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Intracohort Income Status Maintenance: An Analysis of the Later Life Course

Steven G. Prus

SEDAP Research Paper No. 51

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Intracohort Income Status Maintenance: An Analysis of the Later Life Course

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Abstract

This paper examines the extent to which an individual's income status position relative to others in one's own cohort is maintained over the later life course. Changes in the income status of individuals are estimated within a synthetic cohort. Using a series of cross-sectional datafiles from about every fifth Survey of Consumer Finances starting in 1974, the findings show that individuals born between 1924 and 1928 with early life socio-economic status advantages, namely high education, improve their absolute and relative income status position vis-à-vis others in their own cohort with status disadvantages from ages 46 to 64. Over the ages of 65 to 74, the pattern of economic well-being of individuals with status advantages and disadvantages reflects an income status convergence. Because Canada's old-age public welfare state is relatively well-developed in terms of comprehensiveness and generosity, it does a good job at countering the effects of status background characteristics on the distribution of income in old age; that is, it substantially weakens the relationship between education and income as individuals enter old age. In absence of these programs (i.e. up to age 64), the relative position of those with high education and other advantaged groups is strengthened.

Introduction and Literature Review

This paper examines changes in the income status of individuals within a cohort over the later stages of the life course. The primary research question asks if individuals with early-life socio-economic status (SES) advantages, such as those with high education, maintain their relative income status position during old age. Intracohort status maintenance (i.e., the degree to which one's position relative to others in one's own cohort is maintained) is an important question because there are fundamental changes in labour force status, health, and income over the later life course. For instance, economic status in early and middle age depends largely on income from earnings, and on public and private transfers (which are less clearly connected to market forces than earnings) after age 65. An examination of the dynamics of income over the later life course of individuals therefore provides insight into the redistributive impact of the retirement income system vis-à-vis the market income system.

There are varying assumptions and findings in the literature about the pattern of economic outcomes over the later life course. Looking at income returns of education before and after taxes and government transfers, Myles (1981) finds that Canadian public pension and tax systems play an important part in reducing income inequalities between SES (i.e., education) groups after age 65. Specifically, the primary goal of public policy is to redistribute income from the rich to the poor; thus, the old-age welfare system produces a more equal distribution of income than the labour market. A progressive tax system, coupled with a relatively unskewed distribution of public pension benefits that become a key source of income for seniors, improves the income status position of those

with early-life socio-economic disadvantages compared to those with advantages. The pattern of economic well-being over the later life course of individuals with these advantages and disadvantages therefore reflects an "income status convergence."

Despite the progressiveness of public welfare systems, others argue that their equalizing effects are diminished by extremely skewed distributions of private savings and pension income. First, Esping-Andersen (1990) contends that policies and programs in liberal, market-oriented welfare states - welfare systems that provide income-tested assistance, some universal benefits, and/or modest social insurance benefits, such as Canada - play an insignificant role in reshaping old-age income inequalities. This is because the public pension system in Canada is comprised of programs that act to both equalize incomes (e.g., Old Age Security - OAS - programs) and reinforce pre-retirement income inequalities by favoring those who made higher contributions over the life course (e.g., Canada/Quebec Pension Plans – C/QPP). The fact that liberal social policies are primarily concerned with maintaining, not changing, economic status in retirement is also reflected in the state's support for private sector solutions for income security and maintenance in old-age, the subsidization of the private welfare system through tax incentives, and relatively low-level public pension benefits. In the end, even though mean income levels may be considerably lower, economic status position in old age represents the continued effect of positions generated by the labour market (i.e., an "income status maintenance").

Henretta and Campbell (1976) and, more recently, Pampel and Hardy (1994a) find support for this argument. Looking at a synthetic cohort of men aged 55 to 64 in 1962 and aged 66 to 77 over a decade later, Henretta and Campbell show that the variables

with the biggest effects on pre-retirement income (e.g., occupational status) have almost identical influences on income in retirement. Similarly, Pampel and Hardy using panel data find that the socio-economic determinants of income prior to retirement remain equally strong indicators of income in retirement.

Second, it is further argued that those with SES advantages experience more than a continuation of income status position in old age. That is, despite the redistributive goal of public pension benefits, the retirement income system enhances the relative income positions of individuals with SES advantages, as economic resources, which are closely associated with these advantages, cumulate and compound with age (e.g., Crystal and Shea, 1990a; Crystal et al., 1992; Mehdizadeh and Luzadis, 1994; O'Rand, 1996).

Individuals with advantages in education and employment, for instance, are more likely to have early and sustained participation in one job that provides highly valued retirement savings schemes through private pension and savings plans (e.g., Registered Retirement Savings Plans) (O'Rand, 1996). Since they are most likely to have accumulated the resources (e.g., pensions, savings, and investments) needed to withstand the financial stresses brought on by old age (e.g., changes in labour force status), they tend to improve their relative income status position in later life (Pampel and Hardy, 1994b). Their economic life course therefore reflects a "cumulative advantage." On the other hand, low education or occupational status has the opposite effect. Individuals with such SES disadvantages are more likely to have unstable work histories, greater likelihood of occupational illness or injury, and lower savings/pension credit accruement, leading to economic hardship in old age (Crystal and Shea, 1990a). In other words, they experience a loss of labour income coupled with little or no resources to replace this

income, and consequently face a sharp drop in income in old age as they are constrained to the bottom of the income distribution by their dependence on government benefits. This process mirrors a "cumulative disadvantage."

The accumulation of economic resources for some individuals, and the economic perils that old age brings for others, implies that there will be a grossly unequal distribution of retirement income from private sources, which will outweigh the redistributive function of government transfers and taxes. Income inequalities between SES groups within a cohort will therefore expand over the later life course (i.e., the later-life pattern of economic well-being of individuals with SES advantages and disadvantages reflects an "income status divergence").

This model has found considerable empirical support, especially in the U.S.. Using data from the U.S. National Longitudinal Survey of Older Men, Crystal and Waehrer (1996) and Pampel and Hardy (1994b) report that the level of relative income inequality within a cohort increases over the later stages of the life course. Cross-sectional analyses of income inequality rates across age groups in the U.S. also lend support to this model (e.g., Crystal, 1996; Crystal and Shea, 1990a; Hedstrom and Ringen, 1990).

Methodological Approaches to Intracohort Status Maintenance

This paper measures the extent to which individuals with SES advantages that develop during the early part of the life course do or do not maintain their status position within the distribution of income over the later life course. The methods used to estimate intracohort status maintenance, which are based on the appropriateness and validity of the measures, are discussed in this section.

Data Intracohort status maintenance is best addressed with panel data that follow the same individuals over a sizeable amount of time. Given that such data are not readily available in Canada, a synthetic cohort approach is employed. Based on a series of cross-sectional data from the Canadian Survey of Consumer Finances (SCF), the impact of background status characteristics on income is estimated at various points in the later life course of a given birth cohort. Specifically, the effects of SES variables are separately estimated for persons born between 1924 and 1928 from about every fifth cross-sectional file, starting in 1974, of the SCF. Thus, data from the 1974, 1978, 1983, 1988, 1993, and 1998 SCF are used. In the end, income inequalities between SES groups for this birth cohort are estimated over this 24-year span, or from ages 46 to 74.[1] The sample sizes are follows: 2,293 in 1974 (i.e., ages 46-50); 3,150 in 1978 (50-54); 2,843 in 1983 (55-59); 2,954 in 1988 (60-64); 2,607 in 1993 (65-69); and 1,998 in 1998 (70-74).

The SCF, produced annually by Statistics Canada, is used in this analysis for various reasons. First, it provides a comprehensive series of economic indicators, with each file providing data on a representative sample of approximately 25,000 Canadian households. Since the SCF covers all private households, it represents more than 97.5% of the

Canadian population. Second, the SCF uses similar variable categorization, notably in terms of income and SES variables, and methodological design (e.g., sampling procedure), making comparisons of SCF data from different years possible.

Measurement Since personal income can underestimate the economic well-being of individuals who depend on the resources of other family members, this study uses a broader income measure - total annual money income received by all "economic family" (this term refers to persons living in the same household who are related to each other by blood, marriage, common-law, or adoption or unattached persons) members from all sources, minus direct taxes. Families are grouped according to the age of the family head. Thus, the family head is the unit of analysis and "economic family" income is the income measure. [2]

An adjustment is made for family size as unadjusted family income can underestimate income of older persons (i.e., non-aged families typically share their income with more people) (Crystal and Shea, 1990b). There are various equivalence scales for such adjustments (Atkinson et al., 1995). A common method used to control for family size is to divide total family income by the number of persons in the family, producing family income on a per capita basis. This approach does not take into account the "economies of scale" in families, and can underestimate family resources. Total family income is therefore divided by family size raised to the power of .5 (i.e., the square root of family size), which offers an intermediate between using per capita income and using no adjustment for family size. This equivalence scale is commonly used in income distribution studies (e.g., Atkinson et al., 1995; Myles and Quadagno, 1994; Rainwater et al., 1986). Hence, family income is divided by: 1 for a one-person family, 1.41 for a two-

person family, 1.73 for a three-person family, and so on. In other words, a family of two, for example, needs 1.41 times the income of a one-person family to be equally well off. [3]

In terms of measuring SES, occupation and/or education are commonly used indicators. Education is used in this paper because it is generally fixed after early adulthood, and usually occurs prior, and thus is causally related, to occupation and income. Education in the SCF is measured on a six-category scale - elementary schooling or less (symbolized here as <9), some high school (9-11), high school graduate (HS), some post-secondary, college/technical school graduate (this category is collapsed with some post-secondary) (OthPS), and university graduate (Univ).

Analysis Intracohort status maintenance is measured in both relative and absolute terms. Absolute income is the actual dollar amount received by a family; relative income is a family's share of total income. Absolute income differences are therefore the dollar distances between families who fall at different points in the income distribution, and relative income differences refer to the share of the income pie allocated to different families at different points in the income distribution (Myles, 1981).

A study of economic well-being should include both absolute and relative levels of economic well-being since analyses of income shares ignore differences in real total income, and vice versa. Myles (1981) points out that the distinguishing feature of relative and absolute income and their estimation techniques is their response to a) the addition (or subtraction) of a constant income figure and b) a constant proportional increase (or decrease) in income. Relative measures of income differences (such as the popular Gini and Theil coefficients) are sensitive to the addition/subtraction of a constant income figure, but not to a constant proportional increase/decrease in income. For instance, they

remain the same under constant proportional increases in income, but become less dispersed with the addition of an income constant. The opposite is true of absolute measures of income differences, such as the standard deviation and unstandardized linear regression coefficient. For example, they are unaffected by the addition of a constant, but are increased by a multiplicative (i.e., proportional) rise in income. Given that this study is concerned with economic change over the later life course when principal income sources shift from the labour market to the retirement income system, it is particularly important to measure income differences between individuals with status advantages and disadvantages in both absolute and relative terms.

The analysis of absolute income differences in this paper involves comparing the influence of education before and after the transition to old age using ANOVA (analysis of variance) techniques. Differences in mean income of education groups (i.e., absolute income inequalities) are estimated and compared for persons born between 1924 and 1928 in 1974, 1978, 1983, 1988, 1993, and 1998.

Theil's information-based (or entropy) index is used to estimate the portion of the total income pool accruing to education groups (i.e., relative income inequality) before and after the transition to old age. Similar to the decomposition of means by ANOVA, Theil's index can be decomposed into within- and between-group components of relative inequality (Theil, 1967). The between-group figure represents the degree of inequality if all families in each education group get the average income for that group, while the within-group figure is an average of each within-group inequality weighted by the total income of each group (Pampel and Hardy, 1994a). Together, within- and between-group inequality sum to total inequality.[4] A comparison of between-education inequality before

and after old age therefore indicates the changing effect of education on relative income shares over the later life course. Hence, an increase (or decrease) in between-group inequality reflects relative economic status divergence (or status convergence).

Limitations Many technical issues must be addressed when estimating economic well-being over the life course. While no methodological approach is perfect, the choices made here are based on the validity and reliability of the measures and on those most utilized by other researchers in this field of study. However, some issues are less easily resolved.

First, patterns of economic outcomes over the life course are best analyzed with long-term panel data. The approach used here with cross-sectional data is the best alternative to panel data. Using a series of snapshot data for one year at a time as a proxy for lifetime income data is a reasonable substitute for genuine panel data, and may produce more reliable estimates than longitudinal data. That is, using a series of random samples from the same cohort eliminates the problems caused by attrition in real panels (Browning et al., 1985).

Second, it is plausible that SES differences in later-life income, especially in very old age, are underestimated because many of those with lower SES have died, been institutionalized, or are unable to participate in a survey to due poor health (Mustard et al., 1997). This ultimately leaves a comparatively higher-income population of non-institutionalized older persons. However, when compensating for the selective effects of mortality levels (i.e., by weighing the data used here to adjust for age-specific SES differences in mortality using figures derived from a mortality study by Mustard et al., 1997), measures of economic well-being in old age did not dramatically change. Henretta

and Campbell (1976) also find that after re-weighting income data for the effects of education differences in mortality estimates of post-retirement income change very little. The data used here, as a result, are not adjusted for any differences in mortality and morbidity.

Third, an important question is to what extent is the pattern in income inequalities between education groups over the life course the result of age, cohort, and period effects. While it is possible to separate age and cohort effects with the synthetic-cohort method used here, it is more difficult to separate age from period (i.e., time of measurement) effects. To isolate period effects from age effects, levels of income inequality by education over the later life course of other cohorts were also estimated. In general, the impact of period effects appears minimal, as similar patterns were observed for all cohorts. Hence, the findings presented in this paper on changes in the income status of persons born between 1924 and 1928 are unlikely to be the result of extensive or important period effects.

Fourth, this analysis offers only an approximation of the intracohort status maintenance process. If the data show that education continues to have a large impact during old age, for example, it can only be inferred that those who are economically advantaged in old age are the same individuals who were economically advantaged at earlier stages of the life course.

All things considered, the methodological decisions made here produce more valid and comparative findings than would have been obtained without considering the inherent biases in the data (e.g., not controlling for family size when analyzing family income) and in the estimation techniques (e.g., not using both absolute and relative measures of

income inequality) available for this type of analysis. The estimates of economic well-being produced here are therefore interpreted with a high level of confidence.

Measuring Education Differences in Income over the Later Life Course

Relative Income Differences The extent of total income inequality in family income (in relative terms) for all Canadian family heads born between 1924 and 1928 is compared across time in the first row of **Table 1**. Income inequality steadily increases from ages 46 to 64 (i.e., 1974 to 1988), with a dramatic rise between the ages of 55-59 and 60-64 – the Theil index of total inequality jumps from .169 to .201.

Table 1 about here

Another notable observation in **Table 1** is the decline in the level of total income inequality during old age. In 1993, when cohort family heads reach the ages of 65-69, inequality is considerably lower compared to five years earlier (i.e., .109 in 1993 versus .201 in 1988). The Theil coefficient falls further to .105 in 1998 (ages 70-74).

Since changes in the extent of overall income inequality within a cohort are a direct consequence of the intracohort status maintenance process, it is reasonable to assume that those with early-life SES disadvantages (i.e., low education) enhance their relative income status position during old age. It is possible to test this assumption by decomposing the level of overall income inequality in the first row of **Table 1** into its within- and between-group components. As shown in the second row of **Table 1**, education explains an increasing amount of the variance in total income inequality from ages 46 to 64, and then steadily decreases in old age. The between-group component of relative income inequality due to education grows from .015 at ages 46-50 to .028 at ages

60-64 (as a percent of the total, it grows from 10.4% to 13.9%), then is more than cut in half at ages 65-69 (from .028 to .012 or, as a percent of the total, from 13.9% to 11.0%). There is also a trend toward greater relative income equality between education groups in old age – the Theil index of between-group inequality for education falls to .011 at ages 70-74 or, as a percentage of total income inequality, to 10.5%.

Table 2 provides another perspective on deconstructing total income inequality in relative terms. By comparing shares of total income by education at different points in the life course of cohort members born between 1924 and 1928, it is possible to see changes in the share of total income owned by each education group. The data in this table are adjusted for differences in the size of education groups; that is, the data are weighted so that each education group represents one-fifth of the total sample.

A notable finding in **Table 2** is the small proportion of total income in the lowest education group (i.e., <9). Their share of all incomes is just 13.8% at ages 60 to 64. By the time cohort family heads reach old age, this share jumps to 15.7% at ages 65 to 69 and 15.8% at ages 70 to 74. The relative situation of those with some high school education (i.e., 9-11) also improves in old age - 17.9% at ages 65-69 and 18.1% at ages 70-74. These increases in income shares for the bottom two education groups come mainly at the expense of the top education group (i.e., Univ), who in 1998 possesses 26.9% of all incomes compared to 29.8% in 1988. The findings also show that middle-educated families tend to experience little change in their relative standard of living as they grow old. At ages 46-50, the income share of the third and fourth education groups (i.e., HS and OthPS) is 19.6% and 21.8%, respectively; by ages 70-74, these figures remain largely unchanged at 19.2% and 20.0%.

Table 2 about here

Absolute Income Differences An implication of the changing impact of education in relative (income share) terms is that a similar pattern should be observed in absolute (dollar) terms. **Table 3** shows trends in mean family income and standard deviations (in 1998 dollars) over the middle and later stages of the life course of each education group. In general, average income increases for all education groups from ages 46 to 59 then declines at ages 60 to 64. Cohort members with a high school education or less (i.e., <9, 9-11, and HS), however, experience the largest declines in mean income between the ages of 55-59 and 60-64. Further, the mean income of those with elementary schooling or less (<9) is only 80% of the average income of all cohort members aged 60-64 - $18,944 compared to $23,606.

Table 3 about here

As a measure of dispersion of income (in absolute dollars) around the mean, **Table 3** also presents the standard deviation of the mean incomes of education groups. The findings in the last row show a widening income gap across education groups over the traditionally-defined working years, which peaks at ages 60-64 - the average gap in family income between education groups is $8,234.

While the findings show an increase in differences in the income trajectory across low and high education groups during the later working years, this pattern does not continue in old age. The average difference in mean family income between education groups is

substantially reduced to $4,873 at ages 65-69 and $4,869 at ages 70-74. As a result, the ratio of mean income of families headed by those with elementary schooling or less, for example, to the mean for all cohort members increases to 85.7% at ages 65-69 (i.e., $18,397/$21,472). By contrast, it dramatically falls at this stage of the life course for those with a university degree – from 172.6% ($40,741/$23,606) at ages 60-64 to just 146.3% ($31,405/$21,472).

Explaining Education Differences in Income Income inequalities, in both relative and absolute terms, between education groups generally vary over the later life course – they increase up to ages 60-64, and then decrease during old age. This inverted "u-shape" pattern is likely explained by unemployment problems among certain groups of older workers, then by greater government intervention in old age.

Specifically, while many older workers (e.g., ages 45-64) remain in the work force, a substantial percentage of them either voluntarily or involuntarily exit the labour force or reduce the numbers of hours they spend working, especially as they age (Marshall, 1995). The decision to exit the labour force is also linked to socio-economic status (Schellenberg, 1994). Factors such as failing health and chronic unemployment are most prevalent among less skilled and educated older workers. Since they are more likely to be discouraged or forced into retirement by poor working conditions and health, redundancy, and unemployment/job loss, they are less likely to remain in the labour force as long as their higher status counterparts. With little or no employment earnings, their economic status position can be significantly reduced because most federal and provincial retirement income programs are not available until age 65, thus, increasing the rate of income inequality between education groups.

Differences in the income trajectories between education groups do not continue to grow in old age, though. This suggests that individuals with education advantages compared to those with disadvantages do not on average enhance their economic status position during old age. A decrease in income inequalities between educational groups lends support to the "income status convergence" model, which assumes that a decline in income inequalities across SES groups during old age is the result of increased reliance on government benefits that are largely redistributive. This assumption is tested in **Table 4**.

Focusing on cohort members in 1998 (i.e., at ages 70-74), when income inequality across educational groups is at its lowest level, the data show that OAS (which includes the Old Age Security pension, Guaranteed Income Supplement, and Spouse's Allowance) and C/QPP programs make a significant contribution to income equality. Both OAS and C/QPP income is more equally distributed than total income: the lowest education group, for example, receives only 14.7% of total income, but receives 22.4% and 16.7% of all income from these sources, respectively. Further, the lowest/highest education group ratios for the OAS and C/QPP are 1.23:1 (i.e., 22.4%/18.2%) and .73:1 (i.e., 16.7%/22.8%). In other words, those with an elementary education or less receive $123 and $73 in OAS and C/QPP income, respectively, for every $100 received by those with a university education. The three middle education groups each receive an equal share - about one-fifth - of OAS and C/QPP income. The distributions of private sources of income, however, are highly skewed. This is especially the case with private pension income. The lowest education group (<9) receives just 7.5% of total private pension income, whereas 41.3% all income from this source is received by the highest educated families (Univ).

Table 4 about here

In the end, the findings show that the redistributive impact of government policy in Canada is significant, countering the effects of education on the distribution of income in old age. The OAS and C/QPP systems have the largest impact on the process of intracohort income inequality; that is, they strengthen the relative position of those with lower education. Education continues to have an impact on economic status during old age. This persistence stems from unequal distributions of all private income, particularly private pension income.

Gender and Ethnicity Dimensions The findings discussed thus far provide a general picture of trends in income inequality between education groups over time. However, is this pattern similar for various socio-demographic groups? A cohort analysis of income inequality for family heads born between 1924 and 1928 by gender and ethnicity (i.e., Canadian-born versus Foreign-born) is shown in Tables 5 and 6.

While there is a positive then negative association between level of relative and absolute income inequality and education from mid- to late-life for male-headed families (consistent with the findings described in **Tables 1-3)**, the pattern is much different for female-headed families. The Theil index is highest at ages 46-50, and differences in education explain almost one-quarter (22.8%) of the variance in the total level of income inequality at this stage (see **Table 5**). Subsequently, these figures steadily decline into old age. Absolute income differences among female-headed families follow a similar path: they are highest at ages 50-54, and then progressively decline. Because income inequalities between educational groups peak at a much later stage in the life course of

male-headed families (i.e., ages 60-64), inequalities are wider in old age for them compared to female-headed families. For instance, education leaves only 7.1% (.005/.07) of the relative inequality in family income remaining between-groups for female family heads in 1998 (i.e., ages 70-74); the comparable figure for their male counterparts is 13%.

Table 5 about here

A high level of income inequality among female-headed families during the traditional working years (i.e., up to age 60) suggests that some families headed by women are able to overcome income barriers while most others are not. In old age, this trend is reversed as the retirement income system, and not the labour market, becomes the key source of income. Specifically, income inequalities among female headed families are lower in old age because of their greater dependence on government pension programs. By contrast, private sources of income, which make-up a greater proportion of the income of male headed families and are more unevenly distributed in favour of those with higher SES, produce relatively higher education-based disparities in income among families headed by elderly men.

The relationship between income and socio-economic status over the later life course of families where the head is either Canadian-born (CB) or Foreign-born (FB) is also summarized. Generally speaking, the findings in **Table 6** show that for both ethnic groups the income gap across education widens over the traditionally-defined working years, followed by a substantial decline during old age. While the income trajectory across low and high education groups over the entire later life course is similar for CB and FB headed

families, there is considerably less income inequality (in both absolute and relative terms) among the latter. By ages 70-74, the average income difference between educational groups for FB headed families is just $2,789 compared to $5,650 for their CB counterparts. The impact of education on relative income shares also differs by country of birth - education leaves almost all of the inequality in family income remaining within-groups (i.e., 93.6% or .088/.094) for FB headed families; the comparable figure for CB headed families is only 88.7% (.094/.106).

Table 6 about here

In the end, the findings in **Tables 5 and 6** indicate that gender and ethnicity should not be overlooked in the study of income inequality. They both play an important role in the total level of income inequality over the later life course of Canadians. The unique pattern of income inequality among female-headed families over the later life course indicates that gender contributes to the overall pattern of inequality described in **Tables 1-3**. Likewise, the lower rates of income inequalities among FB family heads over the later life course produce a more equal distribution of income for the entire cohort.

Discussion

The objective of this paper is to determine if individuals with status disadvantages during the working years reduce, maintain, or improve their position relative to those with status advantages who are more likely to have the resources necessary to withstand the financial stresses brought on by changes that occur in old age. A common theme found in the analysis is that SES becomes less important to income in old age. This pattern is compatible with the "income status convergence" model.

The primary reason for this is that government pension benefits become more important than labour market income, and the former are more equally distributed than the latter. Specifically, since the public pension system (which seniors rely quite extensively on) is not strongly tied to employment history, it is particularly generous to those at or near the bottom of the SES latter. They consequently improve their position relative to those at higher SES levels, who experience a reduction in their savings and chances of being employed followed by an increase in reliance on government benefits with advancing age.

These findings suggest the importance of the public pension system in Canada. In fact, a mature and developed public pension system, notably the C/QPP, has played a crucial role in leveling the distribution of income as persons reach old age (Myles, 2000). A few decades ago, when Canada's pension system was just taking shape and earnings were still an important source of well-being for older persons, socioeconomic-based inequalities in income over the later life course likely did not drop at age 65. Reform toward privatization of the retirement income system in Canada will jeopardize the ability of the state to reshape income inequalities in later life. Myles' (1989) analysis of economic

stratification across countries with different retirement income systems clearly demonstrates that the quality of public pension benefits in a country is a key predictor of its old-age income inequality and poverty rates. Simply put, comprehensive government intervention is needed to reduce status advantages in old age. Without it, the position of those with higher education, occupational status, and labour-market income would vastly improve in old age at the expense of those with early/mid-life disadvantages.

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1 This cohort is selected since it crosses the later stages of the life course. Further, since the SCF data are available from 1974 to 1998, it is not possible to look at changes in the income status of individuals within this cohort at exact five-year intervals. There is, consequently, a slight overlap in age between 1974 and 1978.

2 Income is only one aspect of economic well-being. Wealth, for example, also provides potential income if liquidated. Given insufficient wealth data, income is used to estimate economic well-being. However, income can be used as a proxy of economic well-being with a relatively high level of confidence because of its close correlation to wealth.

3 Another adjustment to the data was also considered. Survey estimates of selected income components are typically under- or over-reported (Crystal and Shea, 1990b). By comparing 1998 SCF income estimates to actual figures from the National Accounts, it is found that SCF estimates of total income are reported accurately. The similarity of National Accounts to SCF figures of total income reflects the fact that the underreporting of some income components, such as investment income, is compensated by the overreporting of others (e.g., earnings).

4 Each component of the Theil's index (i.e., total, between-group, and within-group relative inequality) has a lower limit of 0, which equals perfect equality. Perfect inequality is equal to the logarithm of the number of cases. For a mathematical expression of Theil's index, see Allison (1978).

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Table 1: Theil Measures of Total, Between Education-group, and Within Education-group Inequality of Family Income, Family Heads born between 1924-1928, 1974 to 1998

	Year					
	1974	*1978*	*1983*	*1988*	*1993*	*1998*
Age	*46-50*	*50-54*	*55-59*	*60-64*	*65-69*	*70-74*
Total	. 145	.146	.169	.201	.109	.105
Between/Within						
B-G	.015	.016	.022	.028	.012	.011
%[a]	10.4	11.0	13.0	13.9	11.0	10.5
W-G	.130	.130	.147	.173	.097	.094

a. Between-Education group inequality as a percentage of total inequality.

Source: Survey of Consumer Finances, 1974-1998, Economic Family files.

Table 2: Shares of Total Family Income (in percents),[a b] by Education, Family Heads born between 1924-1928, 1974 to 1998

	Year					
	1974	*1978*	*1983*	*1988*	*1993*	*1998*
Age	*46-50*	*50-54*	*55-59*	*60-64*	*65-69*	*70-74*
<9	14.3%	14.9%	14.2%	13.8%	15.7%	15.8%
9-11	17.1	17.2	17.3	16.6	17.9	18.1
HS	19.6	19.8	20.4	19.8	20.2	19.2
OthPS	21.8	20.6	19.8	20.0	19.6	20.0
Univ	27.2	27.3	28.3	29.8	26.7	26.9

a. Adjusted for differential size of education groups (i.e., each group is weighted to represent one-fifth of cohort members).
b. May not total exactly to 100% due to rounding.

Source: Survey of Consumer Finances, 1974-1998, Economic Family files.

Table 3: Mean Family Income and Standard Deviation (in 1998 dollars),[a] by Education, Family Heads born between 1924-1928, 1974 to 1998

	Year					
	1974	*1978*	*1983*	*1988*	*1993*	*1998*
Age	*46-50*[b]	*50-54*[b]	*55-59*[b]	*60-64*[b]	*65-69*[b]	*70-74*[c]
Mean						
<9	$16,595	$20,453	$20,912	$18,944	$18,397	$18,278
9-11	19,820	23,542	25,557	22,744	20,999	20,956
HS	22,806	27,159	30,105	27,160	23,716	22,260
OthPS	25,346	28,168	29,210	27,342	23,075	23,154
Univ	31,639	37,207	41,674	40,741	31,405	31,245
Standard Deviation						
	5,723	6,323	7,712	8,234	4,873	4,869

a. Dollar figures are adjusted for inflation via Statistics Canada's Consumer Price Index.
b. All mean income differences are significant at p<.05, except between HS and OthPS.
c. All mean income differences are significant at p<.05, except between 9-11 and HS; HS and OthPS.

Source: Survey of Consumer Finances, 1974-1998, Economic Family files.

Table 4: Shares of Family Income components (in percents),[a] [b] by Education, Family Heads born between 1924-1928, 1998

	Source						
	OAS	C/QPP	Investment	Private Pension	Earnings	Other[c]	Total
<9	22.4($7,394)[d]	16.7 ($4,461)	12.7 ($1,569)	7.5 ($2,940)	14.1($2,259)	16.7($1,259)	14.7($19,882)
9-11	20.5 (6,778)	19.7 (5,255)	17.9 (2,206)	12.8 (5,037)	17.4 (2,795)	19.0 (1,428)	17.4 (23,499)
HS	19.6 (6,477)	19.9 (5,298)	18.8 (2,318)	17.6 (6,923)	18.5 (2,970)	18.8 (1,417)	18.8 (25,403)
OthPS	19.4 (6,414)	21.0 (5,593)	21.6 (2,657)	20.9 (8,223)	17.7 (2,835)	15.6 (1,172)	19.9 (26,894)
Univ	18.2 (6,021)	22.8 (6,091)	29.0 (3,576)	41.3 (16,263)	32.3 (5,190)	29.9 (2,250)	29.2 (39,391)

a. Distributions are based on before-tax family income, and are adjusted for differential size of education groups (i.e., each group is weighted to represent one-fifth of cohort members).
b. May not total exactly to 100% due to rounding.
c. Other income is that from other government and private sources.
d. Mean incomes are in brackets.

Source: Survey of Consumer Finances, 1998, Economic Family files.

Table 5: Relative (Theil) and Absolute (Standard Deviation) Measures of Income Inequalities across Educational Groups for Male and Female Family Heads born between 1924-1928, 1974 to 1998

	Year					
	1974	*1978*	*1983*	*1988*	*1993*	*1998*
Age	*46-50*	*50-54*	*55-59*	*60-64*	*65-69*	*70-74*
			Male			
Total	.130	.131	.155	.198	.105	.108
Between/Within						
B-G	.019	.015	.020	.031	.013	.014
%[a]	14.6	11.5	12.9	15.7	12.4	13.0
W-G	.111	.116	.135	.167	.092	.094
Standard Deviation[b]						
	$5,631	5,940	7,475	8,863	5,014	5,064
n	(2,014)	(2,689)	(2,352)	(2,242)	(1,844)	(1,286)
			Female			
Total	.237	.216	.210	.175	.098	.070
Between/Within						
B-G	.054	.039	.033	.021	.007	.005
%[a]	22.8	18.1	15.7	12.0	7.1	7.1
W-G	.183	.177	.177	.154	.091	.065
Standard Deviation[b]						
	$6,659	9,252	7,880	4,922	3,746	3,138
n	(279)	(461)	(491)	(712)	(763)	(712)

a. Between-Education group inequality as a percentage of total inequality.
b. Standard deviations are in 1998 dollars, adjusted for inflation using Statistics Canada's Consumer Price Index.

Source: Survey of Consumer Finances, 1974-1998, Economic Family files.

Table 6: Relative (Theil) and Absolute (Standard Deviation) Measures of Income Inequalities across Educational Groups for Canadian-born and Foreign-born Family Heads born between 1924-1928, 1974 to 1998

	Year					
	1974	*1978*	*1983*	*1988*	*1993*	*1998*
Age	*46-50*	*50-54*	*55-59*	*60-64*	*65-69*	*70-74*
			Canadian-born			
Total	.155	.151	.180	.206	.104	.106
Between/Within						
B-G	.023	.017	.024	.030	.011	.012
%[a]	14.8	11.3	13.3	14.6	10.6	11.3
W-G	.131	.134	.156	.176	.093	.094
Standard Deviation [b]						
	$5,955	6,846	8,386	8,947	4,950	5,650
n	(1,843)	(2,613)	(2,303)	(2,532)	(2,183)	(1,658)
			Foreign-born [c]			
Total	.102	.117	.114	.167	.122	.094
Between/Within						
B-G	.011	.010	.010	.019	.010	.006
%[a]	10.8	8.6	8.8	11.4	8.2	6.4
W-G	.091	.107	.104	.148	.112	.088
Standard Deviation [b]						
	$4,591	4,735	5,330	6,406	4,536	2,789
n	(450)	(535)	(516)	(394)	(393)	(290)

a. Between-Education group inequality as a percentage of total inequality.
b. Standard deviations are in 1998 dollars, adjusted for inflation using Statistics Canada's Consumer Price Index.
c. Only those who immigrated to Canada prior to 1975 are included in this group.

Source: Survey of Consumer Finances, 1974-1998, Economic Family files.

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