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Lone Female Headship and Welfare Policy in Canada*

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Abstract

"Lone Female Headship and Welfare Policy in Canada"

The principal qualifying condition for welfare in Canada, unlike the US, is financial need - there are no demographic criteria. We use a time-series of annual, national cross-sections for the period 1981 through 1993 to estimate a model of lone-female headship. Our findings do not support the hypothesis that welfare benefit levels for one-parent and two-parent families are important determinants of the likelihood that a Canadian woman is a lone mother. In all models with provincial fixed effects, the coefficients for welfare benefits are small, statistically insignificant and often of the unexpected sign. We do find that the probability that a woman is a lone mother is generally associated in the expected fashion with her earnings capacity and the earnings capacity of her potential male partner, and with her age and schooling.

I. Introduction

A considerable U.S. literature has evolved concerning the association between the incidence of lone female headship among families with children and welfare policy, specifically the level of benefits available from AFDC, Medicaid and Food Stamps. A consensus, however, has yet to emerge. A strong, positive association between the state level of welfare benefits and the incidence of lone motherhood has been found in single cross-sections (Moffitt 1991 and Schultz 1994), but not in a time-series of cross-sections (Moffitt 1994). Evidence from the Seattle-Denver Experiments has also been subject to varying interpretations (Hannan and Tuma 1990 and Cain and Wissoker 1993).

Canada provides interesting similarities and contrasts with the U.S. The following phenomena have been true of both countries during the recent past. Lone-mother[1] families are the group most reliant on welfare income save for the disabled. The proportion of all children who live in lone-mother families and the proportion of poor children who live in lone-mother families have increased. Earnings inequality has increased and the earnings of low skill workers have been especially weak. The cost of welfare is shared by the federal and state/provincial levels of government. Real benefit levels vary considerably by state and province.

There are also major differences between the two countries. First, there are no demographic criteria for welfare in Canada. The main qualifying condition in all provinces has been financial need since the late 1960's. As we show below, the welfare participation rates of employable adults who are not sole-support parents has been quite low historically, but there were noticeable increases during the early 1990's. A second difference is that real welfare benefit levels are considerably higher in Canada (Blank and Hanratty 1992) and rose by about 20 per cent during the period 1981-1993 for all categories of clients including lone mothers, married couples and singles.

Welfare policy has been high on the Canadian policy agenda recently, but there have been only four studies of the relationship between welfare policy and the incidence of lone-female headship, none of which offers definitive conclusions. In this paper, we use a time-series of annual, national cross-sections for the period 1981 through 1993 to estimate a model of lone female headship. Our focus will be on, though the scope of the paper not limited to, two sets of possible determinants: (1) the level of welfare benefits for lone parents and for couples with children; and (2) the level of market wages for women and men. Our approach blends the strengths of two recent U.S. studies. Like Moffitt (1994), we see if the positive association between welfare benefits and the incidence of lone female headship, which has been found in single U.S. cross-sections and was found by Allen (1993) in a single Canadian cross-section, persists in a time-series of cross-sections with provincial fixed effects. Like Schultz (1994), we estimate the impact of female wages and the wages of potential male partners for all women in our sample.

Section II of the paper contains a brief review of the Canadian welfare system and the relevant literature. Our data and descriptive statistics are discussed in Section III. In Section IV, we present estimates of a probit model for the conditional likelihood that a woman is lone head of a family with children less than 18 along with the results of informal sensitivity tests of our findings. Section V provides a summary and conclusion.

II. Review of the Canadian Welfare System and Literature

Welfare in Canada is a provincial responsibility, but the federal government assumed 50% of the program costs in 1967. This arrangement changed in 1989 when the federal government imposed a maximum of 5% on the annual growth rate of federal welfare transfers to the three highest income provinces (Ontario, Alberta and British Columbia) which together account for over 50% of the population. This had an especially sharp impact in Ontario which was much more adversely affected by the recession of the early 1990's than were Alberta and British Columbia. In return for cost-sharing, the federal government imposed the following three conditions on provincial policy during our data period: financial need was the principal qualification for welfare; provincial residency requirements were forbidden; and there had to be an appeals process.[2] Provinces had the freedom, however, to set the level of welfare payments and there has always been considerable variation both between provinces and over time in the benefit schedules. Indeed, the relative ranking of provinces by benefit level changed considerably during our sample period.[3]

Lone mothers and the disabled have always been quite reliant on welfare income and remain so today. The same was once true of the elderly but the welfare participation rate of seniors has declined steadily over the past two decades as other income support programs for this age group have expanded. As shown in Section III, the welfare participation rates of other groups, such as couples and unattached individuals has grown somewhat.

There are only four Canadian studies which address directly the topic of this paper. Allen (1993) used the 1986 Census public use sample and found a large and significantly positive impact of the level of provincial welfare benefits on the probability that a woman is a lone mother. There are, however, several reasons to interpret this result with caution. One is that Allen's model contains a very limited set of variables and he performs few sensitivity tests of how well his results hold up under alternative specifications. A second reason for caution arises from Moffit's research with U.S. data. When Moffitt (1991) used a single cross section, he found, as have others, a positive association between the state level of welfare (AFDC) benefits and the likelihood that a women is a lone mother. In a more recent paper, however, Moffitt (1994) used a time-series of U.S. cross-sections and found that this association is extremely weak and non-existent in the presence of a fixed effect for each state. He concludes that the welfare benefit effect estimated in single cross-sections may largely reflect the fact that states which are more tolerant of lone mothers have both (1) more adequate welfare benefits and (2) more lone mothers due to a less stigmatizing atmosphere. A major goal of the current paper is to apply Moffitt's test to Allen's finding using a time-series of Canadian cross-sections.

A second Canadian study used data from the Canadian Mincome Experiment, the principal purpose of which was to study the impact of a negative income tax on market work. Hum and Choudhry (1992) estimated the association between the generosity of a negative income tax plan and marital stability during the three years of the experiment. Their estimates were quite imprecise due to small sample size and even their qualitative findings are not readily interpretable. They found that both families with the least generous plans and families with the most generous plans had more stable marriages than did families with plans of medium generosity. Studies of marital stability using NIT Experimental data from the U.S. have also yielded mixed results (see Hannan and Tuma (1990) and Cain and Wissoker (1993)).

Lefebvre and Merrigan have used retrospective, family-history data from Statistics Canada's 1990 General Social Survey in two recent papers. This survey contains no wage or income information so they use aggregate means of female wages and male income by age and year from a different data source. In the first paper (1997), they estimate a hazard function for the dissolution of first (registered or common-law) marriages and obtain a non-significant effect for the level of welfare benefits for lone parents. The female wage effect is significantly positive (higher hazard, shorter marital duration) as expected, but only for the younger cohort of women. Male income has a significantly negative coefficient for all cohorts.

In the second paper (1998), Lefebvre and Merrigan estimate a hazard function for exiting lone motherhood via (first) marriage or remarriage. This data set includes welfare benefit levels for both lone mothers and couples, and these variables have significantly negative (lower hazard, longer unmarried spell) and positive coefficients respectively. They do not, however, find a significant effect for women's wages or male income. The estimated quantitative impacts of welfare benefits are substantial. A ten per cent increase in the benefits for a single parent lengthens the median duration of the spell of lone motherhood by a one year. This effect is larger for never married lone mothers than for previously married ones. Hence, these authors arrive at quite different estimates of the impact of welfare benefits and market wages for married spells than for unmarried spells. Eventually the Survey of Labour Income and Dynamics will permit much better data for the study of the dynamics of marriage, divorce and remarriage in Canada but this longitudinal survey in still in its early waves.

III. Data and Descriptive Statistics

Our data are drawn from the public use files of the Survey of Consumer Finances (SCF) which is the Canadian equivalent of the U.S. March Current Population Survey. There are separate public use files for economic families and for individuals. Statistics Canada's definition of an "economic family" is the same as the U.S. Census Bureau's definition of a "family", namely, all related persons who live in the same household. (An unattached individual is the head of a one-person family.) The economic family files begin in 1973, but they contain individual information only for the head and spouse of the head. A sizable proportion of Canadian women are neither the head nor the spouse of the head of an economic family. This proportion reaches 50 per cent among women under age 25 which is a key age group for our study. Hence, we have relied primarily on the SCF public use file for all individuals which begins only in 1981. Specifically, the estimates reported in this paper were obtained with the SCF Individual Public Use Files for the years 1981, 1982 and 1984 through 1993. (There is none for 1983.) We do report, however, on estimates obtained with a sample of female heads and spouses of heads age 25 and over from the economic files for 1973 through 1993. The missing data problem is least severe for this age group in the economic family files.

An important data issue is the definition of a lone mother. Statistics Canada defines a "census family" as one which includes only an unattached individual, or a married couple or a lone parent along with any never-married children. Hence, an economic family may contain more than one census family. The head of a "primary census family" is also the head of the economic family. The head of a "secondary census family" is not the head of the economic family. In the terminology of the U.S. Census Bureau, primary census family heads correspond to "family heads" and secondary census family heads correspond to "subfamily heads". The estimates in the tables below are based on the larger sample of all lone mothers with a child under 18. As a sensitivity test, we also report on estimates obtained with the somewhat smaller sample of those lone mothers who are economic family heads.[4] Finally, we follow Statistics Canada and use the term married couple to refer to both registered and common-law unions.

Tables 1 through 5 provide descriptive data concerning Canadian lone mothers and other variables relevant for this paper. The top panel of Table 1 shows that the proportion of all Canadian <u>women</u> who are lone mothers was 6%-7% over our sample period. Moffitt (1994, Table A1) reports comparable headship rates of 6.7% and 8.5% for U.S. white women in 1978 and 1988 respectively. The marked stability in the Canadian figures contrasts with the sometimes encountered image in our popular media of steady growth in the prevalence of lone motherhood. This popular image is better reflected in the middle panel of Table 1 which demonstrates an increase in the proportion of all <u>mothers</u> (of children under 18) who are lone mothers. This is especially true of mothers under age 25 over one third of whom were lone heads by 1993. The reason for the difference between the top two panels is the decline (not shown here) in the likelihood that a Canadian woman is a married mother (Dooley 1995).

The bottom panel of Table 1 demonstrates that the proportion of lone mothers who head economic families (rather than "subfamilies") has also been relatively stable over the sample period in all age groups. An interesting question for our future research is what are the determinants of the likelihood that a Canadian lone mother lives on her own, that is, heads an economic family.

The top two panels of Table 2 show the age distribution of lone mothers and of all women. The proportion of both groups under age 25 was falling. The proportion of both groups age 25 to

44 was increasing as the peak baby boom cohorts moved into this age range during our sample period.[5] There is a difference between the panels for the oldest age group. The proportion age 45-59 was falling among lone mothers but not in the general population. The former reflects the cessation of childbearing at an increasingly early age in Canada.

The bottom panel of Table 2 shows that the proportion of lone mothers who have never married (registered or common-law) increased, especially among those under age 35. This is also true of the U.S. (Moffitt 1992). In the next section, we do not estimate separate models for marital and child status as did Schultz (1994). Instead, we follow Moffit (1994) and estimate the conditional probability of lone motherhood among all women. As a sensitivity test, however, we did estimate our basic probit model using a sample restricted to ever-married women and we report on those results below. A more detailed analysis of the different avenues by which women enter into and exit from the status of lone motherhood, and the relation of socioeconomic variables to such transitions, certainly merits further study. This objective is beyond the reach of our current efforts.

Table 3 provides information concerning welfare participation. Detailed national caseload data are not collected and published in Canada. The only indicator of welfare participation in the SCF is the proportion of persons reporting any social assistance income during a given year. Welfare income is known to be under-reported on the SCF which would, on the one hand, lead the proportions in Table 3 to be underestimates of the monthly welfare participation rate. On the other hand, the SCF proportions are based on annual income and, on that basis alone, would tend to overestimate the monthly welfare participation rate.[6] The top panel of Table 3 shows that the proportion of lone mothers reporting welfare income increased from 38% to 44% over the sample period and that this increase was larger among those under age 35. Moffitt (1992) reports AFDC participation rates of 42%-44% for U.S. lone mothers in 1985-1987. The middle panel shows that a small proportion of Canadian couples with children do report social assistance income. The only noticeable trend for this group was the increase from 5% to 10% in this fraction of the youngest couples reporting welfare income. This reflects the unusually severe impact that the recession of the early 1990's had on young workers.

The bottom panel of Table 3 shows the welfare use among unmarried, childless women and indicates, perhaps surprisingly, that those age 16-25 have the lowest and most stable participation rates. This age pattern can be explained by two facts. First, we have included women attending school in our sample because they constitute such a large proportion of the population at risk of lone motherhood in the youngest age group. Were we to exclude students, the welfare participation rate among single, childless women age 16-25 would increase from about 8% to 13% over the sample period. Second, the relatively high welfare participation rate among unmarried, childless women over age 34 may well reflect the incidence of poor health and disability in this group.[7]

Our multivariate analysis will focus on the impact of market wages and welfare benefits. Like Schultz (1994), we include measures of earnings capacity for each woman and for her potential (male) partner in our probit models for the likelihood of lone motherhood. These variables serve as indicators of the ability of a woman to support a family via her own earnings and the ability of a potential mate to provide an adequate level of economic support for a spouse and children. The standard economic hypotheses are that the likelihood of lone motherhood would be positively associated with the level of earnings capacity for women and negatively associated with the level of earnings capacity for potential partners. For women in particular, it is important that we measure earnings capacity and not actual earnings because a change in marital or child status is sometimes accompanied by a change in hours and weeks of market work. Hence, the currently observed level of annual or weekly earnings for an individual may be a poor indicator of what her earnings potential would be were she to change marital or child status.

We use three indicators of earnings capacity for women: hourly wages; weekly earnings in a full-time job; and annual earnings in a full year (48-52 weeks), full-time job.[8] Each measure has advantages and disadvantages. In principle, the hourly wage is least influenced by hours of market work, but the only hourly measure available from the SCF is derived using annual weeks of work and earnings from the year prior to the survey and the weekly hours of work from the survey week. This poses a particular problem for women because they are more likely than men to change weekly hours of market work from year to year. The disadvantage of our annual earnings measure is that it is limited to women who worked 48-52 weeks in the year prior to the survey. Therefore, the estimating sample for this measure is the smallest of the three measures and may be subject to the greatest selection bias. Fortunately, the three measures of earnings capacity all provide similar probit estimates. In the tables that follow, we report the results for full-time weekly earnings and comment on the infrequent instances in which the two other measures yield different conclusions.

The top panel of Table 4 presents the trends in full-time weekly earnings for women. We find, as did Morissette et. al. (1994), that there was a growing gap between younger and older workers over the sample period. Full-time weekly earnings among women under 35 were unchanged whereas there was modest growth of 8% and 12% for women age 35-44 and 45-59 respectively. Potential earnings had to be imputed for the women who did no paid work during the survey year and standard techniques (Heckman 1987) were used for this purpose. Table 2-A in the Appendix contains the selection-corrected, regression estimates for the full-time weekly earnings of women. Identifying restrictions for wage effects are usually a matter of judgement in studies of labour supply, welfare participation and headship. We have included the provincial unemployment rate and a dummy variable for urban residence in the wage regression but not in the conditional probability function for female headship. As shown below, the imputed values of female earnings and the earnings of the potential male partner are both functions of the same set of variables, i.e., the characteristics of the woman and the local labour market. Therefore, exclusion of both the unemployment rate and urban residence from the headship probit are needed to identify the two wage effects.

Estimating the earnings capacity of each woman's potential partner requires a sample of couples with earnings information for both spouses. For this purpose, we used the SCF public use file for economic families. This file contains two indicators of the husbands' earnings capacity: weekly earnings in a full-time job and annual earnings in a full-year, full-time job. Information concerning hourly wages and weekly hours of work are not available. (We do report below, however, on estimates obtained with just annual earnings for males.)

The bottom panel of Table 4 shows that the gap in full-time weekly earnings between younger and older workers grew wider for men just as it did for women but for a different reason. Full-time weekly earnings declined by 5% for men under age 35 and there was only a slight change for men age 35-59. As a result of the wage trends for both women and men, the gender pay gap shrank. Full-time weekly earnings for women were 65% of those for men in 1981-85 and this fraction grew to 70% by 1990-93. We regressed each measure of the husband's earnings (weekly and annual) on his wife's age and schooling, the provincial unemployment rate, and a series of dummies for year, province and urban residence. The resulting coefficients were then used to predict the earnings of a potential male partner for each woman in the SCF public use file for individuals.

The second set of independent variables of particular interest in our multivariate analysis contains the level of welfare benefits for lone parents and for couples with children. The standard economic hypothesis is that the likelihood of lone motherhood would be positively associated with the former and negatively associated with the latter. The welfare benefit data comes from a variety of sources including the provincial gazettes, Federal-Provincial Working Party on Income Maintenance (1975), Banting (1982) and the National Council of Welfare (1987, 1989, 1990, 1992).

Welfare benefits vary over time, among provinces and by family size within provinces. For our probit model, we must select the (potential) benefit levels for families of a given size because many of the women in our sample are childless. In the estimates reported in the tables below, we used the benefits available to a lone parent with two children and to a couple with two children. We found little difference in the results when our models were estimated with the benefits available to a lone parent with one child and to a couple with one child.

The top panel of Table 5 presents the average (weighted by population) weekly values of these measures. How do these compare with U.S. welfare rates? Moffitt (1992, Table 3) reports that monthly AFDC benefits for a family of four averaged US$395 in 1982 dollars between 1981 and 1985. He also report values for the sum of 70% of AFDC plus Food Stamps plus Medicaid benefits. Public health insurance is universal in Canada and, for comparison purposes therefore, we have excluded the value of Medicaid from this U.S. benefit package. The sum of 70% of AFDC plus Food Stamps has an average value of US$511 between 1981 and 1981.

For purposes of comparison, we have adjusted the Canadian figures in 1981-1985 from our Table 5 as follows: conversion to a monthly basis - multiplied by 4.33; conversion to 1982 dollars - multiplied by 0.84; conversion to U.S. dollars - multiplied by 0.75; and, in the case of the lone parents, additional benefit for a third child - multiplied by 1.10. This yields a value of $622 for one parent with three children and $625 for a couple with two children. Hence, U.S. cash transfers in the early 1980's were 64% (=395/622) of Canada welfare benefits and the sum of AFDC plus Food Stamps was equal to 82% (=511/622) of the value of Canadian benefits.[9]

What happened to Canadian welfare benefits over our sample period? Table 5 indicates that these grew by 17%-18% for each type of family. There was no change in the average benefits for a lone parent <u>relative</u> to those for a couple. Moffit's benefit data for the U.S. stop at 1987 but the indication from his figures is that the U.S. trend in welfare benefits was either downwards or at best constant at that point. Hence, it is likely that gap between Canada and the U.S. grew even further over our sample period. See Blank and Hanratty (1992, 1993) for more a detailed comparison of the U.S. and Canadian welfare systems.

How did Canadian welfare benefits change relative to market earnings opportunities? The bottom panel of Table 5 shows that the benefit for lone parents grew relative to the full-time weekly earnings of women and that the benefit for couples grew relative to the full-time weekly earnings of men. The increase in this ratio (welfare/earnings) was especially true for younger lone parents and couples. It was also somewhat stronger for couples than for lone parents which reflects the fact that the earnings of women grew relative to the earnings of men in Table 4. Moffitt (1992, Table 3) indicates that there was a slight decline in this same ratio for the U.S. during the period 1981-1986.

Dooley (1996) analyses changes in the welfare participation rates of Canadian lone mothers between 1973 and 1991. Social assistance use by lone mothers under age 35 grew steadily and a substantial proportion of this growth can be accounted for by the increase in the value of welfare benefits relative to the potential earnings of this group. In contrast, the welfare participation rate of lone mothers age 35 and over changed little which is consistent with the fact that the potential earnings of this age group grew at the same rate as welfare benefits.

IV. Probit Estimates

We estimated a wide variety of probit models for the incidence of lone parenthood. We follow Moffitt and used two basic samples: (1) a smaller sub-sample of women who are disproportionately likely to use welfare (the "restricted sample") and (2) a larger sample of all women (the "unrestricted sample"). The restricted sample contains women age 20-44 with thirteen or fewer years of education.[10] The unrestricted sample contains women age 16-59 of all educational levels. As Moffitt indicates, a comparison of the two sets of estimates provides a specification test. If the estimated coefficients for welfare benefits in the restricted sample are true, then they should be greater in magnitude than those in the unrestricted sample.

Table 6 contains estimates of four different probit models which use unweighted data from the restricted sample.[11] In each case, the dependent variable is equal to one if the woman is the lone head of a census family with one or more children under 18 and zero otherwise. Hence, this definition includes lone heads of "subfamilies". For the specifications in columns (3) and (4), the constant corresponds to a woman age 20-24 with 10 or fewer years of schooling, residing in Ontario in 1981. The sample means of the conditioning variables are presented in Table 1-A. Column (5) illustrates the quantitative magnitude of the coefficients in column (4) and will be explained below. We report on the results of a series of sensitivity tests after a discussion of the estimates in Table 6.

Column (1) contains the estimates of the simplest specification. The welfare benefit coefficients have the expected sign and t-ratios which exceed the standard threshold levels for statistical significance. These coefficients imply that a $1,000 increase in the annual benefits for lone mothers (an increase of approximately 8% in 1990-1993) would lead to a one percentage point increase in the proportion of women who were lone mothers from 12% to 13%. A $1,000 increase in the annual benefits for couples (an increase of approximately 7% in 1990-1993) would lead to a 0.5 percentage point decrease in the proportion of women who are lone mothers from 12% to 11.5%. These translate into modest elasticities of approximately 1.0 and -0.5 respectively.

The model in column (2) adds a dummy variable for 11-13 years of schooling, the full-time weekly earnings variables and a dummy variable for each sample year. Both the coefficient and the t-ratio for the lone mother's welfare benefits decline considerably in absolute value. The other estimates are as expected. The dummy variable for women age 25-34 is now significantly negative. A schooling level of 11-13 years, as opposed to 10 years or less, significantly lowers the likelihood of lone motherhood. The female and male earnings variables both have the expected signs and large t-ratios. The woman's education and her potential wage have opposite and significant signs even though the two variables are positively correlated. There are several interpretations for the negative coefficient for education (controlling for wages). For example, schooling may be positively correlated with knowledge about, and access to, more effective methods of birth control. The year dummies generally indicate an upward trend.

Column (3) presents the estimates of a model with a fixed effect for each province. In this case, the welfare benefit variables take on unexpected signs, but they are not statistically significant. This result is quite similar to Moffitt's, that is, the presence of a provincial fixed effect eliminates the expected effect of welfare benefits. The addition of the fixed provincial effects does, however, increase (in absolute value) the coefficients for schooling, female earnings and male earnings.

Many of the lone mothers in our sample have been in that status for a number years prior to the survey and, therefore, one can make a case for lagging the welfare benefits variables. Column (4) contains the estimates of a model with provincial fixed effects and a 5-year lag in welfare benefits. The estimates in Columns (3) and (4) are quite similar to each other and to those (not shown here) obtained with a 3-year lag in welfare benefits.[12]

We use the final column to illustrate the quantitative magnitude of the coefficients in column (4). The first entry in column (5) is the sample proportion of lone mothers which is 0.10. The subsequent entries use the coefficients in column (4) to show the impact of a switch in a dummy variable, a $1,000 increase in annual welfare benefits, and a 10% increase in full-time weekly earnings respectively. The entries for the age dummies show that, when one controls for other socioeconomic variables, the women age 25-34 and 35-44 are less likely than the youngest group (20-24) to be lone mothers by approximately 6 percentage points and 7 percentage points respectively. Changes in welfare benefits have quantitatively very small and statistically non-significant effects. The impact of 11-13 years of schooling is to lower the likelihood of lone mothers from .10 to .04.

The quantitative impacts of the earnings variables are very large. A ten percent increase in female earnings is predicted to increase the proportion of women who are lone mothers from .10 to .20. A ten percent increase in male earnings is predict to decrease the proportion of women who are lone mothers from .10 to .07. The time trend, conditional on the values of the other variables, was upwards throughout the 1980's, but this was reversed in the recessionary years of the early 1990's. The provincial dummy variables generally have low t-ratios. It is interesting to note, however, that the predicted provincial differences in the incidence of lone motherhood in Table 6 are larger than the observed provincial differences in Table 1-A. The range of the unconditional provincial differences is from a low of .08 in PEI to a high of .12 in Nova Scotia, Ontario and Manitoba. Controlling for other variables, the predicted provincial differences range from a low of .07 in Quebec to a high of .17 in New Brunswick and Nova Scotia.

We have estimated a series of variations on the basic model in order to assess the robustness of our findings. One variation was to restrict the sample of lone mothers to heads of economic families, i.e., exclude heads of subfamilies from the sample. The resulting estimates in Table 3-A in the Appendix resemble those in Table 6 quite closely. A second variation was to use the unrestricted sample, i.e., women age 16-59 from all schooling levels. The resulting estimates in Table 4-A in the Appendix are also very similar to those in Table 6. In particular, the likelihood of lone motherhood declines significantly and monotonically with both age and education in both tables.

One reason for using the restricted sample was as a specification test of the welfare coefficients. Moffitt noted that the estimated coefficients for welfare benefits should, if they represent a true effect, be greater in magnitude in the restricted sample than in the unrestricted sample. We have found, however, that the welfare benefit coefficients are often of the unexpected sign and never statistically significant in the presence of provincial fixed effects regardless of the sample used.

We also used several additional earnings measures. The two alternative earnings measures for women were hourly wages and annual earnings among full year, full-time workers. Each measure invariably had a significant, positive impact on the likelihood of lone motherhood. The magnitude of these coefficients was usually smaller but within 25% of the female earnings coefficient in Table 6. The principal alternative for men was annual earnings among full year, full-time workers which yielded a negative but, in some cases, non-significant coefficient. We also used annual earnings among all men with positive annual earnings and obtained similar results.

Other variations included the following: the use of female and male earnings measures imputed by OLS rather than the Heckman selection-correction procedure; dropping the male earnings variable; and dropping both earnings variables (and including the unemployment rate and urban residence). In none of the foregoing instances, did we obtain coefficients for the welfare benefits that were both of the unexpected sign and statistically significant. Furthermore, the coefficient and standard error estimates for female earnings (when present), age, education, year and province were generally quite insensitive to these variations. The only exception to this last sentence was the following. When the male earnings variable is dropped and urban residence is added to the headship probit (only the unemployment rate is excluded), then the female earnings coefficient is not significantly different from zero and urban residence has a strong positive coefficient. Even in this instance, however, the welfare benefit coefficients remain nonsignificant.

We noted in Section III that ours is a reduced form model of the conditional probability of lone motherhood among all women, that is, we have not estimated separate models for marital and child status. As a sensitivity test, however, we did estimate our basic model with a sample ever-married women only, i.e., we excluded all never-married women both those with and those without children. The basic results are very similar to those in table 6.

Another variation recommended by several early readers was to exclude the welfare benefit for two-parent families on the grounds that it played a small role in headship decisions and was highly correlated (.90 in the full sample) with the welfare benefit for one-parent families. We pursued this suggestion and found, once again, that the resulting estimates differed little from those in Table 6.

Recall also from Section III that the estimates in Table 6 changed little when we substituted the welfare benefits for families with one child in place of the benefits for families with two children.

A final test was to use data from the SCF economic family files. As explained above, these files date back to 1973, but were not used because they lack individual information for women are neither the head nor the spouse of the head of an economic family. This problem is most pronounced among women under age 25. As a check, we estimated our probit model using the economic family file data for a sample of female heads and spouses of heads age 25 and over. This effectively adds four more years to our sample (1973, 1975, 1977 and 1979) because the public use files were released every two years prior to 1981. The resulting estimates are quite similar to those in Table 6 in sign, magnitude and statistical significance.

V. Summary and Conclusion

Our purpose in this paper has been to analyse the determinants of the incidence of lone female family headship among Canadian women. There is only a very small Canadian research literature despite strong recent concern with welfare reform. Canada is similar to the U.S. in the heavy reliance of lone mothers on welfare income and in the recent weakness of the labour market for young, unskilled workers. The two countries differ in that Canada has no strictly demographic criteria for welfare and has considerably higher benefit levels.

Our focus was on two sets of independent variables: the level of welfare benefits available to both lone-parent and two-parent families with children; and the earnings opportunities for both women and their potential (male) partners. We used data from the Individual Public Use Files of the Survey of Consumer Finances for the years 1981, 1982 and 1984 through 1993 to estimate a series of probit functions for the likelihood that a woman is a lone mother. A few of the simpler specifications yielded coefficient estimates for welfare benefits for both lone mothers and couples which were of modest size and statistical significance. In any model with provincial fixed effects, however, the welfare benefit coefficients were invariably small, statistically insignificant and often of the unexpected sign. Hence, Allen's (1993) finding with the 1986 Census public use sample of a large, positive association between the level of the welfare benefits and the likelihood that a woman is a lone mother did not persist in a time-series of cross-sections with provincial fixed effects. This echoes Moffitt's (1994) results with U.S. data.

All three measures of female earnings capacity (weekly, hourly, annual) did yield highly significant, positive coefficients, as expected, in all but one specification. The predicted earnings for potential (male) partners invariably yielded a negative coefficients but the t-ratios were not always above conventional threshold levels in the case of annual, as opposed to weekly, measures. We also found that the likelihood of lone female headship had a very robust negative relationship with the level of a woman's schooling and age.

These central results held up under using a variety of samples and model specifications. The incidence of lone motherhood does appear to be sensitive to socioeconomic factors such as wages, education and age. However, our findings do not support the hypothesis that the level of available welfare benefits is an important determinant of the likelihood that a Canadian woman is a lone mother. We hasten to add, however, that the Canadian literature on this topic is still at an early stage. The eventual availability of multiple waves of data from the new longitudinal Canadian Survey of Labour and Income Dynamics will greatly improve our ability to assess the socioeconomic determinants of transitions into and out of various marital states.

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Endnotes

1. We use the term "lone" mother because Statistics Canada uses the term "single" to refer to a person who has never been married.

2. Federal legislation enacted after our data period retained only the prohibition of a residency test and has transformed the cost-shared arrangement into a block grant for welfare, health care and post-secondary education.

3. Provinces also have a good deal of freedom to set benefit reduction rates, but these were equal to, or close to, 100% in all provinces during our sample period and remain so. As a result, we did not include them in this study. For more information see Dooley (1996).

4. Some female lone heads of economic families with children under 18 are not the mother of those children, but we exclude such women from our sample.

5. Canada's baby boom was similar in magnitude and timing to that in the U.S. Our peak post-WWII birth cohorts were born in 1960.

6. Statistics Canada reports, and our own calculations confirm, that welfare income is under-reported on the SCF. The SCF estimates of aggregate "social assistance and provincial income supplements" during the 1980's are about 65%-70% of the social assistance expenditures reported by the provinces. The measure of welfare participation in Table 3 is whether or not the person received any SA income in the past year. Dooley (1996) finds that under-reporting for this variable appears to be less severe and is in the range of 85%-90%. Furthermore, the available evidence indicates that the degree of under reporting appears to be fairly stable over time and across family types. Given stable measurement errors, the SCF data can measure accurately the differences over time and across family types in the incidence of social assistance income.

7. The SCF provides little information on this topic, but it does permit one to calculate the proportion of persons who were out of the labour force for one or more weeks during the year due to a disability. Among unmarried, childless women during our sample period, this proportion was approximately 10% for those under age 35 and approximately 25% among those age 35-59.

8. For each of our earnings measures, we excluded the self employed (whose reported earnings usually include returns to both labour and capital) and unpaid family workers. As a further check for self employment and data consistency, we also exclude the small number of observations with one of the following: negative earnings; positive earnings and zero weeks worked; or zero earnings and positive weeks worked.

9. Additional federal and provincial cash transfers for families with children would add about 15% to the Canadian total package. Canadian welfare recipients also qualify for special drug and other health benefits, subsidized day care and housing.

10. Moffitt used a sample of high school dropouts age 20-44. The SCF data do not permit us to distinguish clearly between high school graduates and dropouts.

11. We estimated all of our models with both weighted and unweighted data and found that it made little difference to either the coefficient or standard error estimates.

12. One can make a case for lagging the earnings variables. All of our earnings data, however, comes from the SCF itself unlike the welfare benefits data. In order to lag the earnings measures, we would have to shorten the length of what is not an overly long (14 years) time-series.

Table 1

Incidence of Lone Motherhood

	1981-1985	1986-1989	1990-1993
Proportion of Women Who Are Lone Mothers [a]			
Age 16-24	.04	.03	.04
Age 25-34	.08	.08	.09
Age 35-44	.10	.08	.10
Age 45-59	.04	.03	.03
Total	.06	.06	.07
Proportion of Mothers [b] Who Are Lone Mothers			
Age 16-25	.24	.26	.36
Age 25-34	.12	.13	.15
Age 35-44	.13	.11	.14
Age 45-59	.13	.15	.14
Total	.14	.13	.16
Proportion of Lone Mothers Who Head Economic Families [c]			
Age 16-25	.71	.74	.74
Age 25-34	.91	.89	.88
Age 35-44	.96	.95	.95
Age 45-59	.97	.98	.94
Total	.90	.90	.90

[a] Head of Census Family with one or more children under 18. A census family just includes parents and their never married children.
[b] Head or Spouse of Head of Census Family with one or more children under 18.
[c] An economic family includes all related persons living in the same household.

Table 1-A

Variable Means - Restricted Sample

Proportion of Women Who Are Lone Mothers	.11
Proportion of Women Age 20-24	.18
Proportion of Women Age 25-34	.42
Proportion of Women Age 35-44	.39
Welfare Benefit for Lone Parent with Two Children	11,279
Welfare Benefit for Couple with Two Children	12,624
Mother's Education, Grade 10 or less	.43
Mother's Education, Grade 11-13	.57
Ln of Women's Full Time Weekly Earnings	5.67
Ln of (Male) Partner's Full Time Weekly Earnings	6.12

Proportion of Women Who Are Lone Mothers By Province

	Census Family Heads	Economic Family Heads
Newfoundland	.09	.06
PEI	.08	.07
New Brunswick	.11	.10
Nova Scotia	.12	.10
Quebec	.10	.09
Ontario	.12	.10
Manitoba	.12	.11
Saskatchewan	.11	.10
Alberta	.11	.10
British Columbia	.10	.10

Table 2

Demographic Characteristics of Lone Mothers

	1981-1985	1986-1989	1990-1993
Age Distribution of Lone Mothers			
Age 16-24	.15	.13	.13
Age 25-34	.36	.39	.38
Age 35-44	.34	.35	.38
Age 45-59	.14	.14	.11
Total	1.00	1.00	1.00
Age Distribution of All Women			
Age 16-25	.26	.22	.20
Age 25-34	.28	.30	.28
Age 35-44	.22	.25	.26
Age 45-59	.24	.24	.26
Total	1.00	1.00	1.00
Proportion of Lone Mothers Who Are Never Married			
Age 16-25	.67	.72	.77
Age 25-34	.22	.34	.41
Age 35-44	.06	.10	.12
Age 45-59	.03	.02	.05
Total	.23	.27	.32

Table 2-A

Regressions Estimates for Full-Time Weekly Earnings

	(1)	(1)
	Females[a]	Males[b]
Constant	5.37 (245.8)	6.06 (560.1)
Age 25-34	.24 (35.2)	.20 (40.3)
Age 35-44	.35 (51.6)	.33 (64.5)
Age 45-59	.41 (59.1)	.41 (49.1)
Education: Grade 11-13	.14 (17.9)	.07 (11.7)
Education: Some Postsecondary Education	.21 (23.9)	.10 (14.2)
Education: Postsecondary Diploma or Certificate	.33 (36.3)	.12 (17.3)
Education: University Degree	.66 (59.8)	.23 (32.3)
1982	-.02 (1.3)	-.01 (0.9)
1984	-.05 (3.4)	-.015 (1.3)
1985	-.06 (4.7)	-.01 (1.9)
1986	-.07 (5.6)	-.04 (5.3)
1987	-.09 (7.5)	-.03 (4.6)
1988	-.09 (7.7)	-.02 (3.7)
1989	-.10 (9.2)	-.03 (3.9)
1990	-.09 (8.1)	-.04 (5.3)

Table 2-A (continued)		
1991	-.06 (4.8)	-.04 (5.2)
1992	-.05 (3.3)	-.00 (.2)
1993	-.05 (3.6)	-.03 (3.5)
Urban Area: dummy variable equal to 1 if city has population > 100,000.	.08 (17.2)	.06 (21.2)
Unemployment Rate for persons age 25-54	.10 (0.3)	-.38 (3.0)
Nfld.	-.10 (4.9)	-.07 (5.6)
PEI	-.14 (7.1)	-.23 (19.9)
New Brunswick	-.14 (10.1)	-.09 (11.8)
Nova Scotia	-.15 (11.8)	-.12 (16.2)
Quebec	-.04 (3.8)	-.05 (9.1)
Manitoba	-.08 (8.8)	-.13 (23.6)
Saskatchewan	-.10 (10.7)	-.09 (16.2)
Alberta	-.02 (2.1)	-.01 (1.6)
British Columbia	.001 (0.1)	.04 (7.4)
Selection Term	-.18 (12.7)	-.43 (10.4)

[a] The sample has 86,739 observations on women age 16-59. The parentheses contain the t-ratios. This was estimated using Heckman's (1987) correction for sample selection. The probit function for selection into the earnings regression contained the above variables plus the following three: the number of children under age 18; the presence of a child under 7; and the average of the level of welfare benefits for a lone mother with two children and the level of welfare benefits for a couple with two children.
[a] The sample has 184,536 observations on couples in which the wife is age 16-59. This regression was estimated with the same methods as those used for the female earnings regression.

Table 3

Incidence of Social Assistance Income

	1981-1985	1986-1989	1990-1993
Proportion of Lone Mothers Who Report Social Assistance Income			
Age 16-24	.58	.56	.66
Age 25-34	.42	.43	.52
Age 35-44	.27	.26	.33
Age 45-59	.32	.23	.29
Total	.38	.36	.44
Proportion of Couples With Children Who Report Social Assistance Income			
Age 16-25	.05	.05	.10
Age 25-34	.02	.02	.03
Age 35-44	.01	.01	.01
Age 45-59	.01	.01	.02
Total	.02	.02	.02
Proportion of Unmarried, Childless Women Who Report Social Assistance Income			
Age 16-25	.03	.03	.03
Age 25-34	.06	.06	.09
Age 35-44	.12	.14	.14
Age 45-59	.17	.16	.19
Total	.06	.07	.08

Table 3-A

Probit Estimates for Economic Family Headship[a]

Restricted Sample [b] with Full-TimeWeekly Wages

	(1)	(2)	(3)
			Fixed Effect
Constant	-1.86 (29.5)	-9.2 (16.4)	-11.8 (4.0)
Age 25-34	.09 (4.3)	-.25 (8.1)	-.39 (3.7)
Age 35-44	.03 (1.2)	-.42 (11.1)	-.48 (2.9)
Welfare Benefit for Lone Parent with Two Children (000's/year)	.06 (5.4)	.01 (.4)	-.03 (.9)
Welfare Benefit for Two Parent with Two Children (000's/year)	-.01 (1.0)	-.01 (.7)	.02 (.8)
Education: Grade 11-13		-.45 (18.8)	-.49 (5.4)
Female Ln Weekly Full-Time Earnings		2.15 (10.6)	4.9 (14.9)
Potential Male Partner's Ln Weekly Full-Time Earnings		-.64 (3.6)	-2.7 (3.8)
1982		.07 (2.1)	.03 (.6)
1984		.12 (3.5)	.10 (1.7)
1985		.22 (6.2)	.25 (4.6)
1986		.22 (5.7)	.21 (2.8)
1987		.24 (6.8)	.30 (4.6)
1988		.35 (9.5)	.46 (7.8)

Table 3-A (continued)			
1989		.48 (11.1)	.66 (11.6)
1990		.46 (10.8)	.53 (6.8)
1991		.31 (6.0)	.13 (1.0)
1992		.41 (8.0)	.33 (2.8)
1993		.30 (5.0)	-.05 (.4)
Nfld.			-.33 (2.8)
PEI			-.36 (1.8)
New Brunswick			.20 (1.9)
Nova Scotia			.25 (2.4)
Quebec			-.30 (3.8)
Manitoba			.03 (.4)
Saskatchewan			.17 (2.4)
Alberta			-.02 (.3)
British Columbia			-.01 (.2)

[a] This definition is restricted to lone female heads of economic families who live with one or more own children under 18. Lone heads of "secondary census families" or "subfamilies" are excluded from the sample. Economic families include all related persons in a household.
[b] The sample has 52,085 observations on women age 20-44 with 13 years or less years of schooling. The parentheses contain the t-ratios

Table 4

Average Full-Time Weekly Earnings (1986$)

	1981-1985	1986-1989	1990-1993
Women			
Age 16-24	276	273	277
Age 25-34	379	376	386
Age 35-44	397	413	431
Age 45-59	380	397	427
Total	357	370	394
Men			
Age 16-25	347	324	329
Age 25-34	534	516	510
Age 35-44	647	654	632
Age 45-59	666	666	674
Total	551	557	566

Table 4-A

Probit Estimates for Lone (Census Family) Headship [a]

Unrestricted Sample [b] with Full-Time Weekly Wages

	(1)	(2)	(3)	(5)
			Fixed Effect	Conditional Probability[c]
Constant	-1.68 (48.7)	-5.2 (13.3)	-12.0 (4.2)	.07
Age 25-34	.31 (23.6)	.15 (7.1)	-.23 (4.5)	.04
Age 35-44	.34 (25.9)	.09 (3.1)	-.43 (4.1)	.03
Age 45-59	-.21 (13.3)	-.55 (16.8)	-1.1 (7.6)	.01
Welfare Benefit for Lone Parent with Two Children (000's/year)	.01 (0.6)	-.02 (2.3)	-.03 (1.7)	.07
Welfare Benefit for Two Parent with Two Children (000's/year)	-.01 (.4)	-.01 (.4)	.02 (1.4)	.07
Education: Grade 11-13		-.34 (18.1)	-.66 (17.0)	.02
Education: Some Postsecondary Education		-.44 (17.0)	-.92 (15.3)	.01
Education: Postsecondary Diploma or Certificate		-.65 (15.6)	-1.5 (10.8)	.00
Education: University Degree		-1.2 (14.5)	-2.8 (10.3)	.00
Female Ln Weekly Full-Time Earnings		1.2 (6.8)	4.1 (5.2)	.14
Potential Male Partner’s Ln Weekly Full-Time Earnings		-.39 (2.2)	-1.9 (1.7)	.05
1982		.04 (1.7)	.06 (2.3)	.08
1984		.11 (4.8)	.20 (7.9)	.10
1985		.14 (5.8)	.26 (9.2)	.11
1986		.15 (6.2)	.27 (10.6)	.11

Table 4-A (continued)				
1987		.17 (7.1)	.35 (10.9)	.13
1988		.21 (8.2)	.39 (9.6)	.14
1989		.24 (9.1)	.49 (9.6)	.16
1990		.26 (10.3)	.45 (13.1)	.15
1991		.23 (9.2)	.31 (10.7)	.12
1992		.29 (11.5)	.39 (12.7)	.14
1993		.27 (10.6)	.34 (10.5)	.13
Nfld.			.31 (6.4)	.12
PEI			.14 (0.7)	.09
New Brunswick			.44 (10.1)	.15
Nova Scotia			.41 (8.7)	.14
Quebec			-.03 (0.6)	.07
Manitoba			.12 (1.4)	.09
Saskatchewan			.33 (9.4)	.13
Alberta			.05 (1.5)	.08
British Columbia			.14 (3.4)	.09

[a] Census families include only a lone adult or couple and their never married children. Hence, this definition includes lone heads of “secondary census families” or “subfamilies”.
[b] The sample has 185,124 observations on women age 16-59. The parentheses contain the t-ratios.
[c] The first entry in this column is the sample proportion (.07). The subsequent entries use the coefficients in column (4) to show the impact of a switch in a dummy variable, a $1,000 increase in annual Welfare Benefits or a 10% increase in full-time weekly earnings.

Table 5

Welfare Benefits (1986$)

	1981-1985	1986-1989	1990-1993
Average Weekly Benefits			
One Parent with Two Children	207	223	245
Couple with Two Children	229	250	275
One Parent/Couple	.90	.89	.89
Average Weekly Benefits/Full Time Weekly Earnings			
One Parent/Female 16-24	.75	.82	.88
One Parent/Female 25-34	.55	.59	.63
One Parent/Female 16-59	.58	.60	.62
Couple/Male 16-24	.66	.77	.84
Couple/Male 16-24	.43	.48	.54
Couple/Male 16-59	.42	.45	.49

Table 6

Probit Estimates for Lone (Census Family) Headship [a]

Restricted Sample [b] with Full-Time Weekly Wages

	(1)	(2)	(3)	(4)	(5)
	Simple	Time Trends	Fixed Effect	Welfare 5 year lag	Conditional Probability[c]
Constant	-1.64 (27.0)	-7.3 (13.8)	-12.0 (4.2)	-12.6 (4.1)	.10
Age 25-34	.02 (.8)	-.27 (9.0)	-.47 (4.7)	-.48 (4.6)	.04
Age 35-44	-.07 (3.6)	-.44 (12.1)	-.62 (3.9)	-.64 (3.8)	.03
Welfare Benefit for Lone Parent with Two Children (000's/year)	.06 (6.3)	.02 (1.7)	-.05 (1.5)	.03 (.8)	.11
Welfare Benefit for Two Parent with Two Children (000's/year)	-.02 (2.5)	-.02 (2.1)	.03 (1.5)	-.01 (.5)	.10
Education: Grade 11-13		-.40 (17.7)	-.51 (5.8)	-.52 (5.6)	.04
Female Ln Weekly Full-Time Earnings		2.04 (10.4)	4.4 (14.1)	4.4 (13.5)	.20
Potential Male Partner’s Ln Weekly Full-Time Earnings		-.83 (4.9)	-2.2 (3.3)	-2.1 (2.9)	.07
1982		.04 (1.2)	.04 (.7)	.03 (.5)	.11
1984		.09 (2.7)	.11 (2.0)	.09 (1.6)	.12
1985		.18 (5.2)	.25 (4.7)	.22 (4.1)	.14
1986		.17 (4.6)	.21 (3.0)	.19 (2.5)	.14
1987		.19 (5.6)	.29 (4.6)	.26 (4.0)	.15
1988		.29 (8.2)	.43 (7.7)	.39 (6.8)	.19

Table 6 (continued)					
1989		.42 (10.2)	.63 (11.4)	.58 (10.2)	.24
1990		.40 (9.8)	.51 (6.9)	.47 (6.4)	.21
1991		.23 (4.7)	.16 (1.3)	.12 (1.0)	.12
1992		.34 (6.9)	.35 (3.2)	.30 (2.8)	.16
1993		.22 (3.9)	.02 (.2)	-.03 (.2)	.10
Nfld.			-.13 (1.2)	-.06 (.4)	.09
PEI			-.27 (1.4)	-.15 (.7)	.08
New Brunswick			.22 (2.2)	.31 (2.5)	.17
Nova Scotia			.29 (2.9)	.32 (2.9)	.17
Quebec			-.28 (3.7)	-.17 (1.7)	.07
Manitoba			.02 (.2)	.18 (1.7)	.14
Saskatchewan			.15 (2.2)	.21 (2.7)	.14
Alberta			-.08 (1.5)	.02 (.2)	.10
British Columbia			-.04 (1.0)	-.02 (.4)	.10

[a] Census families include only a lone adult or couple and their never married children. Hence, this definition includes lone heads of "secondary census families" or "subfamilies".
[b] The sample has 52,709 observations on women age 20-44 with 13 years of schooling or less. The parentheses contain the t-ratios.
[c] The first entry in this column is the sample proportion (0.10). The subsequent entries use the coefficients in column (4) to show the predicted probability that a women is a lone mother given a switch in a dummy variable, a $1,000 increase in annual welfare benefits or a 10% increase in full-time weekly earnings.

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