik} = [1 - (T_{ik} - L_{ik}) / (T_{i(k-1)} - L_{ik})] * 100 \qquad [6]$$

TABLE 7: THEIL INEQUALITY MEASURES BY PROVINCE: CANADA 1980-95

Province[1]					Percent Change		
	1980	1985	1990	1995	1980-85	1985-90	1990-95
Canada	0.185	0.185	0.193	0.204	0.3%	4.0%	5.9%
Newfoundland	0.175	0.188	0.175	0.198	7.3%	-6.9%	13.1%
Nova Scotia	0.178	0.171	0.175	0.180	-4.3%	2.6%	2.8%
New Brunswick	0.165	0.187	0.177	0.185	13.6%	-5.2%	4.2%
Quebec	0.185	0.186	0.187	0.206	0.6%	0.1%	10.6%
Ontario	0.172	0.170	0.179	0.199	-1.4%	5.2%	11.2%
Manitoba	0.187	0.183	0.181	0.195	-2.0%	-0.8%	7.6%
Saskatchewan	0.218	0.193	0.195	0.194	-11.4%	1.2%	-0.6%
Alberta	0.183	0.191	0.188	0.193	4.1%	-1.5%	2.4%
British Columbia	0.177	0.191	0.183	0.204	7.5%	-4.1%	11.7%

1 PEI and Yukon/NWT were combined in 1981 and the number of observations were small in the other years and therefore estimates for these provinces have been omitted.

Source: Census of Canada, Public Use Microdata Files, Households, 1981, 1986, 1991, 1996

These calculations are presented by province in Table 8[5]. Except in one minor case (New Brunswick between 1980 and 1985), immigration always increases the level of inequality and these increases are significantly larger in the 1990-95 period than earlier. In this latter period Ontario and British Columbia are clearly dominant. When the relative contributions are calculated for those provinces experiencing notable increases in this latter period, the contribution is substantial at over 40 percent in both Ontario and British Columbia and almost 80 percent in Alberta (although the absolute increase in Alberta was much smaller).

TABLE 8: CONTRIBUTION TO CHANGES IN INEQUALITY BY RECENT IMMIGRANTS BY PROVINCE, 1980-1995

Province[1]	Absolute Contribution to Change			Relative Contribution
	1980-85	1985-90	1990-95	1990-95
Canada	0.5%	1.4%	2.8%	46.9%
Newfoundland	0.0%	0.1%	0.3%	
Nova Scotia	0.1%	0.1%	0.4%	
New Brunswick	-0.1%	0.1%	0.5%	
Quebec	0.5%	1.3%	2.0%	19.0%
Ontario	0.8%	2.4%	4.9%	43.7%
Manitoba	0.9%	1.2%	1.0%	
Saskatchewan	0.5%	0.7%	0.5%	
Alberta	0.4%	1.6%	1.9%	78.0%
British Columbia	0.6%	1.9%	5.1%	43.2%

1 PEI and Yukon/NWT were combined in 1981 and the number of observations were small in the other years and therefore estimates for these provinces have been omitted.

Source: Census of Canada, Public Use Microdata Files, Households, 1981, 1986, 1991, 1996

[5] As Reed (2001) points out, these contributions are upper bounds in that the calculation assumes that the income distribution would be unaffected by the removal of recent immigrants. In fact, some others would be expected to take some of the low paying jobs currently occupied by recent immigrants.

The real story of both immigration and increases in inequality lies in the major cities. Canada is an overwhelmingly urban society with over 77% of households living in metropolitan areas in 1996. As Figure 1 shows, the concentration of immigration is also substantial, with the proportion going to Toronto and Vancouver alone rising to 60% of all immigration to Canada in 1995. The experience of Ontario and British Columbia is very much a reflection of what is going on in these two cities. Table 9 presents changes in total inequality for the largest CMAs for which there are data for all four censuses and Table 10 provides measures of absolute and relative contribution of immigrants to change in inequality.

TABLE 9: THEIL INEQUALITY MEASURES - BY CMA CANADA, 1980-1995

CMA					Percent Change		
	1980	1985	1990	1995	1980-85	1985-90	1990-95
CANADA	0.186	0.189	0.193	0.204	1.5%	1.8%	5.9%
Halifax	0.152	0.159	0.162	0.168	5.1%	1.8%	3.7%
Quebec City	0.157	0.162	0.157	0.178	3.2%	-2.8%	13.6%
Montreal	0.191	0.188	0.196	0.222	-1.9%	4.3%	13.5%
Ottawa Hull	0.167	0.166	0.170	0.189	-0.3%	2.3%	11.2%
Toronto	0.172	0.168	0.184	0.221	-2.1%	9.5%	19.9%
Hamilton	0.159	0.143	0.165	0.183	-10.4%	15.4%	11.1%
St. Catherines, Niagara	0.165	0.152	0.162	0.179	-8.3%	7.1%	10.2%
Kitchener	0.155	0.153	0.163	0.171	-1.1%	6.9%	4.7%
London	0.180	0.164	0.172	0.186	-9.0%	4.8%	8.5%
Winnipeg	0.173	0.165	0.171	0.188	-4.4%	3.9%	9.6%
Calgary	0.188	0.160	0.182	0.196	-14.9%	13.5%	7.7%
Edmonton	0.182	0.163	0.176	0.186	-10.6%	8.3%	5.7%
Vancouver	0.197	0.174	0.187	0.220	-11.7%	7.0%	18.0%
Other	0.188	0.185	0.178	0.187	-1.7%	-3.5%	4.8%

Source: Census of Canada, Public Use Microdata Files, Households, 1981, 1986, 1991, 1996

The story is very similar to the provincial scenario. There was widespread decline between 1980 and 1985, although, unlike the provincial data, the urban data showed almost

uniform increases in both of the later inter-censal periods. In fact Hamilton and Calgary had the highest increases in inequality between 1985 and 1990 but, for the last period, Toronto and Vancouver rose to the fore. In these two cities , immigration contributed between 50 and 60 percent of the increases in inequality.

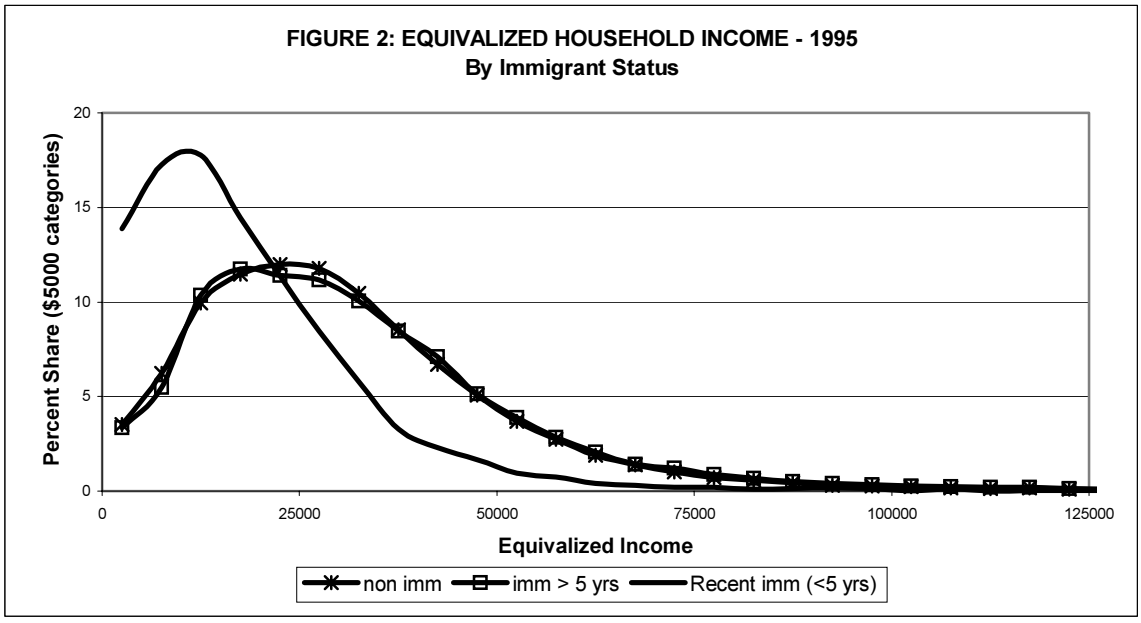
A striking aspect of Table 10 is that, even when overall inequality in falling in the early 1980s, the contribution of recent immigration is to increase inequality. The contributions themselves increase in successive inter-censal periods, suggesting that the adjustment period for new immigrants in the labour force became more difficult as time went by.

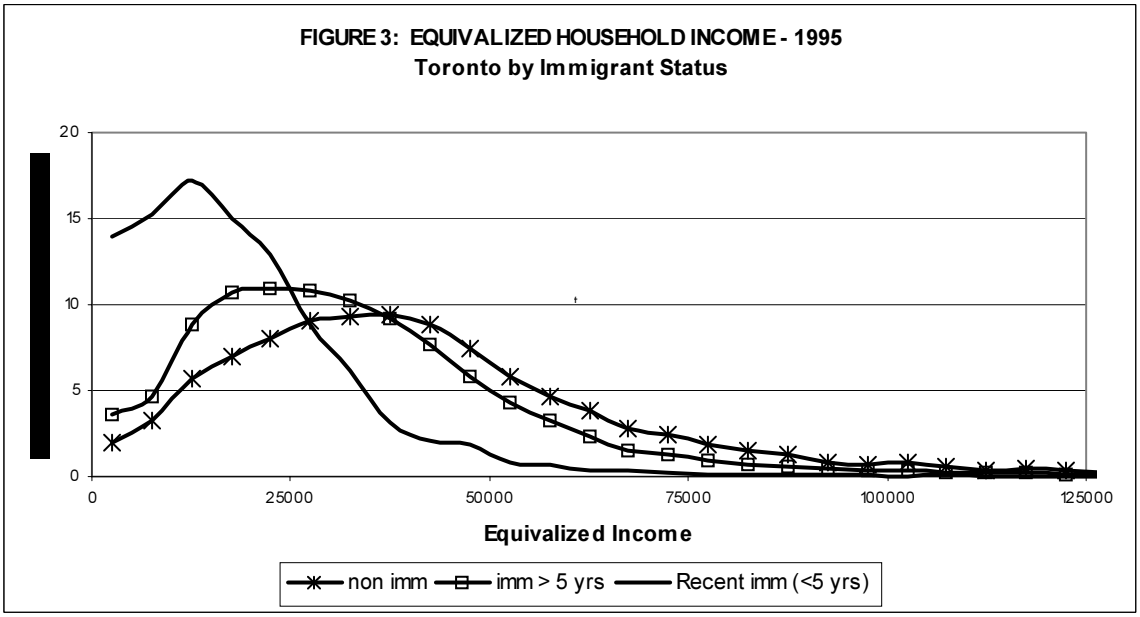
TABLE 10: CONTRIBUTION TO CHANGES IN INEQUALITY BY RECENT IMMIGRANTS BY CMA, 1980-1995

	Absolute Contribution to Change			Percent Population	Relative Contribution
	1980-85	1985-90	1990-95	Rec. Imm	1990-95
CANADA	0.5%	1.4%	2.8%	2.7%	46.9%
Halifax	1.1%	0.1%	1.0%	1.0%	
Quebec City	0.2%	0.3%	0.7%	0.6%	
Montreal	1.2%	3.0%	4.1%	3.4%	30.6%
Ottawa Hull	0.6%	3.1%	4.5%	3.0%	40.4%
Toronto	2.0%	5.4%	10.7%	8.1%	53.8%
Hamilton	0.2%	2.5%	2.7%	2.3%	
St. Catherines, Niagara	0.5%	0.6%	1.2%	1.1%	
Kitchener	0.6%	2.8%	2.2%	2.7%	
London	0.3%	1.2%	2.7%	2.3%	
Winnipeg	0.0%	2.4%	1.6%	1.5%	
Calgary	0.1%	3.7%	3.5%	2.9%	45.7%
Edmonton	2.2%	2.8%	2.8%	2.4%	
Vancouver	2.6%	4.4%	10.6%	7.2%	59.0%
Other	0.1%	0.2%	0.2%	0.4%	

Source: Census of Canada, Public Use Microdata Files, Households, 1981, 1986, 1991, 1996

There are important differences between the national income distributions by immigrant groups in 1995 and the corresponding distributions for Toronto and Vancouver (which are almost identical and only those for Toronto are shown here). In Figure 2 we see that the distributions for non-immigrants and long-term immigrants are virtually the same, with recent immigrants having far lower incomes, although they have a higher proportion of individuals





with university degrees (Appendix: Figure A4). In Toronto, however (Figure 3), there is a distinct separation, with longer-term immigrants also having lower incomes, although not as marked as in the case of recent immigrants. Although it needs further research, the suggestion is that the ethnic composition of immigration is also important. Asians now comprise over 60 percent of all immigrants to Canada and they have dominated immigrant flows for the last 20 years, most particularly in the major cities. Visible minorities tend to have lower incomes, even when age, sex and education are controlled and the proportion of visible minorities among all immigrants who have been here more than 5 years is also growing, particularly in the cities. One consequence is that this will also exacerbate increases in inequality in the major cities relative to other places and also these effects will be somewhat longer lasting as the income experience of visible minority populations will converge on the non-immigrant population at a slower rate than was the case for older European immigrant populations.

5: CONCLUSIONS

The data presented here supports the general wisdom that income inequality has been increasing over the last two decades. The focus here has been on the equivalized incomes for all members of households, but the story changes little if other measures of income are used such as family income or total incomes for households. Income inequality does rise more sharply in the first half of the 1990s, which was a period of sustained high immigration associated with a recession in the national economy. The results of the 2001 census will be of major interest as early indications are that inequality continued to rise at least until 1998, although the economy had recovered significantly from its earlier woes.

The analysis also indicates that there is considerable diversity both across social groups and, geographically, across different levels of administrative units. The 1980s saw the growth of

both public and private pension payments to retirees, which led to greater economic security for older Canadians. These changes were reflected in stable or declining levels of inequality for households led by seniors and, to some degree, masked the higher rates of growth in inequality among those of working age. In the first half of the 1990s, when inequality grew the most, the most vulnerable groups in terms of increasing inequality were younger single individuals, both male and female, an observation that would be consistent with increasing returns to education for those in the early employment years.

Immigrants play an important role in the inequality story. Those who have arrived recently have always had lower paying jobs as they seek to establish themselves in a new society. This is clearly the case in the study period in Canada, and the high levels of inequality and high proportions of recent immigrants with low incomes are strongly evident in the latest inter-censal period, where incomes for 1990 and 1995 are reported. With sustained high levels of immigration, recent immigrants do contribute in a noticeable and growing way to changes in inequality. In the 1990-95 period at the national level, recent immigrants accounted for just over 46% of the increase in inequality.

Since Canada is increasingly a metropolitan society and the focus of immigration in the last two decades has also been on the largest of our cities, particularly Toronto and Vancouver, these immigrant effects on inequality would be expected to play out within the metropolitan landscape. This is shown to be the case, most noticeably in the first half of the 1990s with inequality in Toronto and Vancouver increasing at almost twice the rate of any other city, while the absolute contribution of recent immigrants to growth in inequality in these two cities in three times that in any other city.

Understanding the composition of inequality is important as it affects our interpretation of what is happening. Increases in inequality are regarded as indicators of broader economic

and social tensions,which have particular relevance for policies targeting transfers of resources from more affluent to less affluent groups in society. Aggregate measures of inequality can mask subtle and important differences which have significant policy implications. Without taking the role of immigrants into account, we might infer that underlying inequality is growing faster than it is. Immigrants who have lived in Canada for longer have noticeably lower levels of inequality than recent immigrants which suggests that the issue is as much one of adjustment to the new society as one of fundamental differences. That said, it is still of concern that inequality has risen sharply among recent immigrants in the first half of the 1990s and has also risen more markedly for longer-term immigrants than for non-immigrants in the same period. The fact that this period was a mixed period of recession and slow growth as well as high immigration may have led to greater difficulties for immigrants in the job market and increasing financial problems as a consequence. If so, the situation may well have improved during the latter half of the decade as the economy grew rapidly.

The growing gap between the income distributions of longer-term immigrants and non-immigrants in the largest cities suggests that further refinement of the analysis is desirable. Immigrants who have been here for more than 5 years contain increasing proportions of visible minority populations in successive censuses and, if visible minorities experience higher levels of inequality, the categories of 'visible minority' and 'immigrant' will be confounded.

Both the mechanisms which underly increasing inequality and its consequences need further research. A strong candidate for attention is the role played by housing. In Canada, shelter-cost to income ratios have increased in Canadian cities over the last two decades as inequality has also increased (Moore and Skaburskis, 2002). This relationship is likely to continue unless more attention is given to making housing for low income Canadians more affordable. At the same time, rising house prices contribute to increased wealth through the accumulation of

equity, especially among older homeowners. The implications for growing wealth inequality as opposed to income inequality are of interest as greater disparities in future access to resources among the elderly could change the patterns of need among seniors in significant ways. With the recently released national Survey of Financial Security (Statistics Canada, 2001), the opportunity arises to explore this issue.

The study of inequality is important as it provides an insight into the changing economic and social fabric of the society. Increasing inequality places additional pressures on notions of fairness in allocation of public resources in addition to more direct effects such as those relating to public health and access to housing. While such measures alone do not provide avenues to solutions to social problems, they do provide clues as to the context in which such problems arise.

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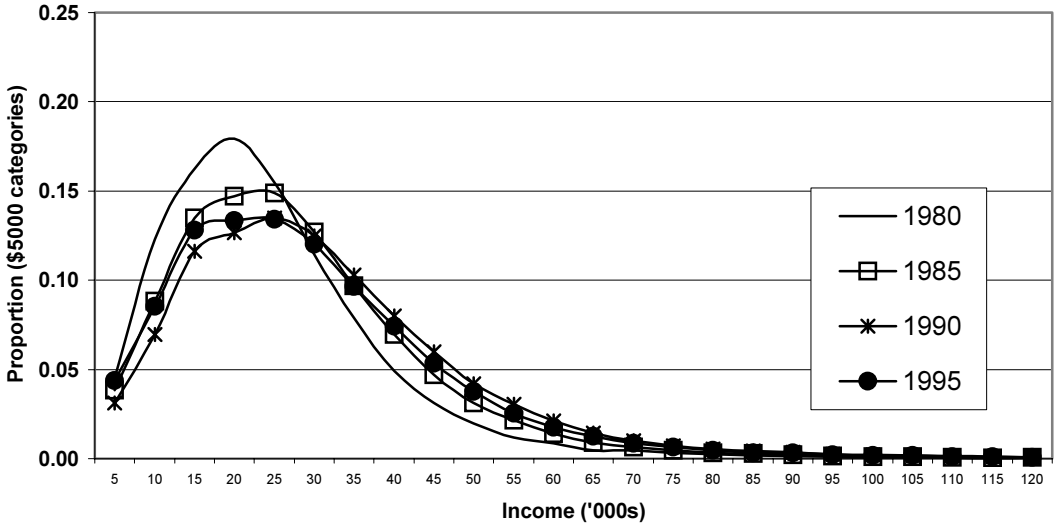
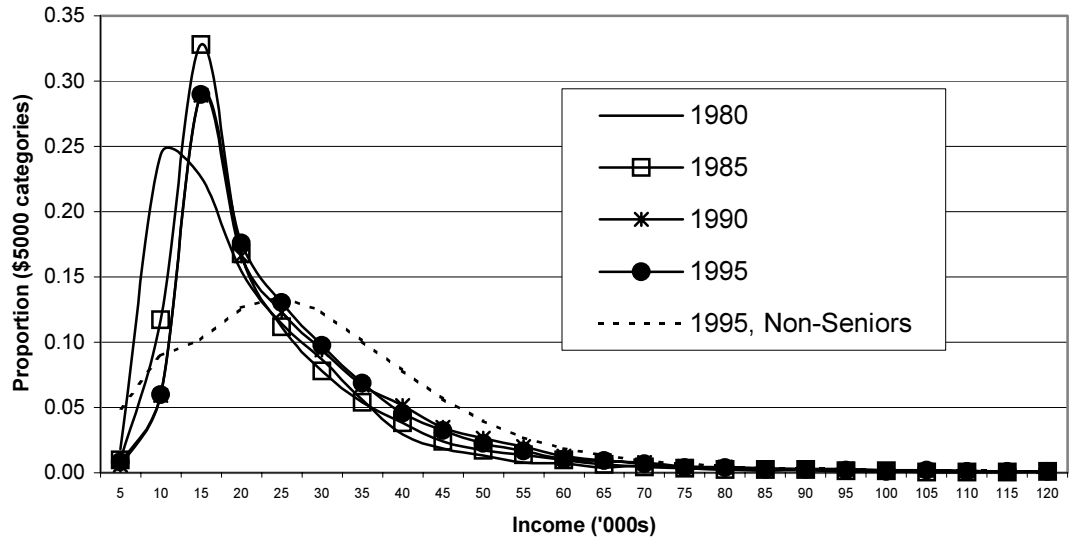
APPENDIX

Figure A1: Distribution of Equivalized Household Incomes, Canada, 1980-1995
Constant dollars (1990), Weighted by Household Size



Source: Statistics Canada Public Use Microdata Files for 1981, 1986, 1991, 1996 Censuses (calculations by authors)

Figure A2: Distribution of Equivalized Incomes for Households
Where Primary Maintainer is Older than 65, 1980-1995
Constant Dollars (1990), Weighted by Household Size



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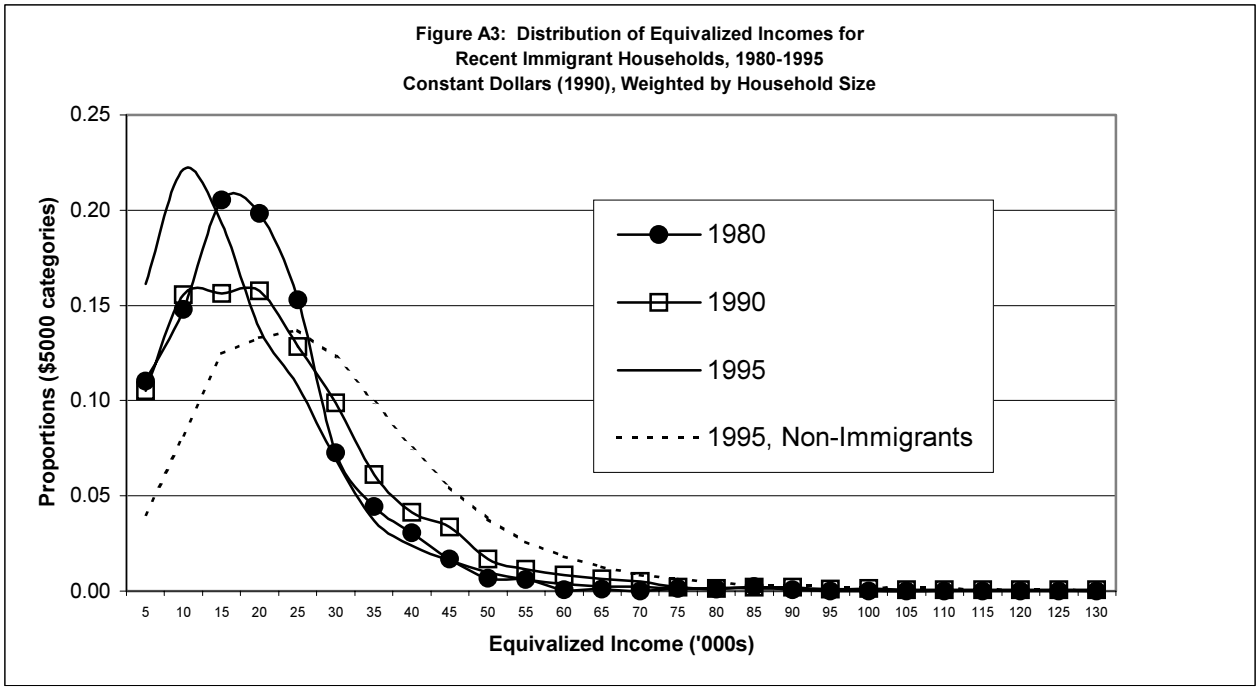
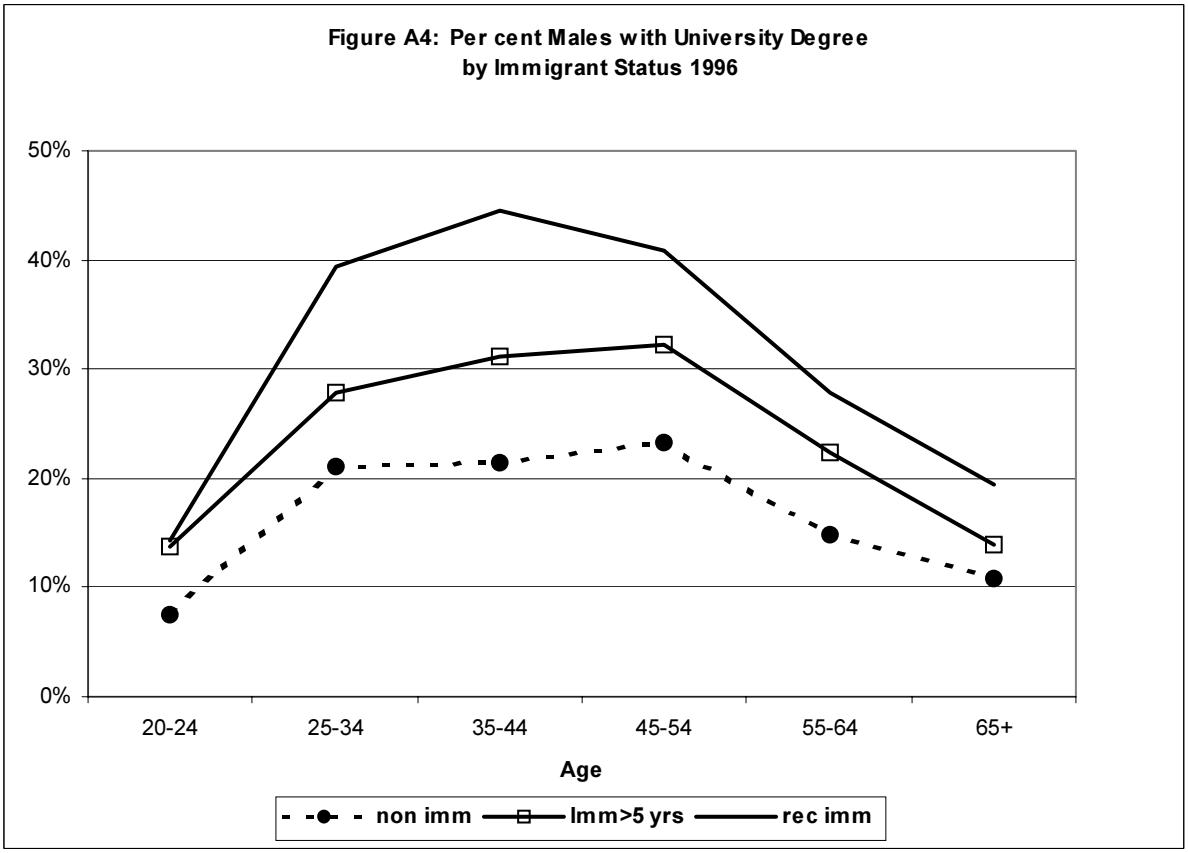


Source: Statistics Canada Public Use Microdata Files for 1981, 1986, 1991, 1996 Censuses (calculations by authors)



Source: Statistics Canada Public Use Microdata Files for 1996 Census (calculations by authors)

TABLE A1: AVERAGE WAGES OF FULL-TIME MALES BY IMMIGRANT STATUS, AGE AND EDUCATION, 1996

	Non Immigrants		*Longer-Term Immigrants (prior to 1991)*		*Recent Immigrants (1991-1996)*		*Ratio of Recent Immigrant to Non-Immigrant Wages*
	Average	N	Average	N	Average	N	Ratio
Less Than High School							
25-34	$25,830	176940	$24,815	26496	$18,213	8604	0.705
35-44	$31,542	249336	$28,316	45036	$20,207	6804	0.641
45-54	$32,943	219996	$31,785	56448	$19,469	4104	0.591
55-64	$29,278	141156	$29,494	49824	$14,344	1620	0.490
High School							
25-34	$29,100	159876	$25,752	19692	$18,122	6552	0.623
35-44	$36,235	201024	$30,557	26136	$18,025	4572	0.497
45-54	$39,921	128916	$35,539	28044	$17,127	2016	0.429
55-64	$38,331	38160	$35,073	11232	$10,182	468	0.266
Some Post Secondary							
25-34	$33,084	478296	$30,586	59796	$23,976	16416	0.725
35-44	$40,526	578988	$36,930	101196	$23,951	13680	0.591
45-54	$43,464	368640	$41,720	121356	$26,524	5868	0.610
55-64	$38,887	117288	$38,441	64296	$12,851	972	0.330
University Degree							
25-34	$41,717	183564	$39,629	29772	$28,746	13356	0.689
35-44	$54,865	236592	$47,797	60768	$32,035	13140	0.584
45-54	$59,354	196488	$56,293	80280	$37,084	5256	0.625
55-64	$57,696	52416	$57,127	34380	$28,591	1080	0.496

Source: Statistics Canada Public Use Microdata files for Individuals, 1996 Census.

Note: Full-time is defined as those who worked at least 44 weeks in 1995, mostly full-time and were not students
The structure of this table is very similar for females

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