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Changing Income Inequality and the Elderly in Canada 1991-1996: Provincial Metropolitan and Local Dimensions

Eric G. Moore and Michael A. Pacey

SEDAP Research Paper No. 63

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Requests for further information may be addressed to:
Secretary, SEDAP Research Program
Kenneth Taylor Hall, Room 426
McMaster University
Hamilton, Ontario, Canada
L8S 4M4
FAX: 905 521 8232
e-mail: qsep@mcmaster.ca

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CHANGING INCOME INEQUALITY AND THE ELDERLY IN CANADA 1991-1996: PROVINCIAL METROPOLITAN AND LOCAL DIMENSIONS

by

Eric G. Moore and Michael A. Pacey

Department of Geography
Queen's University

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ABSTRACT

Recently, much attention has been given to income inequality in industrialized societies, in part because of the empirical evidence linking high levels of income inequality with high mortality, morbidity and other social ills (Wilkinson, 1996). Analyses of these relations originally focused on national figures, but more recent work has explored these linkages at subnational scales – for state, provincial and metropolitan entities. At the same time, other studies have documented the recent increases in income inequality during the 1990s in Canada, which raises further questions about the dynamics of the relation between income inequality and its social consequences.

In this paper we explore additional dimensions of the structure and change of income inequality in Canada between 1991 and 1996. We examine changing income inequality for the population over 65 as well as for the population as a whole, demonstrating that increases in income inequality are concentrated among those in the labour force years and that there has been little change (even some decline) in income inequality among the elderly. From a geographical perspective, increasing income inequality is significantly a large metropolitan issue and, as such, has a lesser impact on seniors as seniors are relatively more concentrated in smaller urban and rural areas.

The fact that income inequality can change quite rapidly at the small area level raises some questions about the links to population health. Population health tends to be cumulative and reflects longer term rather than short-term circumstances. The empirical linkages need significantly more exploration to assess the mechanisms which underlie the observed relationships.

CHANGING INCOME INEQUALITY AND THE ELDERLY IN CANADA 1991-1996: PROVINCIAL METROPOLITAN AND LOCAL DIMENSIONS

1. INTRODUCTION

Popular wisdom asserts that the gap between rich and poor Canadians has increased substantially in the last decade. 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 serious policy implications, both in the calculation of overall need for public assistance and services and the redirection of resources to less well-off 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). 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).

To what extent have income inequalities changed in Canada? In this paper we explore what appears to be a relatively strong, though complex trend to increasing inequality among Canadian households. Between 1991 and 1996, inequality in Canadian pre-tax household incomes increased by 3.56% when measured by a generally accepted measure, the Gini coefficient. Yet, beneath this simple measure of inequality lie strong variations in both social and geographical dimensions. The major changes in income inequality are concentrated among those in the labour force years, while the incomes of older Canadians have experienced less divergence.

Beyond the national level, inequalities in household income at the provincial and census division (CD) scales vary considerably, and in some cases actually lessened over the five year period. Increases in household income inequality between 1991 and 1996 are also strongly focused on major metropolitan areas with Toronto leading the way.

This paper addresses three broadly-defined questions. First of all, what are the spatial characteristics of changes in income inequality among Canadian families between 1991 and 1996? Secondly, to what extent has the elderly experience been different from those in the labour force years? Thirdly, what social and economic characteristics of areas are most strongly associated with changes in inequality and what implications do these relationships have for the living environments of the elderly?

2. ISSUES IN THE STUDY OF INCOME INEQUALITIES

Poverty, social welfare and income inequality are inter-related, but distinct concepts. *Poverty* alone has been widely studied, but leaves unanswered questions. As a focus of research, poverty tells us a great deal about those at the lower end of the economic spectrum but little about those in the middle or upper reaches. *Income inequality*, on the other hand, is a wider concept that focuses on the entire distribution and attempts to make summary statements about its characteristics. Some inequality measures are in fact more sensitive to changes in the middle of the income distribution than in the tails. In comparison to *social welfare*, inequality is less broadly defined, since it focuses on income alone and generally ignores all other aspects of social and economic life (World Bank 2000).

The concept of inequality has been characterized as value laden and difficult to operationalize (MacLachlan and Sawada 1997). Although it is generally held that rising inequality is an indication of worrying social trends, there is no agreement on what constitutes too much or too little inequality. Just as central to the debate is that income inequality only considers

income, and not the other components of well-being that may mediate some of the effects of an imbalanced distribution of income. Benefits from social programs, with the exception of those that involve cash payouts, are not included in most definitions of income. Widely divergent social safety nets may also hamper attempts to compare income inequality directly via commonly accepted measures. Income is also not wealth; accumulated savings and other assets are certainly important in affecting how various demographic groups experience income inequality.

Inequality is not polarization, although the difference is not widely appreciated (Wolfson and Murphy 1997). It may make intuitive sense that increasing inequality is due to a 'hollowing out' of middle incomes, but there is no strict reason why this should be so. MacLachlan and Sawada (1997) demonstrate how a distribution can become *more* polarized and yet at the same time more equitable when measured by traditional inequality measures. Empirical work by Wolfson and Murphy (1997), for example, has argued that there was increasing inequality and decreasing polarization in the United States between 1985 and 1995. Because of its relative nature, inequality can result from a wide variety of scenarios, including an upward shift in middle incomes while lower groups remain static, an increase of the population in either tail of the distribution, or government policies which restrict one segment's income while enhancing others. Individual measures of inequality, however, do not necessarily provide that level of detail about the distribution other than its dispersion.

Despite these caveats, inequality measures provide a useful benchmark for assessing incomes both internally and internationally. It has been suggested that conclusions regarding relative inequality at the international level are difficult to make because of the lack of comparability of data (Atkinson 1999). This is particularly true because of the sensitivity of some inequality measures. Seemingly small decisions surrounding the treatment of outliers, the choice of inequality indicator, definition of earnings, population selected and the censoring of high income cases by government agencies can profoundly affect the resulting inequality measures (MacPhail 2000). The value in examining international data lies in the identification of

longitudinal trends rather than on precise measurement of differences between countries. An indication of this increasing interest in comparative research is the activity of the Luxembourg Income Study (http:// www.lis.ceps.lu/), which provides both data and a comprehensive series of working papers on international inequality.

One relationship with income inequality which has received serious attention in the last few years has been the association between mortality and population health and income inequality. Wilkinson (1996) has argued that, within industrial and post-industrial societies, more equitable income distributions are strongly associated with greater life expectancy, lower incidence of violent death and better health among the general population. The reasons, however, are subject to considerable debate. Wilkinson argues that the mechanism is primarily psychological in nature and affects social cohesion; living in an environment in which inequality is substantial produces stresses on the individual which are long-lasting, cumulative and detrimental to health. In contrast, Muntaner and Lynch (1999) view Wilkinson's approach as neo-Durkheimian and argue that it ignores class relations and thereby the mechanisms which engender income inequality. In particular, public policies which seek to reduce the effect of the social safety net and increase economic growth through tax and deficit reduction are major players in the promotion of income inequality but, at the same time, have negative consequences for public health. Some suggestion of this can be seen in the comparison of American and Canadian mortality and inequality. The relationship between median share of income and mortality is significant among American states, but non-existent at either the provincial or urban scale in Canada (Ross *et al* 2000). It should be noted however, that, collectively, Canadian provinces fit in with the model for North America as a whole. The authors suggest two possible explanations for the Canadian results: firstly, the relationship may be non-linear, and at higher levels of equality there may be decreasing effects on health. Secondly, the relation between inequality and mortality may not be automatic, instead dependent on "social and political characteristics specific to place" (Ibid). Thus, while the demonstration of structure, change and

scale in income inequality is valuable, more fundamental research is also needed to understand both the generation of income inequality and its consequences.

3. MEASURING INEQUALITY

Although there is no single measure which can capture the full nature of an income distribution (Osberg 1984), systematic criteria for the optimal measurement of inequality do exist. According to one set of criteria, at least five axioms need to be satisfied: firstly, under the principle of transfers measures should rise in accordance with income reallocations from poorer to richer, and fall when the reverse happens. Secondly, inequality measures should be invariant to uniform proportional changes in income. Robustness under changing population sizes, all else being equal, is the third characteristic. Fourthly, the principle of anonymity suggests that measures attempt to assess income alone, rather than other characteristics. Finally, decomposability is desirable in measures of inequality (Litchfield 1999). Although there is a great deal of consensus over the use of these axioms to sketch out the basic landscape of inequality measurement, the need for scale invariance is subject to some debate (Ruiz-Huerta, Martinez and Ayala 1999).

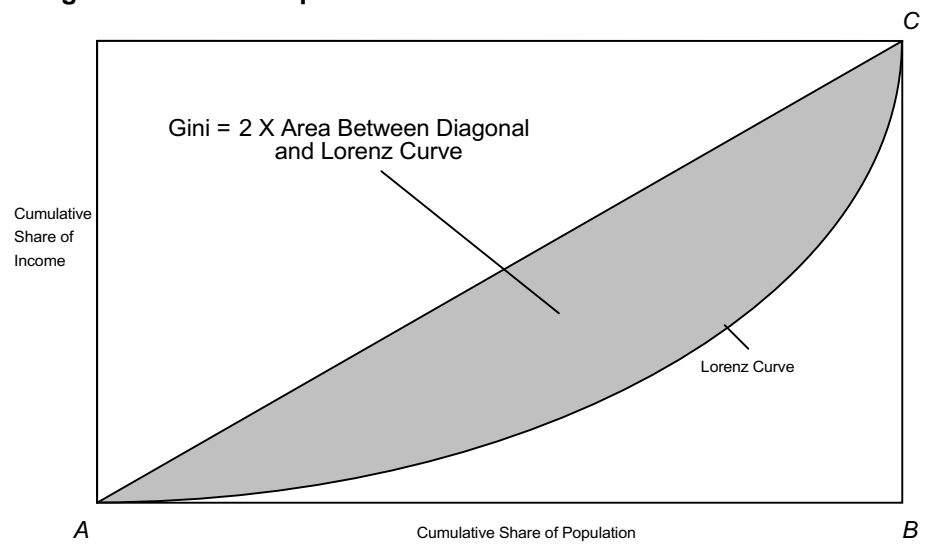
The Gini coefficient, the most commonly-used inequality measurement, satisfies the first four of these axioms. Various methods for decomposing the Gini coefficient have been proposed (Wodon 1999), but they rely on data in which sub-groups do not overlap (Litchfield 1999). The Gini also places more weight on the center of the distribution, making it less sensitive to changes at the tails (Countryman 1999). Despite these limitations, the Gini remains in widespread use.

The Gini coefficient can be described geometrically. If we plot the cumulative share of population of an individual or group on an *X* axis and the share of cumulative income on the *Y* axis, the result is a Lorenz curve similar to Figure 1, which is the 'gold standard' underlying inequality measures (Wolfson and Murphy 1998). The Gini coefficient is twice the area of the curve between the Lorenz curve and the diagonal. Various methods have been used to calculate

Gini coefficients, depending on whether individual or grouped data are being used. Using grouped data, the Gini can be calculated by deriving the area (*B)* of the income / population share polygons under the curve. The Gini coefficient can be calculated by substituting this area into

$$Gini = 1 - 2B$$

Figure 1. Relationship Between the Lorenz Curve and Gini Coefficient



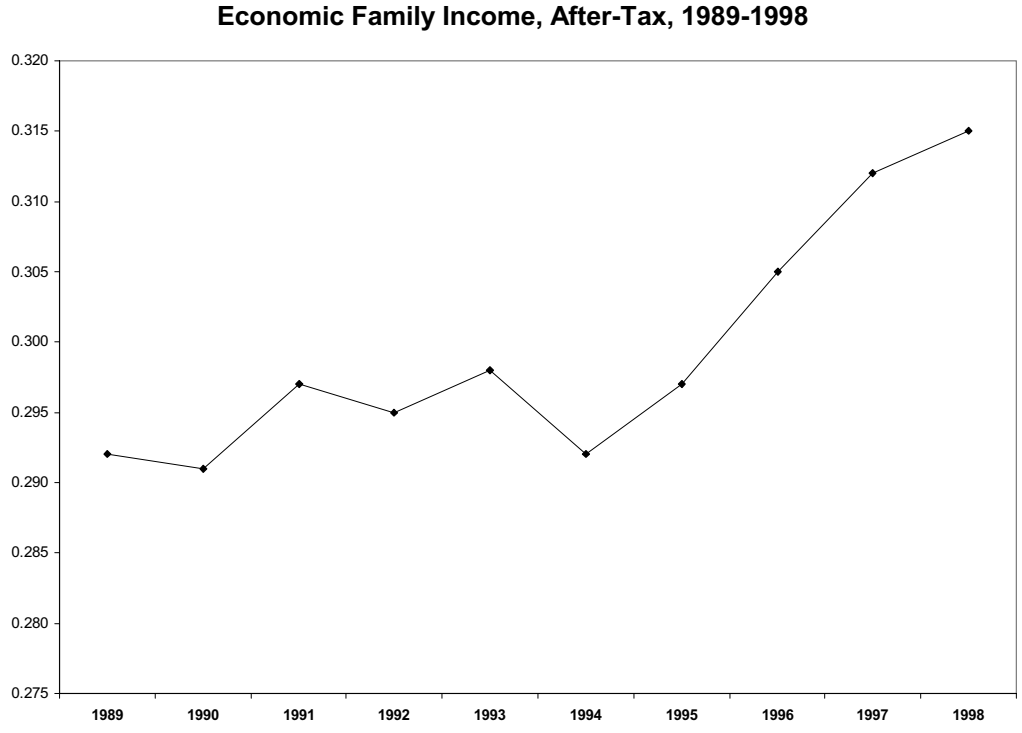
4. SCOPE OF DATA, SCALES OF GEOGRAPHY

4.1 Whose Income?

For the purposes of this study, inequality was examined using household pre-tax income at the national, provincial, metropolitan and census division (CD) level. Within the literature, a number of income definitions have been used: 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 considerable difference in the degree and interpretation of inequality results. For example, it is not clear that household members – who may not be related but simply live under

the same roof – share resources in the same way that families do. Household income earners may share in dwelling costs, which are normally the largest single category of expenditure. However, the pooling of resources is intuitively more meaningful in families rather than households, and reflects the public's concern for the well-being of families (Levernier et al, 1998). However, the definition of family poses some problems, particularly when the elderly are involved. The census definition of family excludes individuals living alone who constitute a significant proportion of the elderly. One solution would be to add individual incomes for 1-person households to family incomes for 2 persons and over; however, the data are not readily available to do this at the small area (census division) level and, for larger areas, the rank ordering of results is very similar for household incomes and the augmented family incomes. The final choice was to use household incomes.

Figure 2. Trend in Gini Coefficients in Canada



Source: *Statistics Canada* 2000b

The use of pre-tax income can be debated. Statistics Canada has noted that during recent economic downturns, the gap in pre-tax incomes grew significantly. However, when after-tax incomes of all Canadian families are considered, inequalities have "long-standing stability … essentially unchanged due to the combined impact of transfers and taxes" (Statistics Canada 1999). More recent data from Statistics Canada (2000b) contradicts this, indicating that after a period of stability, Gini coefficients for economic family after-tax income have begun to climb (Figure 2). Pre-tax incomes will bias estimates of inequality upwards relative to net incomes but it is likely that the relative ordering of measures for different subgroups will be only minimally affected by using pre-tax as opposed to post-tax incomes. The direction of change will also be consistent.

In this study, grouped income data for 1991 and 1996 were obtained from Statistics Canada's Public Use Microdata Files (PUMF) and, for census divisions, from their website. These data consisted of raw counts of households by income category. For individuals, household income is defined in 25 categories, with the highest being incomes greater than $200,000. For census divisions in 1991, there were eight categories, ranging from less than $10,000 per annum to greater than $70,000. In the 1996 census, the range of data was extended to 11 categories, with an upper category of greater than $100,000 per year. [1]

The Gini coefficient relies on the cumulative proportion of income from each category. In order to calculate these proportions using grouped data, the center point of each income class was used to estimate income. This raises the problem of estimating the mean income for the highest and lowest categories in the income distribution. It is particularly important in regard to the upper category, since its upper limit is elastic. For both of these categories, a mean value was derived

[1] The analysis was repeated using family income (excluding single persons) – while income inequalities were somewhat higher, the ordering of the geographical results was virtually the same.

from Statistics Canada's Public Use Microdata Files (PUMF) for each province in both 1991 and 1996.

4.2 What Scale?

In addition to measuring the income distributions at the national and provincial level, calculations were also made for Census Metropolitan Areas (CMAs) and for Census Divisions (CDs). The CMA data were calculated from the Public Use Microdata Files (PUMF) for 1991 and 1996, while the CD data were obtained from the Statistics Canada website which provides small area data for a large number of variables. Importantly, complete coverage of Canada is possible using CDs as a starting point, allowing general comparisons of rural and urban income dynamics. Between 1991 and 1996 the number of CDs changed slightly, decreasing from 290 in 1991 to 288 in 1996. For comparison purposes, these two census divisions – both in British Columbia, both contiguous – were merged to form the corresponding 1996 census division. Individual Ginis were calculated for each census division for 1991 and 1996.

5. INEQUALITY AT NATIONAL, PROVINCIAL, METROPOLITAN AND LOCAL SCALES

5.1 National and Provincial Levels

At a national scale, inequality in pre-tax household income has increased as measured by change in the Gini coefficient. In 1991, the Gini for pre-tax household income was 0.351. In 1996, the Gini increased to 0.363, an increase of 3.56% (this increase was about 1.5 times as large as the change in after-tax inequality). At the provincial level, there was a wide variation in the degree of change. While inequality increased between 1991 and 1996 for all provinces except Saskatchewan, the increases ranged from 0.94% in Manitoba to more substantial changes in

Newfoundland (7.4%), Ontario (4.9%) and Quebec (4.8%). What is particularly noticeable about Ontario is the shift from relatively low inequality to much higher inequality.

The Lorenz Curve (Figure 3) demonstrates both the properties of Canadian household incomes as well as the change between 1991 and 1996. Two important trends are notable. First of all, the proportion of middle-income families is consistently reduced through almost the entire range of the Lorenz curve. Secondly, the upper end of the income distribution diverges in 1996 away from the earlier distribution. Part of this is attributable to the increased number of categories in the 1996 data, which smooth the curve considerably. Even if incomes greater than $70 000 per year are ignored, however, there is a noticeable bulging of the curve in the middle incomes, suggesting an overall increase in inequality between 1991 and 1996.

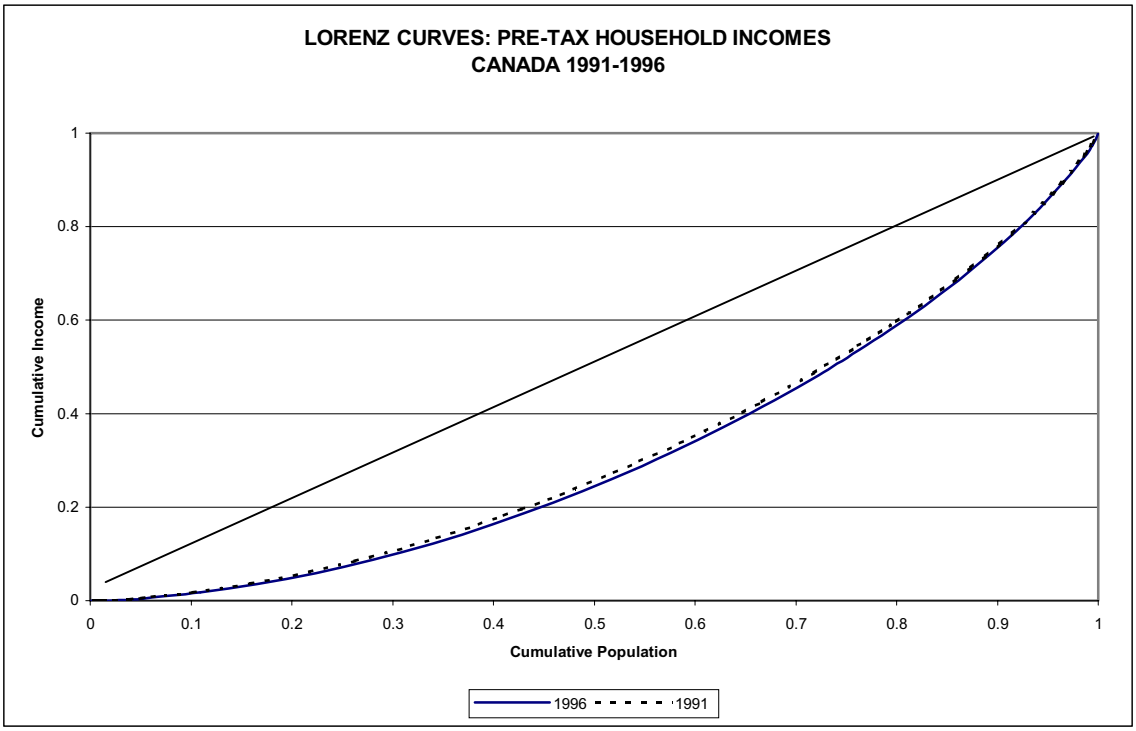
Table 1. 1991-1996 Gini Coefficients by Provinces, Canada

Province	*1996*	*1991*	*% change 1991-6*
Newfoundland	0.368	0.342	7.441
Ontario	0.357	0.340	4.860
Quebec	0.370	0.353	4.802
British Columbia	0.361	0.347	4.162
New Brunswick	0.354	0.342	3.418
Yukon/NWT	0.364	0.355	2.547
PEI	0.333	0.326	2.106
Alberta	0.353	0.346	2.080
Nova Scotia	0.347	0.343	0.991
Manitoba	0.355	0.352	0.945
Saskatchewan	0.359	0.360	-0.310
MEANS	0.356	0.346	2.990

Source: Statisics Canada, PUMF 1996

The variation in these results suggests that the dynamics of income inequality are best studied at sub-national levels. In Canada, federal programs such as the Child Tax Credit may impact inequality. Much more important is the province or municipality of residence, at least in terms of what may mediate inequality. Table 1 gives us a sense of the direction and relative magnitude of change at the provincial level. What is particularly noticeable is that change between the two censuses was not dependant on the initial level of inequality. Saskatchewan, for instance, had the highest inequality of all provinces at the beginning of the study period. By the end of the period, the slight decline in its Gini coefficient resulted in Saskatchewan becoming one of the more equitable provinces in Canada. Quebec was similar to Saskatchewan in 1991 but inequality increased substantially by 1996. Newfoundland was much less fortunate. From a relatively equitable province in 1991, Newfoundland becomes one of the least equitable by 1996.

Figure 3: Lorenz Curve of Pre-Tax Household Incomes, Canada 1991-1996



Source: Statistics Canada PUMF files, 1996

Over time, inflationary trends generally push incomes into higher categories. Between 1991 and 1996 this was certainly the case for Canadian incomes. What is striking about these data, however, is what is happening in general terms at either end of the income scale. For Canadian provinces, the proportion of people in the lowest income category remained unchanged over the five years. In the highest income categories, something much more dynamic took place. The proportion of all families in this category generally increased, but in two provinces actually decreased over time. Prince Edward Island and Nova Scotia both experienced increases in the proportion of middle-income families, while at the same time saw large proportional reductions in the highest income group. These changes are not adjusted for inflation, so their value is limited. What is important to note, though, is that increasing upper-bracket incomes are not common to all provinces.

Of course, part of the change is due to inflation during the five year period 1991-1996. It does not make sense to adjust broad income categories for inflation; however, we can obtain a measure of change in the lower end of the income distribution by using the percent of the population who fall below the Statistics Canada Low-Income Cut Off (LICO) in each year. "On the basis of total income of an economic family or an unattached individual, size of the family and size of the area of residence, the position of each unattached individual and economic family is determined in relation to Statistics Canada's low – income cut-offs (LICOs). These cut-offs are based on national expenditure data and are updated yearly by changes in the consumer price index." (Statistics Canada, 1996). Table 2 provides a comparison of the frequency of individuals below the low-income cut-off for 1991 and 1996, computed for the population over 25.[2] The overall proportion of the population below the cut-off increased nationally from 14.1% to 17.6%, However, the distribution of these values differed

[2] Data are also available for the population 15-24 but this population contains a large proportion of students whose incomes are low.

Table 2: Percent of Individuals of Low Income Status by Province, 1991-1996

	TOTAL	*FEMALE*			*MALE*		
		Total	*25-64*	*65+*	*Total*	*25-64*	*65+*
1996							
Newfoundland	18.9%	20.0%	20.8%	16.1%	17.7%	19.2%	9.1%
PEI	13.7%	16.5%	14.8%	22.8%	10.6%	11.2%	7.5%
Nova Scotia	15.6%	17.7%	17.7%	17.6%	13.3%	14.0%	9.6%
New Brunswick	16.3%	18.4%	18.0%	19.7%	14.0%	14.8%	10.2%
Quebec	21.9%	24.1%	22.3%	31.9%	19.5%	19.6%	19.0%
Ontario	15.6%	17.4%	16.6%	20.8%	13.5%	13.9%	11.4%
Manitoba	18.8%	20.7%	18.6%	27.9%	16.7%	17.2%	14.8%
Sakatchewan	15.8%	17.5%	17.1%	18.8%	14.0%	15.5%	8.2%
Alberta	16.2%	17.9%	17.4%	20.4%	14.5%	15.0%	11.2%
B.C.	17.4%	19.1%	18.4%	22.3%	15.6%	16.2%	12.6%
CANADA	***17.6%***	***19.5%***	***18.5%***	***23.7%***	***15.5%***	***16.0%***	***13.2%***
1991							
Newfoundland	14.5%	16.5%	15.5%	21.6%	12.4%	12.5%	11.7%
PEI	10.2%	11.6%	9.8%	16.9%	8.8%	8.7%	9.1%
Nova Scotia	13.2%	15.2%	14.1%	19.7%	11.0%	11.0%	11.0%
New Brunswick	14.0%	16.7%	15.9%	19.8%	11.2%	11.2%	10.8%
Quebec	18.2%	20.6%	18.2%	31.5%	15.6%	14.8%	20.3%
Ontario	11.3%	13.1%	11.9%	18.4%	9.3%	9.2%	10.1%
Manitoba	16.6%	18.9%	15.8%	29.3%	14.2%	13.7%	16.5%
Sakatchewan	14.9%	16.5%	17.1%	14.6%	13.3%	15.1%	5.9%
Alberta	14.2%	16.2%	15.0%	22.7%	12.2%	11.9%	14.3%
B.C.	13.9%	15.8%	14.4%	21.6%	11.9%	11.6%	13.6%
CANADA	***14.1%***	***16.2%***	***14.7%***	***22.8%***	***12.0%***	***11.7%***	***13.4%***
Change 1991-1996							
Newfoundland	4.4%	3.5%	5.3%	-5.5%	5.3%	6.6%	-2.5%
PEI	3.5%	5.0%	5.1%	5.9%	1.9%	2.5%	-1.5%
Nova Scotia	2.4%	2.5%	3.6%	-2.0%	2.2%	2.9%	-1.4%
New Brunswick	2.3%	1.7%	2.1%	-0.1%	2.9%	3.5%	-0.6%
Quebec	3.7%	3.5%	4.1%	0.3%	3.9%	4.8%	-1.3%
Ontario	4.3%	4.3%	4.7%	2.4%	4.2%	4.7%	1.3%
Manitoba	2.2%	1.8%	2.7%	-1.4%	2.6%	3.5%	-1.7%
Sakatchewan	0.9%	1.1%	0.1%	4.2%	0.8%	0.4%	2.3%
Alberta	2.0%	1.7%	2.5%	-2.3%	2.3%	3.1%	-3.0%
B.C.	3.5%	3.3%	4.0%	0.7%	3.7%	4.6%	-1.0%
CANADA	***3.5%***	***3.3%***	***3.9%***	***0.9%***	***3.6%***	***4.3%***	***-0.2%***

Source: Statistics Canada, PUMF 1991, 1996

substantially in both demographic and regional terms. While elderly females contained the highest proportion of low-income individuals in both years, the gap between the elderly and working age populations closed significantly. Virtually all the increases in low income proportions were concentrated in the 25-64 group, with little difference by gender. The low-income proportion even decreased slightly among elderly males. We explore the role of changes in different components of individual income in a subsequent section.

The relative ordering of low-income percentages remained very similar between the two years with Quebec and Manitoba remaining at the top of the list, although Newfoundland joined them in 1996. PEI and Ontario remained at the low end. However, the changes were notable. Newfoundland and Ontario experienced the highest increases, while Ontario and Saskatchewan were the only provinces to experience significant increase in the proportion of elderly below the low-income cut-off. Since the policies of the Harris government in Ontario, which emphasize both tax cuts and the reduction in a broad range of social welfare expenditures, had only been in place for two years by 1996, it will be important to assess whether these trends have been exacerbated over the subsequent years prior to the 2001 Census.

5.2 The Metropolitan Scale

Canada is very much an urban society. In 1996, 62.5% of the population lived in urban areas of over 100,000 while 32.7% lived in the three largest metropolitan areas of Montreal, Toronto and Vancouver. They were also the locus of growth and change, particularly as the focus of continuing high levels of immigration during the early 1990s. They will also be particularly sensitive to changes in the larger economy, so one might expect that the national changes in income inequality may not play out uniformly across the metropolitan, smaller urban and rural areas of the country.

Data from the 1991 and 1996 PUMF were used to construct Gini coefficients by CMA in each year (Table 3a). The analysis was repeated for the population over 65, primarily to demonstrate the consistency of the results in the previous section which demonstrate that there are real differences in the experience of the elderly and non-elderly (Table 3b).

By 1996 the three largest cities exhibited the greatest income inequality and also dominated the ranked list of changes in inequality. This is clearly a large city issue and also, to some degree, an Ontario issue as Oshawa, Kitchener, Hamilton and Ottawa-Hull were also near the top in terms of change. The story was similar for the elderly population, although the great majority of CMAs experienced a decline in income inequality for this period – only the Ontario cities of Windsor, Sudbury/Thunder Bay[3] and Toronto had small increases.

Further insights can be obtained by considering what is happening at the tails of the income distributions. Tables 4 and 5 identify shifts in the proportions of the population who have household incomes below $20,000 and above $100,000 in 1991 and 1996. The overall shift to the right in the income distribution over the period should reduce the former and increase the latter. However, we see important differences both geographically and in terms of age. The largest cities experience increases in the population under $20,000 and only modest increases in the proportion over $100,000. Many of the smaller cities experience the expected decline in those under $20,000 and more substantial increases in those over $100,000. If we focus on the elderly population (over 65), the outcomes are very different. There are significant reductions in those under $20,000 everywhere, although the lowest reduction is in Toronto with the next 6 lowest also being cities in Ontario. The changes in the proportion over $100,000 are uniformly small. Combined, these outcomes demonstrate why income inequalility among seniors has not increased in the same way as it has for the population as a whole.

[3] A number of cities were combined by Statistics Canada in the PUMF categories to ensure sufficient observations.

Figure 4 provides additional information about the changes in income distribution by examining the proportional changes in the proportion who are low income by age and sex for Toronto, non CMAs and Canada as a whole. The Toronto values are above the rest at all ages for both males and females. There are increases for all ages in the labour force years (25-64). Beyond 65, the proportions decline and for non CMAs and Canada as a whole, the changes are negative, indicating the relative improvements foir seniors compared with the rest of the population.

The reasons for the increases in income inequality are undoubtedly complex. Apart from differential treatment of social welfare in different provinces and local jurisdictions, recent immigration plays an important role. The majority of immigrants in the 1990s settled in the three largest metropolitan areas, with Toronto and Vancouver leading the way. Household incomes of recent immigrants have a much greater concentration under $20,000 a year in 1996 than the general population and there is a consistent association between the proportion of a CMA's population who are recent immigrants and the Gini coefficient measuring income inequality for that CMA (Figure 5).

TABLE 3a: GINI COEFFICIENTS BY CMA, 1991-1996

CMA	*1996*	*CMA*	*Change 1991-1996*
Montreal	0.382	Toronto	0.026
Sherbrooke/Trois	0.370	Montreal	0.020
Vancouver	0.369	Quebec	0.020
Toronto	0.366	Vancouver	0.020
CANADA	**0.363**	Hamilton	0.017
Quebec	0.357	Kitchener	0.017
London	0.355	Sherbrooke/Trois	0.016
Calgary	0.353	Oshawa	0.015
Windsor	0.352	London	0.015
Regina/Saskatoon	0.352	St.Cath./Niagara	0.013
Hamilton	0.352	Sudbury/Thunder	0.013
Winnipeg	0.351	**CANADA**	**0.012**
non CMA	0.351	Halifax	0.012
Edmonton	0.350	Ottawa-Hull	0.012
St.Cath./Niagara	0.349	Edmonton	0.012
Victoria	0.346	Calgary	0.010
Ottawa-Hull	0.345	Regina/Saskatoon	0.010
Sudbury/Thunder	0.345	Winnipeg	0.010
Halifax	0.339	non CMA	0.008
Kitchener	0.338	Windsor	0.007
Oshawa	0.311	Victoria	0.005

TABLE 3b: GINI COEFFICIENTS BY CMA, 1991-1996
(Population >65)

CMA	*1996*	*CMA*	*Change 1991-1996*
Toronto	0.402	Sudbury/Thunder	0.002
Vancouver	0.398	Hamilton	-0.002
Montreal	0.391	Windsor	-0.005
Windsor	0.383	Toronto	-0.005
CANADA	**0.381**	Victoria	-0.007
Calgary	0.376	Kitchener	-0.011
Hamilton	0.376	Vancouver	-0.012
Oshawa	0.372	Oshawa	-0.015
Sudbury/Thunder	0.370	**CANADA**	**-0.017**
Ottawa-Hull	0.369	non CMA	-0.018
Edmonton	0.367	Edmonton	-0.020
Victoria	0.365	Montreal	-0.020
Kitchener	0.364	London	-0.022
Quebec	0.364	St.Cath./Niagara	-0.024
Halifax	0.362	Ottawa-Hull	-0.025
London	0.359	Calgary	-0.026
Winnipeg	0.358	Winnipeg	-0.028
St.Cath./Niagara	0.353	Regina/Saskatoon	-0.029
non CMA	0.352	Quebec	-0.033
Regina/Saskatoon	0.350	Halifax	-0.037
Sherbrooke/Trois	0.321	Sherbrooke/Trois	-0.057

TABLE 4a: PERCENT POPULATION <$20,000, 1991-1996

CMA	*1996*	*CMA*	*Change 1991-1996*
Sherbrooke/Trois	21.8%	Toronto	2.8%
Montreal	20.4%	Montreal	2.3%
non CMA	17.8%	Kitchener	2.2%
Quebec	17.6%	Vancouver	1.4%
Regina/Saskatoon	16.9%	Quebec	1.4%
CANADA	**16.6%**	Halifax	1.4%
Winnipeg	16.5%	Hamilton	1.3%
St.Cath./Niagara	16.0%	St.Cath./Niagara	1.1%
Halifax	15.4%	Ottawa-Hull	1.0%
Edmonton	15.4%	Oshawa	0.7%
Vancouver	15.3%	Sudbury/Thunder	0.7%
Sudbury/Thunder	15.2%	**CANADA**	**0.6%**
Windsor	15.0%	Edmonton	0.5%
London	14.7%	London	0.4%
Hamilton	14.2%	Sherbrooke/Trois	-0.2%
Kitchener	14.0%	Regina/Saskatoon	-0.3%
Toronto	13.8%	non CMA	-0.5%
Victoria	13.5%	Winnipeg	-0.5%
Ottawa-Hull	12.9%	Windsor	-0.9%
Calgary	12.3%	Calgary	-1.0%
Oshawa	10.2%	Victoria	-1.6%

TABLE 4b: PERCENT POPULATION <$20,000, 1991-1996
(Population >65)

CMA	*1996*	*CMA*	*Change 1991-1996*
Sherbrooke/Trois	35.1%	Toronto	-3.2%
Quebec	32.0%	London	-4.7%
Montreal	31.8%	Oshawa	-5.2%
non CMA	31.3%	Kitchener	-5.3%
Sudbury/Thunder	28.2%	Ottawa-Hull	-5.7%
CANADA	**27.9%**	St.Cath./Niagara	-5.8%
Winnipeg	27.5%	Sudbury/Thunder	-5.8%
Regina/Saskatoon	27.1%	Regina/Saskatoon	-5.8%
Windsor	26.6%	Montreal	-5.9%
St.Cath./Niagara	25.8%	Windsor	-6.0%
Vancouver	25.1%	Vancouver	-6.2%
Halifax	24.8%	Hamilton	-6.3%
Edmonton	23.8%	Victoria	-6.4%
Hamilton	23.7%	Halifax	-7.4%
Kitchener	23.2%	**CANADA**	**-7.5%**
London	22.7%	Edmonton	-8.2%
Oshawa	22.1%	Quebec	-8.8%
Toronto	21.9%	non CMA	-9.4%
Calgary	21.0%	Winnipeg	-9.6%
Victoria	20.6%	Calgary	-9.8%
Ottawa-Hull	19.6%	Sherbrooke/Trois	-12.2%

TABLE 5a: PERCENT POPULATION >$100,000, 1991-1996

CMA	*1996*	*CMA*	*Change 1991-1996*
Toronto	18.6%	Windsor	5.6%
Ottawa-Hull	16.3%	Hamilton	4.4%
Vancouver	15.2%	Calgary	3.8%
Calgary	14.9%	London	3.8%
Hamilton	14.9%	Victoria	3.8%
Oshawa	14.9%	Oshawa	3.6%
Windsor	14.3%	Sudbury/Thunder	3.5%
Sudbury/Thunder	12.4%	Vancouver	3.5%
London	12.1%	Ottawa-Hull	2.6%
Victoria	11.8%	Regina/Saskatoon	2.6%
Kitchener	11.6%	Kitchener	2.4%
CANADA	**10.7%**	**CANADA**	**2.3%**
Edmonton	10.1%	Winnipeg	2.0%
St.Cath./Niagara	9.6%	St.Cath./Niagara	2.0%
Montreal	9.2%	Edmonton	1.9%
Regina/Saskatoon	8.6%	non CMA	1.9%
Halifax	8.2%	Toronto	1.9%
Winnipeg	8.0%	Sherbrooke/Trois	1.8%
Quebec	8.0%	Montreal	1.7%
non CMA	6.8%	Quebec	1.7%
Sherbrooke/Trois	5.8%	Halifax	1.0%

TABLE 5b: PERCENT POPULATION >$100,000, 1991-1996
(Population >65)

CMA	*1996*	*CMA*	*Change 1991-1996*
Toronto	11.0%	Hamilton	2.0%
Ottawa-Hull	8.7%	Vancouver	1.8%
Vancouver	7.9%	Windsor	1.4%
Oshawa	7.2%	Oshawa	1.3%
Calgary	7.0%	Victoria	1.1%
Hamilton	6.1%	Toronto	1.0%
Victoria	6.0%	Calgary	0.7%
Windsor	5.7%	Sudbury/Thunder	0.7%
London	5.2%	Montreal	0.6%
Montreal	5.1%	**CANADA**	**0.6%**
CANADA	**5.1%**	Edmonton	0.5%
Edmonton	4.9%	Kitchener	0.5%
Kitchener	4.8%	Ottawa-Hull	0.4%
Halifax	4.5%	non CMA	0.2%
Sudbury/Thunder	4.4%	Quebec	-0.1%
St.Cath./Niagara	3.9%	Winnipeg	-0.2%
Quebec	3.4%	St.Cath./Niagara	-0.3%
Winnipeg	3.3%	London	-0.4%
Regina/Saskatoon	2.8%	Halifax	-0.8%
non CMA	2.7%	Regina/Saskatoon	-0.8%
Sherbrooke/Trois	0.6%	Sherbrooke/Trois	-2.0%

FIGURE 4: CHANGE IN PROPORTION LOW INCOME 1991-1996

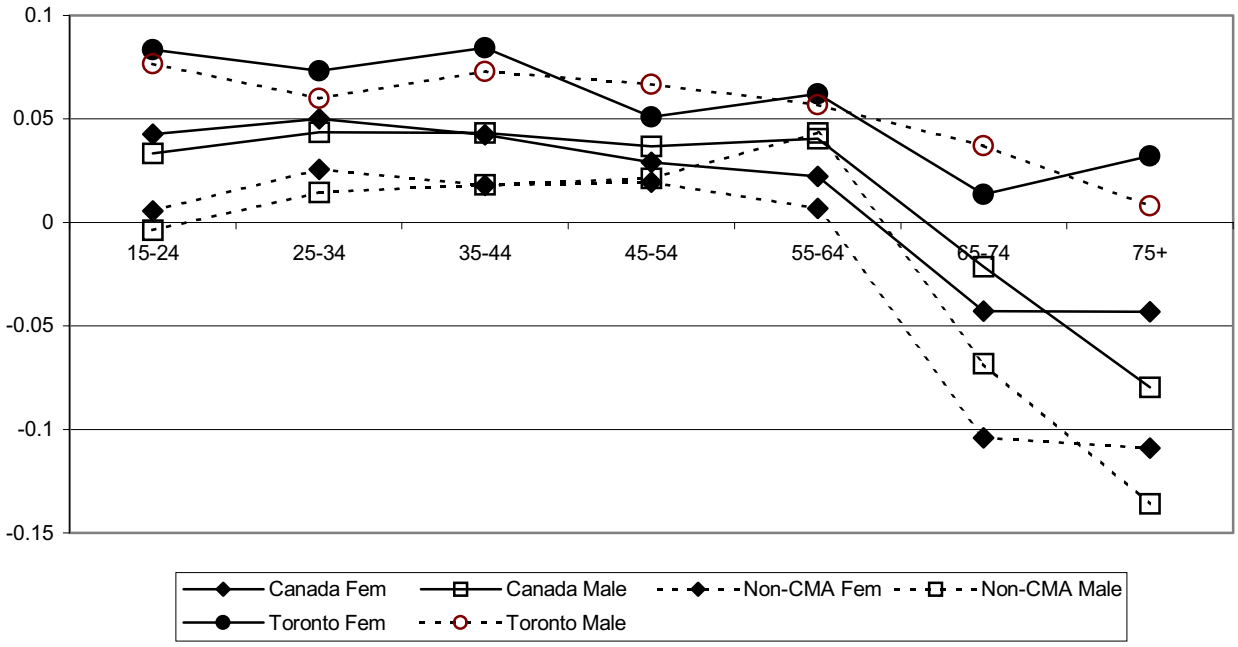
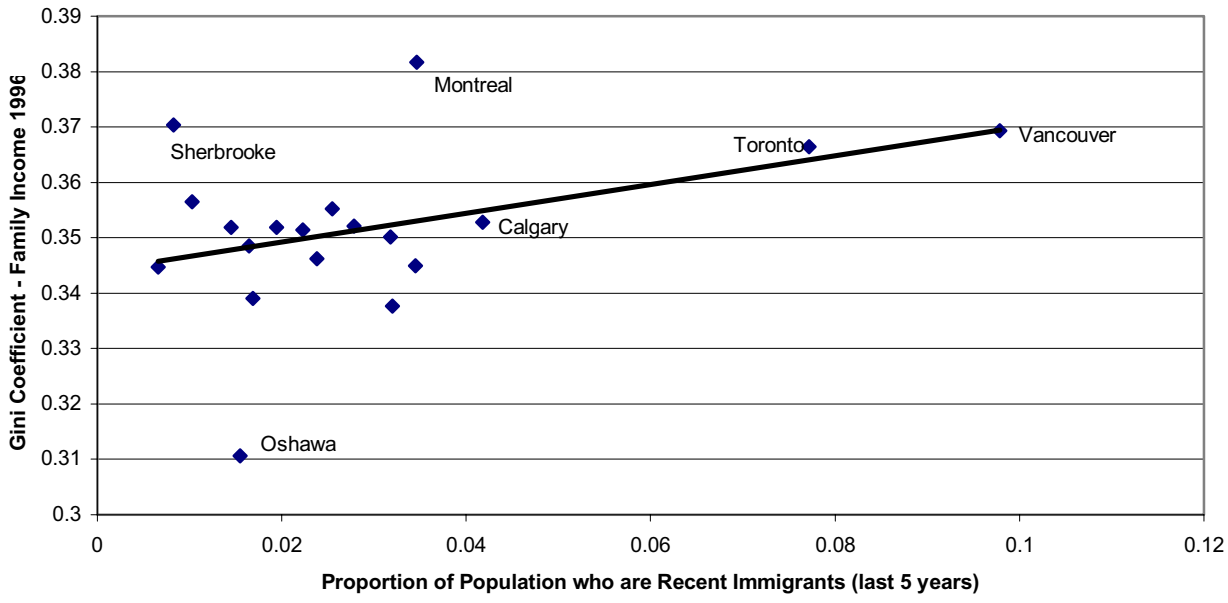


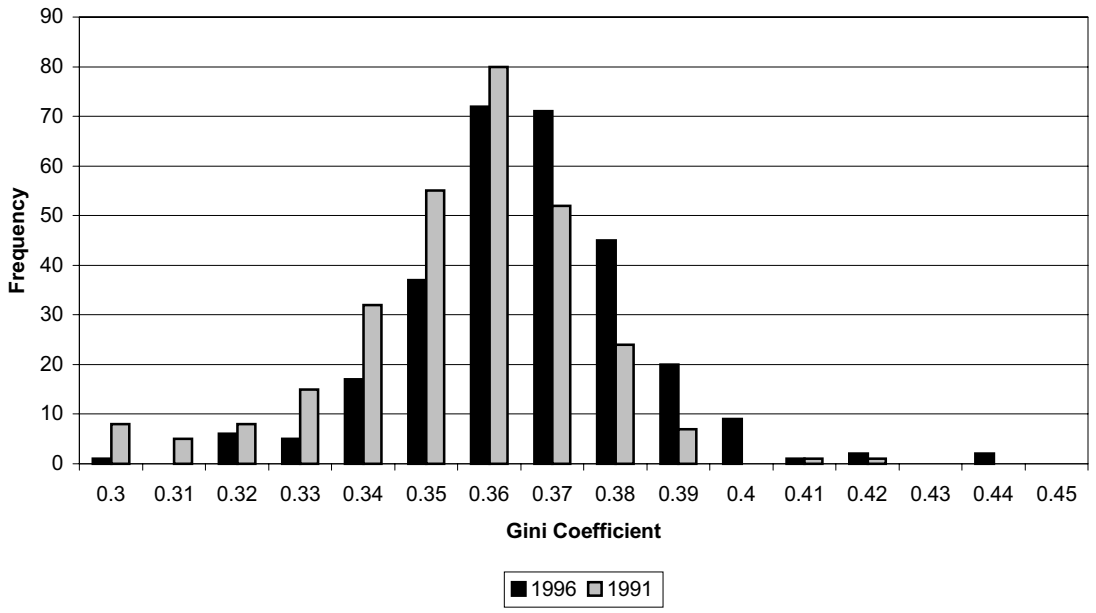
FIGURE 5: RELATION BETWEEN INCOME INEQUALITY AND RECENT IMMIGRATION BY CMA, 1996



5.3 *Local Scale*

At the census division level, variation and heterogeneity are the dominant features, which is to be expected from the sheer number (288) of units. Characteristics of the Gini coefficients derived for individual CDs, the summary measures of the difference between the two Ginis (Table 6) and their frequency distribution (Figure 6) indicate significant trends. Although there was a significant increase in the mean value of inequality between 1991 and 1996 as would be suggested by the national figures, the variation in Ginis decreased[4], although the maximum value and the range increased.

FIGURE 6: DISTRIBUTION OF GINI COEFFICIENTS
CENSUS DIVISIONS 1991, 1996



[4] Note that the national average is not the same as the average of the CD values as small populations receive the same weight as large populations in the latter calculation.

Table 6. Summary of 1991 and 1996 Gini Coefficients and the Change Between Them, Canadian Census Divisions.

	1991	1996	% Change
Mean	0.350	0.361	3.0
Standard Deviation	0.020	0.018	-8.3
Range	0.128	0.154	20.4
Minimum	0.283	0.282	-0.1
Maximum	0.410	0.436	6.3

The geographic variation in Gini coefficients is somewhat complex. In 1991, the greatest concentration of high Gini values are in the peripheral small communities in the North, in Ontario, Quebec and Manitoba as well as in the Yukon and North West Territories. There are relatively few high values in southern Ontario, Quebec and British Columbia. By 1996 (Figure 7), there have been increases in inequality across much of southern Ontario and Quebec, southern British Columbia and in the Maritimes (the changes are more clearly seen in Figure 8). At the same time, inequality has stayed the same or declined across much of Saskatchewan, Alberta and many northern communities.

The CD level data confirms the view that the increase in income inequality is largely an urban phenomenon. In addition, the high levels of inequality in northern communities with large native populations was maintained, so the reduction in the variation in inequality reflects these two components neither of which is a particularly positive comment on income distribution in the country.

Aggregate data at the CD level do not support a separate analysis of income distributions of the elderly at this scale. However, as one might expect, given the urban focus and the fact that larger urban centers tend to have younger populations than smaller urban and rural communities

Figure 7. 1996 Gini Coefficients, Canadian Census Divisions

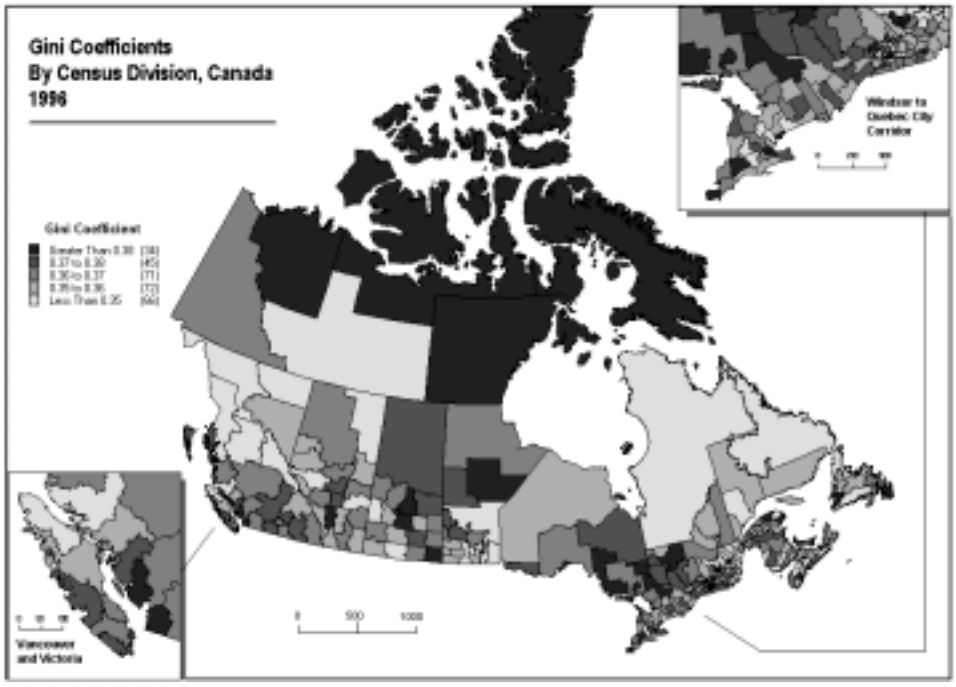
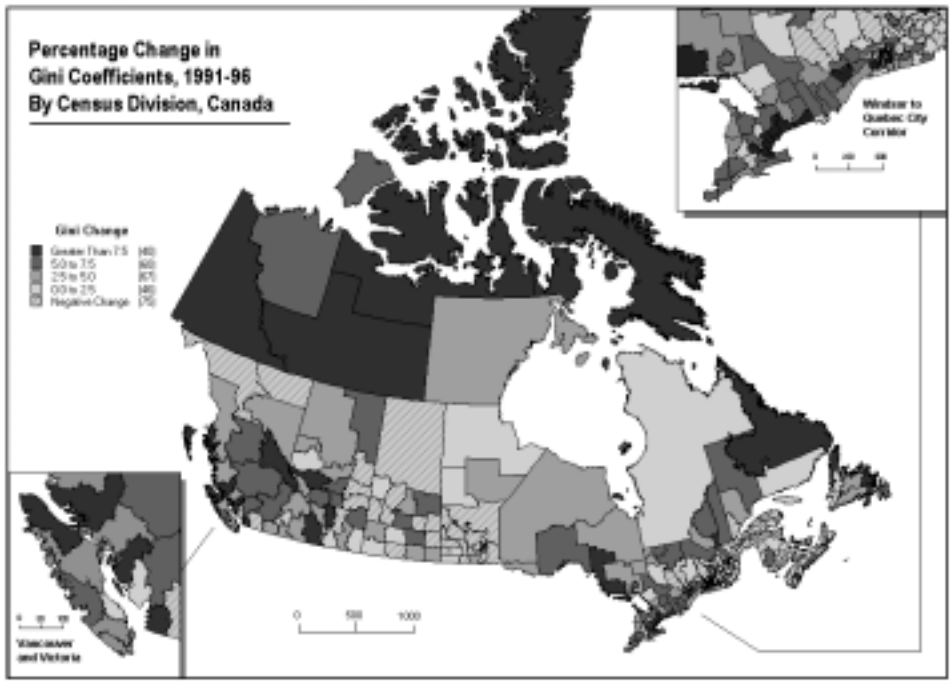


Figure 8. Change in Gini Coefficients, 1991 to 1996
Canadian Census Divisions



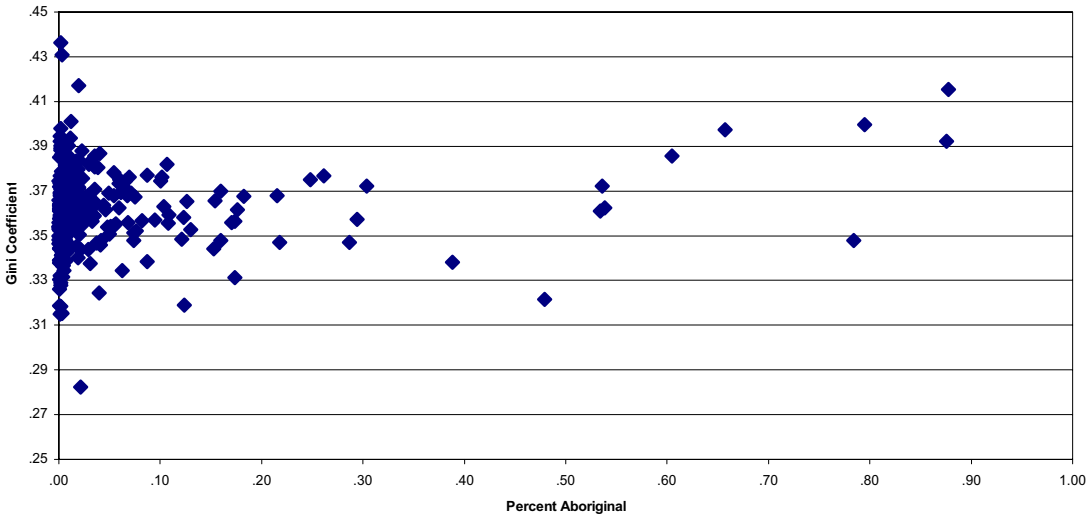
(Moore and Rosenberg, 1997) and that income inequality has not increased significantly among the elderly between 1991 and 1996, increasing income inequality is negatively associated with the proportion of the population who are over 65.

6. Relationships Between Income Inequality and Socioeconomic Factors

The CD level data provides an opportunity to examine the ecological relationships between community characteristics and income inequality. Figures 7 and 8 indicate that local experience of inequality varies considerably and this variation will reflect variations in underlying social, economic and demographic circumstances.

In the previous section we saw that there was a difference between the experience of northern communities with significant aboriginal populations and much of the southern part of the country. If we plot the relation between the 1996 Gini coefficent and the percent of the population who are aboriginal (Figure 9) we see that there is a strong positive relation for CDs

FIGURE 9: RELATION BETWEEN INCOME INEQUALITY AND PERCENT ABORIGINAL CENSUS DIVISIONS 1996



with more than about 10 percent aboriginal while, those below that level show little or no relationship. We made the decision to undertake our analyses for CDs with more than ten percent aboriginal and less than ten percent aboriginal separately, recognizing that the boundary is somewhat arbitrary.

6.1 *CDs with more than Ten Percent Aboriginal Populations*

Within this group of CDs, the effect of proportion aboriginal on income inequality in 1996 is still important. The only other sociodemographic variable to add to this relationship is the proportion of the population who are seniors where increases in the proportion are associated with increases in the value of the Gini coefficient (Table 7).

TABLE 7: REGRESSION ANALYSIS OF INCOME INEQUALITY
CDs WITH > 10 PERCENT ABORIGINAL POPULATION

Dependent Variable: Gini Coefficient 1996

Independent Variables	*B*	*St.Error*	*t-value*	*Sig.*
Constant	0.331	0.009	36.874	0
% Population Aboriginal (1996)	0.062	0.014	4.293	0.000
% Population Seniors (1996)	0.152	0.059	2.577	0.014
N	37			
R^2	0.345			
R^2 *(adjusted)*	0.308			

Dependent Variable: Change in Gini Coefficient 1991-1996

Constant	-7.569	3.142	-2.409	0.022
% Population Aboriginal (1991)	-11.873	3.698	-3.210	0.003
% Population Seniors (1991)	-27.052	12.542	-2.157	0.038
Unemployment rate (1991)	0.438	0.156	2.805	0.008
Average Dwelling Value (1991)	0.150	0.024	6.274	0.000
N	37			
R^2	0.671			
R^2 *(adjusted)*	0.631			

While this group of CDs experienced on average a 5% increase in income inequality between 1991-96, the relationship between change and the underlying variables was different from the relationship with levels of income inequality. Both percent aboriginal and percent seniors were strongly negatively associated with change while the positive associations were economic in nature. Higher unemployment rates and higher dwelling values in 1991 were strongly associated with increases in income inequality in those communities which started out with higher proportions of aboriginal and native groups in their populations. The negative association with percent aboriginal suggests some convergence but the effect was not large enough to reduce income inequality to similar levels to that in communities with proportionately fewer aboriginal members.

6.2 CDs with less than 10 Percent Aboriginal Population

Among this larger group of CDs, changes in income inequality have been strongly associated with certain aspects of metropolitan status, particularly the concentration of recent immigrants and unemployment (Table 8). The immigration relationship supports the finding in the previous section which focused on CMAs alone. Areas with higher unemployment rates are generally associated with higher proportions in the lower end of the income distribution. The additional contributor to this model is the proportion of the population who are seniors, which increases the income inequality in the community with greater proportions of families with lower incomes. The more notable results occur with the analyses of the changes in inequality. First, the basic relationship between inequality and seniors is reversed, with higher proportions of seniors being associated with lower increases in inequality. The role of recent immigrants becomes more important than the unemployment rate, with inequality increasing most notably for the largest metropolitan areas (see Section 5 above). We also noted in Section 5 that increasing inequality

TABLE 8: REGRESSION ANALYSIS OF INCOME INEQUALITY CDs WITH < 10 PERCENT ABORIGINAL POPULATION

Dependent Variable: Gini Coefficient 1996				
Independent Variables	*B*	*St.Error*	*t-value*	*Sig.*
Constant	0.330	0.005	72.462	0.000
% Recent Immigrants (1996)	0.519	0.071	7.339	0.000
% Population Seniors (1996)	0.158	0.029	5.540	0.000
Unemployment Rate/100 (1996)	0.047	0.015	3.115	0.002
N	249			
R^2	0.239			
R^2 *(adjusted)*	0.230			
Dependent Variable: Change in Gini Coefficient 1991-1996				
Constant	8.789	1.064	8.260	0.000
% Recent Immigrants (1991)	155.153	27.791	5.583	0.000
Ontario CD	3.415	0.643	5.307	0.000
Unemployment Rate (1991)	0.005	0.036	0.144	0.886
% Population Seniors (1991)	-56.414	6.601	-8.546	0.000
N	249			
R^2	0.416			
R^2 *(adjusted)*	0.406			

was strongest in Ontario and a regional dummy for Ontario shows that this differential increase is still present even when the other variables are controlled. What is illustrated in the maps of Figures 7-9 is the fine detail underlying the more general trends at national, provincial and metropolitan scales.

4. CONCLUSION

The initial findings confirm the accepted notion that income inequality increased at the national level in the first part of the 1990s, even though we have used pre-tax household income rather than the preferred post-tax measures. Annual data indicate that income inequality was increasing at an increasing rate during the latter part of the 1990s (Statistics Canada 2000b), a

finding which emphasizes the importance of repeating this analysis once the 2001 PUMF becomes available.

The evidence is persuasive; however, that both levels and patterns of change in inequality are highly variable in both demographic and geographic terms and that these differences play out at various spatial scales. The significant increases in inequality between 1991 and 1996 are confined to the working age population; inequality among seniors actually declined during the same period. Those components of income which are particularly relevant to seniors, namely private pensions, CPP/QPP and OAS payments increased substantially more than wage/salary incomes and UIC payments over this period. This situation is likely to be maintained for some time as growth in CPP/QPP will reflect growth in female labour force participation over the last three decades and pensions will also reflect overall growth in pension fund values in the last two decades.

Income inequality at provincial and sub-provincial scales presents a picture of surprising diversity. At the provincial level, the most notable changes were the significant increases in Ontario (4.9%) and Quebec (4.8%) followed by British Columbia (4.1%). Undoubtedly, these provincial shifts reflect the concentration of increasing inequality in the largest CMAs, notably Toronto, Montreal and Vancouver, but it also suggests that further research is desirable into the role played by provincial policies in influencing income distributions. Analysis of low-income status showed that Ontario also leads the pack in terms of increases in the proportion of both working age and senior populations who fell below Statistics Canada's low-income cut-off. The role played by provincial policies in weakening the social welfare benefits available to various segments of the population need careful consideration in identifying the underpinnings of changes in inequality.

Sub-provincial scales further define the diversity in experience of income inequality. The increases in inequality have focused on the larger metropolitan areas, which have also been the main recipients of sustained high levels of immigration. Recent immigrants comprise almost 10

percent of the population of metropolitan Toronto in 1996 and have considerably lower incomes than the population as a whole[5] and serve to increase the left-hand tail of the income distribution. However, it is not just Toronto but the majority of CMAs in Ontario which lie at the top of the list of increases in inequality.

Outside the large cities, two major factors contribute to patterns of income inequality. The experience of seniors as a group plays out at the census division level in that CDs with higher proportions of seniors tend to have noticeably lower increases in income inequality, although there is still a small positive impact on the level of the Gini coefficients. A second consistent factor in patterns of inequality is that played by the distribution of aboriginal and native groups. With significantly lower incomes than non-natives, the outcome is that communities with larger proportions of aboriginal groups in their population have significantly higher levels of income inequality. Although there has been some decline in this effect in the study period, it was not sufficient to negate the overall relationship and it indicates that much work is still to be done in generating further reductions in inequality in areas with significant aboriginal populations.

The analyses provided here demonstrate the basic characteristics of geographical structure and change in income inequality in the first part of the 1990s. Given that a number of basic conditions were maintained through much of the latter half of the decade, particularly sustained immigration concentrated on the largest cities and conservative fiscal policies focused on tax reduction rather than social programs, we might expect these trends to be continued. The data from the 2001 census will provide an opportunity to explore the progress of income inequality but we can be confident that the overall increase has been maintained.

Demonstration of increases in inequality enhances our understanding of one aspect of Canadian society. However, it does not address the fundamental question of whether such increases have important social consequences which would motivate us to seek policies which ameliorate these increases. Increases in the relative incomes of households in the upper tail of the

[5] Note that this only applies to recent immigrants and not to immigrants as a whole.

distribution could be construed as a positive sign of economic growth. Yet the persistent links between income inequality as a measure of the gaps between the most and least affluent in society, independent of absolute levels of income within the society, and a variety of social problems such as suicide, other violent crime, mortality and lower health status (Wilkinson, 1996, Osberg, 2000) suggest that there is substance to concerns about increasing income inequality. In a subsequent paper we will examine these linkages for Canadian data in greater detail.

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APPENDIX A: Previous studies using Canadian Data on Income Inequality

Authors	Years Studied	Income	Data Source	Geography	Ginis
Countryman, Galen J.	1975-1996	Gross Family Income	Survey of Consumer Finances	All provinces, excluding NWT and YK	Low: NFLD (.361); High: SAS (.390); Canada (.380)
Osberg and Sharpe	1991-1997	Individuals, after and pre-tax		All provinces	After Tax: 1991 (.357), 1997 (.362) Pre Tax: 1991 (.486), 1997 (.362)
Finnie, Ross	1982-1994	Individual income	Longitudinal Administrative Datababank, HRDC	All provinces, excluding NWT and YK	Low: SAS and MAN (.384); High: NFLD (.475); Canada (.396)
MacLachlan and Sawada	1971-1991	Gross Household Income	Census Data	Census Metropolitan Areas	1991: Low: Thunder Bay (0.115); High: Montreal (.186)
Zyblock and Lin	1973 to 1995	Pre-transfer Family Income	Survey of Consumer Finances	Canada	Couples with Children: (0.33); Lone parents: (0.57); Couples, no children: 0.35; Other Families: (0.37)
MacPhail	1981-1989	By Gender + full population; males w/ and w/o self-employment income	Survey of Consumer Finances; Survey of Work History/Labour Market Activity Survey	Canada	Base data, SCF, males: (0.351) SWH/LMAS: full population (0.406); men (0.249); women: (0.4178)
Mutaner, Lynch and Oates	1994	Household, after tax	Not stated. Short report on analysis authors completed on OECD countries	Canada + 20 other countries	0.287; average change per year of approximately 0.05% in Gini between 1979-1995
Wolfson and Murphy	1997	Family disposable income	Survey of Consumer Finances	Canada / United States comparison	1974: 0.324; 1985: 0.313; 1995: 0.306
De Nardi, Ren and Wei	2000	Household Gross income, disposable, factor income and earnings	Survey of Consumer Finances 1994; limited to household heads between 25 and 50	Canada + 4 other countries	Gross income: 0.34 Disposable income: 0.31 Factor income: 0.40 Earnings: 0.41
Osberg	2000	Household, after tax; equivalent incomes	Survey of Consumer Finance, 1971-1994	Canada + 4 other countries	1971: 0.315 1975: 0.288 1981: 0.283 1987: 0.287 1991: 0.284 1994: 0.286
Ruiz-Martinez, Jesus; Rosa Martinez; Luis Ayala	1999	Household after tax income; equivalent incomes	Survey of Consumer Finances, 1981-1994	Canada + 13 other countries	"around 1990" : 0.252

APPENDIX B: Changes in the Components of Individual Income 1991-1996

The differential change in income inequality between those in the labour force years and seniors between 1991 and 1996 is an important element in our understanding of the dynamics of income distributions. In trying to understand why these differences occur, we examined the changes in several components of income which have differential import for the population sub-groups involved. These sources embrace earned income, investments and government transfers.

TABLE B1: DISTRIBUTION OF INCOME BY SOURCE, 1991-1996

	Female		*Male*	
Source of Income	***25-64***	***65+***	***25-64***	***65+***
	Source as Percent of Total Income - 1996			
Wages	77.9%	5.0%	79.5%	10.3%
Self Employed Income	4.2%	0.8%	7.2%	3.6%
UIC	3.1%	0.2%	2.2%	0.4%
Investment Income	3.7%	17.7%	2.6%	13.1%
Retirement Pensions	2.2%	15.6%	3.0%	27.4%
OAS	0.3%	36.8%	0.0%	20.4%
CPP/QPP	1.7%	17.5%	1.0%	18.7%
Total Government Transfers	10.4%	60.0%	7.2%	44.9%
	Change in Percentage 1991-1996			
Wages	-2.0%	-23.7%	-1.6%	-24.0%
Self Employed Income	9.7%	2.1%	-5.0%	-1.4%
UIC	-0.8%	20.0%	0.2%	17.9%
Investment Income	-34.5%	-31.7%	-24.9%	-32.5%
Retirement Pensions	63.2%	33.4%	50.8%	24.7%
OAS	-11.6%	2.0%	1.0%	2.2%
CPP/QPP	45.4%	39.4%	65.0%	22.5%
Total Government Transfers	26.0%	11.5%	27.1%	11.1%

Source: Statistics Canada, PUMF 1991, 1996

Table B1 provides basic information on the distribution of individual income by source in 1996 and the changes which occurred between 1991 and 1996. The distributional data for 1996 reflects conventional wisdom. The primary source of seniors' income is in the form of government transfers, although this is more important for women than men. The structure of seniors income also differs by sex; Old Age Security and the Guaranteed Income Supplement is the most important for women, while Pension incomes are more significant for men. What is more dramatic is the nature of the changes in reported income which occurred during the five year

period between censuses. The leaders in terms of increasing importance in contribution to income were retirement pensions and CPP/QPP; although the increases were larger for those below 65, the increases were in small proportions, while for seniors they enhanced the overall significance of these components. In contrast, both wages and, particularly, investment income experienced declines in their relative roles. Changes in private and public sources of income favoured seniors relative to those in the labour force years. These trends will continue as the investment in future income continues to grow apace among those in the labour and the income streams reflect the investment and associated growth over the previous two decades.

There is differential participation with respect to the various components of income, which means that changes in total amounts due to each source reflects both changes in participation and changes in average amounts for those who receive payments from each source. Table B2 and Figures B1-B4 illustrate both the structure of the two components (participation and average receipts) for each source broken down by age and sex. The components of improvement in income for the elderly can be clearly seen. Both CPP/QPP and private pensions increase significantly more than other components both in terms of the proportion of recipients in each age category and in the average value of the amounts received. The rates of increase are greater than for total income, OAS and UIC, except for UIC increases among the young elderly (65-74) where there is a sizeable increase, although in relation to a low starting point in 1991.

FIGURE B1: RATIO OF PROPORTION RECEIVING CPP/QPP and UIC 1991-1996

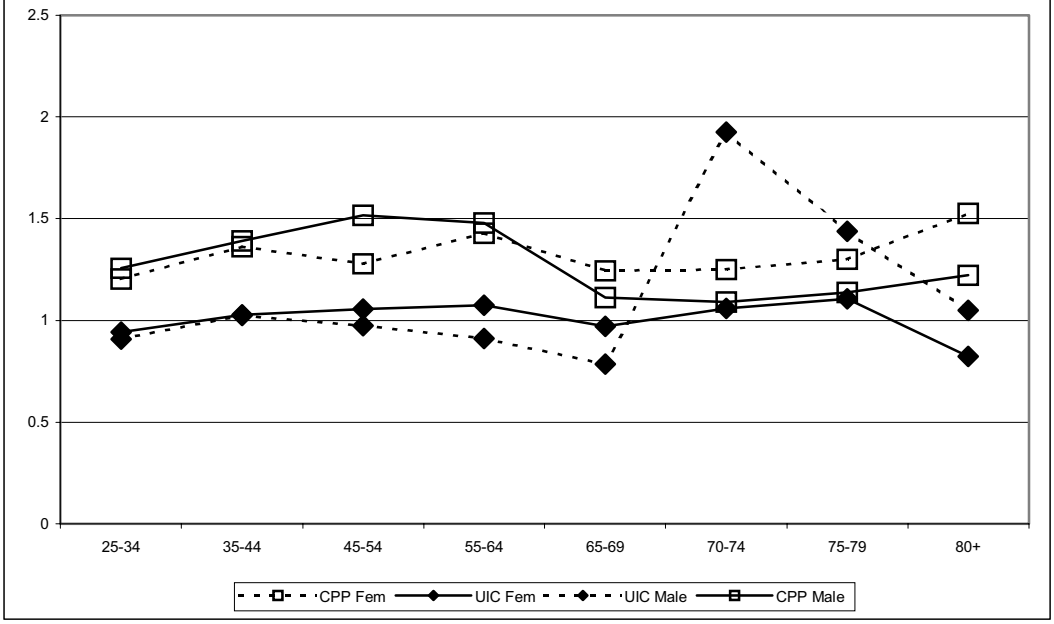


TABLE B2: PARTICIPATION AND AVERAGE RECEIPTS BY INCOME SOURCE, 1996

Income Source	Sex	Age							
		25-34	*35-44*	*45-54*	*55-64*	*65-69*	*70-74*	*75-79*	*80+*
		Percent of Population Receiving Source							
CPP/QPP	Female	1.6%	2.9%	6.0%	32.3%	75.0%	75.8%	73.4%	68.6%
	Male	1.3%	2.0%	3.8%	29.0%	87.2%	91.2%	90.5%	85.7%
OAS	Female	0.0%	0.0%	0.0%	8.4%	83.0%	96.9%	97.6%	97.9%
	Male	0.0%	0.0%	0.0%	1.2%	72.3%	96.6%	97.8%	97.8%
Retirement Pensions	Female	2.5%	2.7%	3.8%	15.9%	31.3%	37.9%	34.9%	27.4%
	Male	2.8%	3.2%	5.0%	24.8%	50.6%	57.5%	55.9%	44.9%
UIC	Female	15.3%	11.7%	9.1%	5.4%	2.4%	0.9%	0.5%	0.5%
	Male	12.1%	9.5%	8.2%	7.7%	3.2%	1.3%	0.9%	0.9%
Investment Income	Female	13.2%	18.7%	25.4%	34.8%	44.7%	48.8%	50.9%	50.0%
	Male	13.2%	18.6%	24.4%	33.5%	45.6%	51.0%	54.9%	55.5%
		Average Dollars per Recipient							
CPP/QPP	Female	$4,024	$4,906	$5,180	$4,006	$3,846	$4,062	$4,037	$3,610
	Male	$4,479	$5,525	$6,269	$5,300	$5,423	$5,819	$5,392	$4,478
OAS	Female				$4,471	$5,819	$6,350	$6,685	$7,400
	Male				$4,693	$5,830	$5,821	$5,901	$6,325
Retirement Pensions	Female	$3,958	$6,115	$8,620	$10,792	$8,011	$7,724	$7,777	$7,290
	Male	$4,409	$7,523	$14,327	$19,791	$14,360	$13,626	$12,709	$10,726
UIC	Female	$4,393	$4,161	$3,892	$3,947	$3,904	$3,970	$4,084	$4,694
	Male	$4,864	$5,501	$5,599	$5,731	$5,300	$4,934	$5,328	$5,224
Investment Income	Female	$1,800	$2,569	$3,949	$5,480	$5,429	$5,834	$6,223	$6,885
	Male	$2,524	$3,599	$5,085	$6,648	$6,398	$6,072	$6,725	$8,108
TOTAL	Female	$20,434	$24,153	$24,590	$17,954	$15,914	$16,732	$17,038	$16,706
	Male	$29,233	$38,761	$41,890	$34,685	$27,517	$25,907	$24,698	$22,002

Source: Statistics Canada, PUMF 1996

FIGURE B2: RATIO OF AVERAGE VALUE OF CPP/QPP, UIC AND TOTAL INCOME 1996/1991

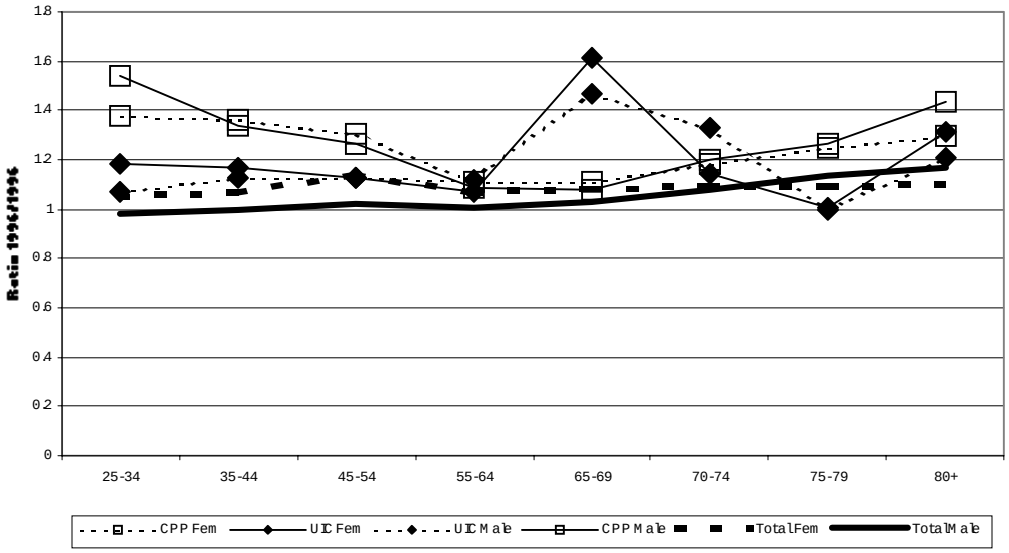


FIGURE B3:RATIO OF PROPORTION WITH PENSION RECEIPTS 1996/1991

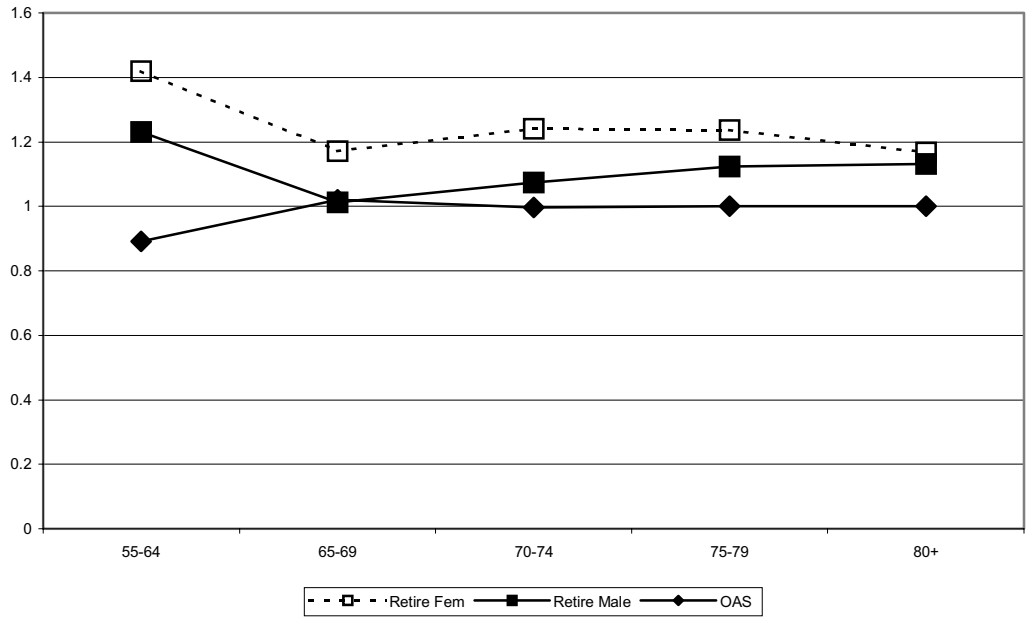
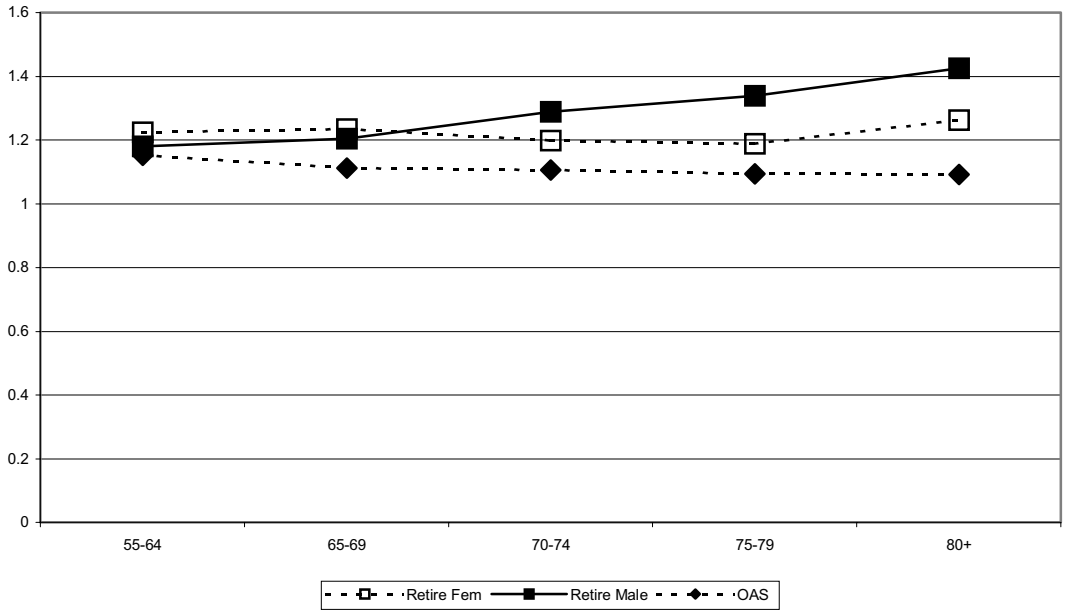


FIGURE B4: RATIO OF AVERAGE VALUE OF PENSION/OAS RECEIPTS 1996/1991



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