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See table of contents

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Article abstract

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This paper presents results from a study of recent changes in earnings inequality within cohorts of Canadian men. Our concern is with labour market earnings, rather than total income, and with individual males, rather than all individuals or families. Furthermore, we concentrate on the degree of earnings inequality within cohorts as defined by levels of education and age, as opposed to earnings differences between such cohorts.

The study of within-cohort earnings inequality in general can be motivated in several ways. The neo-classical model of human capital investment, as articulated by Mincer (1974) and others, provides testable predictions concerning the life-cycle pattern of such inequality. Furthermore, decomposition analyses of the sources of inequality provide a much more informed basis for evaluating public policy.

This individual study of within-cohort earnings inequality has three principal justifications. First, this particular topic has never been addressed systematically with Canadian data to the knowledge of this author. Second, there is evidence to indicate that earnings inequality among Canadian families did increase during the early 1970's. The current paper helps to clarify possible sources of that finding. Finally, a recent study with U.S. data indicates a substantial increase in within-cohort male earnings inequality during the late 1960's and 1970's. One proposed source of this

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change has been the labour market entry of the children of the baby boom and subsequent baby bust. Another is the asserted bipolarization of labour demand and the earnings distribution in developed economies. It is argued that such countries face a decline in the relative demand for many middle income jobs, such as skilled blue collar ones, and an increase in the demand for both professional workers and unskilled, service workers. Canadian data provide a good opportunity to examine both the demographic and labour demand explanations since Canada and the U.S. have similar recent pasts with respect to changes in age structure and technology.

This paper is divided into five parts. In the second section, we briefly review the literature. The third section provides a discussion of the data and measurement issues. The fourth section contains the summary statistics and the regression estimates. The last section provides a summary and conclusion.

REVIEW OF THE LITERATURE

Mincer (1974) provides one of the first analyses of the life-cycle behavior of the variance of log earnings among the members of a single labor force cohort. He asserts that the shape of the life-cycle profile will depend on the correlation, within the cohort, between two individual characteristics: the log of earnings capacity at the start of the market work life (henceforth initial log earnings capacity) and the proportion invested of the stock of human capital[1]. Consider the decomposition of the variance of log earnings for a given cohort into the variance conditional on initial log earnings capacity (the within-group variance) and the variance between groups of individuals with different initial log earnings capacities (the between-group variance). Among individuals with identical initial earnings capacities, the observed log earnings profiles of the more intensive investors will exhibit lower intercepts and steeper slopes. The within-group variance declines with experience until «overtaking» and then increases, thus producing a U-shaped life-cycle profile.

1 In Mincer's model, the degree of earnings inequality is determined either by differences in the characteristics which individuals bring to the labour market (initial earnings capacity) or by differences in on-the-job training (the proportion invested of the initial human capital stock). Competitive labour markets are assumed. A more complete analysis would consider other sources of inequality, such as market segmentation, which are by no means incompatible with human capital models. For example, one might model investment as influencing earnings inequality within but not across dual labour markets. Such an extended model is, unfortunately, beyond the scope of our present efforts.

The life-cycle profile of the between-group variance depends on the correlation between initial log earnings capacity and the proportion invested of the stock of human capital. The mean log earnings profiles of groups with different initial log earnings capacities will diverge over the life cycle if the proportion invested of the human capital stock is positively correlated with the initial stock. Such divergence will cause the between-group variance to increase with experience. By the same reasoning, a zero (negative) correlation between initial stock and proportion invested would lead to parallel (convergent) profiles and a constant (decreasing) between-group variance with respect to experience.

The life-cycle profile of the variance for the full cohort depends on the pattern and relative sizes of the within- and between-group variances. A sufficiently positive (negative) correlation between the log of initial earnings capacity and the proportion invested of the stock of human capital will result in an increasing (decreasing) total variance over the life cycle. A correlation bounded sufficiently close to zero (see Mincer 1974, p. 103) produces a U-shaped overall profile[2].

Using annual earnings of white males from the Public Use Sample of the 1960 U.S. Census, Mincer found that such variance profiles tend to be decreasing in experience for the least educated, U-shaped for high school graduates, and increasing in experience for university graduates. The implication is that the correlation between the log of initial earnings capacity and the proportion invested of human capital is a positive function of education. However, other studies have typically estimated U-shaped profiles with a variety of data sources, for example, Schultz (1975), Smith and Welch (1979), and Hause (1980).

Most previous studies have used a single cross-section, Hause being a prominent exception. Recently, Dooley and Gottschalk (1984) have used male data from the *U.S. Current Population Surveys* for 1967 through 1978. Individual observations were allocated to cohorts defined by single years of labour force experience and four years-of-schooling categories: 11 years of schooling or less; 12 years; 13 to 15 years; and 16 years or more.

2 It should be noted that Mincer's model is fully consistent with lifetime earnings inequality, *i.e.*, major differences in the present value of the earnings streams of different individuals. In the text, earnings inequality within-groups of individuals with the same initial earnings capacity is largely transitory. Lower initial earnings due to heavy investment are compensated for by greater earnings increases over the lifetime. However, much of the earnings inequality between groups of individuals with different initial earnings capacity is of a permanent or lifetime nature. This may reflect biological or socialization factors beyond the control of the individual. Human capital theory only asserts that *some* observed earnings differentials reflect fully compensated differences in investment in training.

This time-series of cross-sections was used to derive regression estimates of the determinants of the within-cohort variance of annual and weekly log earnings.

Dooley and Gottschalk generally estimated a U-shaped life cycle profile although a monotonically positive effect of experience is found for the weekly earnings of those with post-secondary education. In addition, increases in the unemployment rate raised the variance of log annual earnings. A likely reason for this appears to be an increase in the variance of weeks worked during recessions, since unemployment had a weakly negative effect on the variance of log weekly earnings.

The most important result is that the trend coefficients indicated a substantial increase in within-cohort earnings inequality for all but the highest schooling category, even when controlling for education, experience, and the business cycle.

Dooley and Gottschalk propose an explanation for the trend which centers on the impact of the labour market entry of the baby boom and the subsequent baby bust on different cohorts' human capital investment incentives and, hence, observed earnings distributions. U.S. and Canadian patterns of changes in both fertility rates and the age structure of the population are quite similar in the post-World War Two period. Hence, Canadian data are well suited for further analyses of questions addressed by Dooley and Gottschalk with U.S. data.

A review of the literature, however, indicates that *no* previous studies of within-cohort earnings inequality have been undertaken using Canadian data. Numerous studies of the size distributions of family and individual *income* have been performed (for recent examples see Horner and Macleod, 1975, Gillespie 1976, 1977, Henderson and Rowley 1977, 1978, Love and Wolfson 1976, Ross 1980, Beach 1981, Irvine 1980). There are also numerous studies of individual earnings which have used a single cross-section to analyze earnings differentials *between* groups of individuals as distinguished by such characteristics as education, age and sex. (For example, see Crean 1973, Robb 1978, Gunderson 1979a, 1979b, Meltz and Stager, 1979, Kuch and Haessel 1979, and Statistics Canada 1981.) Dooley (1986) uses a time-series of Canadian cross-sections to show that, during the 1970's, male earnings differences by level of education were narrowing, but that differences by age were stable.

Henderson and Rowley (1980) provide a time series study of the distribution of income and earnings *among families* in Canada. They find that from 1967-1975 the level of *total* income inequality among families has been generally stable, apart from 1971, whereas the distribution of *employ-*

ment income among families exhibits a marked trend towards greater inequality. This result persists when the data are standardized for age and education of family head, family size and number of careers. One purpose of the present study is to assess the role of within-cohort individual earnings inequality in the pattern found by Henderson and Rowley.

DATA AND ESTIMATION METHODS

The analysis done for this paper is based on the Statistics Canada census family microdate tapes which contain data collected in the *Survey of Consumer Finances* (SCF) for the years 1971, 1973, 1975, 1977, 1979, 1981 and 1982. Hence, we have seven independent samples measuring individual levels of earnings, labour force activity and demographic characteristics. All computations were done by this author. The data are quite similar to those from the *U.S. Current Population Survey* which were analyzed by Dooley and Gottschalk.

The analysis will be confined to the earnings of males as were the U.S. studies. This restriction reflects neither interest nor policy relevance but rather the serious theoretical and econometric problems posed by the frequently intermittent nature of the market work patterns of women. These problems are abetted by the recent and ongoing changes in such life cycle work patterns.

The initial SCF samples consist of males age 20 to 64 who, during the year for which earnings are reported, had positive earnings and weeks worked. Individuals who were out of the labour force at any point due to schooling, retirement or permanent disability were excluded. The self-employed and unpaid family workers were also omitted.

The number of observations in these samples range from 13,235 in 1971 to 20,086 in 1982. However, more than 50% of this growth in sample size is likely attributable to the policy adopted in 1977 of including on the public use tapes those observations for which earnings have been inputed by Statistics Canada. No method is provided for identifying such imputed observations.

Most of our estimates are reported both for the above samples and for the subsets of full-year, full-time (FYFT) workers defined as those who worked 50 or more weeks and usually worked full-weeks. This restriction reduces sample size by roughly twenty per cent in each year.

The estimates are reported for the following education categories: 8 years or less of elementary schooling; 9-13 years of elementary and secondary schooling; some post-secondary education, but not a university degree; and university degree[3]. Due to changes in schooling classification, only one additional consistent breakdown was possible over the seven SCF samples. Individuals with some post-secondary training (but not a university degree) could be subdivided into those with and without a diploma or certificate. Inspection of all seven samples, however, indicated that this subdivision did not provide a consistent ranking in terms of earnings, even when controls for age and labour supply were introduced[4]. Also, there have been major structural changes over time in the opportunities for post-secondary, non-university training, such as the introduction of the CAAT's in Ontario and the CEGEP's in Québec. Hence, this is probably the most heterogeneous of the four schooling classes.

The earnings variable reported by the SCF includes net income from self-employment, in addition to wages and salaries. The exclusion of the self-employed from the sample was the best available method for dealing with this problem.

The most serious limitation of the SCF public use sample is that individual data are provided only for the head of the census family and spouse. Hence, we have no observations for never married adults who lived with their parents. (Adults who live together constitute separate census families if they do not share a husband/wife or parent/never married child relationship.)

These «missing observations» are most likely concentrated among the young and the relatively lower earners. Such sample selection may well bias the estimates from each of the cross-section samples. However, our primary concern is with inter-temporal change in within-cohort earnings inequality and its relation to age and education. Hence, an approximately constant

3 There is reason to believe that most Grade 13 graduates obtain at least some post-secondary training thereby effectively limiting the second category to those with 9-12 years of elementary and secondary schooling. In recent years, for example, roughly eighty per cent of Grade 13 graduates have enrolled in university or college *immediately* after graduation. (The source for this information is private correspondence with the staff of the Ontario Ministry of Education.)

4 In the 1971 and 1973 samples, there are four subdivisions of the education category «some post-secondary training, but not a university degree»: university diploma or certificate; some university not completed; non-university diploma or certificate; and non-university not completed. Inspection of these data show that those who attended university consistently earned more as a group than those who attended some other post-secondary institution. Furthermore, completers consistently earned more than non-completers within the university and non-university categories. However, the relative number of university completers is small and non-university completers frequently earned more than university non-completers. Hence, when the data is aggregated into two groups, completers and non-completers, the ranking by earnings is inconsistent across age groups, just as in post-1973 samples.

cross-sectional bias may still permit valid inferences from the time-series[5]. There is some indirect support for this assumption. The staff of Statistics Canada has kindly calculated what would be the increase in the size of two of our sub-samples were this restriction to be relaxed. for both 1971 and 1979, this figure is approximately 13%. Moreover, estimates of male labour force growth during 1970's derived from published SCF and census data basically agree with our estimates allowing for differences in size and other characteristics of the samples.

In the following section, we use both summary statistics and regression to analyze the relationship between within-cohort earnings inequality and education, age, cyclical factors and time. For the regression analysis, it is assumed that the population variance of log earnings is a linear function of exogenous variables. Hence, the sample log variance can be expressed in the following forms:

$$\ln \text{var AE}_{it} = \alpha_0 + \alpha_1 \text{Age}_{it} + \alpha_2 \text{Age}^2_{it} + \alpha_3 U_t + \alpha_4 t + \varepsilon_{1it} \qquad (1)$$

$$\ln \text{var WE}_{it} = \beta_0 + \beta_1 \text{Age}_{it} + \beta_2 \text{Age}^2_{it} + \beta_3 U_t + \beta_4 t + \beta_5 \text{PT}_{it} + \varepsilon_{2it} \qquad (2)$$

where AE and WE are annual and weekly real earnings for the ith age level in the tth year, U is the male unemployment rate, t is a time trend, and PT is the proportion of normally part-time (week) workers. If earnings are lognormally distributed, then ε_{1t} and ε_{2it} have a gamma distribution in small samples but an (approximate) asymptotic normal distribution[6].

The weekly earnings equation with controls for the proportion of part-time (week) workers provides one method of estimating a model for the variance of the log of hourly wages with SCF data. The other is to estimate equation (1) using data for full-year, full-time workers.

Note that equations (1) and (2) use age rather then labour force experience. The SCF affords only crude means of transforming age into a measure of labour force experience. The fact that our regressions are estimated within educational categories further lessens the incentive to attempt such a transformation.

Finally, our measure of inequality is the variance of log earnings which may fail to satisfy the principle of transfers that a redistribution from rich

5 Another source of selection bias which may affect our estimates is that of changes over time in both the average level of schooling acquired and the average age at completion for given levels of schooling.

6 The sample variance is constrained to be nonnegative. Hence the asymptotic distribution can never be exactly normal, but the central limit theorem justifies this approximation. The variance of log earnings obviously can only be estimated for nonzero earners. In our sample, however, the proportion of zero earners is small (2-3%) and stable over time.

to poor lowers measured inequality. The justification for its use in this context is that we do have a theory for the life-cycle behaviour of this particular measure and also a large empirical literature which has used this measure.

EMPIRICAL RESULTS

Table 1 presents for each year the total, the between-cohort and the average within-cohort variances of log annual and weekly earnings for the full sample and of log annual earnings for the FYFT sample. The between-cohort variance is quite stable exhibiting a possible slight downward trend which is consistent with the findings in Dooley (1986) of a modest decline in the monetary return to education.

TABLE 1

Variance of Annual and Weekly Log Male Earnings, 1971-1982: Canada

	Full Sample						*Full-Year, Full-Time Workers**		
	Annual Earnings			*Weekly Earnings*			*Annual Earnings*		
Year	*Total*	*Between Cohort*	*Within Cohort***	*Total*	*Between Cohort*	*Within Cohort***	*Total*	*Between Cohort*	*Within Cohort***
1971	.49	.08	.41	.37	.06	.31	.32	.05	.27
1973	.36	.07	.29	.27	.05	.22	.24	.05	.19
1975	.44	.08	.36	.31	.05	.26	.27	.05	.22
1977	.48	.06	.42	.37	.04	.33	.27	.03	.24
1979	.43	.06	.37	.33	.04	.29	.26	.04	.22
1981	.44	.06	.38	.31	.04	.27	.24	.04	.20
1982	.58	.09	.49	.35	.05	.30	.27	.04	.23

*Defined as those workers who worked 50-52 weeks and typically worked 35 or more hours per week.

**Weighted average for cohorts defined by four educational levels and single years of age.

The within-cohort and total variances, on the other hand, do fluctuate especially at the start and the end of the sample period. However, there is no readily discernible trend in the within-cohort variances at this level of aggregation. The only notable distinction among the three variances measures is that the full sample, annual earnings variance increased much more between 1981 and 1982 then did the others.

Table 2 provides a more detailed breakdown of the within-cohort variances. Each figure represents the difference between the average within-cohort variance for the last years of the sample period (1979, 1981 and 1982) and the average for the first two years (1971 and 1973). These differences are calculated by level of age and education for all three inequality measures. On balance there would appear to be an increasing trend although this is only marked for annual earnings in the full sample. This implies that the bulk of any increase in within-cohort inequality is due to increased inequality in hours worked rather than hourly wages. Such a trend also seems to be stronger among younger workers.

TABLE 2

Change in Average Within-Cohort* Variance of Log Male Earnings, 1971/73 to 1979/81/82: Canada

	20-24	*25-34*	*35-44*	*45-54*	*55-64*
			Full Sample, Annual Earnings		
Elementary	.46	.19	.09	.02	.04
Secondary	.08	.17	.08	.06	.04
Some Post-Secondary	.18	.03	.07	.06	.03
University Degree	—	.07	.10	.08	-.08
			Full Sample, Weekly Earnings		
Elementary	.15	.02	.03	.02	.04
Secondary	.05	.06	.03	.03	.00
Some Post-Secondary	.10	-.02	.05	.01	-.04
University Degree	—	.03	.05	.04	-.08
			Full-Year, Full-Time Workers,** Annual Earnings		
Elementary	.15	.02	-.03	-.01	.00
Secondary	.02	.02	.00	.02	-.01
Some Post-Secondary	.05	-.04	.01	.02	-.09
University Degree	—	-.01	.01	-.02	-.11

*Weighted average for cohorts defined by four educational levels and single years of age.

**Defined as those workers who worked 50-52 weeks and typically worked 35 or more hours per week.

Table 3 presents regression estimates for the full sample by level of schooling and earnings measure. For each category, the three sets of estimates reported are the following: a simple trend (with the proportion of part-time workers for weekly earnings); a trend with a linear and a quadratic term in age; and the most extensive model with the aggregate unemployment rate included. See equations (1) and (2) above.

TABLE 3

Regression Estimates of Within-Cohort Variance of Annual and Weekly Log Male Earnings, 1971-1982: Full Sample, Canada

(Asymptotic normal statistics in parentheses)

	Constant	Age	Age^2	Trend	Unem	Part-Time
Elementary						
Annual Earnings	.44	--	--	.0073	--	--
	(18.0)			(2.3)		
	1.36	-.039	.00038	.0088	--	--
	(7.8)	(4.8)	(4.2)	(2.9)		
	1.16	-.039	.00038	-.0062	.043	--
	(6.7)	(5.0)	(4.3)	(1.4)	(4.4)	
Weekly Earnings	.28	--	--	.0024	--	1.4
	(12.6)			(1.0)		(3.7)
	.67	-.015	.00013	.0032	--	1.3
	(4.5)	(2.2)	(1.7)	(1.3)		(3.3)
	.60	-.016	.00015	-.004	.020	1.2
	(4.0)	(2.4)	(1.9)	(1.1)	(2.5)	(2.8)
Secondary						
Annual Earnings	.29	--	--	.013	--	--
	(15.5)			(5.6)		
	.98	-.034	.00037	.013	--	--
	(10.6)	(6.9)	(6.2)	(6.2)		
	.80	-.034	.00037	-.0022	.041	--
	(8.8)	(7.4)	(6.6)	(0.8)	(6.9)	
Weekly Earnings	.23	--	--	.0037	--	.67
	(17.0)			(2.3)		(1.8)
	.46	-.010	.00010	.0038	--	.43
	(6.0)	(2.6)	(2.1)	(2.5)		(1.1)
	.43	-.011	.00011	.0005	.012	.16
	(5.6)	(2.9)	(2.4)	(0.2)	(2.6)	(0.4)

TABLE 3 (continued)

	Constant	Age	Age^2	Trend	Unem	Part-Time
Some Post-Secondary						
Annual Earnings	.28	--	--	.0068	--	--
	(13.1)			(2.6)		
	.78	-.025	.00029	.0074	--	--
	(6.2)	(3.8)	(3.6)	(2.9)		
	.65	-.025	.00029	-.0046	.031	--
	(5.1)	(3.9)	(3.6)	(1.2)	(4.2)	
Weekly Earnings	.22	--	--	.0001	--	.97
	(14.3)			(0.1)		(4.8)
	.27	-.003	.00004	.0001	--	.93
	(2.7)	(0.5)	(0.6)	(0.1)		(4.2)
	.25	-.003	.00004	-.0026	.0066	.89
	(2.5)	(0.6)	(0.7)	(0.9)	(1.2)	(3.9)
University Degree						
Annual Earnings	.32	--	--	.003	--	--
	(10.8)			(0.9)		
	.86	-.028	.00032	.004	--	--
	(4.3)	(2.8)	(2.7)	(1.2)		
	.81	-.028	.00033	-.0011	.013	--
	(4.0)	(2.8)	(2.8)	(0.2)	(1.3)	
Weekly Earnings	.26	--	--	.0001	--	.48
	(11.0)			(0.1)		(1.5)
	.36	-.0072	.00011	-.0001	--	.47
	(2.1)	(0.9)	(1.1)	(0.1)		(1.4)
	.33	-.0073	.00011	-.0032	.0077	.47
	(1.9)	(0.9)	(1.2)	(0.8)	(1.0)	(1.4)

The simple trend coefficients are all positive and have t-ratio's in excess of standard threshold levels for the lower schooling categories. The results are weaker in the upper educational levels especially for weekly earnings. A greater proportion of part-time workers increases the variance of log weekly earnings, as expected.

This trend picture is not altered markedly by controls for age. The life cycle profile implied by the age coefficients is that of a U-shape. By conventional standards, these results are «significant» except for weekly earnings in the upper schooling categories. However, it should be noted that the estimated age trough of the profiles is usually in the 40's or early 50's. This age is late relative to both the human life cycle and previous estimates. By the Mincerian interpretation, this implies a weak negative correlation between initial earnings capacity and the proportion of the initial human capital stock invested. The age associated with the trough declines with education. This is consistent with Mincer's original finding that the correlation between initial earnings capacity and the propensity to invest rises with the level of schooling.

The effect of the unemployment rate is positive especially for annual earnings inequality and in the lower schooling levels, as was found by Dooley and Gottschalk for the U.S. In the case of annual earnings, this estimate reflects the fact that higher unemployment leads to greater inequality in annual weeks of employment and, hence, annual earnings. In the case of our weekly earnings measure, the positive effect of unemployment is less readily interpretable. It may reflect the fact that, during periods of high unemployment, part-time and low hourly wage work replace full-time and high wage work. This would increase inequality in weekly hours of work, in hourly wages and, therefore, in weekly earnings.

The most noteworthy impact of including the unemployment rate is that the trend coefficients not only fail to remain significantly positive but usually take on a negative sign, albeit with large standard errors. In other words, all of the observed growth in within-cohort inequality appears to be accounted for by unemployment. This constitutes a major difference from findings of Dooley and Gottschalk which showed a substantial upward trend in earnings inequality net of unemployment[7].

Table 4 contains the regression estimates for the full-year, full-time sample. The FYFT sample has both an advantage and a disadvantage compared to the full sample. The advantage is that the nature of the earnings in-

7 The rate of unemployment takes a major jump from 7.1% to 11.1% between 1981 and 1982. As an informal sensitivity test, our model was estimated without the 1982 data. This produced few changes in the estimates.

equality is better identified. All workers in the FYFT sample have similar numbers of weeks worked per year and hours worked per week. The remaining earnings inequality is principally that in earnings capacity (hourly wages) rather than in time worked. The disadvantage is that the composition of the FYFT sample is less stable over the business cycle. An increase in the unemployment rate undoubtedly disqualifies many more workers for the FYFT sample than for the full sample. One need only work less than 50 weeks or less than full-time normally to become ineligible for the FYFT sample. Ineligibility for the full sample requires zero annual earnings.

TABLE 4

Regression Estimates of Within-Cohort Variance
Annual Log Male Earnings, 1971-1982: Full-Year, Full-Time Workers, Canada

(Asymptotic normal statistics in parentheses)

	Constant	Age	Age 2	Trend	Unem
Elementary	.29	--	--	-.0025	--
	(13.7)			(0.9)	
	.68	-.016	.00016	-.0017	--
	(4.0)	(2.1)	(1.8)	(0.6)	
	.57	-.017	.00016	-.010	.025
	(3.3)	(2.1)	(1.8)	(2.5)	(2.8)
Secondary	.21	--	--	.00037	--
	(18.8)			(0.3)	
	.36	-.0069	.00010	.00041	--
	(5.6)	(2.1)	(1.8)	(0.3)	
	.33	-.0070	.00010	-.0025	.0081
	(4.9)	(2.1)	(1.8)	(1.2)	(1.9)
Some Post-Secondary	.20	--	--	-.0015	--
	(14.6)			(0.9)	
	.14	.0021	-.00001	-.0015	--
	(1.7)	(0.5)	(0.2)	(0.9)	
	.096	.0020	-.00001	-.0059	.011
	(1.1)	(0.5)	(0.2)	(2.3)	(2.3)
University	.25	--	--	-.0039	--
	(12.3)			(1.7)	
	.24	-.0025	.00007	-.0042	
	(1.7)	(0.4)	(0.8)	(1.8)	
	.22	-.0025	.00007	-.0058	.0042
	(1.6)	(0.4)	(0.8)	(1.7)	(0.6)

Despite the foregoing differences in sample composition, the estimates in Table 4 for the FYFT sample are quite similar to those in Table 3 for the full sample. In Table 4, the age profile is U-shaped and the effect of unemployment is positive. The implied growth of hourly wage inequality during a recession could reflect a shift to lower wage work as indicated above for weekly earnings. Alternatively, this could result from a change in sample composition over the business cycle as discussed in the preceding paragraph.

As with the full sample, the most important estimates in Table 4 for our purposes are the trend coefficients. These are never strongly positive and, indeed, are typically negative with sizeable t-ratio's when the unemployment rate is included.

Two conclusions can be drawn from our regression analyses. First, the relationship in Canada between within-cohort earnings inequality and such factors as age and unemployment is similar to that found with data from other countries. Second, the 1970's did witness a modest upward trend in within-cohort annual earnings inequality. However, this appears to have resulted from the growing inequality in weeks and hours of work which has accompanied higher unemployment. The influence, if any, of the demographic and labour demand factors discussed in the Introduction, appears to have operated through the jobless rate.

SUMMARY AND CONCLUSION

This paper has presented results from an empirical study of recent changes in earnings inequality within-cohorts of Canadian men. The principal objectives were to initiate analysis of this particular aspect of inequality in Canada and to provide a follow-up to a comparable study with U.S. data which found growing within-cohort inequality.

The data were taken from seven *Surveys of Consumer Finances* during the period 1971 through 1982. Cohorts were defined by single years of age and four schooling categories. The inequality measures used in these initial analyses were the variance of log annual and weekly earnings among both a sample of all male wage and salary workers and a sample of full-year, full-time workers.

Our estimates indicate that within-cohort earnings inequality tends first to decline and then increase with age, especially in the case of annual earnings for the full sample and the less educated. The positive effect of the unemployment rate in all regressions implies that inequality in both time at work and hourly wages may rise during recessions. The trend estimates imply a moderate increase in inequality net of schooling and age differences in the full sample, though not among full-year, full-time workers. However, even the former positive trend disappears when the unemployment rate is included in the regressions. Hence, our data do support the assertion that within-cohort male earnings inequality has been increasing moderately. However, this largely reflects the increasing variation in weeks and hours worked which has been brought about by rising joblessness. There is no evidence of secular growth in inequality net of the unemployment rate. Any influence of changes in the age structure of the labour force or in labour demand are captured well by upward trends in the rate of unemployment.

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La disparité des salaires à l'intérieur des groupes parmi les travailleurs canadiens (1971-1982)

Cet article expose les résultats des derniers changements survenus dans la disparité des salaires à l'intérieur des groupes d'hommes au Canada. Cette recherche s'applique aux salaires gagnés sur le marché du travail plutôt qu'aux revenus globaux, aux hommes plutôt qu'à l'ensemble des individus ou des familles. De plus, l'article attire principalement l'attention sur le degré de la disparité des salaires à l'intérieur de groupes par rapport aux niveaux d'éducation et d'âge en les comparant à la diversité des salaires entre de tels groupes.

Cette étude précise que la disparité des gages ou des salaires à l'intérieur des groupes se fonde sur une triple justification. Premièrement, cet aspect particulier n'a jamais été étudié d'une façon systématique dans les statistiques canadiennes, du moins à la connaissance de l'auteur. Deuxièmement, il y a lieu de souligner que la disparité des salaires parmi les familles canadiennes a augmenté au début de la décennie 1970. L'article aide à clarifier les causes possibles de cette constatation. Troisièmement, une étude récente tirée de statistiques américaines démontre qu'il y a eu un accroissement substantiel de la disparité des salaires parmi les différents groupes d'hommes à la fin de la décennie 1960 et durant la décennie 1970. On a estimé que l'une des causes de ce changement résidait dans l'arrivée sur le marché du travail des enfants nés à la suite de la forte hausse du taux de natalité et de l'explosion qui l'a suivie. Une autre cause consisterait dans la bipolarité de la demande de travail et de la répartition des salaires dans les économies avancées. Les statistiques canadiennes fournissent une excellente occasion de considérer les explications à la fois fondées sur la démographie et la demande de travail puisque, au cours des années passées, le Canada et les États-Unis ont connu les mêmes expériences en ce qui a trait aux modifications survenues dans la structure des âges et la demande de travail.

Les données sur lesquelles repose la présente étude sont tirées de sept des enquêtes sur les dépenses de consommation au cours de la période 1971-1982. Les groupes de référence n'incluent que l'âge et quatre catégories de scolarisation. Les mesures de disparité utilisées dans ces analyses préliminaires consistaient dans la divergence des gains annuels et des salaires hebdomadaires au sein d'un échantillon de tous les travailleurs à gages et à salaires de sexe masculin et un échantillon des travailleurs à temps complet durant toute l'année.

Nos estimations indiquent que la disparité des salaires à l'intérieur des groupes a tendance d'abord à diminuer et à augmenter ensuite avec l'âge, spécialement dans le cas des gains annuels pour l'ensemble de l'échantillon et les moins scolarisés. L'effet positif du taux de chômage dans toutes les régressions signifie que la disparité tant dans les heures effectuées que dans les salaires horaires est anticyclique. Les estimations de la tendance signifient qu'il y a augmentation modérée soutenue de la disparité nette en ce qui a trait aux différences d'âge et de scolarisation dans tout l'échantillon, à l'exception des travailleurs à temps plein dont l'emploi est à l'année. Cependant, même cette tendance positive disparaît lorsqu'on fait intervenir le taux de

chômage. Par conséquent, nos statistiques confirment l'assertion que la disparité des salaires parmi les travailleurs de sexe masculin a augmenté modérément, mais ceci peut s'expliquer par la tendance à la hausse dans le taux de chômage qui l'accompagne. Les effets des autres facteurs comme les changements démographiques dans la main-d'oeuvre ou la bipolarité de la demande de travail ne semblent pas avoir d'influence indépendamment des facteurs cycliques.