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Examining the Impact on Married Couples' Earnings Distributions of Standardizing for Difference in Hours Worked

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Examining the Impact on Married Couples' Earnings Distributions of Standardizing For Differences in Hours Worked

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Introduction

Although there has been a growing concern in understanding the impact of increased labour force participation of married women and the emergence of the "dual earner" family on the level and distribution of household earnings and income[1], little attention has been given to the change in the amount of labour time devoted to earning income, and the extent to which this also impacts the level of economic well-being of families. The counterpart to increased market earnings of second earners in the household, is a decline in the number of hours available for domestic production in the home and for leisure.

The value of non paid work time is now widely recognized as an important indicator of economic well-being. In fact, the demand to recognize and value non-paid production, including household work, in a national accounting sense (Clift and Wells, 1990) has lead Canada to pioneer efforts to value housework in monetary terms. Methodologies to value non paid production, initially developed in the mid- 1970s, have been updated using time-use surveys to produce estimates on a regular basis.[2]

Standard comparisons of earned family incomes over time or across countries, even when standardized for differences in exchange rates, prices and family size, (and the subsequent measures of inequality based on these incomes), are likely to give misleading implications of the relative level and distribution of economic well-being since they implicitly assume everyone has the same amount of time available for home production.

Together husbands and wives are spending more time in paid employment, which has occurred, to a large extent, due to the contribution toward total household earnings by women. Increased labour force participation of married women has been a phenomenon experienced not only in Canada, but in most industrialized countries.[3] There is, however, considerable variation across countries in the amount of time households spend in paid labour, and the relative distribution of time spent working between men and women. For example, married couples in the Netherlands work roughly two thirds of the average annual hours worked by couples in the United States and in the upper end of the household earnings distribution, they work roughly 12 to 16 hours less per week than do couples in the US, Canada, Australia or Finland.[4] This difference is due largely to lower labour force participation of women relative to men in the Netherlands. There is also considerable variation in the amount of time couples spend in the labour market over time within most countries. For example, in Canada, the proportion of dual-earner families rose from only one-third to over two thirds of two-parent families by 1995.[5] Labour force participation rates of males and married females reported by the OECD suggest similar increases in total time spent in the labour force by married couples.[6]

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1 Saunders, O'Connor and Smeeding (1994); Saunders (1993) Danziger (1980), Cancian, Danziger and Gottschalk (1993), and Cancian and Schoeni (1992)

2 Barbara Clift and Stewart Wells, "The Reliability of the Canadian National Accounts Estimates", Canadian Economic Observer, Statistics Canada Catalogue 11-010, February, 1990.

3 See Labour Force Statistics, OECD, 1996.

4 This is based on results from the LIS micro country data files presented in section 2.7 of this chapter. These findings showed that married couples in the Netherlands work, on average, 600 to 800 hours less per year in the upper end of the household earnings distribution than do couples in the US, Canada, Australia or Finland.

5 Source: Statistics Canada, Household Surveys Division, "Characteristics of Dual Earner Families, 1995, Catalogue #13-215, Table 5.

6 See Labour Force Statistics, OECD, 1996.

This paper examines the relationship between the distribution of average annual household pre-tax earnings and average annual household hours of market work for married couple households. The point of departure in this paper is the treatment of the variation in annual hours worked either over time within Canada or across countries. This paper adds to the literature explicit consideration of the differences in hours worked across households, either across countries or over time periods, by proposing an additional standardization of household earnings to account for differences in the number of hours worked across households. Total annual household hours worked by couples are fixed to a common number of hours and household earnings are derived based on assumptions regarding the manner in which couples could potentially package their labour supply.[7] Annual household earnings, adjusted for differences in prices, family size, and hours worked are compared to determine whether or not the standard of living derived from these adjusted earnings differs.

The object of standardizing household hours is to determine if, when we adjust for differences in time spent working, just as we adjust for differences in prices, exchange rates, and family size, whether or not there are differences in the earnings distributions of married couples. In the case of a within country analysis, adjusting household earnings for differences in prices, family size, and hours worked, allows one to determine if, all else equal, families are any better off now than they were in previous years, where the average annual hours worked by husbands and wives were less.

Also novel to this paper is the examination of average annual hours worked at each vingtile of the earnings distribution. This allows for a clearer understanding of annual average hours worked at both the bottom and the top of the distribution, rather than using an overall average hours worked.

This paper examines the trend in household earnings in Canada over the period 1975 to 1994. Together, husbands and wives in Canada are spending more time in paid employment, which has occurred, to a large extent, due to the increased labour force of women. Because couples spend more time in paid employment, households have less time remaining for work in the home and for leisure. Comparisons of earned incomes of Canadian families over time, even when standardized for changes in prices and family size, (and the subsequent measures of inequality based on these incomes), are likely to give misleading implications of the relative level and distribution of economic well-being, and how this is changing over time.

Average annual hours of paid labour for married couple households at each vingtile of the earnings distribution are presented. This analysis shows significant differences in the number of hours spent in paid labour for Canadian households. Household hours are fixed at both 2,000 hours and at the average annual household earnings in 1975 for each vingtile of the earnings distribution.[8] The results of the Canadian analysis show that while earnings in 1994, adjusted for prices and family size, show Canadian households to be maintaining a comparable standard of living as compared with previous periods, once we account for the differences in the amount of time spent to acquire these earnings, Canadian households in 1994 are not as well off as they were in 1975 in the bottom 65 percent of the earnings distribution.

This paper also examines the distribution of household earnings across five countries: Canada, United States, Australia, Finland and the Netherlands. These countries are selected based on

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7 The total household earnings for married couples rather than the individual earnings of husband and wife are examined in order to facilitate an examination of the relationship between household hours of paid labour and the way in which husbands and wives "package" their combination of paid and unpaid work.

8 The choice of 2,000 hours is based on 40 hours of work per week over 50 weeks of work per year.

the variation in annual labour market hours for males and females among these countries. Married couples' pre-tax earnings are first converted to a common currency (1991 US. dollars) and then standardized for differences in prices across countries using a Purchasing Power Parity (PPP) index. Couples' pre-tax earnings are further standardized for differences in family size using the OECD equivalence scale. Based on the standardized number of hours chosen, married couples' average annual household earnings are adjusted using a common number of annual household hours worked. Two alternative levels of annual household hours worked are used as the standard number of annual hours worked across countries. Annual household hours worked are standardized to 2,000 hours per year, and to the average annual household hours worked in the US at each vingtile of the earnings distribution.

The results of the cross-country analysis show, that when household earnings are adjusted for differences in hours worked, countries, such as the US, in which households supply greater hours of paid labour are not as well off as countries in which households supply fewer hours of paid labour, in the lower portion of the earnings distribution.[9] While these results are based on simplifying assumptions regarding household labour supply, they do raise some concerns regarding the validity of using dollar measures of output, which are unadjusted for variation in time spent in the labour market over time, as a proxy for economic well-being.

Canadian Analysis: Empirical Background

Much of the literature concerned with the relationship between employment earnings and t' economic well-being of families in Canada has focussed on the level of earnings, (or la thereof), the distribution of earnings or measures of inequality in earnings in general.[10] However, very little attention has been given to the amount of labour time embodied in earned income, and the extent to which this also impacts the level of economic well-being of families. Canadian households have been spending more time in the labour market over the past twenty years, due largely to the increased labour force participation of women.[11] Are Canadian households really better off in 1994 than they were in 1975, given the increased time spent to acquire these earnings?

Studies have found that the rising inequality in Canada in annual labour market incomes, has been offset by social transfers so that, unlike the United States, the final distribution of total household incomes in Canada have been relatively stable in the 1980's (Economic Council of Canada (1991); Wolfson (1992); Blank and Hanratty (1991); Love and Poulin (1991)).

Canadian studies (Leckie (1988); Myles, Picot and Wannell (1988); Burbidge, Magee and Robb, (1993)) have also documented the rise in earnings inequality for individuals and the polarization of the labour force which took place between 1981 and 1986 in Canada. Wolfson (1992) and Beach and Slotsve (1994) found this shift was not simply a cyclical phenomenon induced by the recession of the early 1980's. Beach and Slottsve found that overall earnings inequality in Canada increased less than the distribution of individual earnings. Morissette, Myles and Picot (1994) concluded that the rise in inequality and polarization observed in the 1980's is not due solely to the 1981-83 recession, but they found that shifts in Canadian earnings inequality, at the aggregate level, were mainly driven by changes in the distribution of

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9 This assumes a positive value to time spent outside the labour force.

10 Studies on the increased polarization of employment earnings in Canada include: Myles and Picot, (1988); The Economic Council of Canada, (1991); Morissette, Myles and Picot (1994); Burbidge, Magee and Robb, (1993); Beach Slotsve, (1994). The relationship between declining real and relative wage of young workers and increased earnings polarization have also been analyzed: Myles, Picot and Wannell, (1988); Davis, (1992); Betcherman and Morrissette, (1994).

11 The change in female labour force participation rates is presented in Section 3.9 of this chapter.

annual hours worked. They focus their analysis on individual annual earnings inequality rather than on household or family economic inequality changes and they show that increased female labour force participation over the past two decades may have had partial offsetting effects in terms of household economic inequality.

As pointed out by Picot (1996), in most of the work on increasing earnings inequality in Canada, changes in the distribution of working time have been largely ignored. Freeman (1994), Juhn, Murphy and Topel (1991) and Kuhn and Robb (1996) have examined the declining hours of work of lower paid, less skilled workers relative to the higher paid resulting from a supply side response on the part of workers. Studies which have recognized the polarization in hours worked through the 1980s as influencing the degree of earnings polarization for individuals include Picot, Myles and Wannell (1990), McPhail (1993) Morrissette, Myles and Picot, (1994) and Morissette (1995). They found that the increased polarization in hours worked increased inequality in annual earnings inequality, with the more highly paid individuals working longer hours versus the less paid working relatively shorter hours.

The goal of this paper is to examine the impact of changes in hours worked over time on household earnings versus individual earnings by proposing an additional standardization to adjust for differences in household hours worked. It has become standard practice to standardize nominal earnings using a CPI index to adjust for differences in prices over time. In addition, it is becoming common practice to adjust household earnings for family size in order to better represent the purchasing power and, thus, economic well-being derived from earnings.

Increase in Dual Earner Families in Canada

Together, husbands and wives in Canada are spending more time in paid employment, which has occurred, to a large extent, due to the increased labour force participation of wives. Where the social norm in Canada used to be one earner within the family unit, the norm has now moved to two-earner families. The percentage distribution of Husband-Wife Families in Canada by earning status of spouses from 1967 to 1995 is shown graphically in Figure A-1 in the Appendix. In 1967, only one-third of husband-wife families (with and without children) were families in which both spouses reported earnings. By 1988, dual earner families represented approximately 62% of all husband-wife families. Dual earners also represent the majority of husband-wife families with children. By 1995, both parents were employed in approximately 70.7% of two-parent families.[12]

While the trend toward increases in two earner households may result in higher earned income, these trends do not necessarily imply increased economic well-being. Comparisons of earned incomes of families over time, even when standardized for prices and family size, (and the subsequent measures of inequality based on these incomes), are likely to give misleading implications of the relative level and distribution of economic well-being, and how this is changing over time.

Data Description

The pre-tax earnings distributions for married couple households in Canada are examined for Canadian households over the period from 1975 to 1994. The specific years of analysis are 1975, 1987, 1991 and 1994. Data on Canadian earnings is taken from the Luxembourg Income Study (LIS) data. The original source of the LIS data for Canadian households is the Canadian

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12 Source: Statistics Canada, Household Surveys Division, "Characteristics of Dual earner families, 1991 (Ottawa: 1993) Catalogue # 13-215, Table 5.

Survey of Consumer Finances. One major advantage of using the LIS data as a source for the Canadian data rather the micro data files from the Canadian Survey of Consumer Finances is that information on household hours worked for both household head and spouse is available in the LIS data for the years prior to 1987, but not available on the micro data files from the Survey of Consumer Finances.[13]

Households selected are specified as married (or equivalent), containing a household head, (aged 21 to 65), with a spouse present. Records which reported hours worked but zero earnings were omitted from the sample to facilitate the standardization procedure used.[14] All households with negative earnings are excluded from the sample, but all households with zero earnings are included in the sample. Both full-time and part-time earners are included in the sample. Households which reported zero or negative disposable incomes were excluded from the sample. Self-employed persons are included in the analysis for each country selected. Table A-1 in the Appendix shows the impact on the weighted sample size of the LIS data for each of the sample selection criterion used.

For the years 1987 to 1994, households are defined as single family units, corresponding to the definition of the "Census Family", by Statistics Canada.[15] For 1975 the household units contained in the LIS survey data (Canadian Survey of Consumer Finances) are defined as "Economic Families", a broader definition of family than the single family unit. Economic families include single family units plus households with where a husband, wife and children may be also living with other relatives. However, for the purposes of this paper, we concerned only with households in which husband and wife (a couple) are present and . allocation of time between couples to paid work.[16]

Data on hours worked for head and spouse of the household is available for all years selected in the sample. Data on household earnings in 1975 is not broken down into earnings of head and spouse, however, but is available for each of the subsequent years. The gender of the household head is given for all years in the sample but the gender of the spouse is not given. Households were selected if the gender of the household head was indicated, and a frequency was done on the gender of the head. In all selected years in the Canadian sample, all records reported household heads as male. Given this, earnings and the hours worked of the head were assigned as male earnings and hours worked and those of the spouse were assigned as female hours and earnings.

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13 The variables on household hours worked are available through the LIS data due to a special request to match files with the Canadian Labour Market Activity Survey so that these files would correspond to the LIS data format. Information on hours worked for individual records is not available through the Canadian Survey of Consumer Finances micro data files prior to 1987.

14 This is due to the fact that the household earnings distributions are broken down into vingtiles based on the actual household earnings distribution for each year (discussed in Section 2.4 of this thesis). Records with reported earnings, but no reported hours worked are placed within a particular vingtile of the earnings distribution, based on reported actual earnings, and remain in that vingtile under each of the standardizations considered. If average hours worked are reported as either zero or missing, this may seriously alter the average "standardized" earnings within each vingtile computed through various standardization procedures.

15 The term Census Family refers to the traditional "nuclear" definition of family which includes a husband and/or wife, with or without children. The term Economic Family refers to a group of individuals who share a common dwelling who are either related through blood or marriage. This definition includes in-laws as well as persons adopted.

16 The breakdown of the number of households from single family households and from multi-family households given by the weighted sample size for the years 1987, 1991, and 1994 are given in Table A-2 in the Appendix.

The Distribution of Household Earnings Defined

Total annual pre-tax earnings for married couples, (unadjusted for prices, family size or hours worked), within the selected sample were first sorted in ascending order and then split into twenty groups (vingtiles), of equal size for each year of analysis. Each vingtile contains an equal number of households for a given year of analysis. The average earnings and average number of hours worked within each vingtile are then calculated for males and females. For example, at the bottom of the earnings distribution, the average hours worked in the first vingtile of the distribution represents the average total household hours worked by all households included within this vingtile. This includes all households up to, and including the bottom 5th vingtile of the household earnings distribution.

While standardizing earned income for differences in family size could alter the relative rank order of households in the earnings distribution, standardizing for hours worked certainly will alter the rank order of households in the earnings distribution. However, it should be stressed that the same households within each vingtile were used to examine hours worked and earnings for each of the subsequent adjustments to the earnings function. In this manner, the impact of each of the adjustments on earnings, and hours worked for males and females can be examined. Since each vingtile always contains the same households as were included in the actual unadjusted earnings distributions, the same households are compared throughout this analysis for any given year.

The Distribution of Actual Unadjusted Household Earnings: Canada

Household earnings are first examined using actual earnings, expressed in nominal dollars for each of the years examined. Earnings are then adjusted for differences in prices faced by households over this period using CPI indices, and are expressed in 1994 (Canadian) dollars. Figure A-2 presents the distribution of actual pre-tax annual earnings for married couples for each of the relevant years. The earnings distributions contained in Figure 1 represent average earnings for all families contained in each vingtile of the earnings distribution. (See Appendix Table A-2).

This analysis shows substantial differences in nominal earnings between 1975 and 1994 with the distribution of nominal household pre-tax earnings in 1975 lying below the earnings in 1994 throughout most of the distribution.

Household Earnings Adjusted for Differences in Prices: Canada

Married couples' earnings from 1975 to 1994 are standardized, adjusting for differences in prevailing prices over this time period using Statistics Canada CPI indices. All earnings are reported in 1994 Canadian dollars. Figure A-3 shows actual household earnings in real terms for each vingtile of the distribution. (See Appendix Table A-3).

As can be seen in Figure A-3, the distribution of real household earnings prior to 1994 no longer lie below the earnings distribution in 1994 throughout the earnings distribution, even when valued in constant dollars. This analysis shows that actual household earnings in the years prior to 1994, when adjusted for prices, result in real earnings for all three years being greater than the 1994 earnings in the bottom half of the distribution, (up to the 8th vingtile). The earnings distribution of 1975, valued in 1994 dollars lies above the 1994 earnings distribution up to the 8th vingtile. The earnings distribution of 1987, adjusted for prices cuts the 1994 earnings distribution from above at the median of the earnings distribution, while that for 1991 cuts the 1994 earnings distribution at the 14th vingtile.

While nominal household earnings have increased over the period 1975 to 1994, much of this increase has been inflation and that even when adjusted for prices, earnings in the bottom of the household earnings distribution have deteriorated since 1975.

Household Earnings Adjusted for Differences in Family Size

Household earnings are adjusted for differences in family size using the OECD equivalence scale. Figure 1 shows the distribution of real household earnings adjusted for differences in prices and family size for each vingtile of the distribution. (See Appendix Table A-4).

Examining real household earnings, adjusted for differences in prices and family size (Figure 1), reveals that households in 1975 had greater equivalized earnings than did households in all other years in the bottom 40% of the distribution, but had lower equivalized earnings than did households in all subsequent years from the 15th vingtile upwards. Households in 1987 and 1991 show lower real earnings, standardized for prices and family size throughout much of the earnings distribution, except in the bottom 15% of the distribution, where average household earnings in 1987 and 1991 are greater than average earnings in 1994. Households in 1991 also show equivalized earnings greater than those in 1994 in the top 5% of the earnings distribution.

This analysis shows that although average family size in 1974 was larger than in 1994, couples had greater equivalized earnings in 1975 than did couples in subsequent years in the bottom 40% of the distribution.

Distribution of Annual Household Hours Worked Over Time: Canada

The distribution of annual household hours worked is examined using the actual earnings distributions of households for selected years over the period from 1975 to 1994. Average annual hours household worked is computed hours for each vingtile of the distribution. An examination of the hours of paid worked spent attaining these earnings reveals that Canadian families are spending a great deal more time in the paid labour market in 1994 than they did in 1975. Figure 2 shows the distribution of annual household hours worked for each of the selected years of analysis. (See Appendix Table A-5).

Four features concerning the distribution of household hours worked stand out.

1. *Differences in Total Household Hours Worked by Married Couples*

One of the most striking features of the analysis of paid labour time by Canadian households is the substantial differences in hours worked throughout the distribution over time. In 1975, the average annual household hours worked in the 20th vingtile of the household earnings distribution was 3,097 hours. By contrast, in 1994, the average annual hours worked in the 20th vingtile was 4,027 hours. This represents a difference of roughly 1,000 hours worked by the household per year or roughly 20 hours per week. Similarly, households at the 15th vingtile of the earnings distribution worked an average of 2,876 hours in 1975, versus 2,457 hours worked by households in 1994. Again, this represents a difference of roughly 600 hours worked per household. Large differences is annual household hours worked per year are evident from the 60th percentile upward when comparing the household earnings distributions of 1975 and 1994. An average of 700 hours worked per year per household is equivalent to every household supplying 14 more hours of paid work per week.

Examining the distribution of household earnings, without an examination of the changes in hours worked over time in Canada ignores the impact on households of allocating additional time to the paid labour market away from potential household production or leisure activities.

Figure 1: Total Annual Household Pre-Tax Earnings Standardized For Differences in Prices and Family size; Actual Household Earnings Distribution; Canada, 1975-1994 (Valued in 1994 Dollars Cdn.)

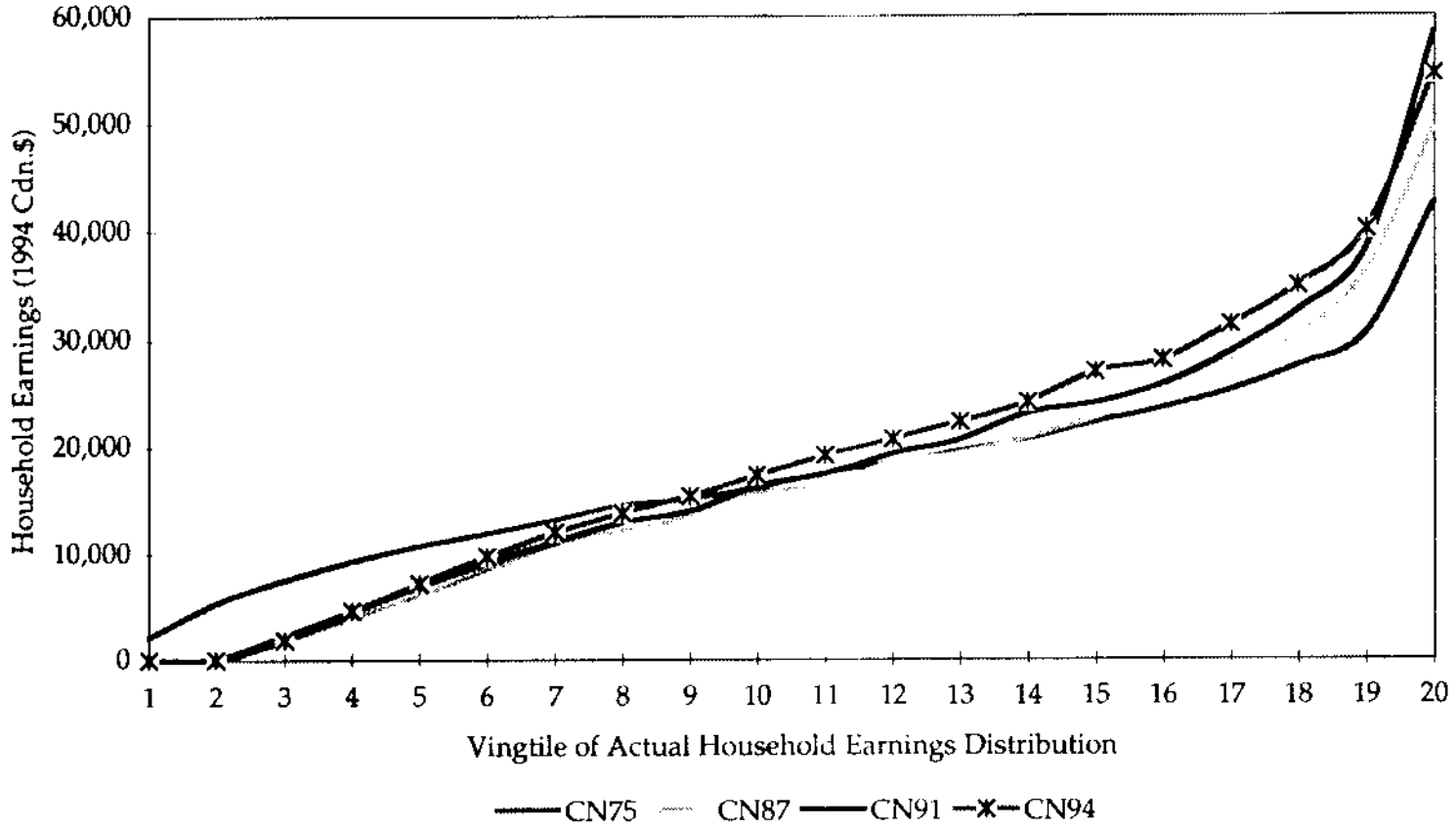
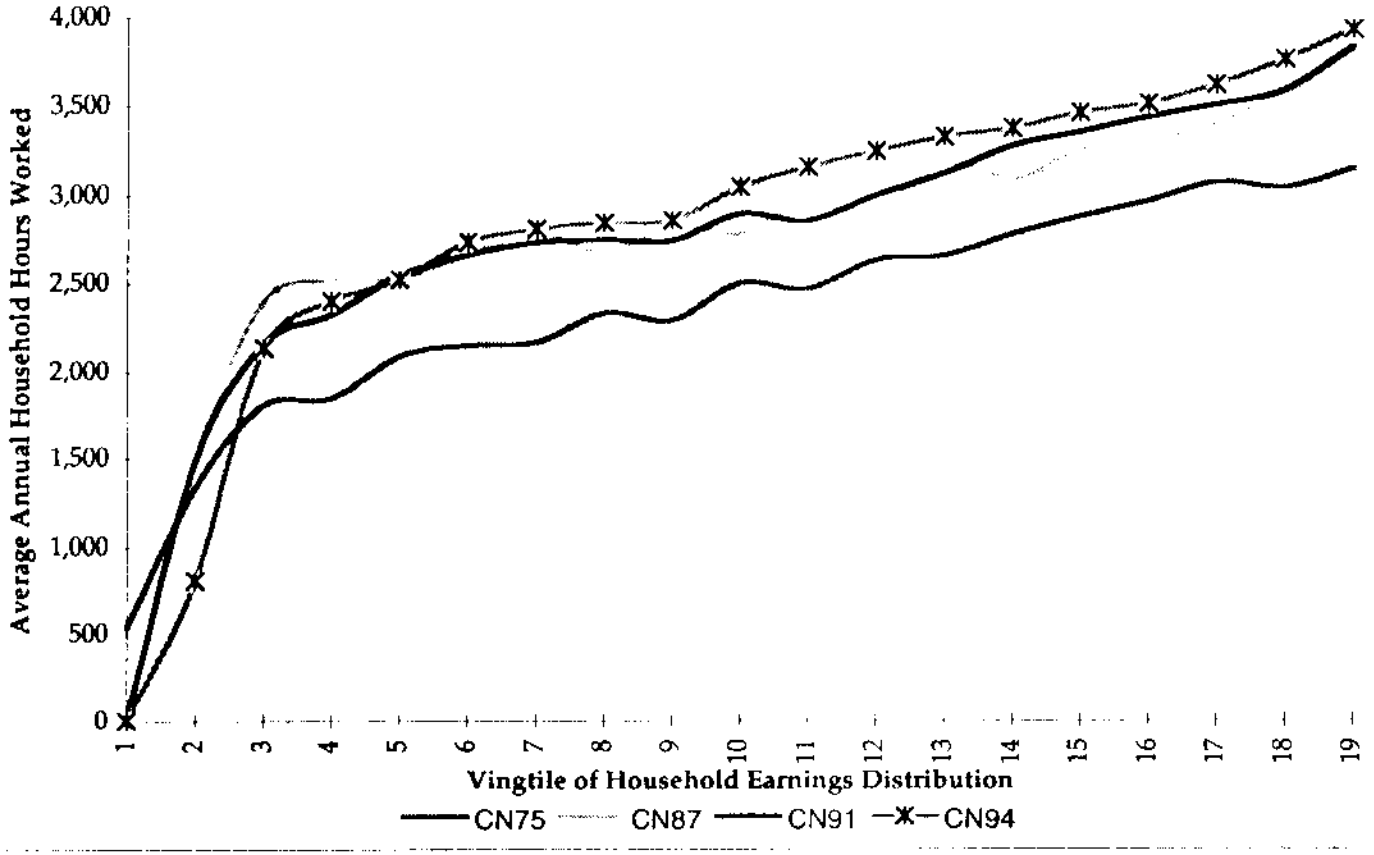


Figure 2
Total Annual Household Hours Worked; Actual Earnings Distribution; Canada (1975-1994)



2. *Increased Polarization of Hours Worked*

An analysis of hours worked shows not only are Canadian spending increased amounts of time working, but that the distribution of these hours is becoming more polarized. Households at the bottom of the earnings distribution are spending less time in the labour market whereas households at the top of the distribution are spending increasing amounts of time working over this period. Increasing unemployment rates in Canada over the period from 1975 to 1994 have also contributed to the increasing polarization of hours worked.[17]

A comparison of household hours worked at the top and the bottom of the earnings distribution over the period 1975 to 1994 shows that households at the bottom of the distribution are working increasingly fewer hours and households at the top of the distribution show modest increases in hours worked over this time period.

Figure A-4 compares the percent share of grouped vingtiles of the distribution of the cumulative sum of household hours supplied for each of the years selected. The pie diagrams in Figure A-4 aggregate the vingtiles up to quintiles and show the percent share of the cumulative sum of household hours supplied for each quintile of the earnings distribution. Households at the bottom of the distribution, in the first quintile, are supplying a smaller percentage of maximum hours in 1987, 1991 and 1994 than Canadian households did in 1975. In 1975, the bottom twenty percent of the distribution contributed 12% of the cumulative sum of household hours supplied for the distribution. In contrast, in 1987 and 1991, the bottom twenty percent of the distribution contributed only 11% of the cumulative sum of household hours, and by 1994 this figure fell to 9 percent. Households in top 20% of the earnings distribution contributed have shown modest increases in the percent share of the cumulative sum of total household hours. In 1975, the top quintile of the earnings distribution contributed 25% of the cumulative sum of household hours, whereas by 1987 this figure rose slightly 26% and by 1991 and 1994 this figure was 27 percent.

These findings on increases in the polarization of household hours are in keeping with the findings of Picot, Myles and Wannell (1990), Morrissette, Myles and Picot, (1994) and Morissette (1995) who found increased polarization in individual earnings through the 1980s.

3. *Median Earnings*

Total household hours worked exceed 2,000 hours at the median of the distribution for each of the selected years. Average hours worked for Canadian households is below 2,000 hours in the bottom of the distribution and above 2,000 hours at the top of the distribution for each of the selected years in this study. This implies that imposing an average of 2,000 hours worked for all households raises the total hours worked for households at the bottom of the earnings distribution and lowers the time spent in the labour market at the top of the distribution.

4. *Increased Female Hours Worked*

This analysis also showed substantial increases in the contribution of females in total household hours worked for pay. This is consistent with increased labour force participation rates for females and the increase in dual earner families in Canada over this time period.

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17 See Labour Force Statistics, OECD, 1996.

The ratio of male to female hours worked within the household has also changed over this time period Examining the contribution to total household hours worked by males and females shows the proportion of female hours to total household hours worked has increased. The proportion of male hours worked to total household hours worked has decreased from 1975 to 1994 in Canada. (See Appendix Table A-6). Examining total annual female hours worked over the earnings distribution also gives a clear picture of what has happened to female labour supply for married women. Figure A-5 shows the distribution of female hours worked from household with spouses present for each of the selected years.[18]

Two major features of the labour supply for married women in Canada can be observed from this analysis. First, married women's labour supply experienced fairly large increases from year to year.[19] Second, the increases in female labour supply from year to year have been substantial. This is in contrast to labour supply of husbands, where the distributions of hours worked for each of the selected years lie close to one another, with no specific ordering throughout the distribution from year to year. (The distribution of annual hours worked for males living in households with a spouse present is shown in Appendix Figure A-6).

This is consistent with the published data on labour force participation rates for Canada over this time period.[20] Female labour force participation rates have increased from 50 percent in 1975 to 68.5 percent in 1994. While female labour force participation has increased steadily, male labour force participation rates have dropped off since 1981. Much of the increase in total household hours worked in Canada has been comprised of increased female labour fo participation.

Increases in household paid labour hours, resulting primarily from increased labour supply of women, is particularly significant for women, where women have traditionally engaged in household production activities relating to meal preparation, child care and housework in general. The results of the 1992 General Social Survey on Time Use by Statistics Canada, revealed that time stress rose markedly for women with marriage and children and that "time crunch" levels virtually exploded for married mothers who were employed full-time due to the double work day. Moreover, there are distributional implications associated with this time crunch. It is more difficult for couples at the bottom of the earnings distribution to "purchase" household production services than for couples at the top of the earnings distribution. Thus, there is the potential for the burden of the "time crunch" to be shifted to the "working poor" women.

Standardizing Household Hours Worked: Canada

The standardization procedure used to adjust household earnings for differences in hours worked is the Proportional Hours Standardization, where household hours worked are scaled up or down to the standardized number of hours by allocating hours to husbands and wives in proportion to their actual allocation of hours within the household.[21] This represents one possible choice of standardized hours, any number of other hours may be used as a standardized number of hours. The Proportional Hours standardization procedure is invariant

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18 The breakdown of female and male hours is presented for each vingtile of the actual household earnings distribution, and represents the average number of total household hours worked by husband and wife for all households included within each vingtile of the household earnings distribution.

19 This is evident in Figure 9 where the distribution of female hours for each of the years subsequent to 1975 is roughly stacked on top of the 1975 distribution of female hours.

20 See Labour Force Statistics, OECD, 1996.

21 Two alternative standardization procedures used, (the High Wage procedure and the Wife as a Second Earner procedure) were also used to standardize average annual household hours worked yielded similar results.

to the choice of total standardized household hours used. Actual wages of individuals within the household are used to value their share of the standardized hours to calculate household earnings. [22]

Standardizing total household hours worked in proportion to actual hours worked by husbands and wives resulted in two separate standardization processes:

1) Standardizing hours to a common number of hours (2,000 hours per year) based on the proportion of the hours worked by husband and wife to total household hours worked; and

2) Establishing a common set of hours worked based on the average number of household hours worked in each vingtile of the distribution of earnings in 1975.

The first procedure assumes a given amount of hours would be allocated based on the proportion of hours contributed to total household labour supply by husband and wife given in the data. The quantity of household hours selected in this study is 2,000 hours per year. The second procedure determines the hours to be the average number of hours worked in each vingtile of the distribution in 1975, and then allocates these hours based on the husband and wife's proportion of total household hours.

The results of the first proportional hours standardization procedure are shown in Figure 3 below, (See Appendix Table A-7). As can be seen in Figure 3, the 1975 adjusted earnings [illegible] above the adjusted earnings of 1994 throughout the bottom half of the earnings distribution to the 15th vingtile (i.e., the bottom 75% of the household earnings distribution) and then lies very close to the adjusted 1994 earnings in the upper region of the distribution. Once earnings are adjusted for the variations in the amount of time spent in the workplace, the earnings distribution of 1994 (or at least in the bottom 75% of the earnings distribution) no longer lies above the earnings of previous years. This would suggest that not only were Canadian families at least as well-off in 1975 as they are today, but in fact they were better off (obtaining a higher standard of living) once we account the differences in time spent working between the earnings distributions. Not only does the hours-adjusted 1975 earnings distribution lie above the 1994 distribution, but also, the distributions of 1991 and 1987 lie above adjusted 1994 earnings throughout the bottom of the distribution (up to the 14th vingtile). In the top half of the earnings distribution all three adjusted earnings distributions are indistinguishable from the adjusted 1994 earnings distribution.

The results of the second Proportional Hours type of standardization procedure produces similar results and are shown in Figure A-7. (See Appendix Table A-8). The 1975 adjusted earnings function again lies above the adjusted earnings of 1994 throughout the bottom half of the earnings distribution (up to the 13th vingtile). This would suggest that, if households in the years since 1975 worked the same number of average hours within each vingtile as did households in 1975, Canadian families in the years subsequent to 1975 have not obtained a higher standard of living in the bottom 65 percent of the earnings distribution. In leveling the playing field in terms of hours worked across time periods, Canadian households in the bottom 65 percent of the earnings distribution in the years subsequent to 1975 have not kept pace with the bottom 65 percent of households in 1975 in terms of household earnings.

The earnings distributions of 1991 and 1987 are indistinguishable from the 1994 adjusted earnings, especially in the bottom half of the distribution with the 1994 earnings distribution

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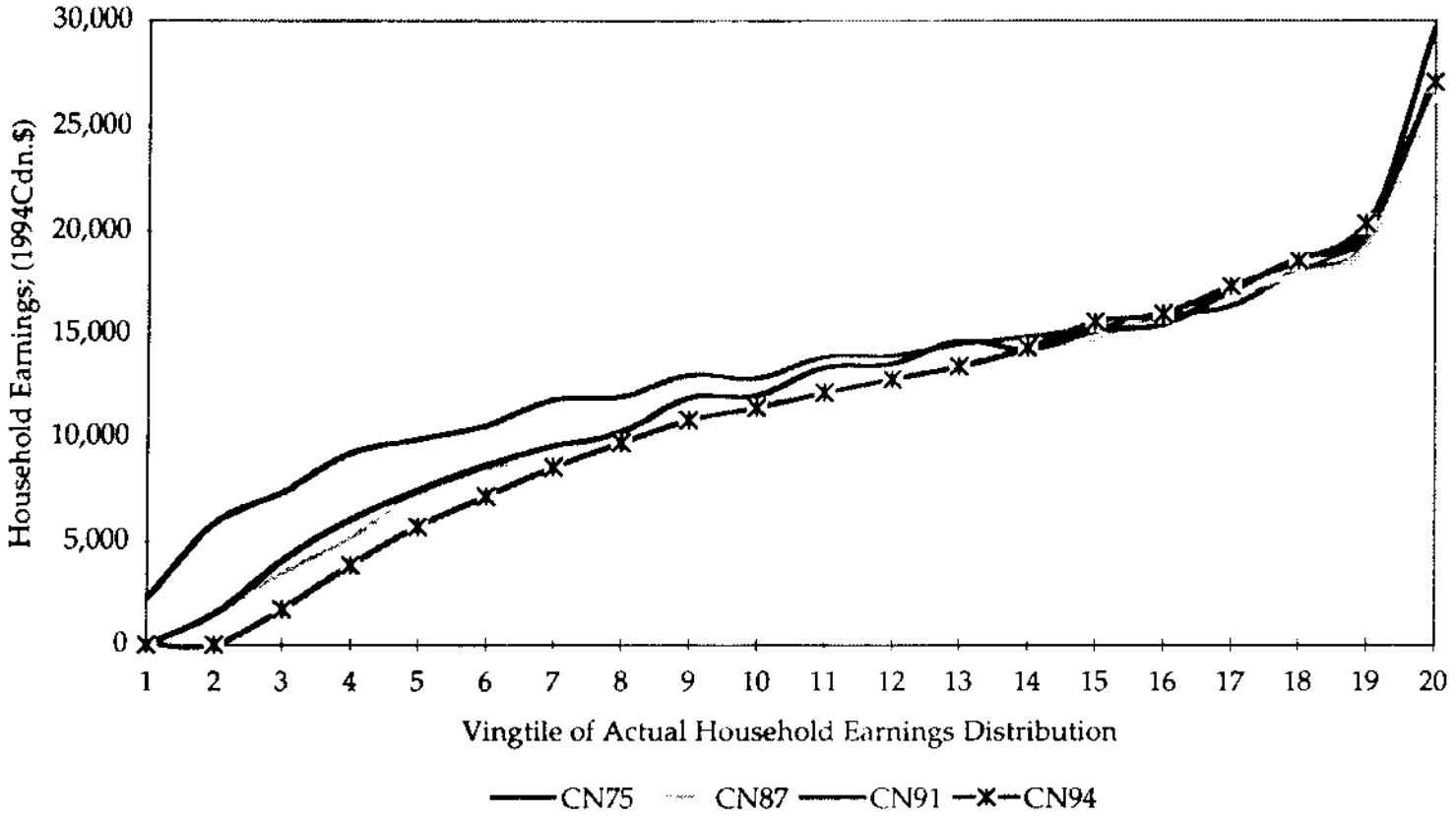
22 The husband-wife ratio of hours worked within the household is maintained and is the same as the ratio for actual earnings distributions since the changes in hours worked are proportional for both husbands and wives.

Figure 3: Total Annual Household Pre-Tax Earnings Standardized for Differences in Prices, Family Size and Hours of Paid Labour; Proportional Hours Standardization; 2,000 Hours; Canada, 1975-1994; (Valued in 1994 Dollars Cdn.)



lying above that of 1987 and 1991 in the upper portion of the distribution. This result implies that the additional hours worked in 1994 over previous years has not resulted in an increase in economic well-being, especially at the bottom of the earnings distribution. Households are supplying increasing hours in order to maintain their standard of living, and if we adjust earnings in terms of these additional hours, valued at the wages households receive for their labour time (assuming a proportionate combination of husband and wife's supply of household labour), we see that the bottom 65 percent of households are not maintaining the standard of living that the bottom 65 percent of households did in 1975 in Canada.

Both types of proportional hours standardizations methods resulted in comparable, if not higher, levels of earnings in the years prior to 1994 as compared to 1994. Once earnings are adjusted for the variations in the amount of time spent in the workplace, the earnings distribution of 1994 no longer lies above that of 1994. This would suggest that not only were Canadian households at least as well-off in 1975 as they are today for the bottom 65% of the earnings distribution, but in fact they were better off (obtaining a higher standard of living) once we account the differences in time spent working between the earnings distributions.

Conclusion: Canada

The results of adjusting earnings for differences in time spent working, indicate that levels of economic well-being may not have increased for Canadian families as much as implied by earnings alone. For a vast majority of Canadians, (the bottom 65 percent of the earnings distribution), not only are they no better off than they were twenty years earlier, they are, in fact, worse off, when we take account of the significant increase in household hours spent earning income.

Once hours worked are standardized, the variation in earnings arises solely from wages. This raises some concern that the distribution of wages has not kept pace with standards of living in the bottom half of the earnings distribution. While it is recognized that during the 1980's in Canada, transfer payments (social security, unemployment insurance benefits) played a significant role in alleviating income inequality in Canada (see. Osberg, Erksoy and Phipps, 1994), wage distributions (undistorted by the transfer payments), are often examined in order to understand earnings (from market sources) inequality. The work done in Canada by Juhn, Murphy and Topel (1991) and Kuhn and Robb (1996) indicate that structural changes have caused shifts in the distribution of wages, inducing greater hours worked in order to maintain a standard of living.[23]

While the results in this study are preliminary, they do raise concern about the use of standard monetary measures as comparisons of economic well-being over time periods, without taking into account changes in the household time devoted to earnings.

Cross Country Analysis

The five countries selected for this study: Canada, United States, Australia, Finland and the Netherlands were chosen based on the fact that they represent countries with substantial variation in average annual hours worked for individuals and female labour force

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23 See also Xu (1996), who used generalized Lorenz (GL) dominance criteria to rank wage distributions over time in Canada using data from the Canadian Labour Market Activity Survey (LMAS) during the period 1986-1990. This analysis showed the wage distributions have improved from 1986 to 1987, in the sense of GL dominance (wage distribution in 1987 shows a higher level and smaller inequality). However, the study showed a similar change did not occur in the period after 1987.

participation.[24] These countries also represent countries which have not only experienced changes in male earnings inequality over the 1980's and early 1990's, but which span three categorizations of change in male earnings inequality over this period. (See Smeeding et. al. (1996))[25]

Empirical Background: Cross Country Analysis

Substantial differences in hours worked by individuals have emerged among several OECD countries, and in particular, the five countries examined in this study, over the 1980's and early 1990's.[26] During the 1980s and 1990s differences in the amount of time spend in paid employment by Americans and Canadians compared to Western European workers increased noticeably. Americans and Canadians spend more hours in the paid labour than Western Europeans who enjoy considerable leisure while employed as well as longer vacations and holidays.[27]

Bell and Freeman (1996) in their study "Changes in Work Time in Canada and the United States" examined differences in annual hours worked among advanced OECD countries. One notable pattern, identified by Bell and Freeman, which emerges when examining average annual hours worked per adult across countries is the correlation between the "English-speaking" countries and high average annual hours worked. Average annual hours worked per adult are greatest in the United States, Australia, the United Kingdom and New Zealand, followed by Canada.[28] Following Canada, the Scandinavian countries such as Sweden and Finland rank next, with relatively high hours worked per adult. Average hours worked in the OECD European countries such as Germany, France and the Netherlands are much lower, with the Netherlands showing the lowest average annual hours worked per adult among the OECD European countries.[29]

The five countries examined in this study represent countries with a wide variation in average annual hours worked by individuals. Individuals in the three "English-speaking" countries (United States, Canada, and Australia), work the greatest number of average hours per year, followed by Finland, followed by the Netherlands. Comparing average annual hours worked for married couples in the same five countries in the same age group (Table A-9) also reveals striking cross-country differences in the supply of annual hours of paid labour.[30]

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24 Other countries examined, but not included in this study are France, Italy, Germany Sweden, Luxembourg, Denmark and the United Kingdom. These countries were not selected due to data limitations in the variables required in the transformation of household earnings using a standardized number of hours worked.

25 The five countries examined in this study also span the three categories of welfare states in Esping-Andersen's topology. Esping-Andersen (1990) in his topology of capitalist welfare states argues that capitalist countries differ with respect to their income transfer systems, their labour market policies and their commitment to gender equality. Esping-Andersen's topology can be used as a proxy for policy variables in each of the countries examined in this study.

26 Source: OECD Employment Outlook, 1995, Table A, Table C.

27 In fact, in many European Union countries work-sharing is encouraged as a method for dealing with unemployment.

28 The exception being Japan, which has the highest average annual hours worked per adult.

29 Bell and Freeman (1996) found that the differences in hours worked between North Americans and Western Europeans to be a relatively recent phenomenon. The greater work activity by North Americans developed in the 1970s and 1980s. They show that by 1973, hours worked by Europeans started to diminish and the differences in hours worked between the US and Western Europe narrowed greatly as Europeans began to take much of their increased prosperity in leisure time.

30 The figures in Table A-10 represent average annual hours worked per married adult, with household head aged 15 to 64. Data taken from LIS micro data country files for 1991 for Canada, the United States, Finland and the Netherlands and 1989 for Australia.

While it is beyond the scope of this paper to determine the reasons for differences in average annual hours worked among advanced OECD countries, the wide variation in annual hours worked per adult suggests that comparing earned incomes across countries without taking into account the differences in hours worked may be seriously misleading. In welfare terms, fewer hours worked by the employed implies greater time for leisure or unpaid work, which presumably adds to a worker's utility, holding income constant. Standard neoclassical analysis suggests that workers in countries with fewer hours worked should be better off relative to those in countries with more hours worked, holding the level of GDP per capita constant.

Average annual hours worked also mask what is happening to hours of work throughout the earnings distribution within a country. For example, couples at the bottom of the earnings distribution may be working a very different combination of annual hours than couples at the top of the earnings distribution. Greater hours of employment by both husbands and wives has a different impact on economic well-being at the bottom of the earnings distribution than at the top, given the cost of replacing losses in the value of foregone home production (e.g., child care).

One of the striking features concerning labour force participation among the countries selected for this study is the difference in female labour force participation.[31] In Finland (1991), while male labour force participation rates are the lowest among the five countries examined, female labour force participation rates are the highest at 71.9 percent, making the rate of female labour force participation relatively close to that of males in that country. In contrast, in Australia (1989), while male labour force participation is the highest among the countries examin[illegible] female labour force participation is 61.6 percent, the second lowest (next to the Netherlan[illegible] Female labour force participation is the lowest in the Netherlands (1991), at 54.5 percent. In Canada and the United States, (1991), female labour force participation rates are very similar, being slightly higher in the US (68.4 percent) than in Canada (67.2 percent).

Another notable difference across the countries examined in this paper is the number of women working part-time as a proportion of total employment.[32] The Netherlands has the highest percentage of part-time employment as a proportion of total employment of all countries examined in this study, and part-time employment amounted to around 62 per cent of women's total employment in 1990. Australia has the second highest percentage part-time work among women (40.1 percent in 1990). Although employment rates are relatively high in Australia, a large proportion of women work part-time and part-year. The US. has the largest annual and weekly hours, but a substantial number of women work part-time (25.2 percent in 1990). The labour force participation for Canada is slightly higher than for the US., but Canadian women work fewer hours. Cross-country comparisons of the percent of couples employed using the LIS country files for the countries examined in this study shows substantial differences in employment patterns, especially among married women.[33]

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31 See Labour Force Statistics, OECD, 1996.

32 Source: OECD Employment Outlook, July 1990, Table 2.9, p.36. Data not available through OECD publications for the years of analysis for the selected countries in this study.

33 Based on an analysis of the LIS micro data country files for married males and females, aged 16 to 64 years. The proportion of married males in paid employment is similar for Canada, the United States, and Finland. The proportion of married men with labour market earnings is lowest in the Netherlands. For married women, however, the variation in the proportion of married women receiving labour market earnings in the five countries examined in this study is substantial, ranging from being very low, (e.g., in the Netherlands, where the norm is for married women to not be working outside the home), to being very high, (as in Finland, where the percentage of married women in paid labour is greater than the percentage of married men in paid employment in either Australia or the Netherlands).

Data Description: Cross Country Analysis

The data on earnings and hours worked for the five countries examined (Canada, (1991), United States, (1991), Finland, (1991), the Netherlands, (1991) and Australia, (1989)) is obtained from the country files contained in the LIS data base.[34] Table A-10 shows the original sources of the country-specific data used in this study. Extensive effort has been made by country specialists to make information on income and household characteristics contained in the LIS data as comparable as possible across countries.

Households selected are specified as married (or equivalent), containing a household head, (aged 21 to 65), and a spouse. The pre-tax earnings distributions for married couple households are examined across countries in each of the selected years. Households are further defined as single family units, corresponding to the definition of the "Census Family", by Statistics Canada. Records which reported hours worked but zero earnings were omitted from the sample to facilitate the standardization procedure used. All households with negative earnings are excluded from the sample, but all households with zero earnings are included in the sample. Both full-time and part-time earners are included in the sample. Households which reported zero or negative disposable incomes were excluded from the sample. Self-employed persons are included in the analysis for each country selected. Table A-11 in the Appendix shows the proportion of the weighted sample size affected by each sample selection criterion across countries. The gender of the household head is given for all countries in the sample but the gender of the spouse is not given. Households were selected if the gender of the household head was indicated. Earnings and hours worked of the head were assigned as male earnings and hours worked and those of the spouse were assigned as female hours and earnings.[35] Due to the lack of information on the gender of the spouse, households containing same gender couples cannot be identified

This paper adopts the Purchasing Power Parity (PPP) index created by Summers and Heston (1991) to transform the distributions of Figure 1 into a common currency under the strong assumption that the PPP conversions reflect differences in purchasing power that are equal at all points in the distribution or, if they are not, that these differences across percentile points are the same in all countries.[36]

Distribution of Actual Price-Adjusted Household Earnings: Cross-Country Analysis

A comparison of actual pre-tax married couples' earnings distributions across countries, valued in 1991 US dollars and purchasing power parity adjusted, but unadjusted for differences in family size, shows substantial differences in the level of real earnings across countries. (See Table A-12). Figure A-8 shows the average annual earnings for married couple households adjusted for purchasing power for Canada, Australia, Finland and the Netherlands lie below the earnings distribution for the United States throughout most of the distribution. Canadian earnings are slightly less than US. earnings throughout the distribution with the gap in earnings beginning to widen slightly at the 15th vingtile of the distribution. One might conclude from this comparison, that married couple households are better off in absolute terms in the United States than they are in the comparison countries. However, differences in family size and hours

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34 The country sample was selected on the basis of the variation across countries in annual household hours worked as well as providing a set of countries with the year of analysis as similar as possible.

35 A frequency distribution showed that in all households selected (where both household head and spouse are present) all records reported household heads as male for all selected countries in the sample.

36 It should be noted that the use of purchasing power parity measures involve strong assumptions regarding cross-country comparisons of inequality.

worked across countries make it difficult to compare earnings which are adjusted for prices and exchange rates only.

Household Earnings Adjusted for Differences in Family Size: Cross Country Analysis

Variation in family size can make large differences in terms of the purchasing power of earnings. Once household earnings are adjusted for prevailing currency and price differences across countries, real household earnings are further adjusted for differences in family size using the OECD equivalence scale.[37] Figure A-9 shows the distributions of real household earnings, (valued in 1991 US dollars), standardized for differences in prices, purchasing power and family size for each vingtile of the distribution. As can be seen in Figure A-9 average equivalized household earnings in the US are greater than equivalized earnings for all other countries examined throughout most of the distribution. Based on the distribution of real household earnings which has been standardized for differences in both prices and family size, households in the United States could be considered to be better off than households in other countries. However, a comparison of household earnings which have been fully adjusted for purchasing power, may not give a valid ranking of economic well-being if one considers the variation in hours spent in paid labour across the countries examined.[38] The following section examines average annual household hours worked and reveals substantial differences in the average number of hours spent by households to acquire these earnings. This section presents the distribution of average annual hours worked by households, to produce the household earnings distributions (presented in this section) for each vingtile of the earnings distributions.

Distribution of Annual Household Hours Worked: Cross-Country Analysis

The distribution of annual household hours worked is examined using the actual household earnings distributions for each of the selected countries in the sample. Average annual hours household worked are computed for each vingtile of the distribution using the same households within each vingtile of the earnings distribution as were used to compute average annual household earnings. The distribution of annual household hours worked across countries is shown in Figure 4. (See Table A-13). Figure 4 reveals that couples in the United States spend more time in the paid labour market, throughout most of the earnings distribution, than do families in other countries. At the bottom of the earnings distribution, the US is followed by Canada with the next highest number of household hours spent in the labour market. Average household hours worked in Canada however, experience a slight decline at around the median with average household hours worked dropping off. Hours worked by married couples in the Netherlands are the lowest overall, with the lowest distribution beyond the 8th vingtile of the earnings distribution.

The hours worked in the United States increase at a rapid rate with hours worked well above hours worked in the other countries between the 4th and the 12th vingtile. By contrast, households in the Netherlands work on average 600 to 800 hours less per year than households in the other five countries examined in the upper end of the earnings distribution. Based on a 50-week work year, this translates into 12 to 16 hours less each week.

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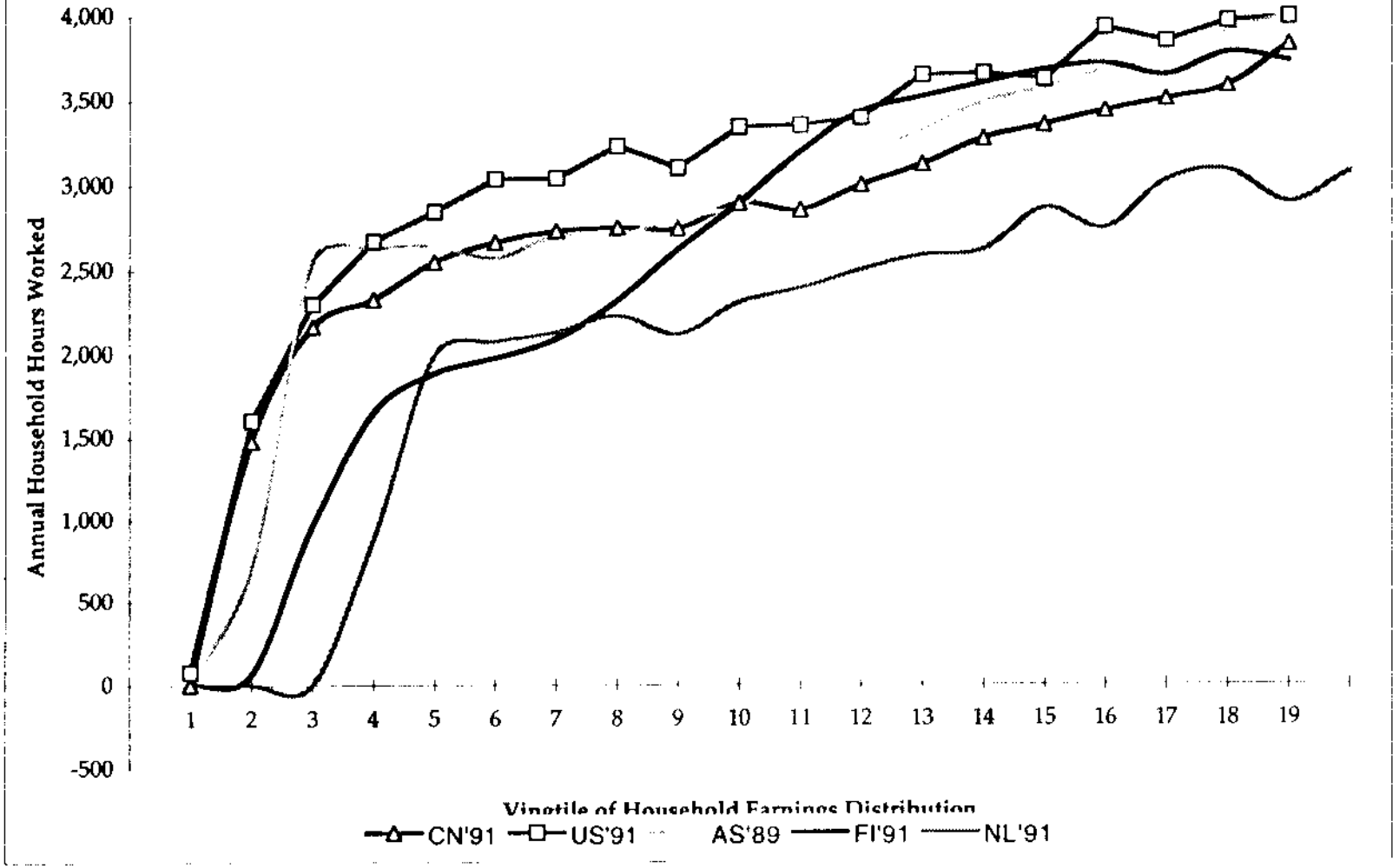
37 The OECD equivalence scale calculates the equivalent earnings of each household member as: Equivalent Earnings = E/(1 + .7(A - 1) + .5(C)), where E represents household earnings, A is the number of adults in the household, and C is the number of children under the age of 18.

38 Referring to earnings which have been fully adjusted for purchasing power includes the conversion of earnings to a common monetary unit, standardizing for differences in prices faced by households across countries, and standardizing for differences in family size across households.

Figure 4
Comparison of Total Annual Household Hours Worked Amoung Five OECD Countries; Actual Earnings Distribution; Married Couples



These findings are in keeping with the OECD reported hours worked per adult. Among the five countries examined in this paper, the OECD reported annual hours ranked the US as having the highest annual hours worked per adult, followed by Australia, Canada, Finland and the Netherlands. The average annual household hours worked throughout the earnings distributions in each country is also shown at the bottom of Table A-13. This analysis shows average *household* hours worked follow the same ranking as average annual hours worked *per adult* reported as reported by the OECD across the countries examined in this study.

Examining the entire distribution of hours worked provides a more complete understanding of the distribution of household hours embodied in the average hours worked. Average annual household hours worked in the US are predominantly higher throughout the earnings distribution. At the bottom of the earnings distribution, average annual hours worked in Australia and Canada follow a similar pattern as the United States, However, average household hours worked in Canada and Australia begin to fall below the hours worked in the United States from the bottom 20 percent of earners upwards. Above the median, households in Australia worked a greater number of hours than in Canada for the top 50 percent of households, indicating that the higher average number of household hours worked in Australia over Canada results primarily from households in the top 50 percent of earners working more hours. In the Netherlands the overall average household hours worked is roughly two thirds of the average household hours worked in the United States. The distribution of household hours worked in the Netherlands lies below that for the other countries examined for all households giving the Netherlands the lowest overall average number of household hours worked.

Standardizing Household Hours Worked

Given the variation in household hours worked among the five OECD countries examined, this paper proposes an additional standardization to facilitate cross-country comparisons of household earnings. The Proportional Hours standardization procedure uses the actual proportion of male and female (husband and wife) hours to total household hours in each household, to allocate a standard number of hours to the household. The existing share of husband's and wife's hours of paid labour hours are used to apportion the standardized number of hours between them. Standardizing total household hours worked in proportion to the actual hours worked by husbands and wives is done in two separate standardization processes:

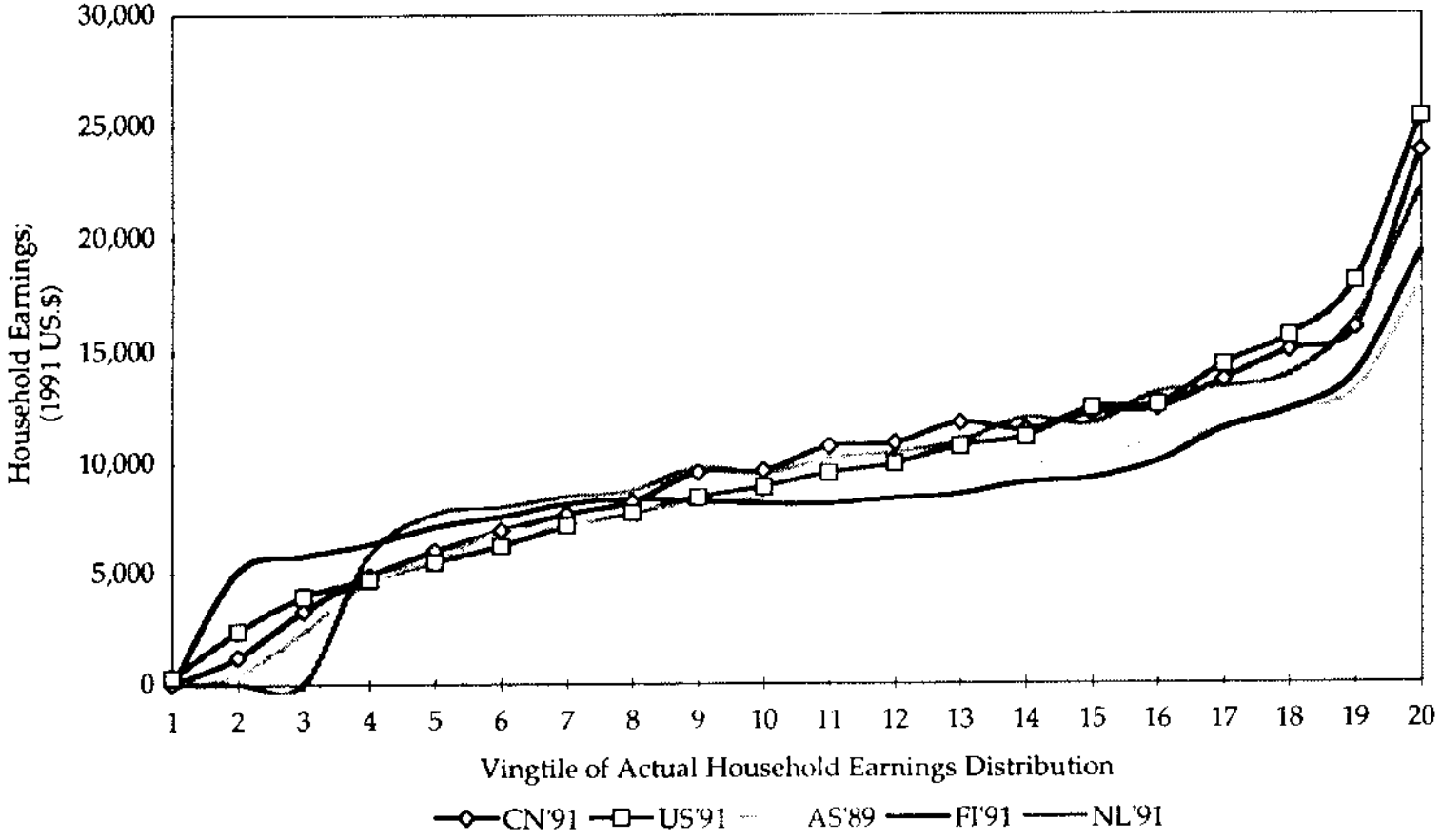
1) Standardizing hours to a common number of hours (2,000 hours per year) based on the proportion of the hours worked by husband and wife to total household hours worked; and

2) Establishing a common set of hours worked based on the average number of household hours worked in each vingtile of the household earnings distribution of the United States.

The first procedure assumes 2,000 annual hours would be allocated based on the proportion of average annual hours actually contributed to total household labour supply by husband and wife given in the data for each of the selected countries. The second procedure determines the average total number of household hours worked to be the average number of hours worked in each vingtile of the distribution in the United States in 1991, and then allocates these hours based on the husband and wife's proportion of total household hours.

The resulting earnings distributions for each of the standardization procedures represent earnings for comparable households, which have been standardized for differences faced by households in prices, family size, and hours of paid labour across countries. Earnings are presented for each vingtile of the actual earnings distribution and represent the *same composition of families within each vingtile* as in the actual earnings distributions.

Figure 5: Total Annual Household Pre-Tax Equivalized Earnings Standardized for Differences in Prices, Family Size and Hours of Paid Labour; Proportional Hours Standardization; (2,000 Hours); (Valued in 1991 U.S. Dollars)



The results of the first proportional hours standardization procedure is shown in Figure 5. (See Appendix Table A-14). Once household earnings have been standardized for variations in hours of paid labour, the household earnings distribution of the US no longer lies above the earnings distributions of the four other countries examined throughout much of the earnings distribution. As can be seen in Figure 5, the earnings distributions of Canada, and the Netherlands lie above the distribution of the US throughout much of the middle portion of the earnings distribution, (from 4th vingtile to the 15th vingtile). The earnings distribution of Finland lies above the US earnings distribution for the bottom 40 percent of households in the distribution, when the higher hours worked above of the median of the distribution reduces the standardized earnings distribution back below the US distribution. This would suggest that when adjusting household earnings for differences in hours of paid labour in this manner, not only were families at least as well-off in Canada, the Netherlands, Finland and Australia, (over the portion of the distribution where they lie above the US earnings distribution), as they were in the United States (for the years of comparison), but in fact they are better off (obtaining a higher standard of living). Comparing households at the top of the earnings distribution, (the highest 15 percent of household earners) across countries, however, households in the US at the top of the distribution still enjoyed higher earnings even when standardized for hours worked. This implies US. couples at the top of the distribution really earn a lot of money, given the size of the adjustments for the large number of hours worked.

The results of the second type of Proportional Hours standardization procedure produced shown in Figure A-10, where hours worked are set equal to the average annual hours worked the US at each vingtile of the earnings distribution, yield similar results. (See Table A-15). This analysis shows the earnings distributions of Canada, and the Netherlands lie again above the distribution of the US throughout much of the middle portion of the earnings distribution, (from 4th vingtile to the 15th vingtile). The earnings distribution of Finland lies above the US earnings distribution for the bottom 40 percent of households in the distribution. This again suggests that when adjusting household earnings for differences in hours of paid labour in this manner, not only were families at least as well-off in Canada, the Netherlands, Finland and Australia, as they were in the United States, but in fact they were better off .

This would suggest that, if couples in countries other than the United States worked the same number of average hours within each vingtile as did households in the United States in 1991, couples in countries such as Canada and the Netherlands would have obtained higher earnings throughout the middle portion of the earnings distribution (households from the 20th vingtile to the 70th vingtile). Also, families in Finland would obtain greater earnings for the bottom 40 percent of the population.

In top of the earnings distribution, however, the top 20 percent of households in the United States are still better off in terms of greater earnings, when comparing across countries, even if households in other countries worked the same number of hours (at each vingtile of the earnings distribution) as did Americans in 1991. Also, in the bottom tail of the distribution, households in the United States show greater earnings than did households in Canada and Australia for the bottom 20 percent of earners. The earnings distribution in Australia lies predominantly below the earnings distribution of the United States except between the 4th vingtile to the 8th vingtile, where Australian earnings are slightly greater than in the United States. The earnings distribution of the Netherlands is pulled down to zero below the 4th vingtile due to the large number of zero earner families in that country.

"Leveling the playing field" across countries, in terms of paid labour time, to facilitate comparisons of household earnings, results in a different ranking of the level of household earnings than that which results from standardizing household earnings for differences in prices and family size only. The earnings distribution of the United States no longer lies above the

households earnings distribution of other countries throughout most of the earnings distribution. This result implies that the additional hours worked in United States, (over the hours worked in other countries), does not result in increased economic well-being, as measured by household earnings, when we take account of the value of these hours of paid labour, especially in the middle and lower portions of the earnings distribution. If we adjust household earnings for differences in hours worked, valued at the wages households receive for their labour time (assuming a proportionate combination of husband and wife supply of household labour), we see that the middle and lower portions of the household earnings distribution (from the 4th to the 14th vingtile) in the United States are not achieving higher earnings than comparable households in countries where the average annual household hours worked is much lower (i.e., Finland and the Netherlands). Both types of proportional hours standardization methods resulted in comparable, and higher, levels of earnings in the countries such as Canada, Finland and the Netherlands on the middle and lower portion of the household earnings distribution.

Discussion of Results: Cross Country Analysis

While the procedures used to value a common number of hours worked do not represent sophisticated household bargaining models, five main issues should, however, be highlighted. First, the cross country comparison of real pre-tax earnings for married couples, (adjusted for only differences in currency and prices) found the married couple households in the US to be the most affluent among the countries examined, (in terms of pre-tax labour earnings for married couples), throughout the earnings distribution.[39] Even when couples' earnings are adjusted for differences in family size, this result holds.[40] While this result may not seem to be a significant finding of this analysis, it consistent with the findings of Gottschalk and Joyce, (1995), in comparing the level of male earnings across countries.

Second, the preceding analysis resulted in the finding that in the bottom and middle portions of the earnings distribution, the difference in affluence could be partially attributed to differences in hours worked. This analysis attempted to determine to what extent cross country differences in the level of earnings for married couples is due to differences in hours worked. The relative ranking of economic well-being of married couples households across countries depends on where families lie in the household earnings distribution. These results suggest the "working poor" are worse off in the US and married couples at the top of the U.S. earnings distribution still enjoyed higher earnings even when we consider the value of the time spent to acquire their earnings. This implies that even if high earner couples in Canada, Australia, Finland or the Netherlands worked as much as the high earnings counterparts in the US, they still would not match their earnings.[41]

Third, the use of substantially different procedures to value a common number of hours, all yield the same result: that smoothing out the "playing field" across countries, in terms of paid labour time, to facilitate comparisons of household earnings, results in a much different ranking of relative affluence among married couples than that which results when using earnings

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39 The average annual real labour market earnings of married couples in the United States is greater at each vingtile of the earnings distribution than the equivalent average annual earnings of married couples in each of the countries examined.

40 Except at the 9th vingtile, where earnings distribution of Canadian married couples is slightly higher than that of the US.

41 This is, of course, assuming couples' labour supply would be similar to that assumed in the procedures used to standardize hours worked.

adjusted for differences in prices and family size only.[42] In each procedure used, the earnings distribution of the United States no longer lies above the households earnings distribution of other countries throughout the earnings distribution.

Fourth, there are potential distributional impacts associated with wives spending more time working outside the home since the loss in the value of household production associated with greater female force participation has possible gender implications. Time use studies have shown that women, on average, contribute to a larger share of total household production than men, not only in Canada, but in other countries as well.[43] Whether or not women carry the brunt of the burden of diminished time available to take care of home and child care responsibilities depends on how couples "package" their supply of labour for both work inside and outside the home in response to the emergence of the dual-earner family, as experienced in countries such as Canada, the United States and Finland.[44] Since it is more difficult for couples at the bottom of the earnings distribution to "contract out" household responsibilities than for couples at the top of the distribution, the stress associated with juggling work, household and family responsibilities for families at the bottom of the distribution could be great.[45] For this reason, "working poor" dual earner families may suffer a greater loss in the foregone value of home production, with the potential for this burden to be shifted to the "working poor women". More specifically, the results of this study, indicating that the "working poor" were the worst off among the countries examined in the US, (once earnings are adjusted for the variance in time spent working), places the "working poor women" in the US in the worse position of all.

The fifth point which deserves mention concerns putting the above results into the context of prevailing differences in social institutions and policies across countries. Market forces go a long way in explaining the diversity of experiences across countries, but institutions also matter. If, for example, earners in the bottom tail of the earnings distribution in one country may compare poorly, in money terms, with low earners in elsewhere, but, due to differences in social policies, these low earner families may not in fact, have a lower level of economic well-being. Cross country comparison of earnings does not allow for a comparison of full consumption potential or the full command over goods and services of families. Hence, the relationship between labour market earnings and "full" family income is less clear due to differences in political and social institutions across countries. Among the five countries examined in this study, large differences in social policies and programs play a substantial role in the economic well-being associated with household earnings.[46] Low earner families in the countries such as Canada and the United States face very different income transfer schemes and social policies than is the case for low earnings families in a country such as Finland.

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42 Two other procedures (High Wage Standardization procedure, where the higher wage earner between husband and wife supplies total standardized hours and the Wife as a Second Earner Standardization procedure, where the wife acts as a supplementary earner) were used in previous work and both yielded similar results.

43 For Canada, see the General Social Survey on Time Use, Statistics Canada, 1992. For the results of time use surveys for a selected number of other countries, see "The Measurement of Non-Market Production, OECD Survey Reports, OECD, 1992. See also Phipps (1996), p. 92. Other evidence on gender differences in the use of time across countries which suggest women contribute to a larger share of household responsibilities can be found (Daly, (1996), Witt and Goodale (1981), and Presser (1989)).

44 Husbands and wives may equally share the household work, or perhaps some household work doesn't get done or is contracted out to a third party, or perhaps women put in a "double-work" day and feel the time crunch.

45 In the case of Canada, the results of the 1992 General Social Survey on Time Use by Statistics Canada, showed that in contrast to men, time stress rose markedly for women with marriage and children. and that time crunch levels virtually exploded for married mothers who were employed full-time.

46 See Phipps (1996) for a comparative cross country review of social policy in five countries, including Finland and Canada. Also, S.B. Kamerman, (1980). The comparative section on social policy is taken from Phipps, 1996. Also, Maureen Baker, (1995).

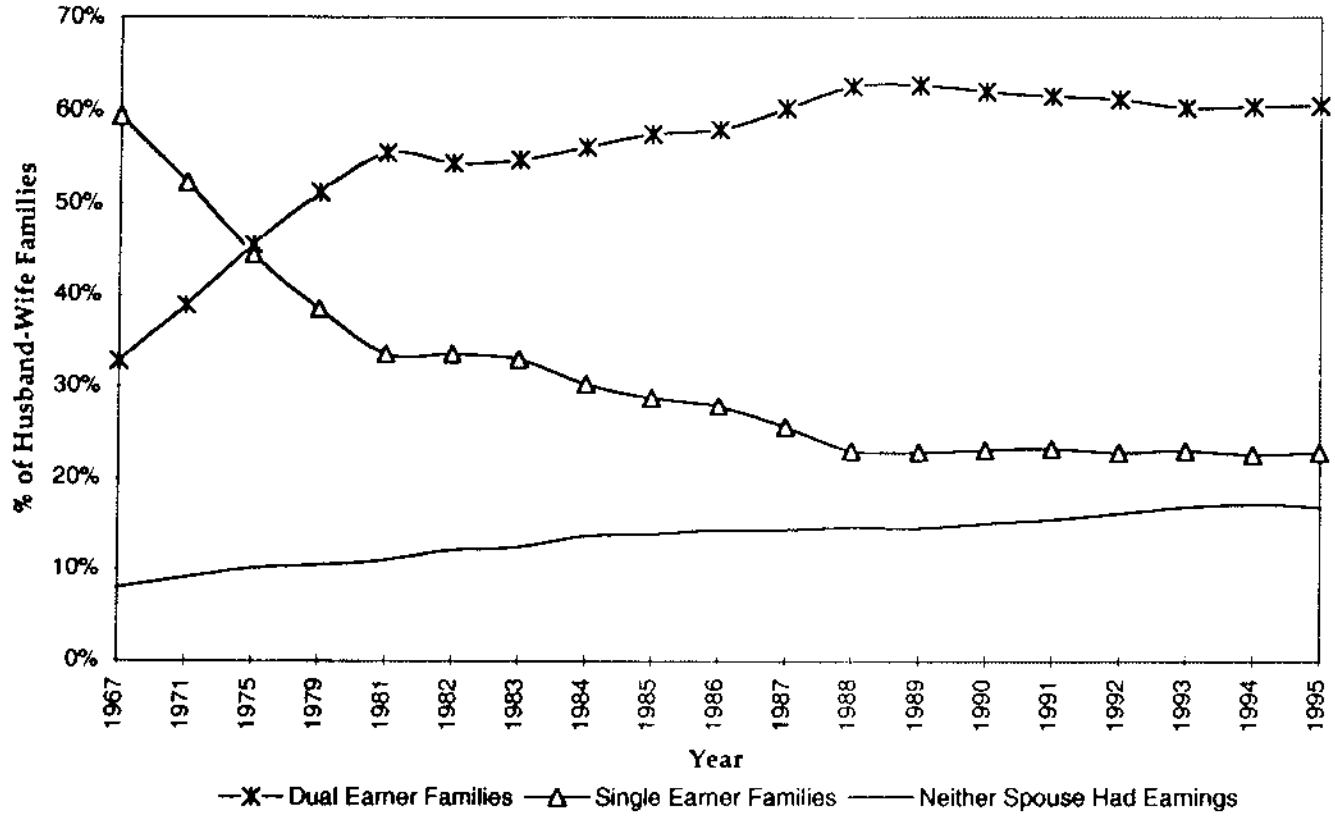
Appendix A

Supporting Figures and Tables

Figures A-1 to A-10

Table A-1 to A-15

Figure A-1
Percentage Distribution of Husband-Wife Families by Earning Status of Spouses, 1967-1995



Source: Statistics Canada Catalogue 13-215-XPB

Figure A-2: Total Annual Actual Household Pre-Tax Earnings; Actual Earnings Distribution; Nominal Dollars; Canada, 1975-1994

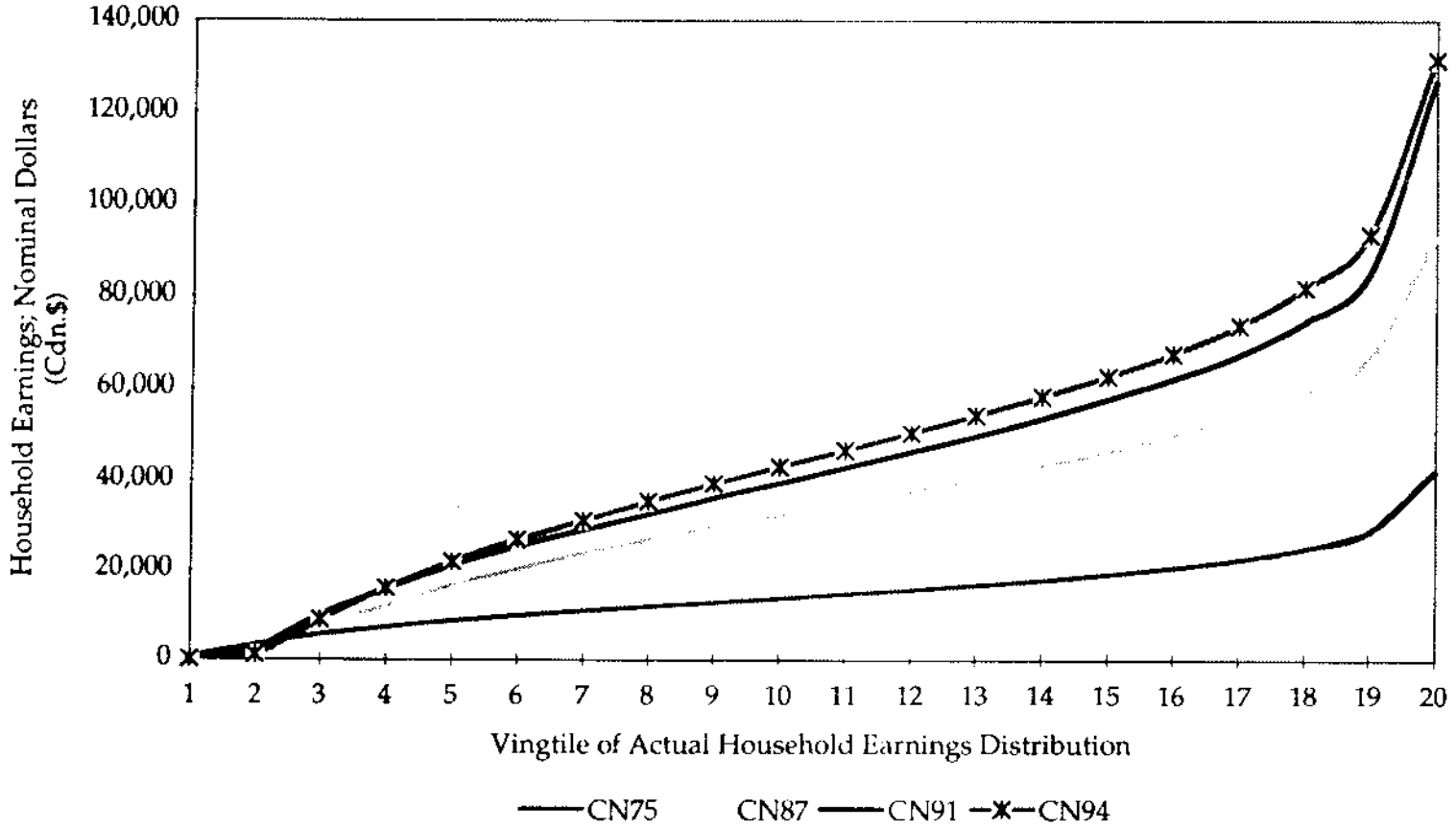


Figure A-3: Total Annual Household Pre-Tax Earnings Standardized For Differences in Prices; Actual Earnings Distribution; (Valued in 1994 Cdn. Dollars) Canada, 1975-1994

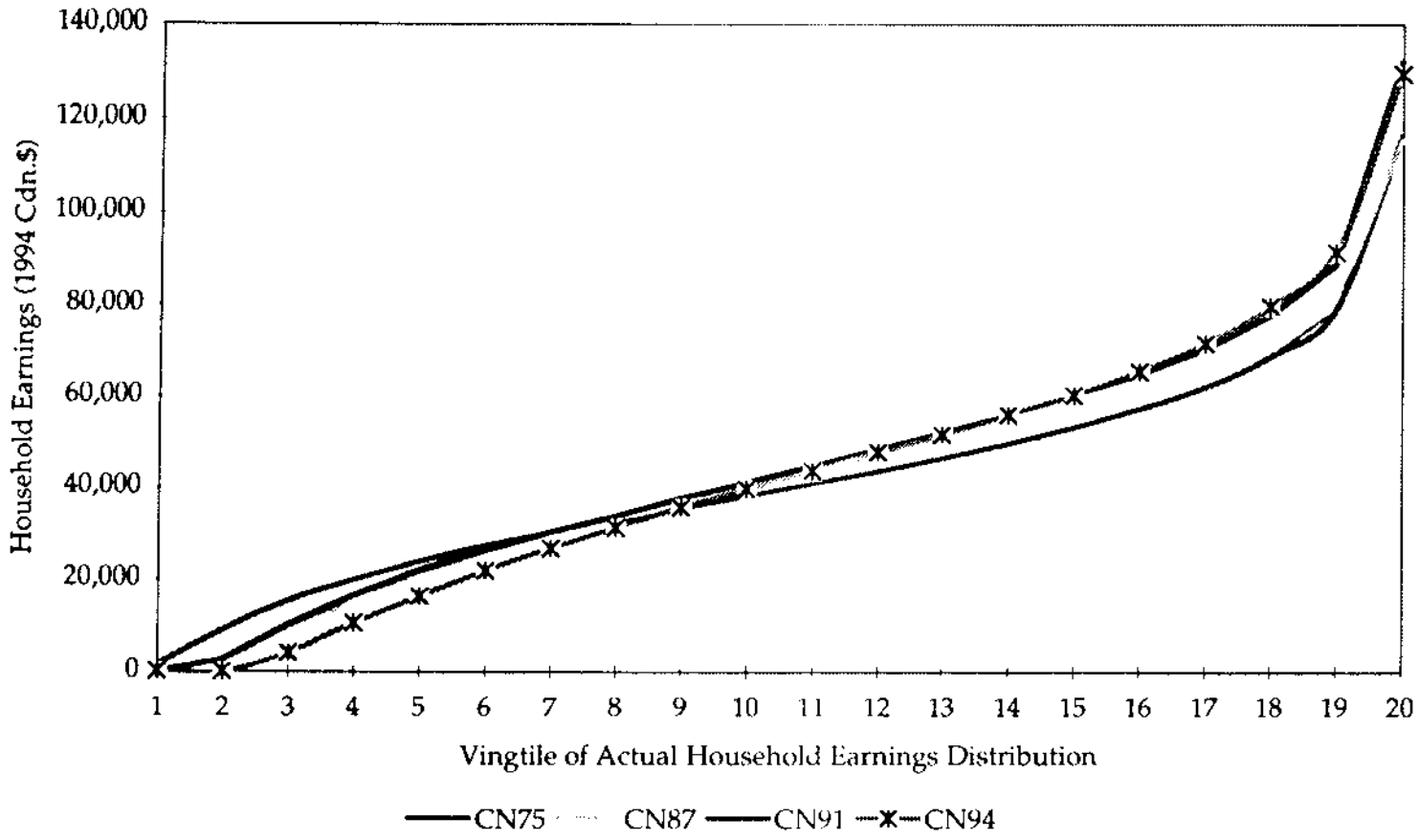


Figure A-5:
Total Annual Female Hours Worked at each Vingtile of the Actual Household Earnings Distribution; Canada; (1975-1994)

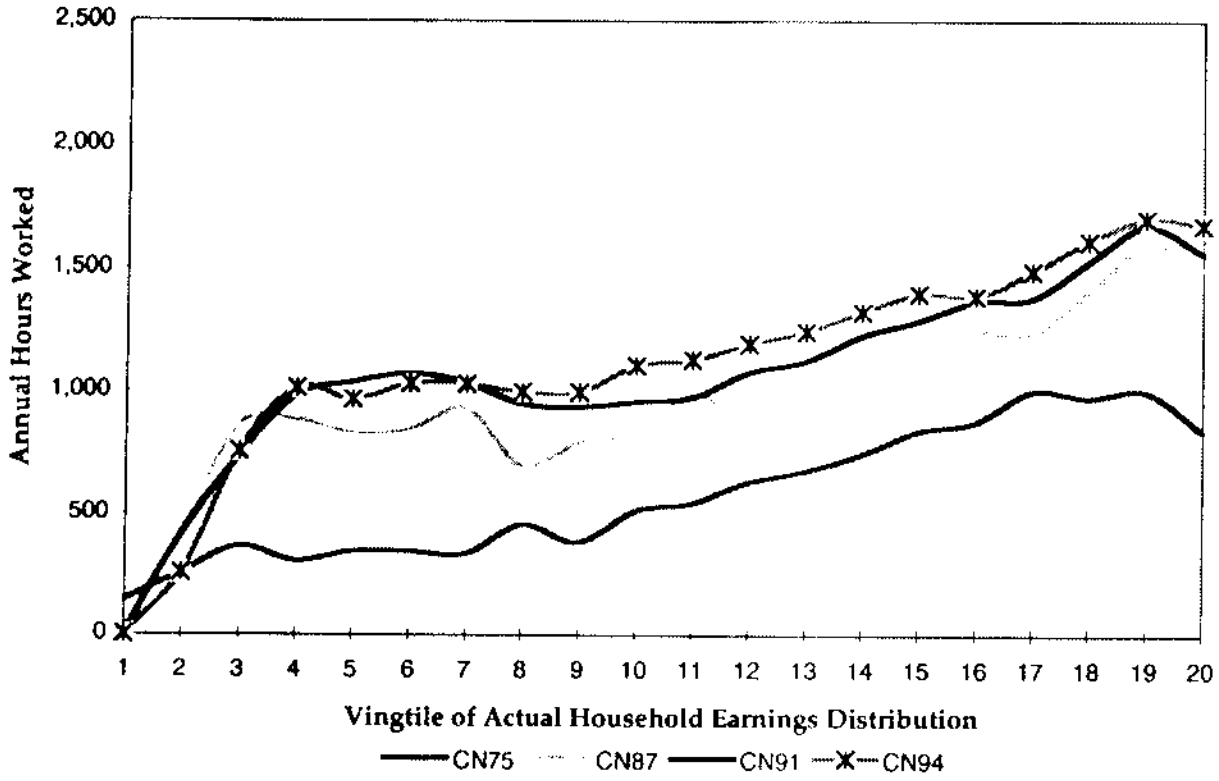


Figure A-6: Total Annual Male Hours Worked at Each Vingtile of the Actual Earnings Distribution; Canada, (1975-1994)

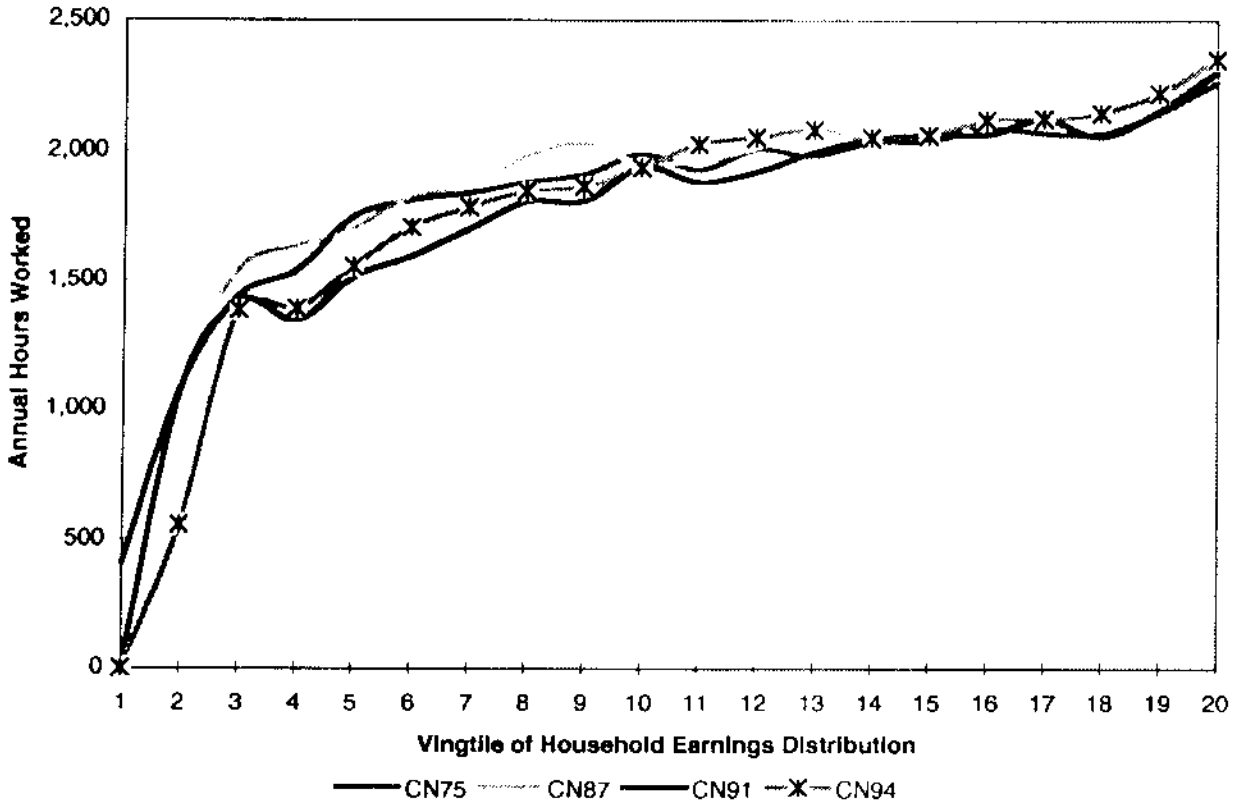


Figure A-7: Total Annual Household Earnings Standardized For Differences in Prices, Family Size, Hours Worked; Hours Standardized to 1975 Hours Worked in Each Vingtile of the Earnings Distribution; Canada 1975-1994; (Valued in 1994 Dollars Cdn.)

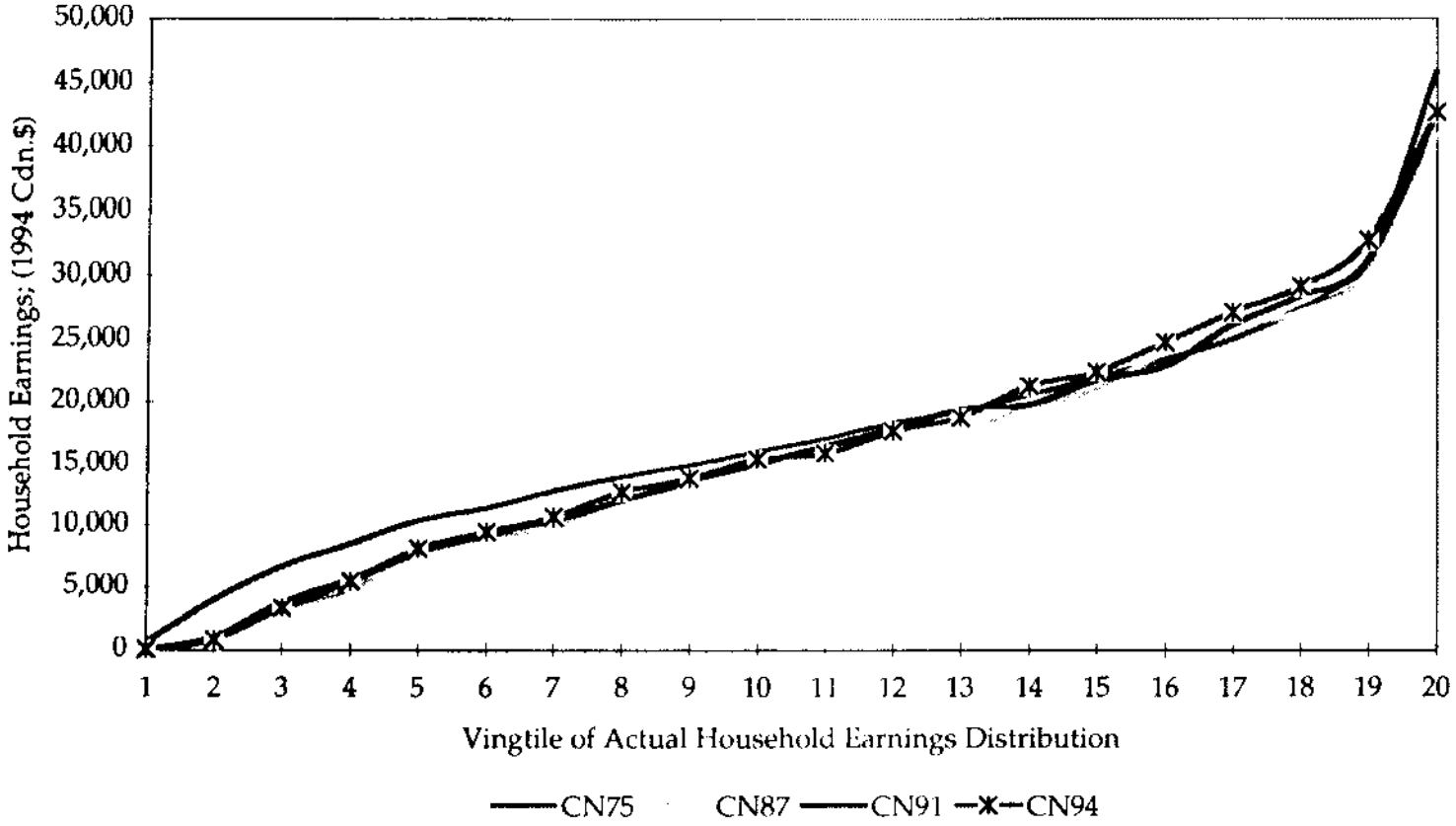


Figure A-8: Total Annual Household Pre-Tax Equivalized Earnings Standardized for Differences in Prices; Married Couples; Actual Earnings Distribution; (Valued in 1991 US$)

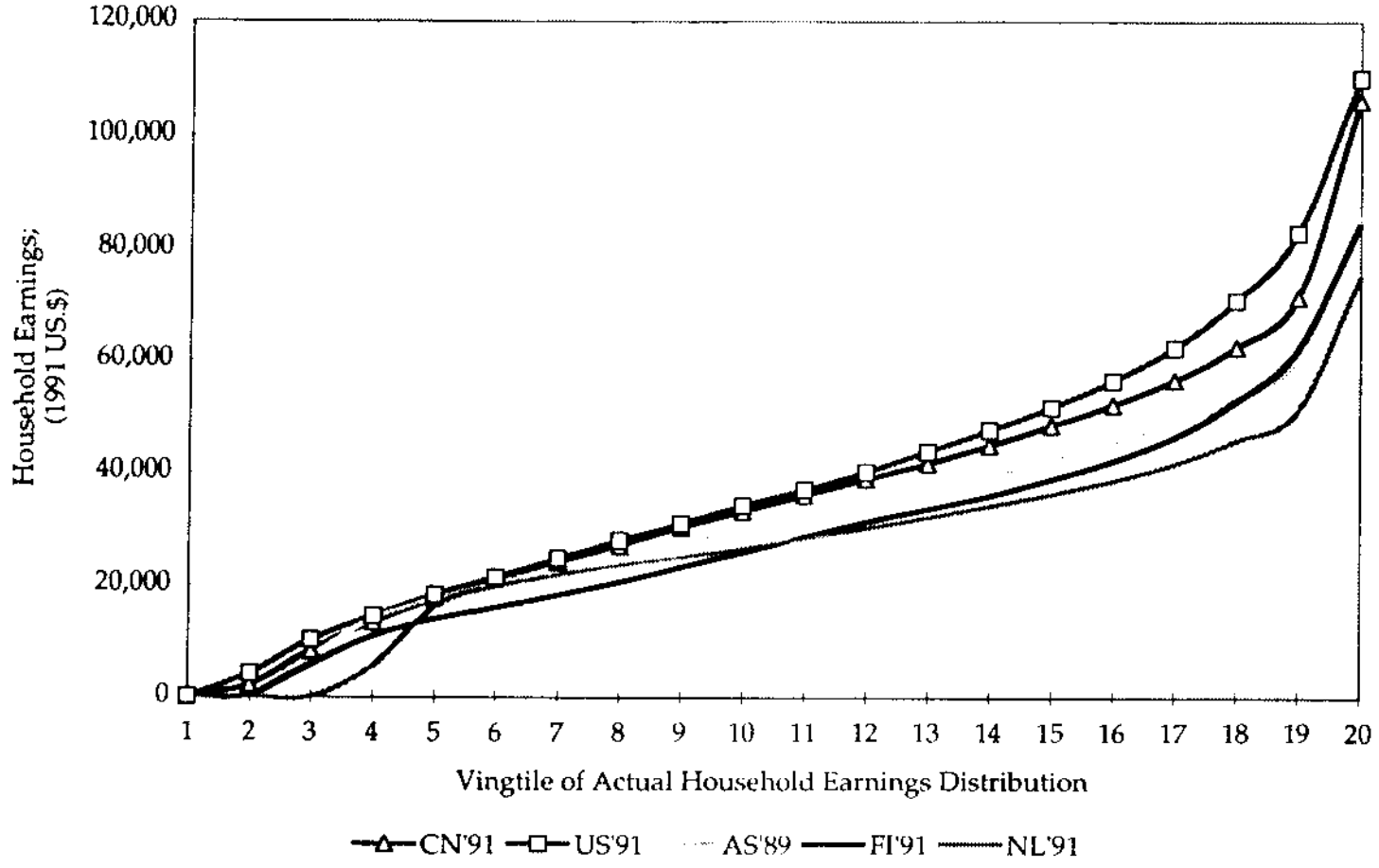


Figure A-9: Total Annual Household Pre-Tax Earnings Standardized for Differences in Prices and Family Size; Equivalized Earnings Distribution; Married Couples
(Valued in 1994 US Dollars)

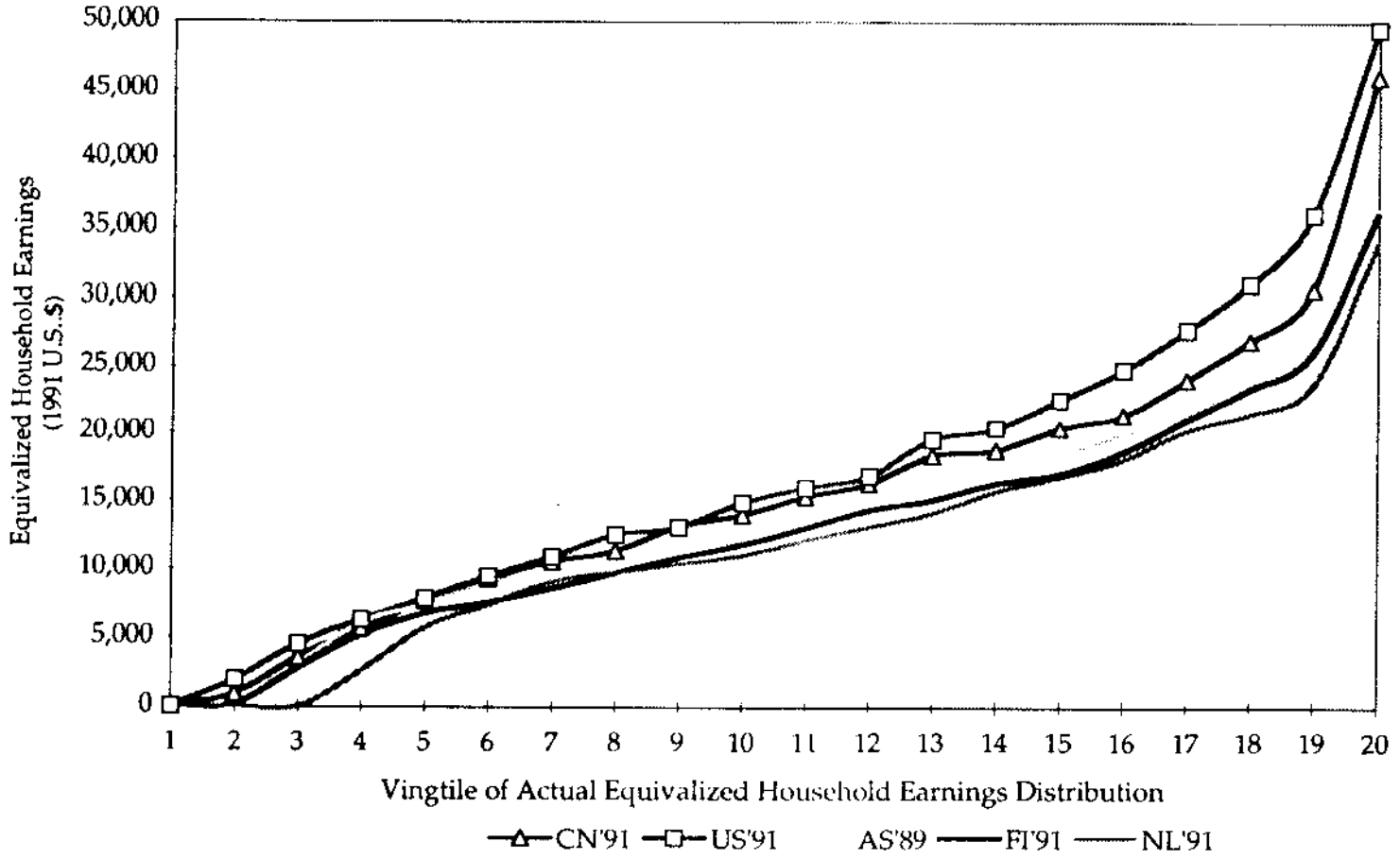


Figure A-10
Annual Household Pre-Tax Earnings Standardized for Differences in Prices, Family Size, and Hours of Paid Labour; Hours Standardized to 1991 US Hours Worked at Each Vingtile of the Distribution; Proportional Hours Standardization

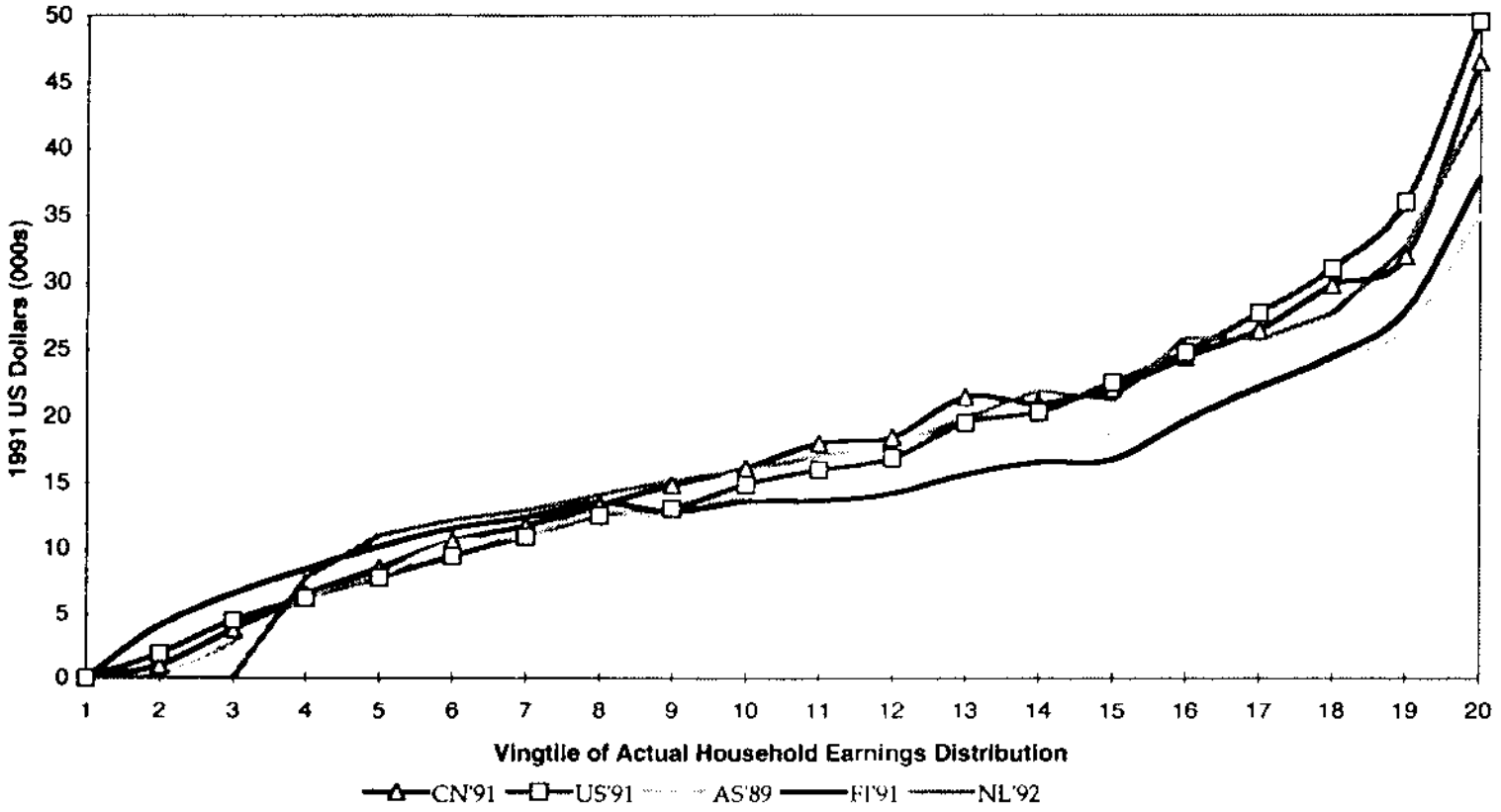


Table A-1

Sample Selection Criteria, LIS Data, Canada; For Selected Years

	Canada '75		Canada '87		Canada '91		Canada '94	
Total Sample:	26,247		10,351		21,566		32,653	
Single Family Households	26,247	100.00%	8,830	85.31%	18,402	85.33%	27,239	83.42%
Households in Multi-Family HH.	0	0.00%	475	4.59%	999	4.63%	3,403	10.42%
Families in Multi-Family HH.	0	0.00%	1,046	10.11%	999	4.63%	843	2.58%
Other Family Classification	0	0.00%	0	0.00%	1,166	5.41%	1,123	3.44%
Missing	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Check hours = 1	26,200	99.82%	9,312	89.96%	18,837	87.35%	17,367	53.19%
Check hours = 0	47	0.18%	403	3.89%	790	3.66%	675	2.07%
Missing Values	0	0.00%	636	6.14%	1,939	8.99%	14,611	44.75%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Head Aged 21 to 65	21,336	81.29%	8,605	83.13%	17,634	81.77%	26,459	81.03%
Head Not Aged 21 to 66	4,911	18.71%	1,746	16.87%	3,932	18.23%	6,194	18.97%
Missing Values	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Disposable Income ≥ Zero	26,210	99.86%	10,315	99.65%	21,480	99.60%	32,565	99.73%
Disposable Income Less Than Zero	37	0.14%	36	0.35%	86	0.40%	88	0.27%
Missing	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Spouse Present	16,816	64.07%	6,104	58.97%	12,052	55.88%	19,089	58.46%
Spouse Not Present	9,431	35.93%	4,247	41.03%	9,514	44.12%	13,564	41.54%
Missing Value	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Male Household Head	20,632	78.61%	7,895	76.27%	16,068	74.50%	24,844	76.08%
Female Household Head	5,615	21.39%	2,455	23.72%	5,498	25.50%	7,809	23.91%
Missing	0	0.00%	1	0.01%	0	0.00%	0	0.00%
Total	26,247	100.00%	10,351	100.00%	21,566	100.00%	32,653	100.00%
Zero Earnings; HH Head			3,203	30.94%	11,269	52.25%	11,992	36.73%
Positive Earnings; HH			7,148	69.06%	10,297	47.75%	20,661	63.27%
Negative Earnings; HH			0	0.00%	0	0.00%	0	0.00%
Missing			0	0.00%	0	0.00%	0	0.00%
Total			10,351	100.00%	21,566	100.00%	32,653	100.00%
Zero Earnings; Spouse			6,692	64.65%	13,991	64.87%	7,533	23.07%
Positive Earnings; Spouse			3,658	35.34%	7,575	35.13%	11,556	35.39%
Negative Earnings; Spouse			0	0.00%	0	0.00%	0	0.00%
Missing			1	0.01%	0	0.00%	13,564	41.54%
Total			10,351	100.00%	21,566	100.00%	32,653	100.00%

*Note. Earnings in 1975 data file are not split into earnings of head and spouse, earnings are total earnings of household. This data file contained negative household earnings, (9.03% of the sample files contained negative total earnings).

Table A-2

Annual Household Pre-Tax Earnings, Actual Earnings Distribution

Canada, 1975-1994 (Valued in Nominal Dollars)

Vingtile	CN75	CN87	CN91	CN94
1	506	0	0	0
2	3,300	2,094	2,557	1,097
3	5,556	7,753	9,826	8,992
4	7,218	11,852	15,866	16,055
5	8,625	16,723	21,078	21,936
6	9,853	20,241	25,269	26,654
7	10,890	23,608	28,854	31,014
8	11,881	26,561	32,359	35,278
9	12,815	29,284	36,105	39,223
10	13,798	31,909	39,393	42,972
11	14,775	34,559	42,913	46,672
12	15,760	37,278	46,304	50,360
13	16,801	40,014	49,725	54,193
14	17,944	43,016	53,548	58,269
15	19,204	45,974	57,712	62,535
16	20,706	49,679	62,045	67,515
17	22,431	53,919	67,222	73,611
18	24,797	59,101	74,370	81,653
19	28,568	66,686	84,882	93,260
20	42,178	92,771	126,682	131,476

Table A-3

Annual Household Pre-Tax Earnings Standardized For Differences in Prices, Actual Household Earnings Distribution; Canada,1975-1994 (Valued in1994 Dollars)

Vingtile	CN75	CN87	CN91	CN94
1	1,396	0	0	0
2	9,106	2,607	2,666	12
3	15,331	9,654	10,245	4,129
4	19,917	14,758	16,543	10,484
5	23,799	20,823	21,978	16,330
6	27,186	25,204	26,347	21,852
7	30,047	29,397	30,085	26,594
8	32,782	33,074	33,740	31,089
9	35,360	36,465	37,646	35,491
10	38,070	39,732	41,074	39,543
11	40,768	43,032	44,744	43,560
12	43,485	46,419	48,280	47,635
13	46,356	49,825	51,847	51,450
14	49,511	53,563	55,833	55,824
15	52,987	57,246	60,175	60,177
16	57,132	61,860	64,693	65,286
17	61,893	67,140	70,090	71,331
18	68,420	73,593	77,543	79,453
19	78,824	83,037	88,504	91,155
20	116,377	115,517	132,088	129,494

Table A-4

Annual Household Pre-Tax Earnings Standardized For Prices and Family Size;

Actual Earnings Distribution; Canada 1975-1994; (Valued in 1994 Dollars)

Vingtile	CN75	CN87	CN91	CN94
1	2,150	0	0	0
2	5,340	31	138	6
3	7,482	1,764	2,233	1,825
4	9,284	3,959	4,591	4,640
5	10,744	6,035	6,926	7,179
6	11,875	8,444	9,116	9,774
7	13,177	10,768	11,108	11,980
8	14,615	12,111	12,902	13,789
9	15,127	13,465	14,028	15,429
10	16,204	15,687	16,317	17,328
11	17,500	16,270	17,432	19,140
12	18,441	18,457	19,323	20,669
13	19,572	19,364	20,619	22,252
14	20,629	20,795	23,106	24,098
15	22,234	22,641	24,001	26,870
16	23,566	24,960	25,712	27,963
17	25,128	27,846	28,666	31,189
18	27,391	30,006	32,480	34,754
19	30,475	36,125	38,230	39,919
20	42,390	49,359	58,521	54,566

Table A-5

Total Household Annual Hours Worked; Actual Earnings Distribution

Vingtile	CN75	CN87	CN91	CN94
1	542	0	0	0
2	1,333	1,496	1,480	807
3	1,800	2,401	2,161	2,137
4	1,842	2,515	2,325	2,401
5	2,091	2,534	2,549	2,521
6	2,153	2,672	2,665	2,739
7	2,171	2,791	2,734	2,812
8	2,333	2,672	2,751	2,842
9	2,291	2,819	2,744	2,858
10	2,500	2,779	2,894	3,044
11	2,470	2,950	2,855	3,156
12	2,635	2,912	2,997	3,243
13	2,659	3,177	3,121	3,323
14	2,780	3,079	3,272	3,371
15	2,876	3,244	3,349	3,457
16	2,962	3,291	3,431	3,506
17	3,071	3,385	3,499	3,611
18	3,037	3,568	3,581	3,755
19	3,142	3,799	3,825	3,923
20	3,097	3,802	3,864	4,027

Table A-6
Annual Male Hours Worked As Proportion of Total Household Hours;
Actual Earnings Distribution; Economic Families, Canada

Vingtile	CN75	CN87	CN91	CN94
2	0.81	0.71	0.72	0.69
3	0.80	0.64	0.66	0.65
4	0.84	0.65	0.58	0.58
5	0.84	0.67	0.59	0.62
6	0.84	0.68	0.60	0.62
7	0.85	0.67	0.62	0.63
8	0.81	0.74	0.66	0.65
9	0.83	0.72	0.66	0.65
10	0.80	0.70	0.67	0.64
11	0.78	0.67	0.66	0.64
12	0.76	0.69	0.64	0.63
13	0.74	0.67	0.64	0.63
14	0.73	0.67	0.63	0.61
15	0.71	0.66	0.62	0.60
16	0.71	0.62	0.60	0.60
17	0.67	0.64	0.61	0.59
18	0.68	0.61	0.57	0.57
19	0.68	0.58	0.56	0.57
20	0.73	0.61	0.60	0.58

Table A-7

Annual Household Earnings Standardized for Differences in Prices, Family Size and and Hours of Paid Labour; Proportional Hours Standardization; (2,000 Hours)

Canada 1975-1994 (Valued in 1994 Dollars)

Vingtile	CN75	CN87	CN91	CN94
1	2,273	0	0	0
2	5,874	1,512	1,519	14
3	7,341	3,471	4,078	1,708
4	9,235	5,137	6,039	3,865
5	9,893	7,311	7,461	5,695
6	10,558	8,387	8,652	7,138
7	11,800	8,973	9,560	8,522
8	11,943	10,353	10,236	9,702
9	12,978	11,249	11,878	10,796
10	12,802	11,728	12,002	11,386
11	13,838	12,564	13,320	12,130
12	13,913	13,108	13,506	12,746
13	14,476	13,176	14,611	13,394
14	14,832	14,133	14,229	14,298
15	15,263	14,644	15,110	15,545
16	15,825	16,227	15,442	15,951
17	16,310	16,913	17,050	17,276
18	18,057	17,875	18,664	18,510
19	19,261	19,220	19,874	20,350
20	27,489	26,379	29,621	27,103

Table A-8

Annual Household Earnings Standardized For Differences in Prices, Family size, and Hours of Paid Labour; Hours Worked Standardized to 1975 Hours Worked in Each Vingtile of the Earnings Distribution

Proportional Hours Standardization; Canada; 1975-1994, (Valued in 1994 Dollars)

Vingtile	CN75	CN87	CN91	CN94
1	616	0	0	0
2	3,915	1,008	1,012	809
3	6,608	3,125	3,671	3,303
4	8,507	4,732	5,563	5,407
5	10,344	7,645	7,801	8,133
6	11,364	9,028	9,313	9,440
7	12,806	9,738	10,376	10,639
8	13,929	12,075	11,937	12,671
9	14,867	12,886	13,606	13,846
10	16,003	14,661	15,003	15,362
11	17,087	15,514	16,448	15,861
12	18,330	17,270	17,795	17,665
13	19,248	17,519	19,426	18,744
14	20,616	19,645	19,779	21,307
15	21,949	21,060	21,729	22,422
16	23,435	24,031	22,869	24,759
17	25,042	25,968	26,178	27,123
18	27,420	27,142	28,341	29,087
19	30,262	30,196	31,225	32,678
20	42,571	40,851	45,872	42,627

Table A-9

Sources of Data; LIS Country Data Files

Country	Original Data Set	Survey Year	Observation Year
Australia	Income and Housing Survey	1990	1989
Canada	Survey of Consumer finances	1992	1991
Netherlands	Survey of Income and Program Users	1992	1991
United States	March Current Population Survey	1992	1991
Finland	Income and Expenditure Survey	1992	1991

Source: de Tombeur, Caroline et al. (1993), "Luxembourg Income Study (LIS): Information Guide", LIS CEPS Working Paper No. 7.

Table A-10

Cross Country Comparison of Average Number of
Children Less Than 18 Years Living in Household; Married Couples

	Mean # Children	Standard Deviation
Netherlands, 1991	0.97	1.14
Finland, 1991	0.99	1.14
United States, 1991	1.08	1.20
Canada, 1991	1.07	1.15
Australia, 1989	1.18	1.22

Source: LIS microdata country files; household head aged 21 to 65, with disposable income greater than zero.

Table A-11

Cross comparison of Weighted Sample Affected by Sample Selection Criteria

	Australia		US		Canada		NL		Finland	
	1989	Percentage	1991	Percentage	1991	Percentage	1991	Percentage	1991	Percentage
Total Sample:	16,244		15,910		21,566		4,326		11,740	
Single Family Households	12,359	76.1%	13,979	87.9%	18,402	85.3%	4,326	100.0%	11,740	100.0%
Households in Multi-Family HH.	803	4.9%	605	3.8%	999	4.6%	0	0.0%	0	0.0%
Families in Multi-Family HH.	1,776	10.9%	1,326	8.3%	999	4.6%	0	0.0%	0	0.0%
Other Family Classification	0	0.0%	0	0.0%	1,166	5.4%	0	0.0%	0	0.0%
Missing	1,306	8.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Hours ≥ zero and Earnings ≥ zero	13,166	81.1%	15,234	95.7%	18,837	87.3%	2,724	63.0%	10,678	91.0%
Not Hours ≥ 0 and Earnings ≥ 0	951	5.9%	675	4.2%	790	3.7%	1,602	37.0%	4	0.0%
Missing Values	2,126	13.1%	1	0.0%	1,939	9.0%	0	0.0%	1,058	9.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Head Aged 21 to 65	11,731	72.2%	12,587	79.1%	17,634	81.8%	3,396	78.5%	9,352	79.7%
Head Not Aged 21 to 66	3,205	19.7%	3,323	20.9%	3,932	18.2%	930	21.5%	2,388	20.3%
Missing Values	1,308	8.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Disposable Income > Zero	14,859	91.5%	15,781	99.2%	21,480	99.6%	4,277	98.9%	11,735	100.0%
Disposable Income < Zero	79	0.5%	128	0.8%	86	0.4%	49	1.1%	5	0.0%
Missing	1,306	8.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Spouse Present	8,823	54.3%	8,616	54.2%	12,052	55.9%	2,732	63.2%	6,378	54.3%
Spouse Not Present	6,113	37.6%	7,290	45.8%	9,514	44.1%	1,594	36.8%	5,362	45.7%
Missing Value	1,308	8.1%	5	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Male Household Head	11,345	69.8%	11,363	71.4%	16,068	74.5%	3,304	76.4%	8,267	70.4%
Female Household Head	3,591	22.1%	4,547	28.6%	5,498	25.5%	1,022	23.6%	3,473	29.6%
Missing	1,308	8.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Zero Earnings; Household Head	7,745	47.7%	6,460	40.6%	11,269	52.3%	2,205	51.0%	5,837	49.7%
Positive Earnings; Household Hea	8,499	52.3%	9,450	59.4%	10,297	47.7%	2,121	49.0%	5,903	50.3%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%
Zero Earnings, Spouse	10,445	64.3%	10,759	67.6%	13,991	64.9%	1,449	33.5%	6,992	59.6%
Positive Earnings; Spouse	5,799	35.7%	5,150	32.4%	7,575	35.1%	2,868	66.3%	4,748	40.4%
Missing Values	0	0.0%	0	0.0%	0	0.0%	9	0.2%	0	0.0%
Total	16,244	100.0%	15,910	100.0%	21,566	100.0%	4,326	100.0%	11,740	100.0%

Table A-12

Annual Household Pre-Tax Earnings Standardized for Differences in Prices;

Single Family Households; Actual Earnings Distribution (Valued in 1991 US$)

Vingtile	CN'91	US'91	AS'89	FI'91	NL'91
1	0	28	0	0	0
2	2,144	4,217	368	337	0
3	8,239	10,198	7,123	5,834	0
4	13,303	14,482	13,953	10,795	5,530
5	17,673	18,332	17,547	13,931	16,194
6	21,187	21,358	20,373	16,000	19,723
7	24,192	24,718	22,647	18,251	21,779
8	27,132	27,917	25,007	20,545	23,561
9	30,272	30,916	27,335	23,199	24,958
10	33,029	34,103	29,697	25,801	26,530
11	35,980	37,002	31,946	28,622	28,324
12	38,823	40,191	34,205	31,226	30,118
13	41,692	43,736	36,466	33,507	31,959
14	44,897	47,510	39,070	35,910	34,016
15	48,389	51,547	42,023	38,861	36,130
16	52,022	56,355	44,990	42,059	38,570
17	56,362	62,268	48,664	46,285	41,557
18	62,355	70,612	53,120	52,649	45,657
19	71,169	82,823	60,165	62,060	51,018
20	106,217	110,119	85,519	84,291	74,749

Table A-13

Total Household Annual Hours Worked; Actual Earnings Distribution

Vingtile	CN'91	US'91	AS'89	FI'91	NL'91
1	0.00	78.68	0.00	0.00	0.00
2	1,479.69	1,602.38	705.31	63.32	0.00
3	2,160.63	2,294.71	2,552.20	966.79	0.00
4	2,324.94	2,672.82	2,631.72	1,647.08	883.91
5	2,549.23	2,846.12	2,643.49	1,885.54	1,990.86
6	2,664.99	3,036.10	2,572.96	1,976.76	2,072.28
7	2,733.56	3,039.30	2,698.40	2,087.02	2,129.21
8	2,750.76	3,230.23	2,704.13	2,316.23	2,224.65
9	2,744.27	3,100.93	2,817.48	2,619.48	2,114.15
10	2,893.51	3,340.82	2,877.55	2,894.45	2,306.48
11	2,855.15	3,348.44	3,128.86	3,194.54	2,385.64
12	2,996.72	3,391.18	3,188.91	3,429.38	2,499.86
13	3,121.01	3,644.13	3,312.27	3,515.64	2,583.79
14	3,271.59	3,654.35	3,481.50	3,599.76	2,617.62
15	3,348.50	3,621.10	3,563.35	3,678.59	2,863.29
16	3,430.93	3,927.74	3,668.37	3,715.73	2,746.17
17	3,499.30	3,844.15	3,733.78	3,646.70	3,021.96
18	3,580.73	3,963.28	3,894.31	3,777.17	3,080.20
19	3,825.37	3,986.24	3,999.60	3,728.82	2,894.08
20	3,863.92	3,898.68	4,055.13	3,726.91	3,070.40
Average	2,804.74	3,126.07	2,911.47	2,623.50	2,074.23

Table A-14

Annual Household Pre-Tax Earnings Standardized for Differences in Prices, Family Size and Hours of Paid Labour; Proportional Hours Standardization; 2,000 Hours; Single Family Households; (Valued in 1991 US$)

Vingtile	CN'91	US'91	AS'89	FI'91	NL'91
1	0	331	0	0	0
2	1,221	2,389	436	5,085	0
3	3,279	3,941	2,374	5,749	0
4	4,856	4,692	4,608	6,299	5,818
5	5,999	5,497	5,588	7,120	7,723
6	6,957	6,212	6,908	7,582	8,021
7	7,688	7,163	7,179	8,134	8,498
8	8,231	7,739	7,907	8,366	8,741
9	9,552	8,435	8,079	8,281	9,811
10	9,651	8,913	8,454	8,137	9,511
11	10,711	9,532	8,547	8,132	10,147
12	10,861	9,936	8,829	8,364	10,465
13	11,749	10,718	9,347	8,565	10,903
14	11,442	11,127	9,725	9,074	11,983
15	12,150	12,430	10,247	9,255	11,709
16	12,418	12,596	10,842	10,000	13,137
17	13,710	14,392	11,391	11,496	13,359
18	15,009	15,626	12,189	12,336	13,926
19	15,982	18,041	13,226	13,954	16,316
20	23,819	25,379	17,875	19,304	22,072

Table A-15

Annual Household Equivalent Earnings;

Hours Worked Standardized to US (1991) Hours Worked in Each Vingtile of the Earnings Distribution

Single Family Households; (Valued in 1991 US Dollars)

Vingtile	CN'91	US'91	AS'89	FI'91	NL'91
1	0	13	0	0	0
2	978	1,914	349	4,074	0
3	3,762	4,522	2,724	6,596	0
4	6,490	6,270	6,158	8,418	7,775
5	8,538	7,822	7,951	10,132	10,991
6	10,562	9,431	10,486	11,510	12,176
7	11,683	10,885	10,909	12,362	12,914
8	13,294	12,499	12,770	13,511	14,118
9	14,809	13,078	12,527	12,839	15,212
10	16,122	14,888	14,121	13,592	15,887
11	17,933	15,959	14,310	13,614	16,989
12	18,415	16,848	14,970	14,182	17,744
13	21,407	19,529	17,030	15,606	19,865
14	20,907	20,331	17,769	16,579	21,895
15	21,999	22,506	18,552	16,756	21,200
16	24,387	24,737	21,292	19,639	25,799
17	26,352	27,662	21,895	22,096	25,677
18	29,742	30,964	24,154	24,446	27,597
19	31,854	35,957	26,361	27,813	32,520
20	46,431	49,473	34,845	37,631	43,027

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