

Housework and Wages: a Canadian Perspective

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Abstract

Canadian individual microdata drawn from the Canadian Census of 2001 are used to examine the relationship between time spent on unpaid work and the wages people receive. This study uses the conventional human capital earnings equation and estimates regressions for men and women separately. The study discusses the effects of three types of unpaid work on earnings: housework, caring for children, and caring for seniors. It confirms that in general, women spend more time on all three types of unpaid work than men.

I. Introduction

In Canada, women are considered to have the same social status as men. However, this is not exactly true in the labour market. Male-female earnings differentials and discrimination have been one of the most discussed economic and political issues in recent decades. Many researchers and scholars have devoted their efforts to looking for the factors which cause the observed gender gap in the average wage paid. According to research by Statistics Canada, women's average hourly wage rates are about 84% to 89% of men's average hourly wage rates (Drolet, 2001). According to Drolet's research, up to 12% of the gender wage gap can be explained by gender differences in full-year, full-time work experience. Furthermore, about 6% of the gender wage gap can be explained by job-related responsibility (Drolet, 2002).

A number of productivity-related factors have been considered as possible reasons for the remaining gender wage differential, such as marital status and housework time. These factors are related to present and future work commitments, investments in training or education, and the potential effort workers may devote to their work. This idea leads to a number of studies that use marital status and housework time as proxies for productivity-related factors. For example, Hersch (1991a) and Hersch and Stratton (2002) included housework and marital status in their wage equations. During the 1980s and 1990s, a number of studies documented a direct negative relation between housework time and wages for married individuals.¹ Most of these studies are based on data from the National Survey of Families and Households (NSFH) of the United States, which provides individuals' hours spent on nine household activities, for example, meal preparation, house cleaning, as well as earnings. In much of this paper, "housework" is

¹ These studies will be discussed later in section II.

defined as general household activities that are performed within a family without pay. It includes taking care of children and seniors in family. In my empirical analysis, the definition of “housework” is determined by the categories available in the data set.

Recent generations have witnessed a profound change in marriage and fertility patterns, especially for women. According to Statistics Canada, the market participation rate has increased considerably from 1996 to 2003 as more women work full-time in the labour market (Bowlby, 2004). This phenomenon has led to the transformation of economic dependency and the division of labour at home for Canadian families. These changes affect the decisions people, both men and women, make in dividing their time between housework and market work, and consequently influence the wage rate they receive in the labour market.

Since I have not found any previous studies focusing on the influence of housework time on gender wage differentials from a Canadian perspective, I have chosen to study the relationship between earnings and housework time using Canadian individual microdata from the 2001 Canadian Census. I will focus on the following issues: (1) Is there a negative relationship between housework time and earnings for Canadians? (2) Is there a difference in housework time between Canadian men and women? (3) How does marital status influence Canadians’ housework time?

The plan of this paper is as follows. Section II provides a literature review of empirical studies of housework and its effect on the gender wage differential in Canada and the U.S. Section III discusses the data, variable definitions, and regression analyses, in addition to the model, and presents some descriptive statistics. Section IV introduces the regression results. The conclusion follows in section V.

II. Literature Review

In this literature review, I will take a look at some previous empirical studies which contribute to the study of the relationship between housework and earnings. As far as I know, none of them has really used Canadian data. There is thus a gap to be filled in the literature on this topic. The most recent studies are based on the U.S. context and data. Although some differences in country-specific characteristics exist, the U.S. and Canada have many characteristics in common since they have similar demographic and socioeconomic backgrounds. Thus, results from the U.S. studies would be meaningful to help us understand gender wage differentials in Canada. Similarly, the results generated by Canadian data sets would be of interest to U.S. audiences as well. Next, I will examine the approaches, data, and the results of existing empirical studies.

1. Approach

There have been a number of studies of the effect of housework on wages in the U.S. during the past decades. Hersch and Stratton's (2002) study of housework and wages can be considered one of the most recent studies of the relationship between housework and wages. The basic human capital wage equation is used in their study, which includes education, quadratics in experience and job tenure, and dummy variables indicating residence, job related disability, and survey wave, in addition to measures of housework. The regression distinguishes between marital status and gender in each equation in order to examine the differences in wages for married and non-married male and female workers. The standard human capital wage equation is also used in studies of

the relationship between nonmarket work and market wages (Hersch, 1991a). In this group of studies, household characteristics are the main concern.

Yet another group of studies focuses on the division and classification of different types of housework and their effect on wages. By emphasizing the importance of task-type distinctions and the nature of “female-type” and “male-type” housework, Noonan (2001) shows that “female-type” housework generally needs to be performed frequently and at specific times. This kind of so-called routine housework, such as preparing meals, cleaning, etc., makes women’s schedules less flexible, thus making their market work more likely to be disrupted by these family responsibilities. In that case, female tasks might have greater negative effect on wages than male tasks. Hersch and Stratton’s (2002) study also confirms this finding.

Some other studies focus instead on the impact of housework on the gender wage differential across marital statuses. Due to the trend towards postponed marriages and higher divorce rates in the new century, the study of marriage patterns seems to be more important than ever before. Many researchers therefore take into account the impact of marital status. South and Spitze’s (1994) study considers six separate groups classified by marital status. They also include several indicators of workload, for example, number of children, and time spent on nonhousehold activities such as paid employment and school enrollment, to test whether these variables affect housework.

Generally speaking, most empirical studies accept the basic human capital wage equation with some alterations in variable selection to accommodate their actual objectives. Some of them focus on categorized types of housework, while others focus on the influence of nonhousehold factors on time spent on household activities.

2. Types of data

The most widely used data sets in the analysis of housework and wages are the National Survey of Families and Households (NSFH), the Panel Study of Income Dynamics (PSID), the Quality of Employment Survey (QES), and the Study of Time Use (STU). All are U.S. data sets. The first two are the most recently used data sets, and the last two are older ones that were commonly used by studies in the 1970s and 1980s. The NSFH is the most widely used data set in the past decade. It contains information on individuals' total hours spent on housework, as well as hours spent on nine categories of housework such as meal preparation, cleaning, bill paying, etc. The detailed classification provides a description and the exact hours spent on each category of housework. All of the above four data sets are commonly used in the U.S., while the *Class Structure and Class Consciousness: Merged Multi-Nation Study* (Wright, 1986) as it contains information about a national sample of 2,577 Canadians. However, since the survey was conducted little attention has been paid to the relationship between housework and wage differentials in the Canadian context. A possible reason could be the lack of a data source that provides the necessary information on housework time in the Canadian context.

Hersch and Stratton (2000), Noonan (2001), South and Spitze (1994), Hersch (1991a), and some other researchers use the NSFH for the 1980s to the 1990s. This data set contains information on nine categories of household activity, which provides more accurate measures of housework as it can be easily categorized into different types of chores, thus making it easier to address the housework-wage relation. Hersch and Stratton (1997) use the PSID through 1979 to 1987. This data set provides information regarding housework hours and income collected annually beginning in 1968. This data set also

provides panel data which allows them to estimate a fixed effects model. Coverman (1983) uses the 1977 QES. This survey wave contains information about home chores and child care, which facilitate her study on domestic labour time and wage inequality. Shelton and Firestone (1989) use the 1981 STU. They benefit from the information regarding both domestic labour hours and market work hours in addition to work experience that is included in the data set. Finally, the *Class Structure and Class Consciousness: Merged Multi-Nation Study* is used by Brayfield (1992). It is a cross-national survey that contains useful information collected from a Canadian survey thus enabling Brayfield to evaluate an interactive resource model of housework.

3. Empirical Results

The general results from the above mentioned studies with different data sources are quite similar. Firstly, they all conclude that in general, housework has a negative impact on workers' market wages. Secondly, the negative impact on women's wages is more severe than that on men's. Thirdly, most studies mentioned the idea of specialization and division of labour between family members and its role in affecting wages. However, some differences in findings also exist since these studies have different research objectives and use different data. Moreover, the regression equations employed by these studies are modified differently according to their objectives.

The trend of married women's movement into paid employment has not been accompanied by a significant increase in the amount of housework done by husbands (Hersch and Stratton, 2000). Hersch and Stratton's study shows that gender wage differences in labour market are attributable to gender differences in household

responsibilities. This phenomenon is reflected in the differences in individuals' time spent on housework. It is generally accepted that married men have significantly higher wages on average than married women. One commonly cited idea to explain this is that marriage allows one spouse to specialize in market production and the other to specialize in home production. This specialization process enables the former to acquire more market-specific human capital and, ultimately, earn higher wages. However, Hersch and Stratton's (2000) estimation indicates that controls for home production activities do not substantially affect the marriage wage premium for males.

However, working wives are still responsible for most housework. Hersch's (1991a, 1991b) studies argue that household responsibilities may have a negative effect on wages, and therefore, women's disproportionate responsibility for household work may be one factor contributing to the earnings gap between men and women. Compared to men, women's lower wage rates are more likely to be attributable to inflexible working hours and a reluctance to work overtime. Therefore, their market wage tends to be lower due to a compensating differential (Hersch, 1991a). Hersch (1991a) applies human capital theory, as the most common approach, to the wage difference between men and women; she finds that women who bear the majority of household and child care responsibilities expect discontinuous labour force participation and fewer total years in the labour force than men. Therefore, women will have fewer years over which to reap the rewards, and hence will optimally choose to acquire less human capital. However, as the labour force participation rates of men and women continue to converge, differences in human capital will decrease in importance. The hypothesized negative effect of

housework on women's wages has generally been supported by past empirical studies. Coverman (1983) and Shelton and Firestone (1989) have confirmed this finding.

On the other hand, some studies have shown that marital status appears to affect wages. South and Spitze (1994) find that married workers have a wider gender wage gap than workers in the other marital status categories, which means marriage tends to influence gender wage differences significantly. Factors affecting housework amount and division, such as the number of children and seniors, and the number of rooms, are strongly related to marriage patterns and negotiation between spouses. Moreover, although it is difficult to classify and measure, the timing of marriage or divorce affects housework time as well. For example, individuals who divorced early in their lifecycle tend to take on more housework than those separated late since their children are younger and need to be taken care of.

Korenman and Neumark (1991) find faster wage growth for married men, particularly for those who get married at an early age. These findings are consistent with the results of Cornwell and Rupert's (1997) study. One possible reason is that the spouse who devotes more time to market production, usually the husband, will acquire more market-specific human capital, which will lead to an increase in market productivity and thus to higher wages. In general, investing time and effort in market work will increase market productivity and significantly reduce household activities. Productivity-related factors are the most frequently cited links between marital status and gender wage differences. Compared to married workers, never married workers tend to have fewer children, and less housework that is associated with child care. Moreover, never-married workers are more likely to stay with their parents and thus have a substantially lower

burden of housework. Similarly, for those who have separated, widowed, or divorced, the number of younger children in the family could be lower than for married workers, with correspondingly less household activities. The corresponding wage rates are higher for these who are not married.

As mentioned before, past studies have found that the negative relationship between housework and wages is stronger for women than for men. Noonan (2001) tests a potential explanation for this difference by focusing on the fact that men and women typically perform different types of household chores. Traditional “female-type” and “male-type” household activities are likely to interfere with market work differently. They must be performed differently in terms of when and how. Furthermore, Noonan’s (2001) regression results show that only time spent in female-type housework chores has a negative effect on wages.

More specifically, as mothers and wives, women apparently tended to choose jobs with a fixed schedule, ease of taking time off, and less mobility to facilitate household production, while men tend to achieve higher earnings with jobs that are more likely to have flexible working conditions, overtime work, and travels. Wages for those types of jobs are higher in terms of compensation and bonus. Hersch and Stratton (1997) also show that cross-sectional wage regressions confirm a substantial negative relation between wages and housework for wives. Holding other factors constant, married women's housework time is three times that of married men's. The wage equations with housework time can explain 38 percent of the gender wage difference, while equations without housework time only explain 27 to 30 percent.

While researchers have generally found that housework time has a significant negative impact on wages for married women, Hersch and Stratton (2002) find that the results for married men have been less conclusive. The possible explanation provided by the authors is that the special types of housework typically performed by women are more likely to affect wages. These tasks have to be performed on work days and thus are more likely to affect labour market activities. In comparison to wives, husbands are more likely to be involved in jobs that are associated with job-related responsibilities such as supervisory responsibilities and/or budget and staffing decisions, and therefore, higher pay. In order to perform the routine housework, women are more likely to find jobs that are more stable in terms of working hours, although with a lower wage rate.

Another interesting finding relates to the attitude towards housework division within the family, attitude from both adults and teenagers. Using data sets from the Quality of Employment Survey, Coverman (1983) is able to test the effect of people's "sex-role attitudes" on women and men's role in the family in terms of time devoted to housework.² The results indicate that women and men have very different opinions about their roles in the family. Women who support the "modern 'sex role'" tend to have an advantage in earnings. The author suggests that because those women are more likely to adopt male-type jobs with more competition, they receive higher earnings. On the other hand, men's ideology does not affect their earnings significantly.

² The Quality of Employment Survey (QES) has two questions on sex-role attitudes: "How much do you agree or disagree that it is much better for everyone involved if the man earns the money and the woman takes care of the home and children?" and "How much do you agree or disagree that a mother who works outside the home can have just as good a relationship with her children as a mother who does not work?" Respondents' sex role attitudes are measured by five categories according to their responses.

Looker and Thiessen's (1999) study focuses on youth's images of housework. Although teenagers' opinions may not directly explain the relationship between housework and gender wage differentials at the current stage, it gives an outlook on the future as well as the social root of gender-specified housework and wage differentials. The results of their study indicate that housework is generally considered female-type work, which is not desired by most male teenage-respondents. Also, for male teenagers, housework is less desirable than market work. For both male and female teenagers, market work and housework are defined quite differently in their images.

To sum up, besides the most commonly discussed determinants of wage rates, work experience and education, there are some other factors that have different levels of impact on gender wage differentials. Household responsibility, specialization in home production, number of children and seniors at home, and marital status, as well as attitude towards housework division, are also found useful in explain gender wage differentials. However, these factors do not directly contribute to wages people receive. In my opinion, they are reflected in time spent doing housework. Household activity is more like a connection between the above mentioned factors and wage rates. It consequently influences individual's decisions on labour market participation and even job selection. In the following sections, I will estimate a human capital earnings equation using a recent Canadian data set and compare the results with the findings from the above studies to see if there is any difference, and look for possible explanations.

III. Data and Model

The data used for analysis in this paper are Canadian individual microdata drawn from the Canadian Census of 2001. They are obtained from the microdata files of the *Canadian Census Analyser*.³ According to the microdata note attached to the *Canadian Census Analyser*, the complete microdata file consists of a sample of 801,055 in 2001. Initially I selected a sample of 10% from the original file, which gives me a sample of 80105 observations. I use the information on province or territory, age, sex, legal marital status, school attendance, total years of schooling, full-time or part-time weeks worked in 2000, weeks worked in 2000, occupation, wages and salaries, self-employment income, and three categories of unpaid work.

The sample used for estimation contains only applicable or available observations with certain characteristics. These characteristics determine some restrictions on the sample obtained.⁴ First, I restrict the sample to those between the ages of 18 to 65. Individuals in this age range are the most likely to be working. Second, I choose only those who are not attending school at the date of the Census. Third, I exclude those who are worked part-time in 2000, because continuous work patterns would make a more accurate proxy for experience in the regression. According to the microdata note attached to the *Canadian Census Analyser*, “people were asked to report whether the weeks they worked in 2000 were full-time weeks (30 hours or more per week) or not, on the basis of all jobs held. People with a part-time job for part of the year and a full-time job for another part of the year were to report the information for the job at which they worked the most weeks” (pp.134). Therefore, I assume that a person who reported full-time

³ Access through University of Ottawa library website: <http://proxy.bib.uottawa.ca:2256/census/>.

⁴ The econometrics software package SHAZAM 10 is used for my analyses.

worked was also working full-time during most of 2000. Fourth, my sample only includes observations with positive wages and salaries. Finally, I exclude observations with negative or positive self-employment incomes before regression. Because individuals with nonzero self-employment incomes may be distracted by their self-employed businesses, their market earnings may be abnormal. Also, people who are running self-employed businesses may be more flexible in terms of working hours and time management. For example, they might be able to work at home without commuting between workplace and home. Therefore, I would rather exclude these observations from my sample than consider self-employment income as part of market earnings. The above restrictions reduce the initial sample to approximately one-third of its original size in the survey year, leaving 27,664 available for my analysis, with 16,088 males and 11,576 females.⁵

The individual microdata file of the Canadian Census of 2001 only contains information about time spent on three categories of unpaid work: hours spent doing type 1 unpaid work, general housework; hours spent doing type 2 unpaid work, looking after children, and hours spent doing type 3 unpaid work, providing unpaid care or assistance to seniors. Time spent on all three types of unpaid work is measured in the week prior to Census day (May 15, 2001). It does not provide detailed descriptions for the housework types; therefore, I cannot further categorize them into more gender-specific classes as some empirical studies did with the NSFH data.

Although I cannot breakdown the total housework time and allocate it into more detailed subcategories, the three types of unpaid work contribute to my analysis in terms of family responsibility. The type 1 unpaid work is defined as general “housework.”

⁵ See Appendix A for descriptive statistics for the sample.

According to the *2001 Census Microdata file User Guide*, type 1 unpaid work is “unpaid housework for members of one’s own household, for other family members outside the household, and for friends or neighbours” (pp.144). Compared to the other two types of unpaid work, caring for children and caring for seniors, type 1 unpaid work is more general for all individuals.

Empirical studies have shown that important descriptive statistics can provide useful information in addition to regression analyses. Table 1 shows the average earnings of men and women by marital status. Married men have the highest average wages among all six groups, followed by separated men. Married women, separated women, and never-married men have almost the same level of average wages. The lowest average wages are reported by never-married women. These results are consistent with empirical studies stating that gender wage differentials exist in the Canadian labour market and are related to marital status.

Before actually estimating the earnings equation, new variables have to be constructed for the time spent on each type of unpaid work. The Census data does not have the actual hours spent. It only indicates the range into which the individual’s actual hours spent fall. To make the data more straightforward, I take the midpoint of each range and construct new variables as proxies for hours spent on each type of unpaid work.⁶

⁶ Later in my regression equations, I will use dummy variables rather than variables based on the midpoints of the ranges.

Table 1 Average Earnings of Women and Men by Marital Status (Standard Deviation).

	<i>Women</i>			<i>Men</i>		
	Married	Separated, Divorced, Widowed	Never- married	Married	Separated, Divorced, Widowed	Never- married
Average earnings	32400 (20289)	32395 (19864)	28219 (18864)	49802 (32571)	43772 (28380)	31707 (22052)
Number of observations	6318	3193	2065	9264	4996	1828

Source: Canadian Census of 2001.

Table 2 Average Time Spent on Unpaid Work per Week by Gender and Marital Status (Standard Deviation).

	<i>Women</i>			<i>Men</i>		
	Married	Separated, Divorced, Widowed	Never- married	Married	Separated, Divorced, Widowed	Never- married
Type 1 unpaid work, Housework	20.48 (16.44)	17.59 (15.39)	12.47 (12.86)	12.55 (12.86)	10.83 (12.072)	8.65 (11.20)
Type 2 unpaid work, Looking after children	15.71 (22.12)	12.32 (20.36)	8.85 (18.92)	11.01 (17.47)	8.04 (15.81)	4.79 (13.18)
Type 3 unpaid work, Care or assistance to seniors	1.40 (3.80)	1.37 (3.86)	0.88 (3.14)	0.92 (2.93)	0.78 (3.01)	0.58 (2.64)
Number of observations	6318	3193	2065	9264	4996	1828

Source: Canadian Census of 2001.

Table 2 shows average housework time for the cross section of workers. I consider three marital status categories: legally married; divorced, separated, or widowed; and never legally married. According to the 2001 Census User Guide, common-law partners are defined as two persons who are not legally married but living together as a couple at the Census time. An individual's marital status would induce different household-related responsibilities with respect to family care, since changes in family size and demography are important to this analysis, especially when using the Census data with three types of unpaid work. I would expect that an individual who has never married is more likely to undertake less unpaid work that is related to looking after children and seniors in families.

From Table 2 we can see that the amount of time spent on different types of work varies by gender and by marital status. On average, married women spend 64 percent more time on housework than never-married women, and 16 percent more time than women who are separated, divorced, or widowed. With respect to looking after children, married women spend 78 percent and 27 percent more time than never-married and separated, divorced, or widowed women, respectively. The differences are large because married women are much more likely to bear housework burdens related to children and family responsibilities than those who are not married. Married men spend 45 percent more time than never-married men, and 16 percent more time than those who are separated, divorced, or widowed, on housework.

Regarding type 2 unpaid work, married men spent more time than those in the other two groups as well, with 37 percent and 130 percent more respectively. The percentage is particularly high for never-married men. The reason is that the average

hours spent on child care are very low for never-married men, which means the base is small. Also, not surprisingly, holding marital status constant, on average women report spending more time on housework than men, while never-married individuals report smaller gender differences for type 1 and type 2 unpaid work.

For type 3 unpaid work, care or assistance to seniors, there is a relatively smaller difference by marital status, but the gender difference is important, as in each marital status category, women spend approximately 50 to 75 percent more time than the corresponding men. For all three types of unpaid work, married women report more time spent than all the other groups, while separated, divorced or widowed women follow, and married men are third. Never-married men report the least hours spent on all types of unpaid work - nearly 50 percent less than never-married women.

One can also use Table 2 to compare the average time spent on unpaid work across types of unpaid work. The table shows that regardless of gender and marital status, the average time spent on housework is more than that spent on looking after children and assistance to seniors. While the average time spent on looking after children is approximately two to five hours less than general housework, the time spent on care or assistance to seniors is the least of these three, at approximately one hour per week.

Although Table 2 provides some useful information on the relationship between earnings and time spent on household activities, using the mid-point method I can only get an approximation of the actual time spent on each type of household activity. Since in my case, I am trying to determine the relationship between housework time and earnings, it would be too restrictive to use this approximate measure of housework time and

earnings in a regression equation. Therefore, I prefer to use dummy variables for each category of each type of unpaid work in the regression analysis I will do later.

For both type 1 and 2 unpaid work, there are six categories indicating the range of hours in which each observation falls. For type 3, there are five categories in total. Table 3 shows the means of each dummy variable by gender and marital status, which represent the proportion of observations in each category.

For married women, the categories of 5 to 14 hours and 15 to 29 hours of type 1 unpaid work, housework, account for the first biggest shares among the six categories. About 35 percent of married women spent 5 to 14 hours per week doing housework in the Census year, while about 33 percent of married women spent 15 to 29 hours per week doing housework. For those who are separated, widowed or divorced and for never-married women, 38 percent and 42 percent, respectively, spent 5 to 14 hours on housework. This range accounts for the biggest proportion of women, regardless of their marital status. Not surprisingly, more never-married women fall into the category that represents zero hours of housework per week than those who are married and separated.⁷ As for married men, about 42 percent spent 5 to 14 hours per week on housework. Compared to separated women, almost the same proportion of separated men fall into this range. But most never-married men, about 38 percent, spent less than 5 hours per week on housework.

⁷ While it may seem surprising that some individuals do no housework at all, it is possible that these individuals are either wealthy enough to hire housekeepers. They may also live with parents or some other individual who does the housekeeping for them.

Table 3 Distribution of Hours of Unpaid Work by Gender and Marital Status

	<i>Hours Per Week</i>	<i>Women</i>			<i>Men</i>		
		Married	Separated, Divorced, Widowed	Never- married	Married	Separated, Divorced, Widowed	Never- married
Type 1 unpaid work	None	0.029	0.035	0.061	0.073	0.101	0.140
	Less than 5	0.098	0.147	0.257	0.240	0.294	0.385
	5 to 14	0.352	0.386	0.421	0.420	0.386	0.323
	15 to 29	0.332	0.285	0.186	0.195	0.164	0.109
	30 to 59	0.141	0.115	0.057	0.055	0.042	0.031
	60 or more	0.049	0.033	0.018	0.017	0.014	0.012
Type 2 unpaid Work	None	0.434	0.523	0.686	0.439	0.602	0.766
	Less than 5	0.107	0.100	0.078	0.146	0.104	0.071
	5 to 14	0.140	0.120	0.056	0.177	0.123	0.061
	15 to 29	0.112	0.097	0.058	0.117	0.082	0.043
	30 to 59	0.099	0.073	0.048	0.071	0.053	0.035
	60 or more	0.109	0.086	0.073	0.050	0.037	0.024
Type 3 Unpaid work	None	0.751	0.781	0.846	0.814	0.862	0.893
	Less than 5	0.162	0.127	0.103	0.134	0.093	0.076
	5 to 9	0.055	0.060	0.031	0.035	0.031	0.017
	10 to 19	0.017	0.017	0.011	0.096	0.029	0.005
	20 or more	0.015	0.016	0.010	0.007	0.010	0.008
Number of observations		6318	3193	2065	9264	4996	1828

Source: Canadian Census of 2001.

Taking the second range, 5 to 15 hours per week on housework, as a point of reference, the gender difference is quite obvious. A higher proportion of men, regardless of marital status, falls into the lower ranges. That means most men spent less than 14 hours on housework. But for women, most of them are found in the upper ranges; that is, a greater percentage of women spent at least 14 hours per week on housework.

Next, looking at type 2 unpaid work, taking care of children. As my sample only contains individuals aged 18 to 65, for both men and women, the largest proportion falls into the category of zero hours. The distribution for the other five categories is more even for women than for men. There is about 10 percent in each range for married and separated women, and about 5 percent in each range for never-married women. But for men, categories of less than 5 hours and 5 to 14 hours of type 2 unpaid work seem to account for the highest proportions after the zero category. Most men spent no more than 14 hours per week in looking after their children. The interesting thing I find here is that for categories of less than 5 hours, 5 to 14 hours, and 15 to 29 hours of type 2 unpaid work, it seems there are more married men than married women. A possible explanation here could be that looking after children is more likely to happen on weekends and weekday nights, which account for fewer hours than general housework and probably have less impact on market work. Table 3 also suggests that time spent on looking after children is more related to the individual's marital status than general housework. The distribution is quite different for those who have never married before. Because my data set does not contain information on the ages of children, I cannot further exploit the effect of children's ages on housework time and earnings.

Type 3 unpaid work is giving care or assistance to seniors. It is the least important one of the three, in that more than 75 percent of individuals report that they do not spend time in doing that type of unpaid work. However, about 16 percent of women and 13 percent of men who are married spent less than 5 hours taking care of seniors. About 13 percent of women and 9 percent of men who are separated spent 5 to 14 hours in doing that. I cannot see much difference in time spent on type 3 unpaid work either by gender or by marital status, relative to the other two types of unpaid work.

Tables 2 and 3 suggest that there is indeed a correlation between gender, marital status, and unpaid work in Canada. The remainder of my empirical analysis will test whether these correlations can help to explain earnings differences between men and women. The regression model I use here is based on the conventional human capital earnings equation:

$$\ln \mathcal{W}_{ji} = \mathcal{X}'_{ji}\beta + \mathcal{H}'_{ji}a + \mathcal{K}'_{ji}b + \mathcal{S}'_{ji}c + \mathcal{P}'_{ji}d + \mathcal{M}'_{ji}e + \mathcal{O}'_{ji}f + \varepsilon_{ji} \quad (1)^8$$

where

$\ln \mathcal{W}_{ji}$ = log of earnings of individual i in group j ,

$\mathcal{X}'_{ji}$ = a vector that contains experience, experience squared, years of education, and weeks worked of individual i in group j ,

$\mathcal{H}'_{ji}$ = a vector that contains dummy variables for unpaid housework for individual i in group j ,

$\mathcal{K}'_{ji}$ = vector that contains dummy variables for unpaid child care for individual i in group j ,

$\mathcal{S}'_{ji}$ = a vector that contains dummy variables for unpaid care or assistance to seniors for individual i in group j ,

$\mathcal{P}'_{ji}$ = a vector that contains dummy variables for province of residence of individual i in group j ,

⁸ For table of variable definitions, see Appendix B.

$\mathcal{M}'_{ji}$ = a vector that contains dummy variables for the marital status of individual i
in group j ,
 $\mathcal{O}'_{ji}$ = a vector that contains dummy variables for the occupation of individual i
in group j , and
 $\mathcal{E}_{ji}$ = a random error term.

In the above equation, j represents gender classification. To better understand how housework time affects gender wage differentials, I will do the regression by gender. Doing so will help me to answer the three questions posed in the introduction: (1) Is there a negative relationship between housework time and earnings for Canadians? (2) Is there a difference in housework time between Canadian men and women? (3) How does marital status influence Canadians' housework time?

My major interest is in $\mathcal{H}'_{ji}$, $\mathcal{K}'_{ji}$, and $\mathcal{S}'_{ji}$, vectors which contain dummy variables that measure the impact of the three categories of unpaid work on wages. There are five dummy variables in $\mathcal{H}'_{ji}$ and $\mathcal{K}'_{ji}$, and four dummy variables in $\mathcal{S}'_{ji}$. I excluded the first category for zero hours spent from all three cases, and use it as the reference category in all three cases. Thus, all the estimated coefficients of the remaining five categories can be seen as measuring differences relative to the first one.

The indicators of marital status will tell us how marriage can make a difference to wages, as well as the difference between women and men. I divide the total five categories of legal marital status into three groups: legally married and not separated; never legally married; and divorced, widowed, and separated but still legally married. The reason I am doing this is because in general, the actual living arrangement associated with marital status may influence one's household work amount significantly. For example, as single people, never married individuals tend to have fewer household

activities than those who are separated but still legally married, since the latter may have more household responsibilities coming from their previous marriage.

The other necessary control variables are experience, experience squared, education, weeks worked in 2000, and two more vectors containing dummy variables for residence status and occupation. The experience of each individual is calculated using the Mincer (1974) proxy: $EXP = AGE - \text{Total years of schooling} - 6$. I include education as an explanatory variable since it is commonly used in empirical studies as a major determinant of earnings. I construct it from the total years of schooling variable, using the mid-point method. That is, I assign each individual the midpoint of their range for total years of schooling.

Variables representing province of residence tells us how wages are affected by different provinces and territories. It is another conventional explanatory variable that has been mentioned in empirical studies. Occupation is another dummy variable I have included in the equation as many previous studies have documented an obvious impact of different occupations on wage differentials.

Some diagnostic tests are applied to my regression equation before discussing the results, for men and women separately. The results are listed in Table 4. First, I use the Chi-squared Goodness of Fit test to check for normality of the random error terms. Unfortunately, my results show evidence of non-normal error terms, as the observed χ^2 equals 5,610.59 for women and 6,755.32 for men. At the 5 percent level of significance, I reject the null hypothesis that errors are normally distributed. Theoretically, this means I have to rely on asymptotically valid tests instead of t and F tests. However, in practice, the critical values from t and F distributions can be used since the results are more

conservative than those of normal and chi-square distributions.⁹ For my analysis, F tests are still a sensible approach.

Second, I test for heteroskedasticity in my equation using the Breusch-Pagan-Godfrey (BPG) test.¹⁰ Although the BPG test is asymptotically valid and a large sample test, and my sample size is quite large, it requires the errors to be normally distributed. Since I have detected evidence of non-normal in the normality test, I have to use Koenker's (1981) modified version of statistics as it is less sensitive to the deviations from the normality assumption. The results suggest that heteroskedasticity does exist for my regression models at the 5 percent level of significance, so I reject the null hypothesis that there is homoskedasticity for both men and women and correct the standard errors of the OLS estimates for heteroskedasticity using White's heteroskedasticity-consistent covariance estimator.

Third, I use Ramsey's (1969) RESET test and DeBenedictis & Giles's (1998) FRESETS and FRESETL tests to check for specification errors in my regression model. There are nine test statistics in total, for the women and men's equations separately.¹¹ Under the null hypothesis that all the coefficients of the additional variables are zero, I reject the null hypothesis at the 5 percent significance level. That is, eight out of nine tests suggest specification errors in the women's equation, while six out of nine tests suggest specification errors in the men's equation.¹² The results suggest that specification

⁹ Greene (2008).

¹⁰ T. Breusch and A. Pagan, "A Simple Test for Heteroskedasticity and Random Coefficient Variation," *Econometrica*, vol. 47, 1979, pp. 1287–1294. See also L. Godfrey, "Testing for Multiplicative Heteroskedasticity," *Journal of Econometrics*, vol. 8, 1978, pp. 227–236. These tests are known as Breusch–Pagan–Godfrey tests of heteroskedasticity.

¹¹ The nine test statistics produced by SHAZAM differ in terms of the number of terms added to the test equation in order to approximate the mean of the error term.

¹² See Table 4 for the test statistics.

errors are more severe for the women's equation than men. This maybe because women are more likely to be interrupted in market work, so the measure of work experience based on age is a poorer proxy for women than for men. However, generally I have included most conventional control variables in my regression equation, so specification error should not be a serious problem here.

IV. Results

In my regression model, I have included most conventional control variables in the vector $\mathcal{X}_{ji}'$. These explanatory variables, such as experience, experience squared, education, and weeks worked, are the most commonly used by previous studies; however, they might not all be included in every study. Hersch and Stratton (2002, 1997) have included experience, experience squared, education, and some other variables in their regression model. Education and work experience have also been used as control variables by Noonan (2001). Experience and weeks worked have been included in Glass and Fujimoto's (1994) model. Shelton and Firestone (1989) have education, experience, and hours worked per week included in their model. Variables included in the regression equations are somewhat determined by data availability, the aspects emphasized by each study, even the researchers' perspective and preference. Thus, the above mentioned studies contain variables that I do not employed in my regression equation, such as the number of survey waves, tenure, disability, and so on. In general, education, work experience, and weeks worked are expected to be associated with higher wages, while experience squared is expected to produce a negative sign as a regression result. A number of studies also have age as a control variable in their regression models, but in

my regression equation, experience is calculated from a formula that is a linear function of age, so I prefer not to take age as an explanatory variable as it is likely to be highly correlated with experience. I also check for multicollinearity between the explanatory variables in my regression model using auxiliary R^2 s and the condition index; fortunately, the results do not show evidence of a multicollinearity problem.

I have also included marital status, province of residence, and occupation as dummy variables in my regression equation. Marital status is very important in my study since one of the issues on which I focus is concerned with marriage and its potential influence. Province and occupation are commonly cited in lots of empirical studies which involve gender wage differentials. Sometimes, region indicators are used instead of provincial indicators (Kidd and Shannon, 1994).¹³ Gender wage differentials across occupations have also drawn much attention. Women's preferences for some occupations, especially in administrative support and service occupations, is another concern of many empirical studies (Blau and Kahn, 2000; Kidd and Shannon, 1994; Gunderson, 1989).

I use Ordinary Least Squares (OLS) estimation to do my regression analyses. Table 5 provides the regression results for both men and women. The estimated standard errors have been corrected for heteroskedasticity. Both equations for women and men have reasonable explanatory power since the R^2 s are about 0.3, which are reasonable for cross-sectional data. The tests of overall significance indicate that all the regressions have explanatory power as well.

As mentioned before, experience is expected to have a positive effect on earnings. The positive sign of the coefficient shows that my finding is consistent with expectations. Individual tests of significance indicate that the coefficients of experience and experience

¹³ Such as Atlantic, Quebec, and West.

squared are statistically significant at the 5 percent level of significance. Besides, the coefficients of education and weeks worked also have a positive sign, which confirms my previous prediction; both of them are statistically significant at the 5 percent level of significance. The negative sign of the coefficient of experience squared is consistent with empirical results from other studies and indicates that earnings increase with experience at a decreasing rate.

Table 5 also tells us about the coefficients of marital status, province, and occupation. As I have classified marital status into three general groups, for both men and women, the married group is taken as the reference group. The results indicate that for both men and women, being separated or never-married causes a decrease in wages compared to being married, but the former causes less of a decrease in wages than the latter. However, according to their t-ratios, the coefficients of these two variables are not statistically significant at the 10 percent level of significance for women.

The regression results for occupation and province of residence also confirm the findings of other empirical studies. Occupations involving management responsibility or decision are more likely to have higher pay (Gunderson, 1989). Another generally accepted idea is that average earnings are higher in male-dominated occupations than in female-dominated occupations (Brayfield, 1992). Moreover, residence in Ontario and the Western provinces could result in higher wages than in the Atlantic and Prairie provinces (Drolet, 2001).

Next, I will discuss the regression results for three types of unpaid work. First, let me discuss the women's equation. At the 5 percent level of significance I can reject the null hypotheses for individual tests of significance of the coefficients of all the dummy

variables for type 1 unpaid work except the category of 60 or more hours. Thus, they contribute to the explanatory power of the equation. As for the men's equation, at the 5 percent level of significance, the coefficients of the first three variables are statistically significant, but the coefficients of the last two are not. For both men and women, the results of a joint test, shown in Table 6, indicate that I can reject the null hypotheses that coefficients for all the housework variables are zero at the 5 percent level of significance. This result is consistent with the individual tests.

Figure 1 plots the trend line for coefficients of housework for both men and women. Men and women seem to have a similar trend in coefficients. Wages tend to rise as hours spent on housework increase at the beginning. The peak range is 5 to 14 hours per week on housework, which is consistent with the descriptive tables. For women, the peak range increases wages by almost 20 percent, which is equivalent to three additional years of education, while for men, it increases wages by about 15 percent. This range accounts for the largest change in wages compare to other ranges. After the peak range, wages fall as more hours are spent on housework. From the category of 15 to 29 hours to the category of 60 or more hours, wages decrease by almost 15 percent for men.

Figure 1 also reveals an interesting finding regarding the women's equation. From the category of 30 to 59 hours to the category of 60 or more hours, wages increase about 3 percent. But as we know for men, there is no such turn-about; wages decreases by about 7 percent. Men who spend more than 60 hours per week on general housework tend to have lower wages than those with zero hours spent. From an economic point of view, it is hard to explain why the reverse happens for women. One possible reason I can think of here is that those who have report spending more than 60 hours per week on housework

may be more efficient in time management and able to arrange their schedule properly since they have an excessive amount of housework to do. However, statistically, the coefficients of the last two categories for both men and women are not significant. In general, though, the impact of housework time on wage is stronger for women than for men. It has confirmed the findings by Hersch and Stratton (2002) using the NSFH data.

Next, I find that for both men and women, I cannot reject the null hypotheses that the coefficients are statistically significant at the 5 percent level of significance for all the dummy variables in type 2 unpaid work, which means caring for children does not contribute to the earnings equation's explanatory power. The F-statistics from joint tests also illustrate that the variables for type 2 unpaid work are statistically insignificant at the 5 percent level of significance.¹⁴

However, I can still plot the trend lines of the coefficients of type 2 unpaid work in Figure 2. Although the coefficients of the variables representing time spent caring for children may not be estimated very precisely, it is still interesting to look at the pattern of the coefficients of these variables. In general, Figure 2 suggests that time spent looking after children has a relatively more positive impact on wages for men than for women. Many previous studies have revealed a relationship between children care and earnings (Cohen, 2004; Hersch and Stratton, 2002; Noonan, 2001; Hersch, 1991a). Some of these studies include other variables that may help explain this relationship, such as the number of children under 14 years old and so on. Similarly, Noonan (2001) finds that children have a positive effect on men's wages, at the 5 percent level of significance. In my opinion, because looking after children is more likely to be performed during weekday nights and weekends when children are at school ages, it is less likely to affect one's

¹⁴ See Table 6 for the results of the joint tests.

market work than looking after pre-school children, who require care both day and night. If men spend more time caring for school age children, while women spend more time caring for pre-school children, this could explain the positive effect of child care on men's wages. Unfortunately, with the data set I obtained from 2001 Census, I cannot get statistically significant results regarding the relationship between earnings and time spent taking care of children.

Regarding type 3 unpaid work, taking care of seniors, for women, only the category of 5 to 9 hours has a statistically significant coefficient at the 5 percent level of significance. However, for men, both the third and the last categories have significant coefficients at the 5 percent level of significance. For those men who spent 10 to 19 hours, wages decrease about 13 percent. For women in this range, wages decrease about 7 percent. It seems that type 3 unpaid work contributes more to men's wages than to women's. Joint tests for women suggest that I cannot reject the null hypothesis that all the coefficients of variables are zero at the 5 percent level of significance. But for men, I reject the same null hypothesis at the 5 percent level of significance, which means caring for seniors contributes to the explanatory power of the men's equation.

Men and women have similar trend lines for these coefficients as shown in Figure 3. Only the range of less than 5 hours increases wages relative to the first range of zero hours. After that, as more hours are spent on taking care of seniors, wages fall. Few previous studies focus on this type of unpaid work. As I presume, taking care of seniors needs additional time and energy and is more likely to interfere with one's market work. For example, looking after seniors in hospitals or nursing homes may require travel time

that causes discontinuity of market work. Consequently, the opportunity cost generated by taking care of seniors is higher than that of the other two types of unpaid work.

Of the three types of unpaid work, the first one is more applicable to all individuals regardless of gender or marital status. More or less, everyone has housework to do. The other two types are more comparable with each other. Furthermore, deviations from the reference category show that general housework has the most significant impact on women's earnings. The other two types of unpaid work do not have statistically significant coefficients for women, and thus I cannot actually draw a conclusion regarding their impact on earnings from the regression results.

In order to find out the impact of housework on Canadian gender wage gap, I compute the Blinder-Oaxaca decomposition of the male-female earnings differential.¹⁵ Table 7 shows proportion of difference in log wages. The unexplained factors account for 85 percent of the differential, while the explained factors account for about 15 percent of the differential. Among all the 14 variables of unpaid work, the first three categories of type 1 unpaid work are responsible for most of the explained differential. The negative sign of the unexplained share of the three reflects the fact that women actually receive a higher return to type 1 unpaid work than do men, implying that type 1 unpaid work tends to reduce the gap between men and women. Moreover, the positive signs on the unexplained proportions of the type 2 unpaid work variables suggest that men receive a higher return to taking care of children than women. But the negative signs on the explained proportions of the type 2 unpaid work variables reflect a reduction in the explained component. This finding is different from Drolet's (2002) results that children-

¹⁵ See Blinder (1973) and Oaxaca (1973).

related factors increase the explained component. In general, experience, experience squared, education, weeks worked in 2000, never legally married, and constant are the factors that contribute to the biggest unexplained portion of the gap. As for the explained portion of the gap, the fourth, fifth, twentieth, and twenty-first occupational groups are the biggest contributors.

It should be noted that I excluded from the sample observations that reported part-time work in the Census year, in order to focus on the relationship between wages and household activities. Thus my sample only includes those who worked full-time. This constraint may affect my analysis results in terms of scope, especially for the last two types of unpaid work, looking after children and seniors. These two types of unpaid work usually require more energy and time, which can affect the individual's decision of whether to enter the labour market, or to work part-time instead of full-time. It is common for married women to feel more obligated than married men when facing the choice between taking a full-time or a part-time job. Hence, my sample may be biased to some extent since it has excluded those who take on the majority of housework in a family but only work part-time. The full-time working spouse, usually the husband, takes on a lower proportion of household activity.

V. Conclusion

In this paper, I explore the impact of hours of household activity hours on wages using a data set drawn from the Canadian Census of 2001. I estimate the regression by gender, and focus on three different types of unpaid household activity. The regression results reveal the particularity of the relationship between gender wage differentials and

housework time in Canada, as well as some findings similar to those of empirical studies in the U.S.

Based on my analysis, I can draw several conclusions as follows, regarding the three issues I mentioned at the very beginning of the paper. First, the negative relationship between time spent on general housework and the earnings referred by a number of empirical studies is not always there for Canadians in all groups. From the regression results I find that the categories that contain the greatest number of observations confirm the negative effect of housework time on earnings. But categories with fewer observations (for example, less than 5 hours and 60 or more hours) contradict this negative effect. The magnitudes of the coefficients show that the relationship is somewhat stronger for Canadian women than for men. In addition, the impact of hours spent taking care of children and seniors on wage are not statistically significant. But in my opinion, household activities regarding children are important in economics. Second, obviously, on average women spent more time on all types of unpaid work relative to men. This is especially true for those who are married. Third, marital status does affect Canadians' housework time. In general, married women take on more household responsibilities in a family. But those who had been married but not in marriage at the survey time also spent more hours on housework than never-married people. This result is different from Hersch and Stratton's (2002) finding that marriage does not cause a housework effect. Finally, the limitations of my sample and variable selection may influence my regression results to some extent. Due to data availability, I do not include many child-related variables in my regression model; this may affect my analysis of the impact of child-related housework on earnings. Moreover, unpaid work hours reported

by individuals are the hours spent in the week prior to the date when Census was administered, but I assume these are the hours spent in every week in 2000. They do not perfectly match with the information pertaining to income. This too may affect the regression results of my model.

My paper has focused on three types of unpaid work, but, there is no detailed information on the content of housework. Therefore, analysis based on housework content cannot be done with this type of data. I think disaggregating housework by its content may be more helpful for us to understand its impact on gender wage differentials in Canada. Furthermore, according to the *2001 Census Microdata file User Guide*, the timing of all the three types of unpaid work data and income does not correspond perfectly, it might affect the results to some extent.

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Table 4 Diagnostic Tests Statistics

		<i>women</i>	<i>men</i>
Chi-squared goodness of fit test			
Test statistic (p-value)		5610.585* (0.000)	6755.323* (0.000)
Breusch-Pagan- Godfrey (BPG) test			
Test statistic (p-value)		958.750* (0.000)	774.645* (0.000)
Ramsey's RESET test			
Test statistics (p-value)	RESET(2)	12.237 (0.000)	23.653 (0.000)
	RESET(3)	9.452 (0.000)	12.291 (0.000)
	RESET(4)	6.762 (0.000)	8.899 (0.000)
	FRESETL(1)	9.157 (0.000)	10.174 (0.000)
	FRESETL(2)	6.978 (0.000)	6.330 (0.000)
	FRESETL(3)	4.902 (0.000)	4.846 (0.000)
	FRESETS(1)	4.334 (0.013)	0.918 (0.399)
	FRESETS(2)	2.379 (0.049)	1.481 (0.205)
	FRESETS(3)	1.760 (0.103)	1.190 (0.308)

Source: Canadian Census of 2001.

* indicates statistically significant at the 5 percent level of significance.

Table 5 Coefficients of Explanatory Variables (t-ratio).

	<i>Women</i>	<i>Men</i>
EXP	0.0262* (9.949)	0.0304* (13.440)
EXP ²	-0.0004* (-6.310)	-0.0004* (-8.832)
EDUC	0.0521* (15.670)	0.0426* (15.620)
WKSWK	0.0331* (32.710)	0.0301* (34.930)
HWK1	0.1727* (2.968)	0.0730* (2.721)
HWK2	0.1878* (3.358)	0.1252* (4.805)
HWK3	0.1705* (3.019)	0.1204* (4.262)
HWK4	0.0744 (1.242)	0.0461 (1.059)
HWK5	0.0920 (1.287)	-0.0235 (-0.352)
KID1	-0.0231 (-0.894)	0.0137 (0.651)
KID2	-0.0178 (-0.695)	0.0265 (1.212)
KID3	0.0016 (0.057)	0.0140 (0.593)
KID4	0.0124 (0.400)	0.0232 (0.823)
KID5	-0.0078 (-0.256)	-0.0191 (-0.571)
SR1	0.0084 (0.398)	0.0149 (0.7588)
SR2	-0.0718* (-1.888)	-0.1187* (-2.928)
SR3	-0.0680 (-1.138)	-0.1288* (-2.396)
SR4	-0.0146 (-1.358)	-0.0882 (-1.348)
MAR4	-0.0247 (-1.171)	-0.1620* (-8.450)
MAR135	-0.0034 (-0.163)	-0.0403* (-2.016)
PROV11	0.0278 (0.294)	-0.0313 (-0.402)
PROV12	-0.0615 (-0.909)	-0.0180 (-0.326)
PROV13	-0.0624 (-0.877)	0.0070 (0.117)
PROV24	-0.0069 (-0.127)	0.0207 (0.438)
PROV35	0.1564* (2.952)	0.1293* (2.784)
PROV46	-0.0205 (-0.326)	-0.0842 (-1.523)
PROV47	0.0320 (0.485)	-0.0241 (-0.375)
PROV48	0.0794 (1.401)	0.1327* (2.700)
PROV59	0.1823* (3.283)	0.1548* (3.223)
PROV60	0.4881* (5.219)	0.1460 (1.216)
OCUP2	-0.2797* (-3.319)	-0.3397* (-7.173)
OCUP3	-0.2031* (-2.274)	-0.2467* (-4.254)
OCUP4	-0.4471* (-5.323)	-0.4484* (-7.333)
OCUP5	-0.4916* (-5.894)	-0.6307* (-12.430)
OCUP6	-0.2496* (-2.689)	-0.2840* (-6.108)
OCUP7	-0.1636* (-1.837)	-0.2343* (-2.310)
OCUP8	-0.5055* (-5.708)	-0.5568* (-8.537)
OCUP9	-0.4033* (-4.698)	-0.4328* (-7.638)
OCUP10	-0.1962* (-2.336)	-0.3279* (-6.396)
OCUP11	-0.3793* (-4.095)	-0.5751* (-8.811)
OCUP12	-0.2884* (-3.124)	-0.4294* (-7.542)
OCUP13	-0.7610* (-8.7021)	-0.6824* (-11.920)
OCUP14	-0.8706* (-9.155)	-0.9451* (-14.160)
OCUP15	-0.3371* (-2.377)	-0.4050* (-7.415)

Table 5 (Continued)

OCUP16	-0.8254* (-8.211)	-0.8080* (-6.278)
OCUP17	-0.7809* (-8.924)	-0.9249* (-16.670)
OCUP18	-0.2168* (-1.688)	-0.2949* (-4.990)
OCUP19	-0.7319* (-2.793)	-0.5396* (-9.801)
OCUP20	-0.5197* (-4.390)	-0.4413* (-9.140)
OCUP21	-0.9352* (-4.885)	-0.5572* (-10.760)
OCUP22	-0.8723* (-5.017)	-0.5953* (-10.120)
OCUP23	-0.7252* (-6.857)	-0.5311* (-9.088)
OCUP24	-0.6412* (-7.001)	-0.5446* (-10.520)
OCUP25	-0.7306* (-6.068)	-0.7015* (-10.330)
CONSTANT	7.7291* (58.280)	8.3757* (92.290)
R ²	0.3299	0.3002
Adjusted R ²	0.3266	0.2978
F-statistic	101.789	121.274
F p-value	0.000	0.000
Number of observations	11222	15319

Source: Canadian Census of 2001.

* indicates statistically significant at the 5 percent level of significance.

Table 6 Statistics of Joint Tests (p-value)

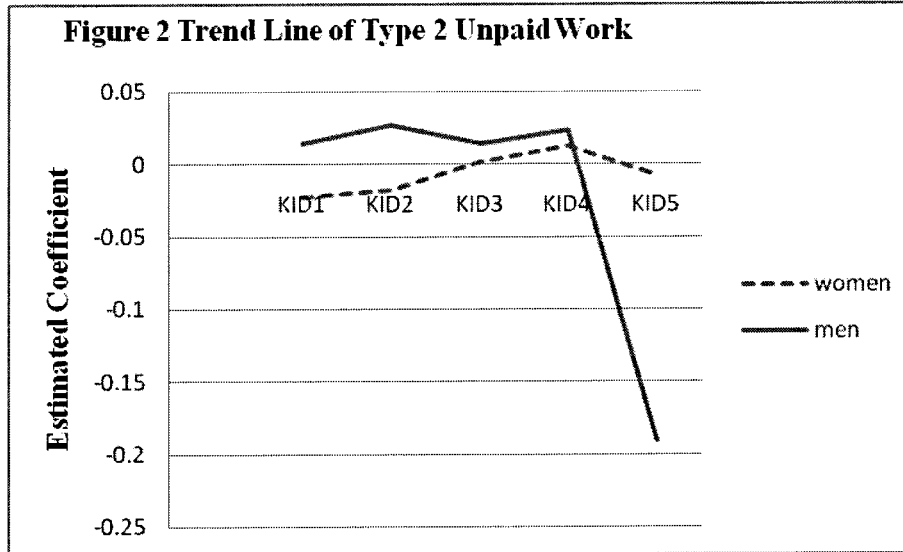
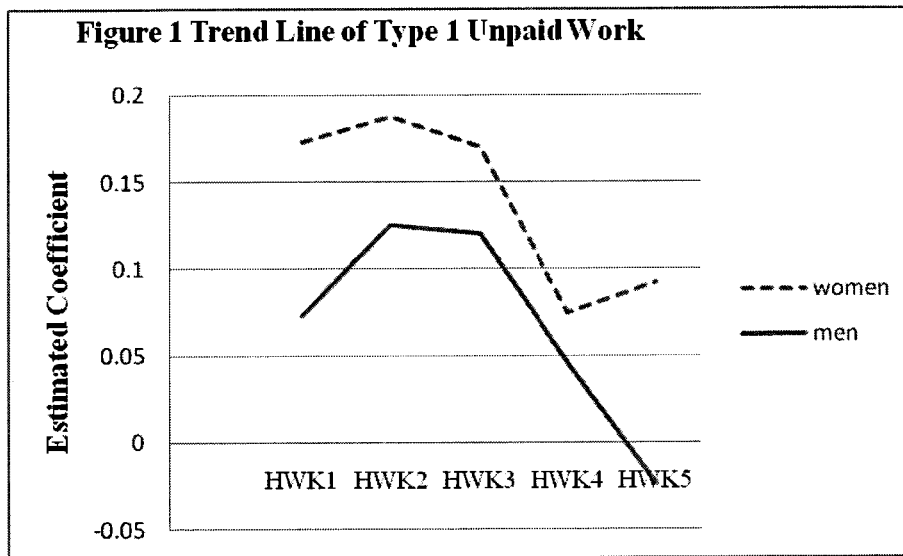
	<i>Women</i>	<i>Men</i>
Type 1 unpaid work	5.768 (0.000)	7.402 (0.000)
Type 2 unpaid work	0.333 (0.893)	0.555 (0.735)
Type 3 unpaid work	1.706 (0.146)	4.207 (0.002)
Marital status	0.687 (0.503)	35.747 (0.000)
Provinces	15.183 (0.000)	12.189 (0.000)
Occupations	24.282 (0.000)	30.164 (0.000)

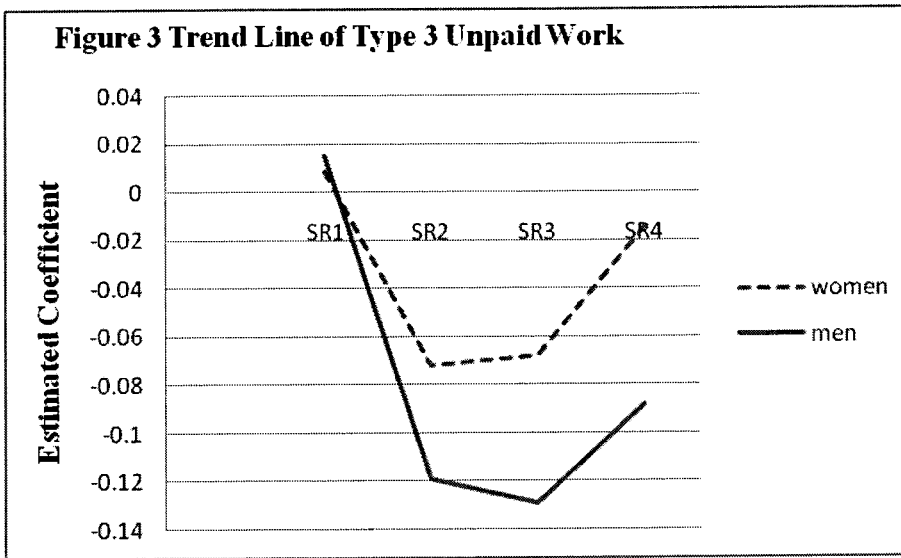
Source: Canadian Census of 2001.

Table 7 Proportion of Difference in Log of Earnings, %

<i>Variable</i>	<i>Unexplained</i>	<i>Explained</i>	<i>Variable</i>	<i>Unexplained</i>	<i>Explained</i>
EXP	27.05	5.08	PROV60	-0.36	-0.03
EXP ²	-10.32	-3.75	OCUP2	-2.27	-2.52
EDUC	-40.07	-6.44	OCUP3	-0.29	0.38
WKSWK	-42.78	-5.30	OCUP4	-0.01	12.87
HWK1	-8.96	7.50	OCUP5	-2.42	17.68
HWK2	-7.43	-0.50	OCUP6	-1.12	-5.72
HWK3	-2.54	-6.24	OCUP7	-0.15	1.79
HWK4	-0.40	-1.54	OCUP8	-0.11	5.99
HWK5	-0.55	-0.63	OCUP9	-0.19	4.37
KID1	1.33	-0.14	OCUP10	-0.96	2.49
KID2	1.84	-0.12	OCUP11	-1.00	0.78
KID3	0.34	-0.00	OCUP12	-1.31	-0.85
KID4	0.19	-0.09	OCUP13	0.67	6.14
KID5	-0.14	0.13	OCUP14	-0.39	4.20
SR1	0.22	-0.07	OCUP15	-0.57	-2.11
SR2	-0.42	0.44	OCUP16	0.01	6.10
SR3	-0.14	0.16	OCUP17	-2.40	5.50
SR4	0.14	0.26	OCUP18	-0.37	-0.92
MAR4	-13.26	-0.27	OCUP19	2.28	-8.37
MAR135	-1.30	0.06	OCUP20	2.63	-15.88
PROV11	-0.10	-0.01	OCUP21	8.76	-20.11
PROV12	0.38	0.04	OCUP22	3.26	-8.56
PROV13	0.55	-0.01	OCUP23	2.38	-6.02
PROV24	2.09	-0.00	OCUP24	2.42	-5.97
PROV35	-3.19	-0.73	OCUP25	0.23	-1.43
PROV46	-0.69	0.00	CONSTANT	199.24	0.00
PROV47	-0.47	-0.01			
PROV48	1.83	0.29	Total	85.04	14.96
PROV59	-1.01	0.32	LnW _m - LnW _f	0.3245	

Source: Canadian Census of 2001.





Appendix A Sample Descriptive Statistics: Sample Means

	<i>Women</i>	<i>Men</i>
WAGESP	31236	43437
LNW	10.071	10.395
EXP	20.450	21.078
EXP2	547.830	579.640
EDUC	13.937	13.537
WKSWK	46.513	47.033
MAR4	0.278	0.314
MAR135	0.177	0.114
PROV11	0.006	0.005
PROV12	0.030	0.028
PROV13	0.025	0.026
PROV24	0.244	0.246
PROV35	0.397	0.381
PROV46	0.036	0.035
PROV47	0.028	0.027
PROV48	0.100	0.112
PROV59	0.114	0.120
PROV60	0.004	0.003
OCUP2	0.093	0.123
OCUP3	0.028	0.022
OCUP4	0.110	0.017
OCUP5	0.173	0.057
OCUP6	0.032	0.106
OCUP7	0.042	0.007
OCUP8	0.046	0.007
OCUP9	0.056	0.021
OCUP10	0.065	0.024
OCUP11	0.023	0.017
OCUP12	0.021	0.030
OCUP13	0.054	0.028
OCUP14	0.033	0.017
OCUP15	0.007	0.027
OCUP16	0.025	0.002
OCUP17	0.077	0.054
OCUP18	0.002	0.016
OCUP19	0.001	0.039
OCUP20	0.010	0.109
OCUP21	0.005	0.075
OCUP22	0.006	0.038
OCUP23	0.013	0.040
OCUP24	0.051	0.081
OCUP25	0.019	0.025

Note: variable definitions can be found in Appendix B.

Appendix B Variable Definitions

Variable	Code	Description
EXP		Work experience
EXP2		Work experience squared
EDUC		Education, calculated from total years of schooling
WKSWK		Weeks worked in 2000
MAR2	2	Legally married – and not separated
MAR4	3	Never legally married – single
MAR135	135	Divorced, or separated but still legally married, or widowed
PROV10	10	Newfoundland and Labrador
PROV11	11	Prince Edward Island
PROV12	12	Nova Scotia
PROV13	13	New Brunswick
PROV24	24	Quebec
PROV35	35	Ontario
PROV46	46	Manitoba
PROV47	47	Saskatchewan
PROV48	48	Alberta
PROV59	59	British Columbia
PROV60	60	Yukon Territory, Northwest Territories and Nunavut
OCUP1	1	Senior management occupations
OCUP2	2	Other management occupations
OCUP3	3	Professional occupations in business and finance
OCUP4	4	Financial, secretarial and administrative occupations
OCUP5	5	Clerical occupations and clerical supervisors
OCUP6	6	Occupations in natural and applied sciences
OCUP7	7	Professional occupations in health, registered nurses and supervisors
OCUP8	8	Technical, assisting and related occupations in health
OCUP9	9	Occupations in social science, government services and religion
OCUP10	10	Teachers and professors
OCUP11	11	Occupations in art, culture, recreation and sport
OCUP12	12	Wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers
OCUP13	13	Retail trade supervisors, salespersons, sales clerks and cashiers
OCUP14	14	Chefs and cooks, supervisors, and other occupations in food and beverage service
OCUP15	15	Occupations in protective services
OCUP16	16	Childcare and home support workers
OCUP17	17	Service supervisors, occupations in travel and accommodation, attendants in recreation and sport and sales and service occupations.
OCUP18	18	Contractors and supervisors in trades and transportation
OCUP19	19	Construction trades
OCUP20	20	Other trades occupations
OCUP21	21	Transport and equipment operators
OCUP22	22	Trades helpers, construction, and transportation labourers and related occupations
OCUP23	23	Occupations unique to primary industries
OCUP24	24	Supervisors, machine operators and assemblers in manufacturing
OCUP25	25	Labourers in processing, manufacturing and utilities

Source: Statistics Canada. (2001). *2001 Census Public Use Microdata File on Individuals User Documentation*. No. 95M0016XCB. Ottawa.