

## **Exiting Poverty: Does Sex Matter?**

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### **Abstract:**

While Murphy, Zhang & Dionne (2012) report a slight decrease in the average duration of poverty spells in Canada over the past decade, little is understood about the factors associated with poverty duration in Canada, nor which factors, if any, may affect women and men differently. Moreover, research pays scant attention to how far Canadians transition out of poverty. For example, some may exit poverty only marginally while others exit to much higher incomes. We investigate the determinants of poverty duration among women and men in Canada. A major contribution of this paper is the examination of poverty duration across different exit destinations (competing risks); exits to just above the poverty line versus exits to higher levels of income. We find that nearly  $\frac{1}{4}$  of poverty spells end within 110% of the poverty line (near poverty). Many of those that exit to near poverty experience multiple spells. As expected, we find that higher education increases the probability of transitioning to higher income levels, but very little is correlated with exits to near poverty relative to not exiting. The longer the poverty spell, the lower the probability of exit, particularly to higher income levels. We find few significant gender differences in the coefficient estimates. However, several factors associated with exit to higher income levels differ from those factors that are associated with exits to near poverty.

Key words: Poverty, Duration, Women, Family, Policy, Labour  
JEL Classification: I30, G11, J22

## **I. Introduction**

Women are identified by the government of Canada as one of the groups at high risk of poverty. Actually, they are identified twice: women and female-lone parents are both identified as high risk groups (Collin and Jenson, 2009). Lone-mothers and the unattached non-elderly, have the distinction of being the demographic groups repeatedly reported to be at high risk of living in poverty<sup>1</sup> (Collin, 2007; Collin and Jenson, 2009; Murphy, Zhang, Dionne, 2012). Women are also identified as a high risk group for living in longer-term poverty in Canada (Lohead and Scott 2000; Finnie and Sweetman 2003; Burstein 2005). Between 1992 and 1996, over 60% of the long-term poor were women. Moreover, 29% of all women and 66.7% of lone-mothers were poor at least once in the period, in contrast to 23.6% of all men, and 40% of male lone parents (Finnie and Sweetman, 2003). Poverty rates for men are higher than those of women only for the unattached and for childless couples. These statistics are consistent with the historical data showing that a strong contributor to the feminization and juvenilization of poverty from the 1970s to the 1990s was the increase in the portion of female headed lone-parent families (Dooley, 1994; Crossley and Curtis, 2006).

Canadian poverty rates, which were rising in the late 1990s, appear to have declined in the 2000s, by some measures.<sup>2</sup> For unattached women and persons in female lone-parent families, in particular, the decline was steep, reducing gender differences in poverty; however, low-income rates remain high (well over 1/5) among the unattached (women and men), and persons in female lone-parent households (see Collin and Jenson, 2009). Moreover, after-tax income among female lone-parent and unattached households are by far the lowest among all family types (Statistics Canada Daily, June 2013). While there have been slight decreases in poverty duration over the past decade, lone-parents and non-elderly unattached still face long spells of poverty; spells last nearly four years, on average, for lone-parents and nearly three years for the non-elderly unattached (Murphy et al., 2012).

Despite the severity and persistence of poverty in Canada, we know relatively little about the determinants of poverty duration. Moreover, we have little understanding of the characteristics associated with the probability of exiting to near poverty relative to those associated with exiting to higher income levels. The goals of this paper are: to provide background on poverty duration among Canadian women and men, to examine the determinants of poverty duration, and the characteristics associated with exits to different income levels.

While it is important to implement policies that prevent poverty, policy makers should be interested in understanding the characteristics associated with the (in)ability to escape poverty or to move beyond near poverty. The paper proceeds as follows: section II presents a brief literature review on the topic, section III discusses the methodology, section IV describes the data, section V presents the results and the final section offers a summary/discussion.

## **II. Literature Review**

The ‘feminization of poverty’ became high profile in the early 1990s: several publications, a conference and a movie on the topic were in circulation (Dooley 1994). The examination of women in poverty continued in the subsequent two decades with a plethora of studies indicating that women, particularly lone mothers, continued to be at high risk of living in poverty in general, and more specifically, of longer-term poverty (see for example: Laroche, 1997; Lohead and Scott 2000, Morissette and Drolet, 2000; Morissette and Zhang, 2001; Finnie and Sweetman 2003; Burstein 2005; Collin 2007; Collin and Jenson, 2009). While poverty rates among unattached women and female lone-parent families may have improved over the past decade (Collin and Jensen, 2009), poverty duration among lone-parents and the unattached remains persistently high (Murphy et al, 2012). The latter two studies provide a thorough overview of poverty in Canada, but are primarily descriptive in nature and reveal little as to what factors may influence poverty duration among women and men. In general, the literature has focused on women in poverty with scant attention paid to men or to the possible gender differences in the poverty experience.

The Canadian experience of poverty rates has been relatively easy to document across time, given access to cross-sectional data with an abundance of measures (market income, net income, consumption) and demographic variables repeated over long periods of time<sup>3</sup>. Examining the persistence of poverty spells in Canada is more difficult due to data limitations. There are Canadian longitudinal data containing excellent income data over many years but few demographic variables (Longitudinal Administrative Databank (LAD)) or excellent income and demographic information but short time frames (Survey of Labour and Income Dynamics(SLID)).

Initial investigations into longer-term poverty in Canada, using the first panel of SLID, found that low

levels of education, work limitations, minority and immigration status and family type (lone parent or unattached) were important factors associated with whether or not an individual would be poor for several years (Morissette and Drolet, 2000; Morissette and Zhang, 2001; Fortin (2008) uses the third panel (1999-2004)). Antolin, Dang, and Oxley (1999), Finnie (2000), Finnie and Sweetman (2003) and Picot, Hou and Coulombe (2007) added to the preliminary evidence on longer-term poverty by providing the first detailed analyses of poverty dynamics among men and women in Canada. Employment status was found to be one of the major factors associated with exiting poverty (Antolin, Dang and Oxley, 1999) while family dynamics, age, the length of time already in poverty, immigrant status and minority language also contributed to the probability of exiting (Finnie, 2000; Finnie and Sweetman, 2003; and Picot, Hou and Coulombe, 2007). These early studies provided the first insights into why some individuals/families spend more time in poverty than others, however the investigations were somewhat limited by the paucity of explanatory variables contained in the LAD files or the limited time frame of the SLID.

The data limitations are particularly important when attempting to increase our understanding of poverty dynamics. Studies of social assistance participation in Canada and of poverty in the United States demonstrate the importance of factors such as education and early life events on duration probabilities (Choudhury and Leonesio 1997; Huff-Stephens 1999; Stewart and Dooley 1999; Fortin, Lacroix and Drolet 2004).

Moreover, not all poverty experiences or exits from poverty are equal. For example, Morissette and Zhang (2001) report that not all at risk groups experienced severe poverty gaps when in poverty, and Finnie and Sweetman (2003) document that those most likely to return to poverty are those that exit to just above the low income cut-off (LICO)(that is, to near poverty<sup>4</sup>). Thus, the determinants of poverty duration may be different for those who exit to near poverty and those who exit farther above the poverty line.

This study expands on the literature by using the five complete panels of SLID (1993-1998, 1996-2001, 1999-2004, 2002-2007, 2005-2010) to examine how characteristics such as education, employment status, disability status and the presence of children impact the probability of exit from poverty. We further investigate poverty spells in a competing risks framework to examine characteristics associated with exiting to near poor (just above the poverty line) versus characteristics associated with exits to higher levels of income.

### III. Methodology

Subsequent to a descriptive analysis of poverty spells, we employ hazard analysis to investigate the determinants of poverty spell duration and exit. A hazard rate gives the probability of exiting a spell at year  $t$ , conditional on being in the spell up to  $t-1$ , and on a set of characteristics. Because our spell data is annual, we use the discrete-time (interval) proportional hazard rate model popularized by Prentice-Gloeckler (1978). Using a complementary log-log transformation (see for example, Allison, 1982; Bergstrom and Edin, 1992; or Jenkins, 2005), the resulting discrete time hazard rate is written as:

$$h_t(X) = 1 - \exp(-\exp(X'\beta + \lambda(t))) \quad (1)$$

The hazard rate,  $h$ , at any year  $t$ , therefore depends on a set of individual characteristics,  $X$ , and  $\lambda(t)$ , which is the log of the difference between the integrated baseline hazard at the start versus the end of year  $t$ .<sup>5</sup> Included in  $X$  are known correlates with poverty such as household type, education and employment status. Additionally, we incorporate controls for characteristics which change at the start, and just prior to exiting the poverty spell

As is common in the literature, we employ a fully non-parametric baseline hazard by incorporating interval specific dummies (indicator variables for each year the poverty spell continues beyond the first (our base group)). One benefit to using the hazard rate model is that we can identify duration effects. Moreover, a non-parametric baseline hazard places no restrictions on duration dependence and it also tends to produce coefficient estimates which are stable and perform well even with high levels of time aggregation (Bergstrom and Edin 1992)<sup>6</sup>. Rather than reporting coefficient estimates,  $\beta$ , researchers typically report  $\exp(\beta)$ , which are called hazard ratios, or relative risks.  $\exp(\beta_k)=c$  tells us that a 1 unit increase in the characteristic  $X_k$  corresponds to an increase in the exit hazard (probability) by  $100*(c-1)\%$  over the baseline hazard, at any time  $t$ . So if  $c=1.05$ , the proportional change in hazard is 1.05 or there is a 5% increase in the probability of exit (relative to the baseline hazard) for each unit increase in the associated characteristic. (See further discussion and derivations of the proportional hazard model in Jenkins, 2005).

In our analysis, a poverty spell ends when adjusted family income exceeds the poverty line. However, some spells may end just above the line, while others end with much higher incomes. Treating both destinations

the same may result in aggregation bias of the coefficients, as different characteristics may be associated with different types of exits (see for example, Narendranathan and Stewart, 1993; Dolton and O'Neill, 1996; Jenkins, 2000; and D'Addio and Rosholm, 2005). With intrinsically discrete spells, and independent risks, Allison (1982) shows that destination specific hazards can be constructed such that the likelihood contribution for an individual spell takes the same form as that of the multinomial logit.<sup>7</sup> Thus, we construct our competing risks analysis by generating a categorical variable which takes on the value of 0 if an individual does not exit in time  $t$ , 1 if they exit to less than 1.1 times the poverty line, 2 if they exit to a range of 1.1 to less than 2 times the poverty line, and 3 if they exit to at or more than twice the poverty line, at time  $t$ . Again, we report the hazard ratio of each characteristic, by destination (relative to non-exit). We describe the variables, including our poverty line and income categories, in detail in section III.

#### **IV. Data**

We use all five complete panels (1993-1998, 1996-2001, 1999-2004, 2002-2007, 2005-2010) of the Canadian Survey of Labour and Income Dynamics (SLID) for this study. The SLID's target population is all individuals in Canada excluding persons living on reserves, institutionalized individuals and some northern communities (less than 3% of the population). The sampling frame is taken from the Labour Force Survey. The survey is voluntary and is collected by Computer-Assisted Telephone Interview and from administrative records. Households in SLID are interviewed every year between January and March regarding labour market experiences, income, education, family relationships and other demographics (Statistics Canada, 2009).

Due to its longitudinal nature, multiple panels, and rich set of variables, the SLID is useful to investigate the determinants of poverty spell duration. The survey contains personal and job characteristics for Canadian individuals and their families over a six-year period in each panel. Variables of particular interest to this study include after-tax family income, as well as several socio-demographic characteristics found to be associated with longer-term poverty: household type, employment, education, disability, immigrant status and area of residence.

SLID is useful not only because it captures a plethora of information on individual characteristics that are known correlates of poverty, but also because it incorporates administrative income data (see Hotz and Scholz (2002) for the strengths and weaknesses of administrative and survey data). Income data in the SLID is

primarily (71.9-83.4%) drawn from tax files (Jocelyn and Duddek, 2008) and as discussed in Finnie and Sweetman (2003), income tax filing is very high in Canada among both high and low income groups because filing is required for higher-income, and filing can be lucrative for lower-income individuals. As reported in Jocelyn and Duddek (2008), income data is imputed (using nearest neighbour approach) for a fraction, typically less than 20%, of the respondents in SLID. An even smaller fraction, typically less than 10%, of individuals in the SLID provide income data during the survey interview. Survey provided data are likely to be rounded. However, the Statistics Canada (2006) Community Profiles indicates that similar earnings estimates may be found among the Census, SLID and national accounts. Specifically, Census estimates of earnings (wages and salaries) are 2.8% (1.0%) higher than the SLID (national accounts).

A drawback to using any longitudinal survey data is attrition; however, as the panels in the SLID are restricted to 6 years, attrition rates are kept relatively low. Unfortunately the price of short panels is that we are unable to provide a comprehensive analysis of poverty spells at or more than six years duration. By necessity, we examine characteristics associated with poverty duration for spells up to 5 years in length. We keep respondents who drop out or join the SLID during the panel period and as such the panels are unbalanced.

In order to examine poverty durations, one must construct a poverty line. There are several poverty lines used in the literature and much debate over what constitutes the ‘correct’ measure (see for example, Brzozowski and Crossley, 2011; Brzozowski et al., 2010; Crossley and Curtis, 2006). We use half of the median adjusted family income as the poverty line in any given year. Family income is adjusted using the square root of family size. The half-median (60% of the median in Europe) is clearly a relative measure of poverty; however, it is one of the more commonly used measures in the poverty literature (see Finnie and Sweetman, 2003; Cappellari and Jenkins, 2005; Crossley and Curtis, 2006; Milligan, 2008). We considered alternative measures of poverty, such as the low-income cut-off (LICO) and a constant poverty line (the half-median in 2002 in real \$CDN, as 2002 is near the mid-point of our sample), and, although not shown herein, the results are substantively similar. Crossley and Curtis (2006) also find that changes in definitions of poverty lines or equivalence scales (except for per capita) make little difference when examining child poverty rates in Canada.

Because we employ duration analysis, the appropriate unit of analysis is the poverty spell. The data are therefore arranged such that we have one observation per poverty spell. A poverty spell is identified by a

continuous period in which the family income falls below the poverty line for one or more years. While the majority have only one spell, a handful of respondents experience two or three spells observed within the panel. As such, standard errors are adjusted by clustering on the person (head of household's) identifier in all regression results.

The SLID contains a separate observation for each individual in the household that is over the age of 15. As such, we restrict analysis to spells of heads of household. The household head is, by construction, the family member with the highest earnings, and as such, the individual who is the household head may change across time. For the purposes of this study, we identify (define) the household head as the highest earner in the first year of the poverty spell because a household (husband-wife) break-up may result in poverty spells occurring asymmetrically across men and women. Therefore, each poverty spell is associated with the individual who is the household head at the first year of the spell and the characteristics of that spell are those associated with this individual.

The characteristics associated with the poverty spell are those recorded the year prior to the spell start, except for dynamic variables which record changes in characteristics occurring either at start of spell (change between year prior to spell and spell start) or mid-spell (change after entering and before exiting poverty). For example, we record an increase in the number of children at the start of the spell as an indicator which equals 1 if there is an increase in the number of children between the year prior to entering poverty and the first year of the spell. A complete description of the poverty spells and the characteristics that we employ is offered in Tables 1 and 2.

The duration of a poverty spell is determined by the spell end date less the spell start date, in years. A spell starts if adjusted family income is above the poverty line in one year and below the poverty line the next year. A spell ends when adjusted family income moves from below the poverty line to above the poverty line. Spell start dates are unknown when the poverty spell begins on or before the first year of the panel or information is missing the year prior to the poverty spell (some respondents drop out of the panel for one or more years and then return). Spell end dates are unknown when adjusted family income remains below the poverty line in the last year of the panel or when the respondent exited the panel. These spells are flagged as left-censored and right-censored respectively<sup>8</sup>. As is common in the literature, right-censored spells are retained,



while left-censored spells are omitted from the sample because we cannot accurately observe the spell start date nor the baseline characteristics before the start of the poverty spell (see figure 1 for a diagrammatic example of spell types). Thus, our analysis focuses on the conditional probability of exit for poverty spells which start within the 6 year windows of each panel.

Once the poverty spells are constructed, we exclude spells in which the household head is under age 25 or over the age of 59 the year prior to spell start, or is a student at the start of the spell. Households headed by individuals under 25 years of age or students may be poor given their current income but, their long-term outlook may be very different from prime-aged adults living in poverty<sup>9</sup>. Household heads over the age of 59 may have entered early retirement, be in the receipt of government provisions (Old Age Security and/or Guaranteed Income Supplement) or have very high wealth relative to income<sup>10</sup>. We exclude household heads in family types categorized as ‘other’ because household relationships may be complex and who has claims on the household is unclear (e.g., intergenerational families where one member may have low income but much wealth). Finally, spells with missing information are also excluded<sup>11</sup>. These exclusions result in a sample of 3426 poverty spells, 1821 experienced by women, and 1605 by men.

An individual is considered to be a lone parent if they reported being a lone parent and live with at least one child under the age of 18. Likewise, a household head is categorized as a couple with (without) children if they reported being married or common law with at least one child (no children) under the age of 18. Highest level of education is categorized as less than a high school graduate (the comparator), a high school graduate, some college (anyone who has attended college or university and may have obtained a certificate but did not obtain a degree), and bachelors degree or above. The number of children, presence of preschool children, age, age squared, disability status, immigrant status, and social assistance receipt the year prior to spell start are as reported by the household head. We further control for rural location, province of residence, and spell start year.

As previously explained, in order to account for the potential effects of characteristics which change as the poverty spell starts, or which change over the course of a poverty spell, we consider several dynamic or change variables. For example, indicator variables for change in household head, gaining or losing income earners in the family, increasing or decreasing the number of children in the family, and changes from: employed full year to not employed full year, not employed full year to employed full year, disabled to not disabled, not

disabled to disabled , unmarried to married , married to previously married (divorced, widowed or separated). Changes which occur at the start of the spell are considered as potential reasons why the poverty spell occurred in the first place (i.e. marital dissolution or job loss). Mid-spell changes may result in shorter or longer spells depending on the characteristic (e.g., adding an income earner is likely to increase income but marriage may or may not increase adjusted household income depending on whether additional family members are income earners). The changes are self-explanatory except perhaps the change in household head. This is an indicator that equals 1 if the individual who is household head at the start of their poverty spell, was not the household head the year prior to the start of the spell (or for change mid spell, was no longer the household head at the end of the poverty spell).

Because some Canadians transition in and out of poverty, we want to capture their experience with poverty. We construct a dummy variable (multiple spells) equal to one if the household head has more than one spell observed in the panel window (be it with their current family or a different family); not all of their spells need be in our sample as some of their spells may be left censored. The multiple spells variable will likely be correlated with a higher probability of exit because in order to have multiple spells within a six year panel, an individual must transition in and out of poverty relatively quickly. Note that because spell characteristics are recorded at the year prior to *each* spell start the characteristics may differ for the same household head across different spells. For example, the head may have had 1 child prior to their first spell, but 2 children prior to their second spell. Again, we correct for non-independence of multiple spells.

## **V. Results**

### **a) Spell Characteristics and Exit Destinations**

Table 1 presents the characteristics of the poverty spells in our sample. The first three columns of results present our main sample (3426 spells; 53% female and 47% male) and columns 5 through 7 present the sample excluding right censored observations (2290 spells; 52% female and 48% male). These represent spells of poverty that are at most 4 years and are wholly observed within our panel. As expected, spell durations are shorter for spells with observed exits (1.4 years) compared to the main sample (1.9 years). Spells lasting only one year comprise 1654 (almost three-quarters) of the completely observed spells and 1731 (over half) of the

spells in our main sample. For both the main sample and spells with observed exits, longer duration spells represent smaller fractions of the sample. Table 1 shows some small differences between male and female spells but none are significant at conventional levels.

Table 2 presents the mean characteristics of the household heads associated with the poverty spells. Specifically, the pairs of columns of results present means and standard deviations of their characteristics the year prior to entering poverty, for the pooled sample and by gender. Recall that the unit of observation is the spell and thus household heads with multiple spells may enter the data more than once (standard errors are adjusted for clustering on the person identifier). Over 1/3 of poverty spells are experienced by those who have had or will have another poverty spell, but very few (140) actually have a second spell within our sample because previous or subsequent poverty spells may be left-censored or have missing information and thus do not appear in our sample. The average age in the sample is close to 42 years with females slightly younger than males. Just over 40% of the spells are experienced by couples with children followed by unattached households, couples without children, and lone parents. Gender differences among the unattached and lone parent household types are large and statistically significant, with more unattached male poverty spells and greater female lone-parent spells. Close to 1/5 of the spells are experienced by social assistance recipients, and the gender difference is both substantial and statistically significant (20.5% female vs 14% male). We further note that male headed spells are associated with a lower average number of children, a higher probability of being employed full year, and lower levels of education; these gender differences are statistically significant.

With respect to the characteristics which change as the household head enters poverty, we note that female headed spells are more likely to have experienced a change in household head as they enter poverty (42.5% versus 11.7%). Examination of the data indicate that the majority of the cases arise either because the poverty spell resulted from a family break-up or the male partner was no longer the primary earner (income or job reduction) and thus, female headed spells are also more likely to be associated with divorce at the start of a spell and a loss of earners in the household. Again, these gender differences are statistically significant. We examine characteristics that change between the first and last observed year of a poverty spell, but we find only small gender differences. Of note is the fact that the number of changes at the start of the spell or mid-spell can be small (e.g., the proportion of male poverty spells in which a marriage occurs in the first year of the spell is so

small that it cannot be reported due to Statistics Canada's privacy policy). As noted previously, individuals may experience more than one poverty spell in our sample; thus, we examined the characteristics of household heads for the first poverty spell in which we observe them (single spell data). The means are almost identical to those presented herein (most differences were observed at the third decimal place), and are omitted for brevity.

Exit from poverty occurs when adjusted family income rises above the poverty line; however, crossing the poverty line may not necessitate large gains in income and may not generate substantial gains in wellbeing. Figure 2 shows the distribution of the ratio of adjusted after tax family income to the poverty line for all, male and female headed poverty spell exits observed in our sample. Approximately 23% of the spells exit to just over the poverty line (20% of female spells and 25% of males spells), another 15% of the spells end between 110% and 120% of the poverty line and 12% between 120 and 130% of the poverty line. Clearly, the majority of poverty spells exit to income levels that are not very far above the poverty line. There are spells that exit poverty to income categories over 230% but the proportions so small that they cannot be released due to privacy issues. With the exception of exits to less than 110%, and between 130 and 140% of the poverty line, gender differences in exit rates are insignificant at conventional levels.

In table 3, we present spell characteristics by income destination of exit. We divide exit destinations into three income categories: within 10% of the poverty line (near poverty), 10% to within 200%, and at or over 200% of the poverty line. We chose these cut-offs to be consistent with the poverty literature. Although there is no uniform definition of near poverty, several studies consider exits within 10% of the poverty line not to be true exits (see, for example, Bane and Ellwood, 1986; Jenkins, 2000; and Devicienti, 2002). Two times our poverty line is the median income. Table 3 indicates that for both sexes, the largest share of spells end in the mid-income range, representing just under 2/3 of all exits, and approximately 16% of poverty spells end with adjusted family incomes more than twice the poverty line (above median income). However, almost 1/4 of poverty spells end with adjusted family incomes less than 10% above the poverty line. Male headed spells are more likely to end in near poverty than female headed spells (25% versus 21%) and the difference is statistically significant at conventional levels. Spells that eventually exit to near poverty have longer durations than spells exiting to middle or higher income,<sup>12</sup> and are also more likely to be experienced by household heads that have multiple spells within the 6 year panel window; this subset appears to be staying in poverty longer and returning to poverty relatively

quickly after exiting. These differences across exit destination are statistically significant at conventional levels and are consistent with Finnie and Sweetman (2003) who report that those who exit to low income are more likely to re-enter poverty.

### **b) Proportional Hazards Analysis**

In Table 4, we report the relative risks of exit. As stated in section II, a relative risk, or hazard ratio,  $\exp(\beta_K)=c$  suggests a  $100*(c-1)\%$  higher probability of exiting poverty, relative to the baseline, given a one unit increase in  $X_K$ . Thus, a hazard ratio greater than 1 indicates a greater chance of exit, whereas a hazard ratio less than 1 indicates a lower chance of exit. For example, a hazard ratio of 0.464 for year 2 of the spell indicates that a spell in the second year is associated with a 53.6% lower probability of ending relative to a spell in the first year of poverty. We calculate the exit probabilities for representative household heads (a base case for each group: All, female and male) by setting each characteristic at the base (omitted) category for binary variables (omitted categories are: first year in spell, female, married with children, native born Canadian, no preschool children, less than a high school education, not employed full year, not disabled and living in urban Ontario in 1994), number of children at 1, household earners at zero, and all other variables evaluated at their group specific means.

The relative risks are reported for the entire sample (ALL) and separately for male and female spells for two specifications. Specification 1, the first three columns of results, controls for observed characteristics the year prior to the start of the poverty spell. Specification 2 adds our dynamic variables and the indicator for multiple spells. As stated previously, we control for spell start date and provincial fixed effects in each specification and adjust standard errors for clustering on the person identifier. The baseline probability of exit is nearly identical for female and male spells in specification 1 (51.1% versus 49.8%). Rows 2-4 indicate negative duration dependence; the longer a spell of poverty lasts, the lower the probability that it ends. In the pooled sample, we note that spells whose current duration is 2, 3 and 4 or more years, experience a decrease in the probability of exit, by 53.6%, 65.8%, and 86%, relative to spells in their first year. For specification 2, these figures are 36.8, 47.6 and 76.3% and are all statistically significant at the 1% level. Unlike Finnie and Sweetman

(2003) we find that the drop in the probability of exiting after the 4th year (76.3%) is substantially greater than the drop in probability associated with the third year of poverty (47.6%).

Characteristics strongly associated with a decrease in the probability of exiting poverty (for the pooled sample) are being unattached, the receipt of social assistance, the presence of preschool children and immigrant and disability status. Conversely, being a male household head or having one additional earner in the household increases the probability of exit by just over 10%. Spells of household heads who are employed full year or had a high school or some college education are also more likely to exit. Although significance sometimes wanes, the trends are similar across sexes except for the highest level of education. These results are robust to a variety of sensitivity analyses (single spell analysis, alternative measures of poverty, unobserved heterogeneity models).

Among the variables that change in the first year of the spell (specification 2), we note that spells that start with the household head transitioning out of full-year employment have a substantially and significantly higher probability of exiting poverty for pooled sample and males (31.5% and 58.8% higher, respectively), consistent with poverty spells resulting from short-term low income shocks due to reduced employment. It is not surprising that those who are employed full year prior to the spell start, and remain employed full year in the first year of poverty, have a lower probability of exit relative to those who change employment status, as previous research suggests that those who are employed while poor (the working poor) tend to be very low-earners with little prospect of escape from poverty (Dunifon, Kalil & Danziger, 2002; Johnson and Corcoran, 2002; and Green & Ferber, 2005).

Marital dissolution in the first year of the spell, or a loss of earners, reduces the likelihood of exit by 16.5% and 28.9%, respectively, consistent with short-term shocks to income. Gaining earners or changing disability status increases the probability of ending a spell relative to a household head who did not change status or gain earners. An increased probability of exit for those who become disabled upon entering a poverty spell may seem odd, but a household head may have a temporary shock to income and then qualify for disability benefits and this may raise the family income enough to exit poverty.

With the exception of marital status which is insignificant, any change in characteristics occurring within the spell (after the first but before the last year) decrease the probability of exiting poverty. The decrease in probability associated with gaining full year employment and gaining earners may seem counter-intuitive;

however, becoming employed full year or gaining earners *within a poverty spell*, means that the increased income is not sufficient to raise the household out of poverty and these types of low wage jobs tend to have lower earnings trajectories, resulting in a lower probability of transitioning to higher income (Dunifon, Kalil & Danziger, 2002; Johnson and Corcoran, 2002; and Green & Ferber, 2005).

Interpreting changes in household composition can be complex. For example, gaining children will increase the family size, lowering the adjusted family income. As well, additional children, particularly newborns, may reduce the work hours of the parent(s), lowering household income. Because gaining children reduces the probability of a spell ending, the negative association between poverty exit and decreases in the number of children may seem counter intuitive. However, child support payments may be lost when children leave, or the children who have left may have been old enough to be contributing to household income. Sen, Rybczynski and VanDeWaal (2011) show that teen income represents a significant share of household income for families living below the Low-Income Cut Off. Finally, those who experience multiple spells have a higher conditional probability of exit. This result should not be surprising since those who experience multiple spells must have shorter duration spells in order to exit and re-enter within the six year panel. With the exception of bachelor's degree plus, the gender differences in hazards are predominantly insignificant at conventional levels.

Tables 5 and 6 extend our analysis of poverty duration to consider whether there is a difference in the characteristics associated with exits to near poverty, versus exits to higher income levels. As stated in section II, these competing risks are estimated using multinomial logit models on 4 destinations: no exit (base case), less than 110% of the poverty line, between 110 and 200% of the poverty line, and at or over 200% of the poverty line. Specification 1 is presented in table 5 and specification 2 in table 6. We present the hazards for each exit destination (1)-(3) contrasted with a single base case, no exit, to keep the tables clear; however, marked differences in the hazard ratios *across* exit destinations (alternative base cases) are discussed.

Duration dependence is evident across both specifications and the probability of exiting to higher income levels, relative to no exit, decreases substantially as years in poverty increases. Specifically, the probability of a poverty spell exiting to high income, relative to not exiting, drops nearly completely (by 97.6%) at four or more years in poverty, whereas the probability of exiting to mid income drops by 91.1% and the probability of exiting to near poverty only drops by 86.3% after four or more years. The differences across exit destinations are

statistically significant for men and the pooled sample. In particular, the probability of exiting to high income, relative to exiting to near poverty or mid income, is significantly reduced at longer durations in the pooled and male samples. Thus, more years in poverty decreases exit probabilities across the board, but the largest drop is among exits to higher income.

In the pooled sample, being male increases the chances of exit to near poverty and mid income (relative to no exit) by 53% and 18%, respectively. Immigrant and disability status lower the odds of transitioning to near poverty and mid income, relative to no exit, but only immigrant status remains significant for exits to the highest income level. Social assistance receipt decreases the probability of exiting to near poverty, mid income, and higher income levels by 34.3%, 29.6 and 71.7%. Moreover, for social assistance recipients, the large decrease in probability of exiting to higher income, relative to near poverty, is statistically significant at conventional levels.

Social assistance receipt, years in spell, immigrant status and disability status are the only characteristics associated with exits to near poverty when the entire sample is used. When the sample is divided by sex, the relative risks remain fairly stable for most characteristics, but significance changes asymmetrically across the sexes. Social assistance receipt is not significant for males, disability status is not significant for females and immigrant status is not significant for either subpopulation. However, being older and unattached now significantly decrease the probability of exiting to near poverty for males and mid income levels for females. For female household heads, an increase in the number of earners raises the chance of exiting poverty relative to not exiting, and this probability increases across income levels from about 32% for near poverty, 40% to the middle income level and 42% to the higher income level. For males, an increase in number of earners in the family is significantly associated with a higher probability of exit only to the mid income level. Indeed, we note that males are also significantly more likely to exit to mid income rather than near poverty with the addition of earners. Adding children increases the chances of exit to near poverty, relative to no exit, as well as to mid income levels for men. While we observe that hazard ratios and significance levels differ across the gender, for most characteristics, these gender differences in the probability of exit to near poverty are not statistically significant.

Individual and family characteristics play an important role in determining whether a household head exits poverty to the mid-income level. Characteristics that decrease the odds of exit to the mid-income level, relative to non-exit, are being: unattached (by 35.3%), married with no kids (by 28.3%) (married with kids is the



comparator), an immigrant (by 25.5%), disabled (by 14.9%), on social assistance (by 29.6%) or having preschool aged children in the household (by 24.1%). Those that increase the odds are being: male (by 17.6%), employed full year (by 18.1%), in a household with more earners (by 34%), a high school graduate (by 24.8%), or by having some college education (by 15.8%). Contrasted with exits to near poverty, number of earners has a statistically significant increase in odds for exit to mid income.

For the most part, the characteristics remain significant for the female subsample. In the male sample, significance is lost for marital status, presence of preschool children, employed full year and high school. Surprisingly, having some college is associated with increased odds of exits to mid-income relative to no exit for males but not females, while having a bachelor's degree (or more) increases the odds of exit to mid income, relative to no exit, for females by 40% but decreases it for males by 35% and the difference is statistically significant. Some college can include trades designations for males and it has been shown that returns to higher education are diminishing for males (Conference Board of Canada, 2013).

Higher levels of education are also more important for female exits to income above the median compared to males. A bachelor's degree is estimated to increase the odds of exit to higher income (relative to no exit) by 3 fold for females but only by 80% for males. A similar result for bachelors is found when contrasting higher income to other bases (other exit destinations). These results suggest that the rise in the percent of prime aged women obtaining university degrees between 1990 and 2009 (Turcotte, 2011), could explain some of the significant decline in poverty rates among unmarried women (across different measures of poverty) which were observed over roughly the same period.

Table 6 adds the dynamic variables (specification 2) to our basic specification. First, we note that, in general, the results presented in table 5 are robust to the addition of the change variables. The number of earners in a household is now significantly and strongly positively associated with escaping poverty to all levels of income (at 10% level) relative to non-exit, and increases the chance of transitions to mid income relative to near poverty. Consistent with previous results, strong duration dependence is noted, particularly for exits to higher income, where the gender difference at the fourth year is statistically significant. Gaining more earners in the family at the start of the spell diminishes the probability of exiting to near poverty relative to non exit (particularly for females) but increases the probability of exiting to higher income levels (more than double for

males). Losing earners at the start of a spell decreases the probability of exiting to all income levels, relative to no exit, as does having more children and changes in household head (particularly strong negative effect for females) at the start of the spell. Moreover, if a male household head transitions out of full year employment as he enters poverty, he is more likely to exit to mid income relative to non-exit as well as near poverty, consistent with transitory income loss.

With respect to mid-spell changes, fewer children in the household reduces the likelihood of exiting to near poverty, relative to non exit, by about 80% for females and males, and reduces exits to mid income by the same magnitude for females but only 53% for male spells. Getting married within the poverty spell improves the likelihood a female will exit poverty to higher income (relative to no exit) by 6 fold and virtually eradicates the probability of exit to higher income for males. This result is similar whether the exit to higher income is contrasted with a base of no exit or exit to near poverty. Consistent with results from the single exit analysis, and with descriptive statistics in Finnie and Sweetman (2003), having multiple spells strongly increases probability of exiting to near poverty and even mid income, but reduces the probability of exit to higher income. For most characteristics, with the exception of fourth year in spell, bachelors degree, employment, and some dynamic variables, the gender difference is small to zero.

Several of the characteristics which change within the start of a spell, or that change between the first and last year of the spell, are significant predictors of exit to various destination types. However, these results are derived from relatively few observations, and as such it should not be surprising that many of the significance levels (and gender differences) are not robust to alternative measures of poverty or single spell analysis (results not shown herein). As such, results on dynamic variables should be interpreted with caution. Among the more robust estimates, we note that increasing the number of household earners at the start of a spell and getting married by the end of a spell are both associated with a greater probability of exiting to the higher income category.

Note that in our competing risks specification, the income categories are quite broad. For example, Cappellari and Jenkins (2005), who investigate characteristics associated with low-income transition probabilities, use five states of initial income defined by the thresholds 60% (poor), 80%, 100% and 150% of median income. We considered a more detailed set of cut-offs as well (with thresholds at 110%, 125%, 150%

and 200% of our poverty line) and find results that are substantively similar (cut points near poverty exhibit similar characteristics to the 110% cut-off, and cut points of higher income exhibit similar characteristics to the 200% cut-off).

### **c. Sensitivity Analysis**

As discussed previously, we considered single spell analysis, alternative measures of poverty, weights, and alternative income cut-offs. For the most part, our key results are substantively similar (except where otherwise noted). In particular, the competing risks framework is not enriched substantively by increasing the number of exit destinations, in part because sample size became smaller for each category, as is indicated by figure 2.

For the exit duration analysis, we also considered decomposing the samples by household type, but sample size becomes problematic, particularly in specification 2, and estimated effects in specification 1 were not substantively different from the main sample. In other specifications we included a dummy for previously married (relative to a base of never married). We also tried separating the unattached and lone parents into unattached-never married, lone-parent-never-married, versus their previously married counterparts. However the estimated coefficient on previously married was insignificant as were the distinctions for unattached and lone-parents. As these details provided no improvement in the exposition, we omit them for brevity.

Because we exclude all left-censored spells in our duration analysis, our sample is missing very long-term poverty spells. Thus, in Appendix table A1, we explore how the entire sample of spells (sample 1) differs from left censored spells (sample 2), non-left censored spells (sample 3), and sample 4 (main sample). Sample 2 uses sample 1 but keeps only spells in which the poverty spell is left censored, whereas sample 3 retains only the non-left censored spells from sample 1. Our main sample uses sample 3, and then drops all spells with missing information on the covariates which we employ. Appendix A1 shows that a large number of spells are left-censored (5,046 out of 9,477 or 53%); 41% of all spells and 44% of the left censored spells are also right censored indicating that we do not observe exits for a large fraction of the spells. Moreover, 15% of left-censored spells are 6 years or longer, (censored at both the panel start and end) where we observe neither entry nor exit into poverty. Female headed spells are more likely than males to be left censored, right censored, or both

(columns 2 and 3). Thus, it is not surprising that the gender difference in spell duration is larger among the left-censored spells (sample 2, columns 5 and 6) than the other samples. Across both censored and uncensored samples, the majority of spells end within 1-2 years, a fairly short duration; however, approximately 25% of spells are longer duration: 3-5 years. Again, a larger fraction of female spells are longer duration.

In order to compare whether the characteristics of individuals in long term poverty differ substantially from those of individuals with shorter poverty spells, we subdivide sample 2 by duration and contrast the characteristics associated with six year (or more) left and right censored poverty spells (sample 2a), with those of left censored spells shorter than 6 years in length (sample 2b), and with those of our sample (all non-left censored spells, so observed duration is less than 6 years by construction) in Appendix table A2. Because we do not observe the characteristics prior to spell start for left-censored spells, the characteristics presented here are of the household head recorded in the first year of the poverty spell. We observe that long-term poverty spells (6+ years) tend to be held by females, slightly older individuals, unattached individuals (particularly for men), individuals who receive social assistance, have fewer children, are less likely to be employed full year, and have lower education.

We also consider a logit model on the probability of being in a 6+ year observed duration spell, and find that social assistance and pre-school aged children increase the probability of long duration spells (6+), whereas more household earners, higher education (bachelors+), full year employment and male household head decreases the probability of long duration spells. As was noted in the duration model estimates, these characteristics are significant predictors of poverty exit in our sample of non-left censored spells.

Finally, we also considered annual exit models which estimate the probability of exiting poverty in year  $t+1$ , conditional on the year  $t$  characteristics of the household head associated with the poverty spell. The data are pooled across years and we incorporate provincial and year fixed effects. Note that because we allow for multiple spells, we adjust standard errors by clustering on the person identifier associated with the household head. As with Finnie and Sweetman (2003), we find that results are substantively similar in the annual exit models relative to the duration models. Characteristics that are associated with a lower (higher) conditional probability of exit in hazard models are also associated with a lower (higher) probability of exiting poverty in any given year.

## VI. Discussion and Conclusions

In sum, we used available full panels of the Survey of Labour and Income Dynamics to examine poverty spells of Canadian men and women. The descriptive statistics demonstrate that more than 1/3 of poverty spells do not end in the panel windows. The average duration of poverty spells is almost two years and over 1/3 of poverty spells are held by household heads that have experienced multiple spells. Of the spells that do end, over 23% exit to 'near poverty,' 61.3% exit to within 110 and 200% of the poverty line, and only 15.6% exit to higher-income levels. Results from the duration analyses indicate that several factors may improve the probability of exiting poverty for Canadian men and women. For women, in particular, we find that higher education is significant determinant of exit. Moreover, we find that participating in social assistance, being an immigrant and having younger children are characteristics associated with lower probability of exiting poverty. We also find negative duration dependence; the probability of exit falls as years in poverty increase. Hazard ratios on dynamic variables, characteristics that change at the start of a spell or mid-spell are also worth noting. We find that spells that are associated with a loss of full year employment, as the spell starts, are more likely to exit poverty, particularly for men. Whereas leaving a marriage (at the start or within a spell) is associated with a lower probability of exiting poverty.

Recognizing the heterogeneity of transitions out of poverty, we investigate a competing risks framework. We find that, compared to not exiting, few characteristics are associated with exiting to near poverty or <110% of the poverty line; those on social assistance prior to entering poverty are less likely to exit to near poverty (relative to not exiting), as are immigrants and those with disabilities. Being an immigrant, on social assistance, or having any preschool or more children are negatively associated with leaving poverty to mid and higher income levels. Whereas full-year employment before spell start and having a high school diploma or some college (compared to less than high school education) are associated with moving out of poverty to income that is between 110 and 200% of the poverty line. Those with a bachelor's degree or above are more than twice as likely to exit to the highest income category (relative to non exit), a result that is masked when we consider exits in a single category only, and is more substantial for females. This education result is consistent with the marked decline in poverty rates among unattached women over the same period in which educational attainment for

prime-aged women is rising (see Turcotte, 2011).

In terms of gender differences, the largest and most robust differences are seen in education. A bachelor's degree is associated with higher rates of exit for spells experienced by women in both the mid and high income categories, whereas for men bachelor's degree plus reduces the probability of exiting to mid-range and increases the probability of exiting to higher income. In the latter case, the effect is smaller for men than for women. Being employed full year prior to the start of the spell is significant for female spells exiting to mid-range income, whereas loss of full year employment is associated with higher probability of exits to the mid-range income for male spells. These results suggest that differences in the labour market conditions, attachment and/or preferences among men and women may differentially influence poverty exit rates across the sexes.

With the exception of education, employment and changes in marital status, we find very few other characteristics with robust gender differences. However, while there are relatively few robust gender differences in the main sample, this study highlights the fact that left-censored spells exhibit far greater male-female disparities. The relatively short panel windows of the SLID do not allow us to fully investigate the determinants of these longer-term spells. Yet, logit and annual exit models suggest that these determinants do not differ substantially from those reported in the hazards analysis. Similarly robust findings across duration and annual exit models are reported in Finnie and Sweetman (2003).

The results suggest that policies directed at increasing education and better employment opportunities for the poor may not only increase the probability of transitioning out of poverty, but also allow individuals to exit to higher incomes upon exiting the poverty spell. Social assistance participation is a strong barrier to exiting poverty indicating that social assistance benefits are low relative to median incomes. Policies which raised social assistance benefits would assist families in exiting poverty; however, there are negative labour market consequences of such policies. A combination of policies that enabled individuals who are not able to work, a more generous income while assisting those who are able to work to re-enter the labour force. Changes in marital status (particularly marital dissolution for women) hinders poverty exits. Fairer redistribution of family resources and stronger penalties for non-payment of child support payments may improve outcomes for previously married women.

Both our descriptive analysis and the competing risks framework demonstrates that exiting poverty is not

the same experience for all Canadians. For example, while male household heads are more likely to exit poverty, they are also more likely to transition to near poverty than females. As such, these results suggest that when reporting on poverty incidence and duration, researchers should distinguish between exits to near the poverty line versus higher levels of income – clearly, exit destinations represent very different experiences for individuals and their families and are also strong indicators of multiple poverty spells.

## **End Notes**

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Curtis gratefully acknowledges the Social Sciences and Humanities Research Council of Canada for funding. Data were accessed in the Southwestern Regional Data Centre at the University of Waterloo which is part of the Canadian Data Research Data Network. Although the data were accessed through Statistics Canada, the opinions cited within reflect those of the authors, and not Statistics Canada's policies or opinions.

<sup>1</sup> Canada does not have an official poverty line. Statistics Canada reports low income cut-offs (LICO), and recently (Murphy et al, 2012) the low income measure (LIM) and market based measures. Consistent with the literature, use the half-median adjusted for family size and use the terms low income and poverty interchangeably.

<sup>2</sup> Murphy et al (2012) show that poverty rates appear to be falling (since the end of the 1990s) according to the LICO and market based measures; however, there appears to be little change in poverty rates over time when they use the low-income measure (LIM). The LIM is the half-median of adjusted family income in each year.

<sup>3</sup> See for example, Dooley (1994) who uses the Survey of Consumer Finances (SCF) to track poverty in Canada from 1973 to 1990 or Crossley and Curtis (2006) who use the Family Expenditures Survey and the Survey of Household Spending to report child poverty trends from 1986 to 2000, Collin and Jenson (2009) and Milligan (2008), report findings from the SCF and cross-sections of the Survey of Income and Labour Dynamics.

<sup>4</sup> The term 'near poverty' or 'near poor' has entered the poverty literature recently (see for example, Lipman and Offord, 1994; Richards, 2007; Food Bank Canada, 2010). The definition of near poverty in the literature ranges from 1.1\* the poverty line to 2\*poverty line.

<sup>5</sup> Because our time intervals (years) are of unit length, we can index the hazard function with  $t$  ( $t$ =year). The baseline hazard, with all other characteristics set to zero, will thus, still change with years in spell. See Jenkins (2005) for more detail.

<sup>6</sup> Note that we are not presenting models which control for unobserved heterogeneity. However, we did run alternative models which incorporated unobserved heterogeneity using two approaches. First, we employed the non-parametric Heckman-Singer (1984) approach (discrete-mixture distribution) on single-spell data, which failed to converge, as is common (see for example Finnie and Sweetman 2003, Fortin, Lacroix and Drolet 2004), and a parametric approach using Jenkins' (2008) pgmhaz.ado (gamma distributed unobserved heterogeneity) on single spell data. With both the Heckman-Singer (1984) and Jenkins (2008) approaches we achieved convergence for the pooled sample (men and women) if we omitted start year indicators from the specification. The coefficients were substantively similar in the models which incorporated unobserved heterogeneity relative to those that did not. This result is not surprising since coefficient estimates are typically robust to misspecification of unobserved heterogeneity when a flexible, non-parametric baseline hazard is employed (Meyer, 1990; Fortin et al, 2004).

<sup>7</sup> If spells are not intrinsically discrete, the multinomial logit model of competing risks still provides a close approximation as long as the continuous time hazard rate is constant within the interval and intervals are not overly large (Jenkins, 2005).

<sup>8</sup> There is also a handful of individuals for whom income information is missing within the panel period. Unfortunately we cannot tell if the individual is experiencing a singular long spells, or multiple short spells. Thus, when income information is missing at the end of a spell, the spell is treated as right censored at the year in which we lack income data. When income information is missing at the start of a spell, the spell is considered left-censored.

<sup>9</sup> We did worry about eliminating young lone mothers but there are very few in this age group in the sample. Extending the age down to 19 did not change results substantively except for predictably small changes in the age coefficients.

<sup>10</sup> Restricting the sample to under 65 years of age did not change the results appreciably.

<sup>11</sup> Sensitivity analysis was completed using an added category in the dummy variable when missing values constituted a large portion of the sample (e.g., instead of dummy variables for low, mid and high education levels an added missing category was included so the education dummies included low, mid, high and missing). Our major findings were not changed substantively.





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## Tables and Figures

Figure 1: Examples of Possible Spell History in a Single SLID Panel

Household Head	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
1	no poverty	no poverty	no poverty	no poverty	no poverty	no poverty
2	no poverty	poverty	poverty	poverty	poverty	no poverty
3	no poverty	no poverty	poverty	poverty	poverty	poverty
4	poverty	poverty	no poverty	no poverty	no poverty	no poverty
5	poverty	poverty	poverty	poverty	poverty	poverty
6	poverty	no poverty	poverty	poverty	poverty	no poverty
7	poverty	no poverty	poverty	poverty	poverty	poverty
8	missing data	poverty	poverty	poverty	poverty	no poverty
9	poverty	no poverty	poverty	no poverty	poverty	no poverty
10	poverty	no poverty	missing data	poverty	no poverty	poverty

case 1 no poverty spells - not in main sample

case 2 one spell, not censored in any way- in main sample

case 3 one spell, right censored only- in main sample

case 4 one spell, left censored - not in main sample

case 5 one spell, left and right censored - not in main sample

case 6 spell 1 left censored - not in main sample;

spell 2 no censoring - in sample

(has multiple spells, but only second spell is in main sample)

case 7 spell 1 left censored - not in main sample;

spell 2 right censored - in sample

(has multiple spells, but only second spell is in main sample)

case 8 one spell, missing data year prior to poverty spell - not in main sample

case 9 spell 1 left censored- not in main sample;

spell 2 no censoring - in main sample;

spell 3 no censoring - in main sample

(has multiple spells, spells 2 and 3 are in the main sample)

case 10 spell 1 left censored - not in sample;

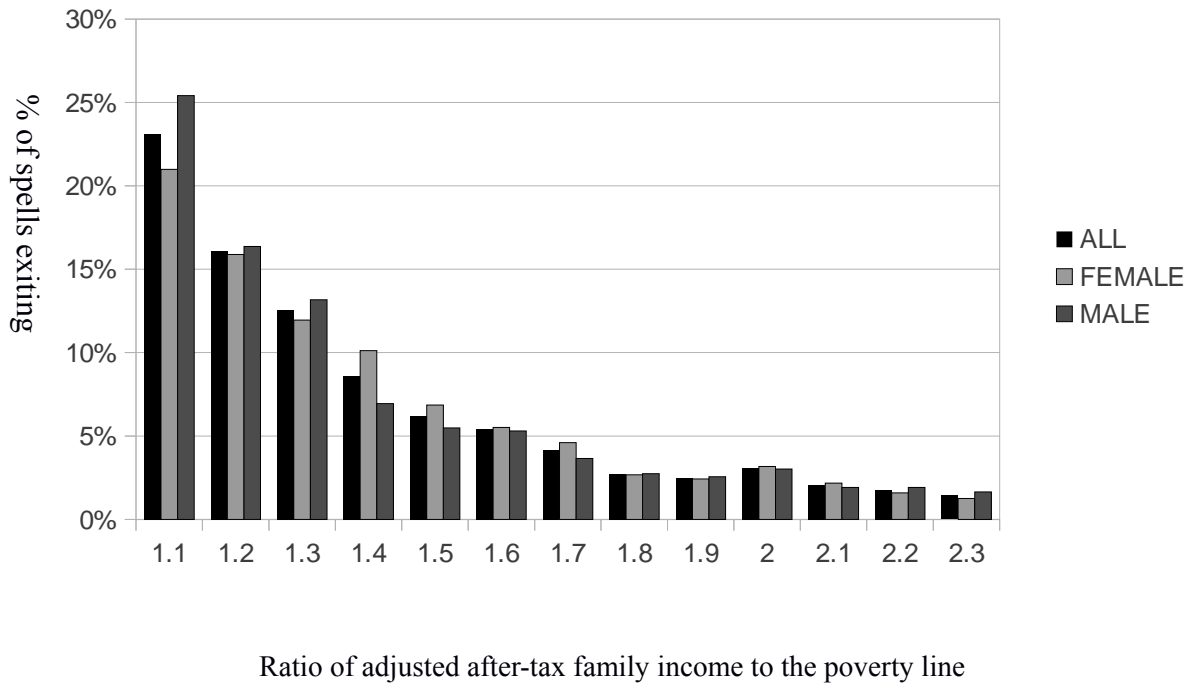
spell 2 missing data year prior to spell - not in sample

spell 3 starts in last year of panel and by construction is right censored at 1 year - not in main sample

(has multiple spells, non of which are in main sample)

Note: left-censored spells due to missing data constitute about 14% of all left censored spells.

Figure 2: Distribution of the ratio of adjusted after-tax family income to the poverty line, on exiting poverty, by gender of household head.



*Table 1: Spell duration with and without right censored observations.*

	Main Sample			Spells with Observed Exits (excludes right censored)		
	All	Female	Male	All	Female	Male
average duration	1.915 (1.159)	1.928 (1.167)	1.901 (1.151)	1.388 (0.707)	1.380 (0.708)	1.398 (0.706)
Duration distribution (%)						
1 year	50.53	50.19	50.90	72.27	73.16	71.30
2 years	24.17	23.94	24.42	18.65	17.89	19.47
3 years	13.13	13.45	12.77	7.07	6.77	7.40
4 years	7.62	7.74	7.48	2.01	2.17	1.83
5 or more years	4.55	4.67	4.42			
% exit	66.84	65.68	68.16	100	100	100
% right-censored	33.16	34.32	31.84	0	0	0
% Multiple spells	36.25	36.52	35.95	36.46	36.62	36.29
# spells	3426	1821	1605	2290	1196	1094

Notes: For average duration, means are presented with standard deviations in brackets underneath. Duration distributions, exits, right-censored and multiple spells are in percentages. Gender differences are statistically insignificant in all cases, but duration patterns are significantly different for spells with observed exits versus the main sample.

*Unless otherwise noted, statistical significance is measured as a p-value 0.1 or below.*



*Table 2: Characteristics associated with low income spells.*

	All	Female	Male
Male	0.468 (0.499)		
Age	41.88 (9.638)	41.45 (9.580)	42.38 (9.682)
Age2	1847 (825)	1810 (816)	1890 (833)
Married with Kids (base)	0.422 (0.494)	0.427 (0.495)	0.414 (0.493)
Unattached	0.259 (0.438)	0.201 (0.401)	0.326 (0.469)
Lone-parent	0.105 (0.307)	0.164 (0.370)	0.039 (0.194)
Married no kids	0.214 (0.410)	0.208 (0.406)	0.221 (0.415)
Social Assistance receipt	0.175 (0.380)	0.205 (0.404)	0.140 (0.347)
# children	1.047 (1.232)	1.174 (1.255)	0.902 (1.188)
Presence of pre-school child	0.211 (0.408)	0.209 (0.406)	0.214 (0.410)
Employed full year	0.565 (0.496)	0.530 (0.499)	0.604 (0.489)
# earners	1.418 (0.746)	1.473 (0.769)	1.356 (0.714)
Less than HS Grad (base)	0.284 (0.451)	0.235 (0.424)	0.34 (0.474)
HS Grad	0.189 (0.391)	0.202 (0.401)	0.174 (0.380)
Some College	0.447 (0.497)	0.478 (0.500)	0.412 (0.492)
Bachelors +	0.080 (0.271)	0.085 (0.278)	0.074 (0.262)
Immigrant	0.096 (0.295)	0.089 (0.285)	0.104 (0.305)
Disability	0.239 (0.427)	0.236 (0.425)	0.243 (0.429)
Rural	0.357 (0.479)	0.332 (0.471)	0.386 (0.487)

*Changes occurring between the year prior to spell start and the first year of the spell (changes in start)*

Same # earners (base)	0.621 (0.485)	0.579 (0.494)	0.668 (0.471)
More earners in family	0.065 (0.247)	0.059 (0.236)	0.072 (0.259)
Fewer earners in family	0.314 (0.464)	0.362 (0.481)	0.260 (0.439)
Same # kids (base)	0.854 (0.353)	0.864 (0.343)	0.843 (0.364)
More kids	0.064 (0.244)	0.046 (0.210)	0.083 (0.277)
Fewer kids	0.082 (0.275)	0.090 (0.286)	0.074 (0.262)
Household head changed	0.281 (0.450)	0.426 (0.495)	0.117 (0.322)
No change Empl, FY (base)	0.803 (0.398)	0.802 (0.398)	0.803 (0.398)
Become Employed Full year	0.070 (0.255)	0.076 (0.265)	0.064 (0.244)
No longer Employed FY	0.127 (0.333)	0.122 (0.327)	0.133 (0.339)
No change in Disab. (base)	0.849 (0.358)	0.857 (0.350)	0.841 (0.366)
No longer Disabled	0.062 (0.240)	0.059 (0.236)	0.064 (0.245)
Newly Disabled	0.089 (0.285)	0.084 (0.277)	0.095 (0.293)
No change married (base)	0.863 (0.344)	NR	NR
Get married	0.011 (0.103)	NR	NR
No longer married	0.126 (0.332)	0.187 (0.390)	0.058 (0.234)

*Changes occurring between the first and last year of the spell (changes mid-spell)*

# earners unchanged	0.859 (0.348)	0.852 (0.355)	0.868 (0.338)
More earners in family	0.079 (0.269)	0.084 (0.277)	0.073 (0.260)
Fewer earners in family	0.062 (0.241)	0.064 (0.245)	0.059 (0.236)

#kids unchanged	0.934	(0.248)	0.936	(0.245)	0.931	(0.253)
More kids	0.029	(0.168)	0.018	(0.133)	0.041	(0.199)
Fewer kids	0.037	(0.190)	0.046	(0.209)	0.028	(0.165)
Household head changed	0.058	(0.233)	0.046	(0.209)	0.072	(0.258)
No change Empl.FY (base)	0.902	(0.297)	0.899	(0.301)	0.905	(0.293)
Become Employed Full year	0.055	(0.228)	0.055	(0.229)	0.055	(0.228)
No longer Empl. FY	0.043	(0.203)	0.046	(0.209)	0.040	(0.196)
No change in Disab. (base)	0.913	(0.282)	0.917	(0.276)	0.908	(0.289)
No longer Disabled	0.038	(0.190)	0.037	(0.188)	0.039	(0.193)
Newly Disabled	0.049	(0.216)	0.046	(0.209)	0.053	(0.224)
No change Married (base)	0.97	(0.171)	0.964	(0.186)	0.978	(0.147)
Get married	0.011	(0.103)	0.011	(0.104)	0.011	(0.102)
No longer married	0.019	(0.135)	0.025	(0.157)	0.011	(0.105)
Multiple Spells	0.363	(0.481)	0.365	(0.482)	0.360	(0.480)
% right censored	0.332	(0.471)	0.343	(0.475)	0.318	(0.466)
# spells	3426		1821		1605	
# single spell observations	3286		1746		1540	
# of household heads with a second spell in the sample	140		75		65	

Notes: Means are presented with standard deviations in brackets beside. Values of characteristics are those of the household head, and are recorded at the year prior to the start of the spell. For each multi-category variable, we include statistics for the base case; however, to conserve space, we do not include base case statistics for binary variables (omitted categories are female, married with children, native born Canadian, no preschool children, less than high school education, not employed full year, not disabled and living in urban Ontario in 1994). Gender differences are significant for all baseline covariates except married household types, preschool child, less than high school, bachelor's +, immigrant, disability. Differences are significant for most dynamic variables as well (changes in # kids, household head, divorced (& no change), except that changes in # kids (and base), fewer earners (and base), head change and get divorced are significant only in mid-spell and start of spell respectively.

*§In the second specification, one should note that employed full year is not exclusive of the change variable “no longer employed full year.”*

*NR signifies a cell size that is too small to release from the data centre.*

Table 3: Spell duration by exit category (for all observed exits).

	(1) Near Poverty ( $\frac{1}{2}$ med) $\leq$ inc $<$ 1.1 ( $\frac{1}{2}$ med)			(2) Mid-Range Income 1.1*( $\frac{1}{2}$ med) $\leq$ inc $<$ 2.0*( $\frac{1}{2}$ med)			(3) Higher Income 2*( $\frac{1}{2}$ med) $\leq$ inc		
	All	Female	Male	All	Female	Male	All	Female	Male
ave. duration	1.488	1.482	1.493	1.387	1.380	1.397	1.244	1.243	1.244
	(0.769)	(0.792)	(0.749)	(0.712)	(0.709)	(1.089)	(0.550)	(0.550)	(0.553)
% Multiple spells	46.88	47.81	46.04	35.97	36.24	35.65	23.00	23.28	22.62
#spells exiting by category	529	251	278	1404	756	648	357	189	168
% exiting to category	23.10	20.99	25.41	61.31	63.21	59.23	15.59	16.00	15.36

Notes: For average duration, means are presented with standard deviations in brackets underneath. Multiple spells and exits are percentages unless otherwise indicated, and inc refers to after-tax adjusted family income in 2002 dollars. Family income is adjusted using the square root equivalence method. Gender differences are statistically insignificant for all groups except the % exiting to near poverty. The gap in average duration is statistically significant between (1) and (3).

Table 4: Proportional Hazards Models.

	Specification 1			Specification 2		
	All	Female	Male	All	Female	Male
Year 2 of spell	0.464 ***	0.440 ***	0.498 ***	0.632 ***	0.605 ***	0.682 ***
Year 3 of spell	0.342 ***	0.323 ***	0.374 ***	0.524 ***	0.499 ***	0.580 ***
Year 4+ of spell	0.140 ***	0.147 ***	0.136 ***	0.237 ***	0.248 ***	0.236 ***
Male	1.108 **			1.097 *		
Age	0.965	0.971	0.952	0.966	0.976	0.938
Age <sup>2</sup>	1.000	1.000	1.001	1.000	1.000	1.001 *
Unattached	0.762 ***	0.779 *	0.803	0.682 ***	0.655 ***	0.791
Lone-parent	1.030	1.056	1.026	1.008	1.067	0.948
Married no kids	0.921	0.995	0.895	0.921	0.962	0.970
Social assistance receipt	0.657 ***	0.624 ***	0.739 ***	0.706 ***	0.681 ***	0.767 **
# children	1.000	0.988	1.025	1.001	0.974	1.061
Presence of pre-school child	0.833 ***	0.801 **	0.866	0.855 **	0.815 **	0.924
Employed Full Year	1.116 **	1.152 **	1.088	0.824 ***	0.875	0.742 ***
# earners	1.169 ***	1.159 ***	1.202 ***	1.528 ***	1.501 ***	1.622 ***
High school graduate	1.117 *	1.200 **	1.053	1.059	1.071	1.062
Some college	1.152 ***	1.204 **	1.123	1.121 **	1.172 *	1.073
Bachelors +	1.148	1.368 ***	0.965	1.079	1.286 *	0.922
Immigrant	0.804 ***	0.772 **	0.814 *	0.826 **	0.824	0.827
Disability	0.883 **	0.947	0.797 ***	0.850 **	0.864	0.799 **
Rural	1.000	1.028	0.987	0.993	0.964	1.021
<i>Changes occurring between the year prior to spell start and the first year of the spell (changes in start)</i>						
More earners in family				2.024 ***	1.774 ***	2.341 ***
Fewer earners in family				0.711 ***	0.711 ***	0.683 ***
More kids				0.925	0.862	0.927
Fewer kids				1.049	1.097	1.027
Household head changed				0.962	0.977	0.910
Become Employed Full Year				0.956	0.981	0.878
No longer Employed Full Year				1.315 ***	1.155	1.588 ***
No longer disabled				1.382 ***	1.415 **	1.383 *
Newly disabled				1.241 **	1.260 *	1.222
Get married				1.238	1.198	1.290
No longer married				0.835 **	0.856	0.810

	Specification 1			Specification 2		
	All	Female	Male	All	Female	Male
<i>Changes Occurring between first and last year of spell (changes mid-spell)</i>						
More earners in family				0.463 ***	0.455 ***	0.463 ***
Fewer earners in family				0.291 ***	0.261 ***	0.300 ***
More kids				0.298 ***	0.307 ***	0.291 ***
Fewer kids				0.322 ***	0.275 ***	0.429 ***
Household head changed				0.357 ***	0.384 ***	0.318 ***
Become Employed Full Year				0.303 ***	0.265 ***	0.323 ***
No longer Employed Full Year				0.406 ***	0.343 ***	0.507 ***
No longer disabled				0.350 ***	0.327 ***	0.371 ***
Newly disabled				0.331 ***	0.276 ***	0.387 ***
Get married				1.316	1.270	1.515
No longer married				0.344 ***	0.334 ***	0.433 **
Multiple spells				1.116 **	1.095	1.171 **
Constant	1.643	1.676	1.948	2.348	2.395	3.260
Provincial Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Start Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Representative household head exit probability (percentage)	49.78	51.11	49.84	62.47	67.89	55.73
# spells	3426	1821	1605	3426	1821	1605

Notes: Hazard ratios are presented by gender for specification 1 and 2. P-values less than 0.01, 0.05, and 0.10 are indicated by \*\*\*, \*\*, and \* respectively. Standard errors (not presented) are adjusted by clustering on person id. The probability of exit for a representative household head is calculated by setting each characteristic at the base (omitted) category for binary variables (omitted categories are first year of spell, female, married with children, native born Canadian, no preschool children, less than high school education, not employed full year, not disabled and living in urban Ontario in 1994), number of children at 1, household earners at zero, and all other variables evaluated at their means. Due to the use of a quadratic in age, probability calculations are highly sensitive to rounding of the hazard ratio on the quadratic term. As such, we calculate these probabilities using the non-rounded STATA output (rather than hazards rounded to the third decimal place, presented in these tables). Across both specifications, gender differences in the hazard ratios are statistically insignificant with the exception of a bachelors +, and loss of full year employment in start of spell (specification 2).

*Because of the dynamic variables in Specification 2, one should interpret the employed full year hazard ratio as capturing “employed full year prior to the start of the spell and in the first year of the spell”, in contrast to “not-employed full year prior to spell start and not employed full year in the first year of the spell”, “become employed full year” and “no longer employed full year”. The same concept applies for the disabled indicator.*

Table 5 – Competing risks framework.

	(1) Near Poverty (½ median)<inc< 1.1* (½ median)			(2) Mid-Range Income 1.1*(½ median)≤inc< 2.0* (½ median)			(3) Higher Income 2*(½ median)≤inc		
	All	Female	Male	All	Female	Male	All	Female	Male
Year 2 of spell	0.478 ***	0.415 ***	0.551 ***	0.369 ***	0.338 ***	0.412 ***	0.261 ***	0.293 ***	0.229 ***
Year 3 of spell	0.348 ***	0.306 ***	0.414 ***	0.298 ***	0.306 ***	0.300 ***	0.127 ***	0.090 ***	0.172 ***
Year 4+ of spell	0.137 ***	0.138 ***	0.148 ***	0.089 ***	0.093 ***	0.086 ***	0.024 ***	0.047 ***	0.000 ***
Male	1.532 ***			1.176 **			1.113		
Age	0.921	0.986	0.852 **	0.946	0.922 *	0.962	1.027	1.056	0.962
Age <sup>2</sup>	1.001	1.000	1.002	1.001	1.001	1.000	1.000	0.999	1.000
Unattached	0.766	1.187	0.616 *	0.647 ***	0.565 ***	0.725	0.833	0.596	1.149
Lone-parent	1.043	1.374	0.760	1.171	1.130	1.370	0.968	0.781	1.810
Married no kids	0.822	1.087	0.681	0.717 **	0.665 **	0.810	1.318	1.251	1.317
Social assistance	0.657 ***	0.635 **	0.716	0.704 ***	0.691 ***	0.740 **	0.283 ***	0.281 ***	0.296 ***
# children	1.096	1.013	1.160 **	0.975	0.972	0.984	0.855 *	0.788 *	0.955
Presence of pre-school child	0.859	0.836	0.893	0.759 ***	0.727 **	0.846	0.739	0.715	0.775
Employed Full Year	1.154	1.221	1.042	1.181 **	1.332 ***	1.033	1.212	1.161	1.249
# earners in family	1.124	1.319 **	1.025	1.340 ***	1.396 ***	1.285 ***	1.322 ***	1.421 **	1.197
High school graduate	1.175	1.163	1.244	1.248 **	1.289 *	1.254	1.033	1.279	0.814
Some college	1.128	1.036	1.254	1.158 *	1.140	1.220 *	1.323 *	1.616 **	1.132
Bachelors +	0.988	0.889	1.013	0.976	1.401 *	0.645 **	2.297 ***	3.049 ***	1.843 **
Immigrant	0.715 *	0.659	0.717	0.745 ***	0.723 **	0.739 *	0.628 **	0.434 **	0.827
Disability	0.802 *	0.906	0.662 **	0.851 *	0.899	0.757 **	0.917	1.060	0.726
Rural	0.982	0.985	1.035	1.026	0.963	1.134	0.861	0.824	0.886
Constant	1.049	0.204	8.549	1.909	3.365	1.456	0.155	0.081	0.654
Provincial Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Representative household head exit probability (percentage)	9.27	6.07	14.99	27.62	29.45	27.54	10.53	9.69	10.67

# spells same as table 3, A-3426, F-1821, M-1605.

Notes: Hazard ratios are presented by gender for specification 1. P-values less than 0.01, 0.05, and 0.10 are indicated by \*\*\*, \*\*, and \* respectively. Standard errors (not presented) are adjusted by clustering on person id. The probability of exit for a representative household head is calculated by setting each characteristic at the base (omitted) category for binary variables (omitted categories are first year of spell, female, married with children, native born Canadian, no preschool children, less than high school education, not employed full year, not disabled and living in urban Ontario in 1994), number of children at 1, household earners at zero, and all other variables evaluated at their means. The probabilities of not exiting are 52.58, 54.78, and 46.79 for all, female and male spells. Gender differences in the hazard ratios are significant for employed full year and bachelors + in (2) and year 4+ in (3).

Table 6: Competing risks with specification 2.

	(1) Near Poverty (1/2 median) < inc < 1.1* (1/2 median)			(2) Mid-Range Income 1.1*(1/2 median) ≤ inc < 2.0* (1/2 median)			(3) Higher Income 2*(1/2 median) ≤ inc		
	All	Female	Male	All	Female	Male	All	Female	Male
Year 2 of spell	0.547 ***	0.488 ***	0.631 ***	0.418 ***	0.383 ***	0.472 ***	0.289 ***	0.319 ***	0.263 ***
Year 3 of spell	0.414 ***	0.381 ***	0.481 ***	0.322 ***	0.336 ***	0.326 ***	0.130 ***	0.094 ***	0.171 ***
Year 4+ of spell	0.182 ***	0.189 ***	0.189 ***	0.100 ***	0.107 ***	0.096 ***	0.024 ***	0.049 ***	0.000 ***
Male	1.347 ***			1.123			1.148		
Age	0.913 *	0.991	0.841 **	0.934 *	0.914 *	0.945	0.995	1.008	0.947
Age <sup>2</sup>	1.001	1.000	1.002 **	1.001 *	1.001 *	1.001	1.000	1.000	1.000
Unattached	0.538 ***	0.695	0.523 **	0.505 ***	0.399 ***	0.622 **	0.679	0.494	1.312
Lone-parent	0.802	1.019	0.731	1.063	1.025	1.400	0.969	0.868	2.047
Married no kids	0.702 *	0.865	0.614 *	0.620 ***	0.534 ***	0.758	1.085	0.933	1.705
Social assistance receipt	0.574 ***	0.530 ***	0.606 **	0.670 ***	0.649 ***	0.679 **	0.301 ***	0.296 ***	0.321 ***
# children	1.129 *	1.006	1.241 **	0.947	0.924	0.991	0.775 **	0.734 **	0.888
Presence of pre-school child	0.741 *	0.775	0.765	0.750 ***	0.712 **	0.829	0.846	0.755	1.042
Employed Full Year	0.902	0.884	0.806	0.812 **	0.949	0.669 ***	0.968	0.934	0.932
# earners	1.525 ***	1.852 ***	1.357 **	1.954 ***	2.055 ***	1.890 ***	1.702 ***	1.882 ***	1.641 ***
High school graduate	1.126	1.010	1.250	1.189 *	1.123	1.233	0.968	1.093	0.765
Some college	1.128	0.972	1.334 *	1.157 *	1.075	1.236 *	1.339 *	1.546 *	1.078
Bachelors +	0.960	0.796	1.058	0.952	1.310	0.642 **	2.233 ***	2.847 ***	1.830 **
Immigrant	0.707 **	0.660	0.704	0.754 **	0.730 **	0.742 *	0.645 **	0.466 **	0.815
Disability	0.942	0.987	0.803	0.811 **	0.834	0.718 **	0.735	0.849	0.562 *
Rural	0.920	0.923	0.991	0.982	0.894	1.122	0.849	0.809	0.903
<i>Changes occurring between the year prior to spell start and the first year of the spell (changes in start)</i>									
More earners in family	0.691 *	0.480 **	0.860	1.229	1.025	1.596 **	1.798 **	1.682	2.153 **
Fewer earners in family	0.640 ***	0.552 ***	0.683 **	0.498 ***	0.473 ***	0.507 ***	0.739 *	0.849	0.537 **
More kids	0.667 **	0.444 **	0.788	0.566 ***	0.540 ***	0.590 ***	0.147 ***	0.000 ***	0.261 ***
Fewer kids	0.469 ***	0.536 **	0.407 ***	0.593 ***	0.604 ***	0.567 ***	0.699	0.404 ***	1.768
Household head changed	0.735 **	0.721 *	0.899	0.831 **	0.863	0.754 *	0.989	1.039	0.637
Become Employed Full Year	0.735	0.626 *	0.823	0.622 ***	0.574 ***	0.692 *	0.587 **	0.572 *	0.602
No longer Employed FY	0.815	0.806	0.913	1.109	0.792	1.690 ***	0.883	0.758	1.151
No longer disabled	0.585 *	0.664	0.600	1.243	1.421	1.141	1.693 *	1.817	1.938
Newly disabled	0.771	0.658	0.816	0.828 *	0.904	0.744 *	0.591 **	0.592	0.580 *
Get married	0.626	0.513	0.767	1.086	1.224	0.840	0.574	0.310	0.831

	(1) Near Poverty (½ median)<inc< 1.1* (½ median)			(2) Mid-Range Income 1.1*(½ median)≤inc< 2.0* (½ median)			(3) Higher Income 2*(½ median)≤inc		
	All	Female	Male	All	Female	Male	All	Female	Male
No longer married	0.677 **	0.734	0.640	0.906	0.888	0.977	0.739	0.643 *	0.969
<i>Changes Occurring between first and last year of spell (changes mid-spell)</i>									
More earners in family	0.907	1.001	0.674	1.141	1.219	1.096	1.123	1.152	1.008
Fewer earners in family	0.525 *	0.570	0.405 *	0.629 **	0.484 ***	0.808	0.818	0.483	1.278
More kids	1.450	4.286 ***	0.898	0.337 **	1.051	0.077 **	0.308	0.000 ***	0.337
Fewer kids	0.217 ***	0.196 **	0.227 **	0.315 ***	0.202 ***	0.470 *	0.467	0.416	0.565
Household head changed	0.530 **	0.235 **	0.746	0.623 **	0.684	0.492 ***	0.423 **	0.378 *	0.349 *
Become Employed Full Year	0.600	0.633	0.478 *	0.469 ***	0.428 **	0.460 **	0.778	0.592	1.148
No longer Employed Full Year	0.539	0.107 **	1.058	0.631 *	0.609	0.636	0.356	0.406	0.311
No longer disabled	0.597	0.518	0.606	0.715	0.506 *	0.832	0.348	0.351	0.245
Newly disabled	0.830	0.560	0.991	0.415 ***	0.177 ***	0.675	0.452 *	0.869	0.000 ***
Get married	1.310	0.884	2.736	1.636	1.742	0.966	3.981 *	6.957 **	0.000 ***
No longer married	0.317	0.000 ***	1.698	0.730	0.979	0.493	1.352	1.841	0.000 ***
Multiple spells	2.053 ***	2.139 ***	2.132 ***	1.310 ***	1.301 ***	1.361 ***	0.755 **	0.814	0.700 *
Constant	1.925	0.399	10.688	3.616 *	7.087 *	2.256	0.512	0.393	1.007
Provincial Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Representative household head exit probability (percentage) 12.03 9.73 15.35 31.50 36.86 28.81 11.99 11.36 9.45

# spells same as table 3, All-3426, Female-1821, Male-1605.

Notes: Hazard ratios are presented by gender for specification 2. P-values less than 0.01, 0.05, and 0.10 are indicated by \*\*\*, \*\*, and \* respectively. Standard errors (not presented) are adjusted by clustering on person id. The probability of exit for a representative household head is calculated by setting each characteristic at the base (omitted) category for binary variables (omitted categories are first year in spell, female, married with children, native born Canadian, no preschool children, less than high school education, not employed full year, not disabled and living in urban Ontario in 1994), number of children at 1, household earners at zero, and all other variables evaluated at their means. The probabilities of not exiting poverty are 44.48, 42.05, and 46.39 for all, female and male spells respectively. Gender differences in the hazard ratios are statistically insignificant except for employed full year (2), bachelors+ (2), year 4+ in (3), and a handful of the dynamic variables such as, no longer employed full year in start (2), no longer married mid spell (1), newly married mid spell (3), newly disabled mid spell (2)-(3), and more kids mid spell (1)-(3).

*Because of the change variables in Specification 2, one should interpret the employed full year indicator as “employed full year prior to the start of the spell and in the first year of the spell”, in contrast to “not-employed full year prior to spell start and not employed full year in the first year of the spell”, “become employed full year” and “no longer employed full year”. The same concept applies for the disabled indicator.*



Appendix Table A1: Spell duration for left censored spells versus non-left censored spells, as well as the sample used for this paper.

	Sample 1: All poverty spells of household heads, age 25-59, non-student, non-other households			Sample 2: Left censored spells only			Sample 3: Non-left censored spells only			Sample 4: Main Sample (All non-left censored spells excluding those with missing observations)		
	All	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male
average duration	2.652 (1.817)	2.746 (1.846)	2.529 (1.771)	3.281 (2.050)	3.382 (2.045)	3.137 (2.050)	1.935 (1.145)	1.957 (1.151)	1.910 (1.138)	1.915 (1.159)	1.928 (1.167)	1.901 (1.151)
Duration distribution(%)												
1 year	38.90	36.8	41.66	30.66	28.49	33.78	48.30	47.12	49.68	50.53	50.19	50.90
2 years	21.00	20.87	21.16	16.41	16.06	16.92	26.22	26.86	25.48	24.17	23.94	24.42
3 years	11.79	11.89	11.65	10.29	10.31	10.25	13.50	13.84	13.08	13.13	13.45	12.77
4 years	7.76	8.22	7.14	7.87	8.73	6.62	7.63	7.59	7.67	7.62	7.74	7.48
5 years	5.41	5.8	4.9	6.34	6.79	5.70	4.36	4.59	4.08	4.55	4.67	4.42
6 or more years	15.14	16.41	13.48	28.44	29.63	26.73	0.00	0.00	0.00	0.00	0.00	0.00
% exit	58.84	57.47	60.63	55.93	55.19	56.98	62.15	60.30	64.34	66.84	65.68	68.16
% right censored	41.16	42.53	39.37	44.07	44.81	43.02	37.85	39.70	35.66	33.16	34.32	31.84
% left censored	53.24	55.39	50.44	100.00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
% Multiple spells	31.36	30.96	31.89	27.74	27.21	28.52	35.48	35.61	35.32	36.25	36.52	35.95
# spells	9477	5375	4102	5046	2977	2069	4431	2398	2033	3426	1821	1605

Notes: For average duration, means are presented with standard deviations in brackets underneath. The duration distributions, exits, right-censored and multiple spells are reported as percentages. Gender differences are statistically significant for average durations in the left censored sample and all spells. Also significant are the gender differences for 1,4,5 and 6 year durations, % right-censored and % left-censored in the all spells sample. The gender difference in year 1 duration significant in the left and non-left-censored samples, and 3 year duration and % right-censored have significant gender differences in the left-censored sample and non-left-censored sample respectively. Statistically significant differences across the left-censored and non-left-censored samples occur for every variable except duration of 4 years.

Appendix Table A2 - Characteristics at the first observed year of the poverty spell by group.

Variable	Sample 2a: Left Censored with an observed duration 6+ years						Sample 2b: Left Censored with an observed duration <6 years						Sample 4: Main Sample					
	All	Female		Male		All	Female		Male		All	Female		Male				
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Duration	6.00	(0.00)	6.00	(0.00)	6.00	(0.00)	2.20	(1.33)	2.28	(1.36)	2.09	(1.29)	1.92	(1.16)	1.93	(1.17)	1.90	(1.15)
Male	0.39	(0.48)					0.42	(0.49)					0.47	(0.50)				
Age	45.3	(9.78)	44.6	(9.98)	46.3	(9.37)	41.7	(9.67)	41.1	(9.70)	42.4	(9.55)	42.9	(9.64)	42.5	(9.58)	43.4	(9.68)
Age2	2143	(867)	2090	(879)	2227	(840)	1829	(831)	1784	(833)	1890	(824)	1932	(844)	1893	(836)	1975	(852)
Unattached	0.54	(0.50)	0.47	(0.50)	0.64	(0.48)	0.37	(0.48)	0.32	(0.47)	0.45	(0.50)	0.32	(0.47)	0.28	(0.45)	0.36	(0.48)
Lone-parent	0.19	(0.39)	0.29	(0.45)	0.03	(0.18)	0.22	(0.42)	0.34	(0.47)	0.06	(0.23)	0.18	(0.38)	0.29	(0.45)	0.06	(0.23)
Mar. no kids	0.10	(0.29)	0.07	(0.26)	0.13	(0.34)	0.11	(0.31)	0.09	(0.29)	0.13	(0.33)	0.16	(0.37)	0.14	(0.35)	0.18	(0.39)
Soc. Asst. rec.	0.64	(0.48)	0.70	(0.46)	0.55	(0.50)	0.37	(0.48)	0.42	(0.49)	0.30	(0.46)	0.19	(0.39)	0.23	(0.42)	0.14	(0.35)
# children	0.69	(1.13)	0.83	(1.16)	0.47	(1.03)	1.02	(1.30)	1.12	(1.28)	0.87	(1.30)	1.02	(1.25)	1.11	(1.26)	0.90	(1.23)
Presence of pre-sch. child	0.14	(0.35)	0.16	(0.37)	0.11	(0.31)	0.20	(0.40)	0.20	(0.40)	0.19	(0.39)	0.19	(0.40)	0.19	(0.40)	0.19	(0.40)
Employed FY	0.22	(0.41)	0.17	(0.38)	0.30	(0.46)	0.37	(0.48)	0.33	(0.47)	0.44	(0.50)	0.51	(0.50)	0.48	(0.50)	0.54	(0.50)
# earners	0.43	(0.63)	0.40	(0.62)	0.49	(0.64)	0.89	(0.77)	0.85	(0.78)	0.94	(0.75)	1.13	(0.75)	1.12	(0.77)	1.14	(0.73)
HS Grad	0.14	(0.35)	0.15	(0.35)	0.13	(0.33)	0.16	(0.37)	0.17	(0.37)	0.16	(0.36)	0.19	(0.39)	0.20	(0.40)	0.17	(0.38)
Some College	0.31	(0.46)	0.32	(0.47)	0.30	(0.46)	0.36	(0.48)	0.38	(0.49)	0.34	(0.47)	0.45	(0.50)	0.48	(0.50)	0.41	(0.49)
Bachelors +	0.03	(0.17)	0.02	(0.15)	0.05	(0.21)	0.06	(0.24)	0.07	(0.25)	0.06	(0.23)	0.08	(0.27)	0.09	(0.28)	0.08	(0.26)
Immigrant	0.08	(0.27)	0.08	(0.27)	0.08	(0.27)	0.11	(0.31)	0.12	(0.32)	0.10	(0.30)	0.10	(0.30)	0.09	(0.29)	0.10	(0.31)
Disability	1.41	(0.56)	1.43	(0.56)	1.37	(0.56)	1.56	(0.63)	1.58	(0.62)	1.55	(0.65)	1.73	(0.44)	1.74	(0.44)	1.73	(0.45)
Rural	0.32	(0.47)	0.30	(0.46)	0.36	(0.48)	0.32	(0.47)	0.30	(0.46)	0.35	(0.48)	0.35	(0.48)	0.32	(0.47)	0.38	(0.49)
Right Censor	1.00	(0.00)	1.00	(0.00)	1.00	(0.00)	0.22	(0.41)	0.22	(0.41)	0.22	(0.42)	0.33	(0.47)	0.34	(0.48)	0.32	(0.47)
Multiple Spells	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.39	(0.49)	0.39	(0.49)	0.39	(0.49)	0.36	(0.48)	0.37	(0.48)	0.36	(0.48)
# Spells	1435		882		553		3611		2095		1516		3426		1821		1605	

Notes: Means are presented with standard deviations in brackets beside. Characteristics are those of the household head in the first observed year of the poverty spell. Among the left-censored spells (samples 2a and 2b), gender differences are statistically significant except high school graduate, some college (2a), bachelors+ (2b), immigrant and disability (2b). Differences between the characteristics of spells observed for 6+ years versus <6 years (sample 2a versus 2b) are statistically significant except for rural and married no kids. All differences between the entire set of spells and the Main Sample are statistically significant with the exception of preschool children.

To conserve space, the base (omitted) categories are excluded from this table. The base (omitted) categories are the same as in Table 2.