



Catalogue No. 11F0019MIE — No. 186

ISSN: 1205-9153

ISBN: 0-662-31635-5

## Research Paper

# Wives, Mothers and Wages: Does Timing Matter?

by Marie Drolet

Business and Labour Market Analysis Division  
24-F, R.H. Coats Building, Ottawa K1A 0T6

Telephone: 1 613 951-5691 Fax: 1 613 951-5403

*This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.*



Statistics  
Canada

Statistique  
Canada

Canada

# **Wives, Mothers and Wages: Does Timing Matter?**

**by Marie Drolet**

**No. 186**

**11F0019 No. 186  
ISSN: 1205-9153  
ISBN: 0-662-31635-5**

Business and Labour Market Analysis Division  
24-F, R.H. Coats Building, Ottawa, K1A 0T6  
Statistics Canada (613) 951-5691  
Facsimile Number: (613) 951-5403  
Internet: [drolmar@statcan.ca](mailto:drolmar@statcan.ca)  
The paper is available on Internet: ([www.statcan.ca](http://www.statcan.ca))

**May 1, 2002**

The opinions expressed is the sole responsibility of the author and not of Statistics Canada.

*Aussi disponible en français*

## ***Table of Contents***

I.	Introduction .....	1
II.	Literature review .....	2
III.	Data, Definitions, Methodology and Model Specification.....	4
	A. The Data .....	4
	B. Definitions .....	5
	C. Methodology.....	5
	D. Specifications of wage equations .....	7
IV.	Does the state of being married or being a parent affect wages? .....	7
V.	Does the timing of marriage and children influence wages?.....	10
VI.	Do the wage effects of delaying childbirth erode over time?.....	12
VII.	Discussion .....	13
VIII.	Conclusion.....	15
	References .....	24

ELECTRONIC PUBLICATIONS AVAILABLE AT  
**[www.statcan.ca](http://www.statcan.ca)**



## **ABSTRACT**

Current trends in marriage and fertility patterns suggest that young Canadian women are delaying family formation and concentrating on developing their careers. It is a well-documented fact that the acquisition of job-related skills and significant wage growth is concentrated at the start of workers' careers—which generally coincides with decisions regarding marriage and children. If this is the case, then the timing of marriage and children may be considered proxies for omitted, unobserved characteristics, related to human capital skills, differentiated work history or labour force attachment.

Using data from the 1998 Survey of Labour and Income Dynamics, this study provides Canadian evidence on the effect of marital status and parenthood status on the wage rates of Canadian women. As well, this paper attempts to determine whether decisions regarding the *timing* of family formation influence the wages of women and whether these decisions have a permanent or temporary impact on earnings. The main results of the paper are as follows.

After controlling for differences in work history, labour force qualifications and selected job characteristics, there is no association between marital status and wages while the evidence on the relationship between wages and motherhood is mixed.

When *the timing of children* is taken into account, mothers who had their children later in life earned 6.0% more than mothers who had their children early after controlling for a variety of productivity related characteristics. This wage gap between mothers who delay having children and those who have children early is widespread among mothers of all ages yet is greatest among younger Canadian women. There are many possible reasons for this discrepancy, including differences in motivation to pursue training or higher education, the ability to accept promotions and to migrate towards high paying jobs. Interestingly, there is no significant difference in the wages of women that delay having children and women that have no children. There is no significant association between the timing of marriage and wages.

The wage advantage associated with delaying parenthood is greater for younger generations of mothers than older generations. This may reflect on the one hand, mothers assuming traditional family roles that may limit their involvement in the labour market. On the other hand, it may reflect important changes in the types of careers available to women of different generations.

**Keywords:** women's wages, motherhood, marriage

ELECTRONIC PUBLICATIONS AVAILABLE AT  
**[www.statcan.ca](http://www.statcan.ca)**



## **I. Introduction**

Current trends in marriage and fertility patterns suggest that young Canadian women are delaying family formation and concentrating on developing their careers. In 1979, the average age at first marriage was 22.1 years and had increased to 27.3 years by 1996.<sup>1</sup> A comparable trend has been noted in the fertility patterns of Canadian women. Women are having fewer children than their earlier cohorts: in 1970, the average number of live births per woman was 2.33 and by 1986, the fertility rate had declined to 1.59 and remains at this level.<sup>2</sup> Women of the 1990s are also more likely to postpone childbirth until after they have secured their careers; over the past decade, the average age of mothers at the birth of their first child has risen from 25.7 in 1986 to 27.1 in 1996.<sup>3</sup>

Along with the postponement of marriage and the decline in fertility, recent generations have witnessed a profound change in the role of women in the labour market. The labour force participation rate among married women aged 25-44 increased from 49.7% in 1976 to 78.2% in 1998.<sup>4</sup> Although women are still concentrated in service industries and service occupations, their share in female dominated occupations has been declining while their share in professional and managerial positions has been increasing. Canadian women have also made substantial gains in their wage-determining characteristics over the past two decades. In 1996, roughly 12% of all women had a university degree compared to 6% in 1986 and 3% in 1971.<sup>5</sup>

The growing employment rates of married women translates into a rise in the number of dual-earner families: roughly 61% of two-spouse Canadian families have two employed spouses in 1997 compared to 33% in 1967. The relative importance of women's earnings to total family income is illustrated through the fact that 18% of dual-earner families would be living in low income if not for the contribution of the earnings of women.<sup>6</sup>

Despite these changes, marital status and motherhood is used to predict present and future work commitment, investments in training or education and the likelihood that a worker will quit or take time off. This idea has guided the use of marital status and motherhood as proxies for 'productivity' related factors—thus justifying their use as determinants of wages (Hill, 1979).

Most previous studies examine the *aggregate* effect of marital status and the presence of children on women's earnings. But perhaps the timing of family formation matters since the acquisition of job-related skills is usually concentrated at the start of careers – which generally coincides with decisions regarding marriage and children. Murphy and Welch (1990) find that a significant

---

<sup>1</sup> Statistics Canada (1996).

<sup>2</sup> Statistics Canada (1996).

<sup>3</sup> Statistics Canada (1996).

<sup>4</sup> Statistics Canada (1998).

<sup>5</sup> Statistics Canada (2000).

<sup>6</sup> Statistics Canada (2000).

portion of real lifetime earnings growth occurs during the first years after graduation. If this is the case, then the timing of labour force withdrawals related to marriage and children may have important long-run implications for the earnings of women.

Chandler, Kamo and Werbel (1994) use U.S. data to test whether the *timing* of marriage and children matter. They find that after controlling for a variety of characteristics, postponing marriage has a positive effect on the wages of wives and delaying childbirth has a positive effect on the wages of mothers.

The goal of this paper is twofold. First, this study uses data from the 1998 Survey of Labour and Income Dynamics (SLID) to provide estimates of the effects of marital status and motherhood on the wage rates of Canadian women. Second, this paper examines whether delays in family formation influence the wages of women and determines whether these decisions have a permanent or temporary impact on earnings.

The plan of the paper is as follows. Section II provides a brief literature review of the effect of marriage and children on the wages of women. Section III describes the data, definitions, methodology and the model specification used in this study. Section IV provides estimates of the effects of marital status and motherhood on the wage rates of Canadian women. Section V examines whether delays in family formation influence the wages of Canadian women. Section VI determines whether family formation decisions have a permanent or temporary impact on earnings. A discussion of the results is presented in Section VII. Concluding remarks follow in Section VIII.

## **II. Literature review**

Although marital status and presence of children are used as proxies for ‘productivity’ related factors, previous research has shown that marriage has at least no detrimental effect on the wages of women (Hill, 1979; Korenman and Neumark 1992)<sup>7</sup> while the presence of children has a mixed effect on women’s wages (Hill, 1979; Korenman and Neumark, 1992)<sup>8</sup>. However, the source(s) of marital and parenthood pay differentials remain unsettled. The literature examines several theories.

The *specialization hypothesis* argues that the marital arrangement facilitates specialization within the home often to the detriment of women’s earning power. Mincer and Polachek (p. s76, 1974) argue that the ‘division of labour ... emerges because the attempts to promote family life are necessarily constrained by complementarity and substitution relations in the household production process by comparative advantages due to differential skills and earning powers with which family members are endowed’. Since wives are more likely to combine paid work and

---

<sup>7</sup> Hill (1979) estimates that the coefficient for currently married white women is 0.065 with a standard error of 0.043. Korenman and Neumark (1991) estimate that the coefficient for white working women is 0.05 with a standard error of 0.04.

<sup>8</sup> Both Hill (1979) and Korenman and Neumark (1992) find that the magnitude of the coefficients of the number of children are no longer statistically significant when detailed controls for experience and tenure are included in the analysis. In other words, after controlling for experience and tenure, children have very little association with wages.



unpaid work than husbands for family related reasons, prolonged non-participation in the paid labour force may influence the wages of wives in several ways. Mothers and wives may have less employer-specific tenure, and may experience a depreciation of their human capital skills resulting in fewer promotions or lower wages with new employers. Mincer and Polachek (1974) argue that the job mobility of husbands may work against the continuity of work experience and the earning power of married women.

As well, Mincer and Polachek (1974) argue that *expectations* of future family commitments may be an important indicator of human capital investments for some women. Prospective labour force interruptions may lead some young women to acquire less or to postpone education, training and work experience or to accept jobs in industries and occupations that facilitate labour force withdrawals.

Theories relating to *work effort* suggest that marriage and children have an important impact on the working time of women. Becker (1985) suggests that married women or women with children seek 'more convenient' and 'less energy intrusive' jobs since they do the majority of housework. However, the empirical evidence does not necessarily support this notion. Glass and Camarigg (1992) conclude that although the 'combination of both schedule flexibility and ease of job performance reduces job-family conflicts, mothers working over 30 hours per week are not more likely to be employed in jobs with those characteristics.' Canadian evidence from the 1998 SLID suggests that there is very little difference in the work responsibilities, supervisory duties, schedule and occupations of mothers working full-time relative to other full-time women workers.<sup>9</sup>

The *selection hypothesis* suggests that omitted, unmeasured characteristics that influence wages are correlated with marriage and children (Korenman and Neumark, 1991). In other words, marriage and children signal precarious work commitments for women. Another related hypothesis attributes the earnings differential associated with marriage and children to the *differential treatment by employers*. Employers are constantly making decisions with imperfect information. Hill (1979) explains that some employers may use marital status or parenthood status as proxies for potential absenteeism and higher turnover rates for women. Chandler et al. (1994) argue that these predetermined notions of job performance may influence pay procedures (i.e. worse compensation for married women) as well as job placement (i.e. jobs with less upward mobility for married women).

While there is a great deal of literature focussing on the impact on wages of interruptions in the labour force attachment of women for childbearing and child rearing purposes, little attention has been given to the *timing* of these interruptions. Blackburn, Bloom and Neumark (1990) develop a theoretical model of a woman's optimal human capital investment behaviour conditional on the timing of the birth of her first child. Their model suggests that late child bearers invest more heavily in human capital than early child bearers and women with higher initial wages tend to delay childbirth. Their empirical analysis concludes that greater measurable human capital

---

<sup>9</sup> Roughly 26.5% of mothers employed full-time and 27.9% of other full-time women workers have supervisor duties; 11.2% and 9.9% respectively involve influencing the pay or the promotion of staff; 22.3% involve deciding work for others; 16.5% and 17.7% respectively involve budget or staffing decisions; and 18.3% and 20% respectively are professionals and managers.

investments account for a sizable portion of the higher wages of late child bearers yet substantial wage differentials persist after controlling for a variety of factors.

The theoretical explanations of the relationship between family formation and wages suggest that the timing of marriage and children should have important effects on the wages of women. The following table shows how each of the previous mentioned theories relating marital and parenthood status to earnings can be extended to predict the impact of the timing of marriage and children on the wages of women.

Theoretical explanation	Wage effects (relative to single, never married / not parents)	
	Married women / mothers	Delaying marriage/children
Specialization hypothesis	decreases	increases
Selection hypothesis	decreases	increases
Worker effort	decreases	increases
Differential treatment by employers	decreases	increases

Women who delay marriage/children may be motivated to pursue higher education, training, work experience and to move towards higher paying jobs (*specialization hypothesis*). Becker (1985) suggests that married women tend to ‘economize on the effort expended on market work by seeking less demanding’ and consequently lower paying jobs. Women who delay marriage do not undertake conventional family responsibilities as quickly as women who marry/have children early and avoid (at least temporarily) work and family conflicts (*work effort*). As well, the negative effects of employers’ use of ‘statistical discrimination’ (i.e. judging individuals based on a group characteristic) would be at least postponed for women who delay marriage (*selection/differential treatment by the employer*).

### **III. Data, Definitions, Methodology and Model Specification**

#### **A. The Data**

The data used in this study come from the 1998 Survey of Labour and Income Dynamics. The sample consists of women who are paid workers, aged 18-64, not enrolled as full-time students. Excluded from the analysis are self-employed individuals and individuals with missing data on age at first marriage, age at first birth, hourly wages, and work experience.<sup>10</sup>

<sup>10</sup> The exclusions account for 23% of the original SLID sample. The exclusion of observations with missing data is not believed to produce any sample selection bias and for the most part, are randomly distributed throughout the population. The only exception is for job tenure where the ‘exclusions’ were more likely to report unknown job tenure than the sample used in the analysis.

The literature suggests that women are either persistent workers or non-persistent workers.<sup>11</sup> For this reason two samples are chosen for the analysis. The first sample consists of all jobs held by women in 1998 and is based on 13,423 observations.<sup>12</sup> The second sample restricts attention to women employed in both January 1997 and December 1998.<sup>13</sup> Job characteristics are related to the main job—as defined by the job with the most usual hours in 1998. This analysis is based on 6,945 observations.

The results presented in this paper are based on the sample of all jobs held by women in 1998—since this sample is representative of all working Canadian women. The results differ slightly between the two samples (but the qualitative conclusions are the same) and where applicable significant differences in the results will be presented.

## **B. Definitions**

In this study the *state of being married* includes currently married individuals only and does not include persons living in a common-law relationship, or previously married individuals (i.e. divorced, separated or widowed).<sup>14</sup>

The age at first birth indicates whether a woman is a *birth parent*. Step-parents and parents of adopted children would be excluded from the analysis if no birth child exists.<sup>15</sup> It should be noted that being a birth mother includes all mothers regardless of their marital status.

## **C. Methodology**

### ***Measuring delays in marriage and parenthood***

Following Chandler et al. (1994), marital delay and childbirth delay are measured as the difference between the actual age at first marriage or age at first birth and a predicted age at first marriage or age at first birth. The predicted age is calculated for each individual from the results

---

<sup>11</sup> Shapiro and Mott (1994) show that the most attached women—those who worked before and after the birth of their first child—show relatively little change in the propensity to work over a 14 year period and that these women also earned higher wages. Nakamura and Nakamura (1994) conclude that the past history of the number of hours worked is a valuable indicator of future work attachment and better captures the effects of preferences and other omitted factors affecting the work patterns of women.

<sup>12</sup> Since all jobs held during the reference year are included in the analysis, the survey weights were standardized according to annual hours worked in the job. This is done to avoid over-representing short-tenure jobs.

<sup>13</sup> A longer panel of SLID data could have been used in the analysis for women. However, the first panel of SLID (starting in 1993) did not capture age at first birth for male respondents. The companion article (forthcoming) “Husbands, Fathers and Wages: Does timing matter?” is based on 1997-1998 data.

<sup>14</sup> SLID does not collect information on the age at first common-law union and therefore the timing of common-law unions cannot be calculated. This may pose a potential problem especially in Quebec. Of all Canadian workers aged 18-64 who are not enrolled in school full-time, about 62% are married and 9% live in a common-law union. In Quebec, 50% are married and 21% live in a common-law union.

<sup>15</sup> There may be a propensity to underreport ‘out-of-wedlock’ births resulting in adoption especially for older cohorts of women.

of an OLS regression where the age at first marriage or age at first birth varies by education and major field of study, and urban size class.<sup>16</sup> Each regression is run separately for 3 cohorts of women (1) born prior to 1948 (pre-babyboom) (2) born in 1948-1960 (babyboom) and (3) born after 1960 (post-babyboom). This is meant to capture the changes that have taken place over time related to fertility and marriage rates by age, attitudes towards family size, and contraceptive use.<sup>17</sup> Appendix Table 1 shows the distribution of marital delay and the childbirth delay. By construction, the mean value of the delay variables are zero.

Marital/childbirth delay is captured as a continuous variable and is split into discrete variables on the basis of the difference between their predicted age and their actual age at first marriage or child.<sup>18</sup>

- (1) '**Delaying**' marriage/children refers to postponing marriage/children for at least one full year *after* the predicted age of first marriage or child,
- (2) '**Early**' refers to marrying/having children at least one full year *before* the predicted age of first marriage/child and,
- (3) '**As predicted**' refers to the period between 'early' and 'delay'.

The average delay of women who postpone marriage or parenthood is roughly 4.5 years. For women who marry or who have children 'early', they usually marry or have children just over 3 years *prior* to their predicted age of first marriage or first child (Appendix 1).

### ***Wage equation***

The *cross-sectional* analysis is based on the sample of all jobs held in 1998.<sup>19</sup> The dependent variable is the natural logarithm of hourly wage rates. Coefficient estimates are interpreted as representing approximately the percentage change in hourly wage rates associated with a one-unit change in the explanatory variable.

---

<sup>16</sup> For the measure of marital delay, a joint test of significance was conducted on the set of coefficients for education, region, urban size class and birth year. The F-test concluded that all sets of coefficients were significant at the 5% level with the exception of region, which was subsequently dropped from the specification.

For the measure of childbirth delay, a joint test of significance concluded that all sets of coefficients should be included in the OLS regression.

<sup>17</sup> Chandler et al (1994) calculate the predicted age at first marriage as a function of years of education, whether the employee is nonwhite, whether the employee resides in the south, and whether the employee lives in an area with a population over 50,000.

<sup>18</sup> The analysis could have been performed using the measure of delay as a continuous variable. The discrete variable approach is used throughout the paper since the results are more easily interpretable than other non-linear specifications.

<sup>19</sup> The unit of analysis is the job. The reported standard errors are calculated using bootstrap weights and account for the survey design effects and the fact that some individuals hold more than one job during the reference year.

### *Equation 1: Cross sectional model*

$$\ln w_{i,1998} = \alpha_i + \beta' x_{i,1998} + u_{i,1998}$$

where  $\ln w_{i,1998}$  is the natural logarithm of wages of individual  $i$  in 1998

$\alpha$  is the intercept term

$\beta$  is a vector of estimated regression coefficients for each explanatory variable  $X$  in 1998 as described in the model specification

$u_i$  is the disturbance term and  $E(u_i) = 0$

### **D. Specifications of wage equations**

This paper estimates a variety of marital and parenthood wage effects by incorporating several explanatory variables that are generally considered to influence wages. Experience is meant to capture actual full-year, full-time work experience<sup>20</sup> and experience squared is meant to allow for non-linearities in the returns to experience. Education is a productivity enhancing investment designed to improve earnings. Job tenure with present employer is considered a measure of job-specific training. Age of youngest family member is meant to capture differences in household responsibilities and in the division of labour within the home. Regional and urban size class is designed to capture inter-regional wage differentials. Part-time status and union status attempt to account for differences in wage structures between part-time and full-time jobs and non-unionized and unionized sectors respectively. Since large firms pay more than small firms, firm size is included as a regressor. Job responsibilities, industry and occupation are meant to account for inter-industry and occupational wage differentials.

Two specifications are estimated. The analysis begins with a 'standard' wage equation that includes traditional human capital variables such as experience, education and major field of study, job tenure, age of youngest family member, part-time status, union status, region, urban size class and firm size (Specification 1). Specification 2 includes the regressors of Specification 1 but also incorporates job responsibilities, industry and occupation.

## **IV. Does the state of being married or being a parent affect wages?**

As a first step, the wage effect of being married and being a parent are explored. This is meant to provide the reader with a better understanding of marital/parenthood wage premiums and to situate the analysis of the timing of marriage and children.

---

<sup>20</sup> See Giles and Lathe (1995) for a detailed description of the SLID measure of full-year, full-time work experience.

As background to the multivariate analysis, Table 1 presents the average wages by marital status and parenthood status for women as well as other selected worker characteristics. The average hourly wages of married women are 9% higher than those of single, never married women while mothers earn on average 2% less than other women.<sup>21</sup>

The results of Table 1 are consistent with expected differences in work history and in labour market attachment for women related to marriage and children. Married women and women with children spend a smaller proportion of their potential years working full-year, full-time compared to single never married women and women with children.<sup>22</sup> As well, women with marital and children commitments are more likely to limit their job hours by working part-time.<sup>23</sup>

By cohort, a different story emerges. Table 2 shows that the wage differential by marital status and parenthood status is greater among older cohorts than among younger cohorts. With each successive cohort, the proportion of potential work experience spent working full-year, full-time increases for both married women and mothers. For example, mothers born prior to 1948 spent 63.2% of their career working full-year, full-time compared to 73.3% for mothers born between 1948-1960 and 77.0% for mothers born after 1960 (Table 2).<sup>24</sup>

More central to this paper is the relationship between wages and marriage and parenthood *after* controlling for differences in work history, labour force attachment, individual worker characteristics and job attributes. Table 3 provides evidence that at least no negative wage effect for married women (relative to single, never married women)<sup>25</sup> and a negative relationship between wages and motherhood (relative to women who are not mothers)<sup>26</sup> after controlling for a variety of characteristics.

Many researchers have emphasized the potential problem of misspecification since omitted, unmeasured characteristics such as attitudes towards career (i.e. mommy track versus career orientation) may influence wages may also be correlated with decisions regarding marriage and

---

<sup>21</sup> The reported marital wage differential is statistically significant at the 1% level. The reported parenthood wage differential is not statistically significant at conventional levels.

<sup>22</sup> The proportion of potential years of work experience spent working full-year, full-time is 82.5%, 69.5%, 68.1% and 87.1% for single never married women, married women, birth mothers and women who are not birth mothers respectively (Table 1).

<sup>23</sup> About 16% married women and women with children work part-time in 1998 compared to roughly 8.3% - 11.9% of women without children and single never married women.

<sup>24</sup> The numbers for wives by cohort are 63.2%, 74.5% and 82.3% respectively (Table 2). One should interpret the numbers reported for the most recent cohort with caution since many of these women have incomplete spells.

<sup>25</sup> Hill (1979) estimates that the coefficient for currently married white women is statistically insignificant. Korenman and Neumark (1992) find that marriage has little association with women's wages.

<sup>26</sup> Although the negative relationship between wages and children among birth mothers is reduced by the inclusion of detailed controls in our wage equations, previous research by Hill (1979) shows that the negative association between wages and children is not significant. Korenman and Neumark (1992) citing Suter and Miller (1973) conclude that once occupation and experience are known, marriage and children do not improve estimates of a woman's income.

children. The sample of persistent workers (those working in both January 1997 and December 1998) was used to estimate a longitudinal or fixed-effects wage equation.<sup>27</sup> The longitudinal estimate suggests women who marry in 1998 earn about 6.3% more than women who do not change marital status. The fact that the longitudinal estimate produces a significant and positive wage effect associated to the state of being married may be itself biased by fixed, unobservable heterogeneity of individuals (i.e. the sample group of recent changers are more likely to have postponed marriage).<sup>28</sup>

The difference in the cross-sectional and longitudinal estimate of the impact of marriage on women's wages may result from another potential misspecification. As proposed by Kenny (1983) and Korenman and Neumark (1991), there is no reason to believe that marital wage premiums accrue at the time of marriage<sup>29</sup> but rather the marital wage effects may appear gradually. This would suggest that the marital wage premium in the longitudinal estimation may be partially due to the short duration of marriage for women that marry between 1997 and 1998. In other words, the wage differential would persist after marriage but heightened exposure to traditional roles of wives and mothers may reduce these effects.

This is exactly what happens when controls for years with children (but not years of marriage) are added to the cross-sectional analysis of the wage differentials associated with marriage and parenthood. First, there is a shift upwards in the intercept associated with being a parent. This shift upwards persists in the early years but declines as the number of years with children lengthens. The results presented here concur with theoretical expectations. The fact that there is a gradual decrease in the relative wages of mothers supports the specialization, selection,

---

<sup>27</sup> The *longitudinal or fixed effects model* is based on the sample of persistent workers. The dependent variable is the change in the hourly wage rates of the main job held in January 1997 and December 1998. Each coefficient is the percentage change in hourly wage rates associated with a change in the explanatory variable. The model can be expressed by:

$$\Delta \ln w_i = \Delta \alpha_i + \beta' \Delta x_i + \Delta u_i$$

where  $\Delta \ln w_i$  is the difference in hourly wages of individual  $i$  between 1998 and 1997

$\Delta \alpha_i$  is the individual effect term (i.e. which is taken to be constant over time  $t$ ) and is therefore 0.

$\beta$  is a vector of estimated regression coefficients for each difference in the explanatory variable  $X$  between 1998 and 1997

$\Delta u_i$  is the disturbance term and  $E(u_{i,1998}, u_{i,1997}) = 0$

<sup>28</sup> Ideally one would like to estimate the longitudinal effect of children on the wages of women. The fact that the event of having a first child is rare and that our panel is short (i.e. restricted to persons working in January 1997 and December 1998) precludes the longitudinal analysis of the impact of children on the wages of women. Korenman and Neumark (1992) find that not controlling for fixed, unobservable characteristics results in cross-sectional estimates of the association between wages and motherhood that are biased and that short first-differences (estimated over a two-year period) indicate no negative association between motherhood and wages.

<sup>29</sup> Korenman and Neumark (1991) hypothesize that the benefits of starting a unionized job accrue instantaneously while there 'is no reason to believe that the labour market return to marriage are reaped upon the utterance of the words 'I do'.

differential treatment by employers and the work effort explanations of wage differentials associated with motherhood.

The fact that there appears to be a positive wage benefit from motherhood when controls for years with children are added may reflect the fact that there are no adequate controls for cohorts. Young cohorts of women earn less than older cohorts and single, never married women and childless women are more likely to belong to the younger cohort while married women and mothers are most likely to belong to the older cohort. For this reason, a similar analysis is performed on the 3 cohorts of women.<sup>30</sup> The results from Table 3 show that for older women, marriage and motherhood has no association with their wages. For the most recent cohort of women (born after 1960) marriage has a positive effect while mothers of the babyboom generation earn significantly less than other women of their generation.

## ***V. Does the timing of marriage and children influence wages?***

The results of the previous section indicate the need to address unobserved individual heterogeneity when estimating marital and parenthood wage differentials. However, it is a well-documented fact that the acquisition of job-related skills and significant wage growth is concentrated at the start of their careers which generally coincides with decisions regarding marriage and children. If this is the case, then the timing of marriage and children may be considered proxies for omitted, unobserved characteristics, related to human capital skills, differentiated work history or labour force attachment and may further our understanding of the determinants of women's wages.

Table 4 presents the average hourly wages of Canadian wives and mothers by the timing of marriage and motherhood. The observed wage differentials are greater with respect to the timing of children than the timing of marriage. The average hourly wages of mothers that delay having children are 17.1% higher than mothers that have children early while wives that delay marriage earn 7.8% more than wives that marry early.<sup>31</sup>

Part of the observed variation in wages is due to the differences in the work history and in the labour market attachment of women who postpone family formation and those that do not. The timing of children and to a lesser extent, the timing of marriage has an important influence on the work history of women. Relative to women who have children early, women who postpone childbirth have averaged roughly 1.7 more years of full-year, full-time work experience (FYFTE), and spend a larger proportion (77.4% versus 66.4%) of potential years spent working full-year, full-time. Women who delay marriage spend about 78.3% of their potential work experience working full-year, full-time compared to roughly 70.5% for women who marry early (Table 4).

---

<sup>30</sup> The wage equations were run separately by cohort to allow the coefficients to vary. The results of the F-test show that the regressions run by cohort are statistically different from those run on the whole population.

<sup>31</sup> The reported wage differentials by the timing of marriage and the timing of children are statistically significant at the 1% level.



Table 5 shows a similar pattern by cohort. First, for each cohort of women the observed hourly wages of women who delay family formation are greater than the wages of those women who marry/have children early. Second, for each successive cohort, women that delay having children spend a greater proportion of their career working full-year, full-time. For example, mothers belong to the cohort of women born prior to 1948 that delayed having children spent 67.3% of their career working full-year, full-time compared to 79.6% for women of the babyboom generation and 86.3% for women born after 1960.<sup>32</sup>

Table 6 Columns 1 and 2 presents the relationship between wages and the timing of marriage and the timing of children *after* controlling for differences in experience as well as other factors that influence wages. *When the timing of children* is taken into account, women that postpone having children earn at least 6.0% more than women who have children early.<sup>33,34</sup> There is no significant association between wages and the timing of marriage.<sup>35,36</sup>

The positive relationship between wages and delaying marriage and motherhood conform to expectations. The higher wages observed for women who delay marriage and children may result from a greater motivation to pursue training and to move towards higher paying jobs (*specialization hypothesis*); from postponing (at least temporarily) work and family conflicts (*work effort*); from deferring the differential treatment by the employer based on marital or parenthood status (i.e. greater turnover and absenteeism); from unobserved attributes—such as motivation towards work or career orientation—that differ from women that marry early or women that have children early.

<sup>32</sup> One should be somewhat cautious of the numbers for the most recent cohort since these women may have future children/future career interruptions that will likely impact the proportion of their career that is spent working full-year, full-time. Women born before 1948 and born between 1948-1960 are more likely to have completed their fertility decisions.

<sup>33</sup> The difference in the hourly wages of birth mothers who delayed having children and those who had children earlier than their predicted age range is significant at the 1% level (t tests) after controlling for a variety of wage-determining characteristics. A joint test of significance concludes that the wages of mothers depend on the timing of children.

Results not reported show delaying children for one year *increases* birth mothers' wages by about 0.6% per year.

<sup>34</sup> Interestingly, there is no statistically significant difference in the wages of women that delay having children and those that do not have children.

<sup>35</sup> The difference in the hourly wages of currently married women who postponed marriage and those who married earlier than their predicted age range is not significant at the 1% level (t tests) after controlling for a variety of wage-determining characteristics. The F-test is used to determine if the set of 'timing of marriage' variables are jointly statistically significant. The results of the F-test show that the wages of currently married women do not depend on the timing of marriage. The same conclusion holds for the sample of women employed in both January 1997 and December 1998.

<sup>36</sup> The findings on the association between childbirth delay and wages is consistent with those of Chandler et al (1994). The variation in the estimates between this study and those of Chandler et al (1994) may be partially attributable to differences between Canada and the U.S., differences in the timing of the surveys (1998 vs. 1987), methodology and control variables. Chandler et al (1994) use variables such as years of education, housework time, non-white and residing in the south that are not included in this study. However, Chandler et al (1994) do not control for birth cohorts of mother/wife, education level and major field of study, job tenure, union status, part-time status firm size, occupation, industry and job responsibilities.

Similar to the previous section, the fact that there appears to be a positive wage benefit from delaying parenthood may reflect the fact that there are no adequate controls for cohort effects. The positive wage benefit associated with postponing children may reflect the fact that young cohorts of women are more likely to delay family formation. When separate cohort analyses are performed, the timing of parenthood has little impact on the wages of older cohorts of mothers (Table 6 Columns 3 and 4). The wages of young cohorts of mothers who postponed family formation are at least 10% higher than those who have children early (Table 6 Columns 7 and 8).

The association between wages and delaying motherhood are reduced when human capital variables are added. Regression results show that when factors such as education, experience and tenure are included, the wage premium associated with delaying childbirth decreases from 16.0% to 5.8%.<sup>37</sup> The decline in the wage effects as variables are added is consistent with the research of Chandler et al. (1994), Korenman and Neumark (1992), Blackburn, Bloom and Neumark (1990) and Hill (1979). The reduction in the wage effect of childbirth delay leads Chandler et al. (1994) to conclude that childbirth delay can be considered a proxy for unobserved human capital skills, differentiated work history or labour force attachment.

## **VI. Do the wage effects of delaying childbirth erode over time?**

The previous analysis between the timing of family formation and wages established an association between the timing of motherhood (but not the timing of marriage) and the wages of Canadian mothers. The objective of this section is to determine whether the observed wage effects of the timing of motherhood erode over time. Explicitly, the wage effects of delaying childbirth should depend on how long a person has had children and these effects should decline as the duration increases.

Following Chandler et al (1994), variables representing the timing of motherhood and the interaction between childbirth timing and the number of years with children are included. The inclusion of the interaction term is meant to capture the differential wage effect of childbirth timing across the number of years with children. In other words, the relationship between wages and childbirth timing is not restricted to be the same across the number of years with children.

Table 7 illustrates that the wage premium associated with delaying parenthood tends to fade as the number of years with children increases relative to birth mothers that have children early. This convergence is the result of an eroding premium associated with childbirth delay for those women that delay children and stability in the negative wage effect of having children early.

For instance, consider two identical women who each delayed parenthood for at least one year after her predicted age at first birth. Individual A had her first child within the past 5 years while Individual B had her first child 15-20 years ago. The results of Table 7 Column 4 show that the hourly wages of Individual B are 5.7% *lower* than those of Individual A. In other words, the wage premium associated with parenthood delay is reduced as the number of years with children lengthens.

---

<sup>37</sup> The dependent variable is log hourly wages and the independent variables include the timing of motherhood, urban size class, and region were compared to the results of a regression that include control variables such as those mentioned above as well as experience, education and major field of study and job tenure.

On the other hand, the wages of women that have children early are relatively stable across the number of years with children even after controlling for a variety of productivity-related factors. Consider 2 individuals who each have children early. Individual C has become a parent less than 5 years ago while Individual D has been a parent for 20 years. Table 5 shows that there is no significant difference in the wages earned by Individual C and D.

The fact that the wage premium associated with postponing children persists shortly after the birth of their first child but then vanishes over time<sup>38</sup> leads Chandler et al. (1994) to argue that ‘increased exposure to role responsibilities will minimize any early wage gaps based on delays of assuming those roles.’

However, one should be cautious of this interpretation. Although the observation that the wage premium associated with delaying motherhood declines with the number of years with children may be the result of ‘increased exposure to traditional roles’, it may also be simply a cohort effect. Older cohorts of women are part of a generation with fewer initial career opportunities and these careers are likely to be associated with flatter age-earnings profiles. As a result, the wage premium associated with delaying parenthood may have been small initially and remained small for older cohorts of women. Younger cohorts of women have more career opportunities and most likely face steeper age-earnings profiles than the older cohorts. If this is the case, it would explain the higher wage premium in the early years with children. Splitting the analysis by cohort provides some evidence that the wage premium associated with delaying parenthood decreases with the number of years with children for babyboom and post-babyboom mothers. For pre-babyboom mothers, there is no significant variation in their wages by the timing of parenthood.

## **VII. Discussion**

This paper addresses two important issues. First, it attempts to examine the dynamic relationship between the wages of Canadian women and their marital status and/or parenthood status. Second, this paper attempts to determine whether decisions regarding the *timing* of family formation influence the wages of women and whether these decisions have a permanent or temporary impact on earnings. This study differs from other research on marital and parenthood pay differentials since most other research focuses on the *aggregate* effect of marriage and children and not the *timing* of family formation.

This study has focused on the cross-sectional estimates of the timing of family formation. Alternative methods using longitudinal data would be desirable since it would be possible to identify individuals who change status and these methods may avoid some of the issues related to unobserved heterogeneity and sample selection bias. Korenman and Neumark (1992) suggest that caution should be exercised when drawing causal conclusions from cross-sectional associations. They argue that the estimated wage effects of marriage and children may be biased since ‘women may select different marital or fertility states on the basis of unmeasured characteristics that are correlated with wages’. Korenman and Neumark (1992) also suggest that bias may result if, ‘among married women or women with children, those with high wages tend to select into employment’. The estimates of the wage impact associated with the timing of marriage and

---

<sup>38</sup> The wage premium associated with postponing children relative to having children early are 11.6%, 5.2%, 5.3%, and 4.8% with 0-5, 5-10, 10-15 and 15-20 years with children respectively. All are significant at the 1% level.

children presented in the paper are conditional on individuals working in 1998 AND that have entered the state of marriage and parenthood prior to 1998.

Incomplete marital and parenthood states may introduce potential problems of censoring. Many individuals who are not currently married or who are not parents in 1998 will eventually become married or birth parents while others may remain permanently unmarried or childless. Ideally those individuals that change marital status or parenthood status could be identified and their timing reported, however, data constraints prohibit this identification. The impact of this potential censoring bias would be greatest for younger individuals and would decrease with age.

Since there is a degree of persistence in wages, the observed relationship between wages and the timing of family formation may also be due to differences in *initial* wages. Blackburn, Bloom and Neumark (1990) show that the differences in the average level of the 'initial' wage—i.e. the hourly rate of pay at which women *begin* their labour market career—is similar to the observed wage—i.e. the hourly rate of pay at which women are working in 1982—across the different age at first birth categories. For example, the average 'initial' wage of late childbearers is 37% higher than early childbearers while the observed wage of late childbearers is 43% higher than the observed wage for early childbearers. Although the Survey of Labour and Income Dynamics is longitudinal (i.e. follows the same individuals across a number of years), the panel is too short to explore the possibility that unobserved heterogeneity in *initial wages* affects the relationship between marital and fertility timing and wages.

The observed association between wages and the timing of family formation may also be due to the unobserved heterogeneity associated with the family background—such as family composition during childhood, labour force status of parents, attitudes and expectations—and are missing from the data.

Finally, there is a high degree of correlation between marital delay and childbirth delay. About 62% of workers who married early also had children early and likewise 60% of workers who postponed marriage also delayed having children. The results of the previous sections examining the timing of marriage and children independent of one another may be clouded by this collinearity. When the timing of marriage was examined in isolation of the timing of children, it was noted for women that there were positive and significant benefits to delaying marriage. However, when the timing of children and marriage were simultaneously taken into account, delaying marriage had no significant impact on the wages of currently married women while delaying children had a positive and significant effect. Because of the high degree of collinearity between delaying marriage and children, some of the positive wage effects of the unobservable variables (i.e. delaying children) were attributed to the marital delay variable.

Differentials in the labour market outcomes related to marital status and parenthood status may be of increasing interest considering trends towards postponing and foregoing marriage, lower fertility rates, increased divorce rates and higher labour force participation among married women. The fact that those women who delay marriage/children earn significantly more than other wives and mothers may have important implications on their lifetime earnings. These trends in delaying marriage and childbirth may also help to explain why the gender wage gap has narrowed in recent years.

## **VIII. Conclusion**

Current trends in marriage and fertility patterns suggest that young Canadian women are delaying family formation and concentrating on developing their careers. Using data from the 1998 Survey of Labour and Income Dynamics, this study provides Canadian evidence on the association between marriage and motherhood and the wage rates of Canadian women. As well, this paper attempts to determine whether decisions regarding the *timing* of family formation influence the wages of women and whether these decisions have a permanent or temporary impact on their earnings. The main results of the paper are as follows.

After controlling for differences in work history, labour force qualifications and selected job characteristics, the *cross sectional* analysis suggests that there is no association between marital status and wages while the evidence on the relationship between wages and motherhood is mixed.

When controls for years with children were included, there is a positive association between motherhood and wages that persists in the early years of motherhood but declines as the number of years with children lengthens. These results support the specialization, selection, differential treatment by employers and the work effort explanations for differences in the wages of wives and mothers relative to other women. There is no such finding for married women and the duration of marriage.

It is a well-documented fact that the acquisition of job-related skills and significant wage growth is concentrated at the start of workers' careers—which generally coincides with decisions regarding marriage and children. If this is the case, then the timing of marriage and children may be considered proxies for omitted, unobserved characteristics, related to human capital skills, differentiated work history or labour force attachment. Conforming to theoretical expectations *when the timing of children* is taken into account, women that postpone having children earn at least 6.0% more than women who have children early. There is no significant association between the timing of marriage and wages.

The observed relationship between wages and delaying having children tend to persist after the birth of their first child but tends to decline over time. Thus, augmented family responsibilities will tend to reduce any initial wage differentials based on delays of assuming these responsibilities.

Table 1: Selected characteristics, by marital and parenthood status, 1998.

Characteristic	Marital Status		Parenthood status	
	<i>Married</i>	<i>Single, never married</i>	<i>Mother</i>	<i>Not a mother</i>
Percent of population	59.4	18.6	68.2	31.8
Average hourly wage rate	16.15	14.86	15.61	15.87
Average age	41.1	32.2	42.0	33.1
Average number of years of schooling	13.8	14.6	13.5	14.9
Average potential work experience =(Age - Schooling - 5)	22.3	12.6	23.5	13.2
Average actual full-year, full-time work experience	15.5	10.4	16.0	11.5
Proportion of potential work experience spent working full-year, full-time	69.5%	82.5%	68.1%	87.1%
Percent working part-time	16.1%	11.9%	16.2%	8.3%
Number of observations	7764	2369	9167	4256

Source: Survey of Labour and Income Dynamics, 1998

Table 2: Selected characteristics, by cohort and marital and parenthood status, 1998.

<b>Characteristics by marital status</b>	<b>Born before 1948</b>		<b>Born between 1948-1960</b>		<b>Born after 1960</b>	
	<i>Married</i>	<i>Single, never married</i>	<i>Married</i>	<i>Single, never married</i>	<i>Married</i>	<i>Single, never married</i>
Percent of population	66.5	7.6	50.9	29.7	44.3	34.3
Average hourly wage rate	15.73	20.32	16.91	18.44	15.37	13.21
Average age	55.1	54.0	43.7	43.2	31.5	26.8
Average years of schooling	12.7	14.3	13.8	14.8	14.2	14.6
Average potential work experience =(Age - Schooling - 5)	36.4	33.7	23.9	22.4	11.3	6.2
Average actual full-year, full-time work experience	23.0	31.9	17.8	19.9	9.3	5.4
Proportion of potential work experience spent working FYFT	63.2%	94.7%	74.5%	88.8%	82.3%	87.1%
Number of observations	1215	87	3332	383	3217	1959

  

<b>Characteristics by motherhood status</b>	<b>Born before 1948</b>		<b>Born between 1948-1960</b>		<b>Born after 1960</b>	
	<i>Mothers</i>	<i>Not a mother</i>	<i>Mothers</i>	<i>Not a mother</i>	<i>Mothers</i>	<i>Not a mother</i>
Percent of population	88.2	11.8	79.8	20.2	50.7	49.3
Average hourly wage rate	15.39	18.93	16.47	19.17	14.41	14.38
Average age	55.2	54.4	43.7	43.2	31.9	27.6
Average years of schooling	12.5	14.1	13.7	15.2	13.7	14.8
Average potential work experience =(Age - Schooling - 6)	36.7	34.3	24.0	22.0	12.2	6.8
Average actual full-year, full-time work experience	23.2	30.5	17.6	20.7	9.4	6.5
Proportion of potential work experience spent working FYFT	63.2%	88.9%	73.3%	94.1%	77.0%	95.6%
Number of observations	1571	171	4089	752	3507	3333

Source: Survey of Labour and Income Dynamics, 1998

Table 3: Wage differentials associated with marriage and motherhood, 1998.  
(Standard errors in parentheses)

Model	All workers		Born before 1948		Born between 1948-1960		Born after 1960	
	Spec 1	Spec 2	Spec 1	Spec 2	Spec 1	Spec 2	Spec 1	Spec 2
Occupation	N	Y	N	Y	N	Y	N	Y
Industry	N	Y	N	Y	N	Y	N	Y
<b>Panel 1:</b>								
Marriage	0.020 (0.014)	0.001 (0.013)	-0.092 (0.092)	-0.080 (0.076)	0.001 (0.029)	-0.001 (0.029)	0.070 (0.093)	0.036 (0.018)
<b>Panel 2:</b>								
Motherhood	-0.047 (0.016)	-0.040 (0.013)	-0.046 (0.058)	-0.010 (0.043)	-0.053 (0.027)	-0.056 (0.021)	0.082 (0.047)	0.058 (0.035)

Note: Regression coefficients on marriage and motherhood reported. Standard errors are computed using bootstrap weights. The dependent variable is the natural logarithm of hourly wages. Regressors in Specification 1 include actual labour market experience, experience squared, education and major field of study, tenure, part-time status, union status, region, urban size class and firm size. Specification 2 includes the regressors of Specification 1 as well as industry (8 groups), occupation (8 groups), and job responsibilities (6 groups).



Table 4: Selected characteristics, marital and parenthood status, 1998.

<b>Currently married women</b>	<b>All married women n=7764</b>			<b>All mothers n=9167</b>		
	<i>Early</i>	<i>On-time</i>	<i>Delay</i>	<i>Early</i>	<i>On-time</i>	<i>Delay</i>
Percent of wives or mothers	47.5	21.2	31.4	45.5	17.7	36.8
Average hourly wage rate	15.71	16.02	16.93	14.42	15.96	16.89
Average age	41.3	41.2	40.8	42.3	41.6	41.9
Average number of years of schooling	13.6	13.8	14.1	13.1	13.8	13.8
Average potential work experience =(Age - Schooling - 5)	21.7	21.4	20.7	23.2	21.8	22.1
Average actual full-year, full-time work experience	15.3	15.0	16.2	15.4	15.3	17.1
Proportion of potential work experience spent working full-year, full-time	70.5%	70.1%	78.3%	66.4%	70.2%	77.4%
Percent working part-time						
Number of observations	3737	1660	2367	4311	1654	3202

Source: Survey of Labour and Income Dynamics, 1998

Table 5: Selected characteristics, by timing of marriage or motherhood, by cohort, 1998.

Currently married women	Born before 1948 n=1215			Born between 1948-1960 n=3332			Born after 1960 n=3217		
	<i>Early</i>	<i>On-time</i>	<i>Delay</i>	<i>Early</i>	<i>On-time</i>	<i>Delay</i>	<i>Early</i>	<i>On-time</i>	<i>Delay</i>
	Percent of currently married women	45.6	25.4	29.0	50.9	19.3	29.7	44.3	21.4
Average hourly wage rate	15.36	15.49	16.52	16.55	16.81	17.58	14.62	15.38	16.31
Average age	54.9	55.0	55.4	43.9	43.7	43.2	31.1	30.8	32.5
Average years of schooling	12.5	12.4	13.2	13.7	14.0	14.2	14.0	14.4	14.3
Average potential work experience =(Age - Schooling - 5)	36.4	36.6	36.2	24.2	23.7	23	11.1	10.4	12.2
Average actual full-year, full-time work experience	23.2	21.5	24.0	17.3	17.3	18.8	8.5	8.9	10.5
Proportion of potential work experience working FYFT	63.7%	58.7%	66.3%	71.5%	73.0%	81.7%	76.6%	85.6%	86.1%
Number of observations	555	337	323	1771	590	971	1411	733	1073
Mothers	Born before 1948 n = 1571			Born between 1948-1960 n = 4089			Born after 1960 n = 3507		
	<i>Early</i>	<i>On-time</i>	<i>Delay</i>	<i>Early</i>	<i>On-time</i>	<i>Delay</i>	<i>Early</i>	<i>On-time</i>	<i>Delay</i>
	Percent of mothers	48.7	16.5	34.7	46.6	17.7	35.7	41.9	18.6
Average hourly wage rate	14.79	15.71	16.34	15.47	16.74	17.64	12.39	15.25	16.16
Average age	55.4	55.0	55.2	43.8	43.8	43.5	31.0	31.6	33.2
Average years of schooling	12.3	12.5	12.8	13.4	13.9	14.0	13.1	14.3	14.1
Average potential work experience =(Age - Schooling - 6)	37.1	36.5	36.4	24.4	23.9	23.5	11.9	11.3	13.1
Average actual full-year, full-time work experience	23.2	20.8	24.5	16.7	17.8	18.7	7.9	9.0	11.3
Proportion of potential work experience spent working FYFT	62.5%	57.0%	67.3%	68.4%	74.5%	79.6%	66.4%	79.6%	86.3%
Number of observations	763	282	526	1949	734	1406	1599	638	1270

Source: Survey of Labour and Income Dynamics, 1998

Table 6: Cross sectional wage differentials associated with the timing of marriage and motherhood, 1998.  
(Standard errors in parentheses)

Model	All workers		Born before 1948		Born between 1948-196		Born after 1960	
	Spec 1	Spec 2	Spec 1	Spec 2	Spec 1	Spec 2	Spec 1	Spec 2
Occupation	N	Y	N	Y	N	Y	N	Y
Industry	N	Y	N	Y	N	Y	N	Y
<b>Panel 1: Timing of marriage relative to those who marry early N=7764</b>								
On time	0.021 (0.019)	0.020 (0.017)	0.030 (0.047)	0.028 (0.043)	-0.009 (0.031)	-0.022 (0.027)	0.043 (0.031)	0.051 (0.026)
Delay	0.027 (0.018)	0.023 (0.017)	0.008 (0.048)	-0.001 (0.045)	0.001 (0.025)	-0.006 (0.023)	0.046 (0.031)	0.051 (0.028)
<b>Panel 2: Timing of marriage relative to those who are single, never married N=13423</b>								
Early	0.008 (0.015)	-0.009 (0.014)	-0.110 (0.093)	-0.094 (0.078)	0.003 (0.030)	0.004 (0.029)	0.047 (0.023)	0.011 (0.020)
On time	0.030 (0.020)	0.011 (0.018)	-0.071 (0.101)	-0.054 (0.083)	-0.008 (0.041)	-0.017 (0.038)	0.095 (0.031)	0.061 (0.027)
Delay	0.035 (0.021)	0.013 (0.019)	-0.082 (0.100)	-0.078 (0.081)	0.006 (0.033)	-0.002 (0.034)	0.086 (0.030)	0.053 (0.027)
<b>Panel 3: Timing of parenthood relative to those who have children early N=9167</b>								
On time	0.047 (0.021)	0.019 (0.018)	0.034 (0.051)	0.016 (0.049)	0.026 (0.033)	0.004 (0.027)	0.092 (0.031)	0.055 (0.024)
Delay	0.060 (0.017)	0.045 (0.015)	0.049 (0.039)	0.025 (0.033)	0.042 (0.024)	0.033 (0.021)	0.131 (0.031)	0.104 (0.026)
<b>Panel 4: Timing of parenthood relative to those who are not parents N=13423</b>								
Early	-0.066 (0.017)	-0.051 (0.014)	-0.068 (0.059)	-0.019 (0.043)	-0.062 (0.027)	-0.061 (0.022)	0.057 (0.046)	0.042 (0.035)
On time	-0.015 (0.024)	-0.028 (0.021)	-0.036 (0.074)	0.001 (0.062)	-0.031 (0.041)	-0.056 (0.033)	0.146 (0.053)	0.091 (0.042)
Delay	0.010 (0.022)	-0.001 (0.018)	-0.016 (0.064)	0.004 (0.049)	-0.016 (0.033)	-0.027 (0.027)	0.201 (0.054)	0.151 (0.042)

Note: Regression coefficients on marriage and motherhood reported. Standard errors are computed using bootstrap weights. The dependent variable is the natural logarithm of hourly wages. Regressors in Specification 1 include actual labour market experience, experience squared, education and major field of study, tenure, part-time status, union status, region, urban size class and firm size. Specification 2 includes the regressors of Specification 1 as well as industry (8 groups), occupation (8 groups), and job responsibilities (6 groups).

Table 7: Regression coefficients of the timing of motherhood and years with children  
Standard errors in parentheses

	All mothers		All mothers	
	N	Y	N	Y
Occupation				
Industry				
Job responsibilities				

**Panel 1: Delaying children over time as a continuous variable (relative to having children early)**

Delay	0.167 (0.032)	0.136 (0.029)
Delay* years with children	-0.009 (0.004)	-0.008 (0.003)
Delay*years with children squared	0.007 (0.012)	0.010 (0.010)

**Panel 2: Delaying children over time - by categories**

**Delay**

Had first children within past 5 years	Base	Base
Had first children within past 5-10 years	-0.008 (0.044)	0.015 (0.040)
Had first children within past 10-15 years	-0.068 (0.034)	-0.049 (0.030)
Had first children within past 15-20 years	-0.055 (0.038)	-0.057 (0.028)
Had first children within past 20-25 years	-0.163 (0.048)	-0.133 (0.041)
Had first children over 25 years ago	-0.184 (0.046)	-0.140 (0.042)

**Early**

Had first children within past 5 years	-0.164 (0.044)	-0.116 (0.039)
Had first children within past 5-10 years	-0.082 (0.350)	-0.067 (0.032)
Had first children within past 10-15 years	-0.118 (0.043)	-0.102 (0.038)
Had first children within past 15-20 years	-0.138 (0.033)	-0.104 (0.028)
Had first children within past 20-25 years	-0.116 (0.036)	-0.100 (0.030)
Had first children over 25 years ago	-0.159 (0.032)	-0.128 (0.028)

Note: The dependent variable is the log hourly wage rate. Regressors other than the timing of motherhood and the number of years with children include actual labour market experience, experience squared, education and major field of study, tenure, part-time status, union status, firm size, region, urban size class, industry, occupation and job responsibilities.

Standard errors are computed using bootstrap weights.

Appendix Table 1:

**Panel 1: Marital and Childbirth Delay**

	<i>All married women</i>		<i>All mothers</i>	
	Average timing	Average age at marriage	Average timing	Average age at first birth
Early	-3.1	20.5	-3.6	21.4
On-time	0.0	23.4	0.0	25.3
Delay	4.7	28.4	4.6	29.8

**Panel 2: Marital and Childbirth Delay by cohorts**

Marital delay, Sample of married women n = 7764

	<i>Born before 1948</i>		<i>Born between 1948-196</i>		<i>Born after 1960</i>	
	Average timing	Average age at marriage	Average timing	Average age at marriage	Average timing	Average age at marriage
Early	-3.0	19.9	-3.2	20.3	-2.9	21.1
On-time	0.0	22.3	0.0	23.4	0.0	24.0
Delay	4.8	27.8	5.6	29.2	3.9	27.7

Childbirth delay, Sample of mothers n = 9164

	<i>Born before 1948</i>		<i>Born between 1948-196</i>		<i>Born after 1960</i>	
	Average timing	Average age at first birth	Average timing	Average age at first birth	Average timing	Average age at first birth
Early	-3.3	21	-3.8	21.8	-3.6	21.1
On-time	0.0	23.9	0.0	25.7	0.0	25.3
Delay	4.8	29.2	3.6	30.8	3.8	28.6

Note: Average timing refers to the timing of marriage or motherhood after their predicted age. The predicted age is calculated for each individual observation from the results of the OLS regression where age at first marriage / birth varies by education and major field of study, region and urban size class. Separate regressions were run by cohort.

## **References**

- Becker, G. (1985). 'Human Capital, Effort and the Sexual Division of Labour.' *Journal of Labour Economics* 3 (1, Pt.2): S33-S58.
- Blackburn, M.L., D. Bloom and D. Neumark (1990). 'Fertility Timing, Wages and Human Capital.' *National Bureau of Economic Research, Working Paper*, no. 3422.
- Chandler, T.D., Y. Kamo and J.D. Werbel (1994). 'Do Delays in Marriage and Childbirth Affect Earnings?' *Social Science Quarterly*, Volume 75, Number 4, December, pp.838-853.
- Giles, P. and H. Lathe (1995). 'Work Experience'. *Perspectives on Labour and Income*, Volume 7, No. 2, Statistics Canada, Catalogue Number: 75-001-XIE.
- Glass, J. and V. Camarigg (1992). 'Gender, Parenthood, and Job-Family Compatibility' *American Journal of Sociology*, Volume 98, Number 1, July, pp. 131-151.
- Hill, M.S. (1979). The Wage Effects of Marital Status and Children. *Journal of Human Resources*, Volume 9, Number 4, pp.579-593.
- Kenny, L. (1983). 'The Accumulation of Human Capital during Marriage by Males.' *Economic Inquiry*, Volume 21, pp. 223-231.
- Korenman, S. and D. Neumark (1991). 'Does marriage really make men more productive?'. *Journal of Human Resources*, Volume 26, Number 2, Spring, pp.282-307.
- Korenman, S. and D. Neumark (1992). 'Marriage, Motherhood and Wages'. *Journal of Human Resources*, Volume 27, Number 2, Spring, pp.233-55.
- Lehrer, E. (1992) The Impact of Children on Married Women's Labor Supply. *Journal of Human Resources*, Volume 27, Number 3, Summer, pp.422-42.
- Mincer, J. and S. Polachek (1974). 'Family Investments in Human Capital: Earnings of Women.' *Journal of Political Economy*, Volume 82: S76-S108.
- Murphy, K. and F. Welch (1990). 'Empirical Age-Earnings Profiles'. *Journal of Labour Economics*, Vol. 8 (2), pp. 202-289.
- Nakamura, A. and M. Nakamura (1994). 'Predicting Female Labour Supply: Effect of Children and Recent Work Experience.' *Journal of Human Resources*, Volume 29, Number 2, Spring, pp.302-327.
- Shapiro and Mott (1994). 'Long-Term Employment and Earnings of Women in Relation to Employment Behaviour Surrounding First Birth.' *Journal of Human Resources*, Volume 26, Number 2, Spring, pp.248-275.
- Statistics Canada (1996). *Vital Statistics Compendium, 1996*. Catalogue 84 - 214 - XPE.

Statistics Canada (1998). *Labour Force Historical Review*, Catalogue Number 71F0004XCB.

Statistics Canada (2000). *Women in Canada 20010*, Catalogue Number 89-503-XPE.

Suter, L.E. and H.P.Miller (1973). 'Income Differences Between Men and Career Women'  
*American Journal of Sociology* 78(4): 962-75.