

Parental Time and Working Schedules

Very preliminary version, no quotation

**Benoît RAPOPORT¹ (CIED / INRS and TEAM / Université de Paris 1) and
Céline LE BOURDAIS (CIED / INRS)**

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Correspondance :

Benoît Rapoport : TEAM, Maison des Sciences Economiques
106-112, boulevard de l'Hôpital, 75 647 Paris cedex 13 France
Phone : (33) 1 44 07 82 52
Fax : (33) 1 1 44 07 82 47
Email : rapoport@univ-paris1.fr

Céline Le Bourdais : INRS-Urbanisation, Culture et Société
3465, rue Durocher, H2X 2C6, Montréal, Québec, Canada
Phone : (514) 499 4062
Fax : (514) 499 4065
Email : celine.lebourdais@inrs-ucs.quebec.ca

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Abstract

In this paper, we analyze the determinants of parental time in Canadian two-parent households, by using the Canadian General Social Surveys conducted in 1992 and 1998 that focus on time use. In particular, we investigate the effects of working schedules on time devoted by mothers and fathers to different kinds of activities with children. Switching regression models allow us to model simultaneously labor market participation and allocation of parental time. We find that effects of exogenous determinants of parental time greatly differ between men and women and between working and non-working respondents. We also find that working time has a negative and very significant effect on parental time. Moreover, if hours worked during the day and hours worked at night have about the same impact on parental time, for fathers and for mothers, the effect of hours worked in the evening (between 6 p.m. and 10 p.m.) is about twice as the effect of hours worked at night and during the day. For mothers, this differential effect is observed both in 1992 and in 1998, whereas for fathers, it is observed only in 1998.

Keywords: Time-use, parental time, family economics switching regression models, working schedules

JEL Classification: C3, D1, J13, J22

I. Introduction

The radical changes relative to family structures and ways of working that Western societies have experienced for more than two decades have lead scholars from different domains – demography, economics, sociology, psychology – to investigate the consequences that those transformations could have on children's development and well-being.

Investigations have first concerned the effects of the absence of one of the parents, usually the father, on different measures of children development. Dawson (1991) indicates that numerous research works conducted during the seventies and the eighties have brought to the fore the existence of a sound relationship between family structure and different indexes measuring children's development relative to schooling, behavior, health and psychological development.

Although several researchers have rightly insisted on the importance of the quality of the parent-child relationship (Amato, 1994; Amato and Gilbreth, 1999; Carlson, 2000), studies that investigate determinants of the time that parents spent with their children are rather recent, and date from a dozen of years. In everyday relationships, the quantity of contacts, which can be measured with less subjectivity, is as basic as their quality, and both aspects are generally tightly related. Besides, although economists have often considered parental time only as an input that is to be used in order to increase the "quality" of children (Becker, 1960), they have nevertheless recently recognized that time with own children might be one of the favorite activities of parents (Hallberg and Klevmarken, 2001), so that parents might derive some direct utility from doing an activity, independently of its result (see the "process benefit" defined by Juster, 1985).

Studies investigating parental time are now numerous. Their conclusions are nevertheless sometimes contradictory. Whereas one could have feared a reduction of average time with children, because of the increasing female participation to the labor market, and of the evolution of family structures and ways of working, recent American studies have shown that time spent by mothers with their children has not very changed (Bianchi, 2000), and that children's time with parents has even increased in two-parent families between 1981 and 1997 (Sandberg and Hofferth, 2000). Bianchi gives four reasons to this only slight modification of

mothers' time with children: maternal time in the past is generally overestimated, how much working mothers do to protect investment in children, even as they enter in the labor market has not been rightly evaluated, children's needs have evolved, and fathers' behavior has changed. Sandberg and Hofferth impute time variations in time with children to changes in behavior, demographic changes having almost no effect. In Quebec, Lefebvre and Merrigan (1999) found that average time with children has decreased between 1986 and 1992, particularly because the number of parents, who spent no time with their children has increased, whereas time with children has slightly increased in the rest of Canada. However, time devoted to direct relationships with children (direct childcare, social activities and leisure with children) has increased in Canada between 1986 and 1992.

The effects of the increasing participation to the labor market of women on parental time have been abundantly analyzed, although conclusions are, as stated above, mitigated (Bianchi, 2000). However, other structural changes are engaged, and it seems worth investigating their effects on parental time. For example, the share of "non-standard" jobs has increased. In Canada, indeed, the proportion of women who work part-time, who have a temporary job, who have several jobs, or who are independent workers has increased from 35% in 1989 to 40% in 1989, and for men, this proportion has increased from 22% to 27% (Beaujot, 2000). Moreover, in 1990, in Canada, 49% of male workers and 37% of female workers stated they work outside the regular day, that is either in the evening, at night or during the weekend (Le Bourdais and Sauriol, 1998).

In this paper, we propose to investigate the effects of working schedules on parental time. We will use the General Social Surveys conducted in 1992 and 1998 in Canada, which focus on time use, and which are presented in Section II. Section III insists on the importance of studying the relations between time spent by parents and their working schedules. Section IV raises different econometric problems involved by such analyses and describes the solutions that we have retained. Section V presents and discusses estimation results. Section VI concludes.

II. Data

Presentation

In the following empirical analysis, we use the 1992 and 1998 Canadian General Social Surveys (Cycle 7, hereafter GSS92 and Cycle 12, hereafter GSS98), which describe Canadians' time allocation. Besides several demographic questions, 10 749 members of 10 749 households in 1998, and 8 996 members of 8 996 households in 1992,² forming a sample representative of Canadian population (in fact we use weights computed by Statistic Canada that make the sample representative), were asked to describe how they used their time during a particular 24 hours period (the Designated Day). Moreover, people have been surveyed either a week day or during the week-end and information has been gathered during a whole year, so that every month and every day are equally represented in the survey. This is important as time-use may greatly differ between week-end and week days, just as between months.

During a 24 hours period, each respondent had to write a diary describing each of her or his activity and indicating where and with whom she or he did it. Activities were selected in a list of about 200 activities (for example, "Work for pay at main job", "Food (or meal) cleanup", "Grocery shopping", "Restaurant Meals", "Night Sleep/Essential Sleep", "Attending art gallery").³ Statistic Canada (1999) proposes a description of Canadians' time use in 1998 along with different characteristics of respondents and of households (see also Lefebvre and Merrigan, 1999, for 1986 and 1992).

For each activity, respondents had to indicate whether the activity was made together with another person, and to indicate how they were related. Moreover, children younger than 15 (strictly) living in the household have been mentioned as soon as they were present in the same room as the respondent, even if their activities was different.

² Only people older than 15 years old have been interviewed.

³ This differs from, for example, the Swedish household panel study (Household Market and Non Market Activities; see, for example, Hallberg and Klevmarken, 2001) in which no fixed format was used for activities (the respondents own words were recorded). See also, for example, Juster and Stafford (1991) for a discussion about advantages and shortcomings of the different types of time use surveys.

Definitions

Hereafter, *parental time* will designate total time spent either by the father or by the mother with their children. Remember that only less than 15 years old children (excluding 15 years old children) are systematically reported when they are in the same room as the respondent. *Maternal time* and *paternal time* refer to total time spent respectively by mothers and by fathers with their children.⁴ We define familial time as time spent by both parents with their children.

The sub-sample

As, in the present paper, we are only interested in parental time, we will restrict the sample to respondents living with at least one of their⁵ less than 18 years old children.⁶ Moreover, Rapoport and Le Bourdais (2002) have shown that behaviors of one-parent and of two-parent households greatly differ in what concerns parental time, and that it is more difficult to find variables explaining parental time allocation in one-parent household, perhaps because single parents are more time-constrained, so that time with children among them is more homogenous. Moreover, one-parent households are generally households without father, what prevents us to compare fathers' and mothers' behaviors. Although both types of households are of interest, we will restrict our analysis to two-parent households.

Finally, as information is missing for some participants, our final sample has 4 735 observations (2 501 mothers and 2 234 fathers; 2350 individuals in 1992 and 2385 in 1998).

III. Working schedules and parental time

⁴ Unfortunately, we do not simultaneously measure paternal time and maternal time, as only one member per household has filled out a diary. Respondents have only evaluated time spent by their spouse in childcare during the week preceding the interview.

⁵ Notice that children of respondents and of their spouses in stepfamilies are not distinguished in the data (at least in the public files).

⁶ In 1992, variables describing family composition do not allow to distinguished children between 13 and 18, whereas in 1998, children between 13 and 14 and between 15 and 18 are differentiated.

On the importance of working schedules when studying parental time

As noticed by Presser (1994), most of the studies concerning the determinants and effects of the increasing participation of women to the labor market focus on the amount of hours worked, but ignore when they are worked. Hamermesh (1998) also emphasizes the importance of timing when studying the allocation of time, in particular in couples. In the same spirit, Hamermesh (forthcoming) shows that synchronous leisure is preferred by spouses.

If working schedules are important determinants of time available for domestic chores and leisure, taking schedules into account is even more relevant when one studies parental time, both paternal and maternal, inasmuch as children are not continuously available. Researchers are now conscious of the importance of studying the effects of working schedules of parents on the time they devote to their children, although this is quite recent, as the first works on this topic reckon only from the end of the eighties, and remain rather scarce. Several authors, like Presser (1988, 1989) or Nock and Kingston (1988), show that fathers are more likely to be in charge of childcare, when their spouses do not work at night or in the evening, but also paradoxically when the mothers work part-time rather than full-time. Moreover, fathers who used to work during the weekend or who do not work at night, are less likely to be in charge of their children (Nock and Kingston, 1988; Casper, 1997; see also Brayfield, 1995, for other references). According to Brayfield (1995), when controlled for the number of working hours that overlap in two-working-parent households, total working time of the father and his schedules have no effect on the likelihood that he will be in charge of children; only the fact that the father does not have regular schedules has a negative and significant effect. On the contrary, working time and the type of schedules of the mother have a substantial impact on the probability that the father will be in charge of children.

Most of those papers that are interested in the effects of working schedules on parental time have generally used dichotomic variables to describe working schedules (Brayfield, 1995, for example). Nock and Kingston (1988) is an exception. These authors distinguish hours worked between midnight and 9 a.m., hours worked between 9 a.m. and 3 p.m., hours worked between 3 p.m. and 6 p.m., and hours worked between 6 p.m. and midnight, what allow them to study precisely the effect of one additional hour worked at a particular moment of the day. However, this study does not allow to differentiate between hours worked at night and hours worked in the evening.

Like Nock and Kingston (1988), we study the effects of working schedules on parental time by distinguishing between hours worked during the day, at night and in the evening. We also use information relative to the regular employment situation of respondents.

Working schedules in Canada in 1992 and 1998

Before studying how parental time and working schedules are related, we propose to investigate how non-regular schedules have evolved in Canada between 1992 and 1998.

[Table 1 about here]

As shown in Table 1, the proportions of people with children under 18 living in biparental families who have worked between 6 a.m. and 6 p.m. (day), between 6 p.m. and 10 p.m. (evening) and between 10 p.m. and 6 a.m. (night) the Designated Day (DD afterwards in the tables) have slightly increased between 1992 and 1998, mainly among women. It appears thus that the proportions of people with children under 18 living in biparental families who have worked in the evening or at night during the reference day have increased between 1992 and 1998, but no more than the proportion of people that have worked in the daytime. These observations are in line with the conclusions relative to the United-States presented by Beers (2000). Although the percent of workers who work (formal or informal) flexible schedules has sharply increased between 1991 and 1997 (15.1% of the 16 years and older in 1991, and 27.6% in 1997; Beers consider all workers), the percent working alternative shifts (that is, according to Beers, work schedules that do not conform to the regular daytime schedule (6 a.m. - 6 p.m.)) did not vary very much between 1991 and 1997, both for men and women (it has decreased from 17.8% to 16.8% for all workers).

Working schedules and parental time

Table 2 displays average time spent by parents with their children depending on whether they have worked in the evening and at night the Designated Day in 1992 and 1998.

[Table 2 about here]

Not surprisingly, Table 3 shows that whatever their labor market participation and working schedules may be, mothers spend more time with their children than their husbands do (almost six and a half hours against four hours on average). Table 3 also indicates that time with children has decreased between 1992 and 1998, except for mothers who have worked non regular schedules during the Designated Day, that is either in the evening or at night. On the whole, paternal time has decreased by 18 minutes, and maternal time by 33 minutes, what indicates that gender differences have decreased. However, at the same time, working time of mothers have increased by 25 minutes, whereas working time of fathers has increased by only 10 minutes.

Moreover, parents who have worked non regular schedules during the Designated Day spent significantly less time than other parents, and as expected especially than parents who did not work during the Designated Day.

Lastly, it is interesting to note that, compared to the means, standard deviations are greatly larger for average parental times of respondents who have worked not regular schedules during the Designated Day. This indicates that situations are probably more varied in these cases.

Before giving and discussing empirical results, we discuss econometric problems that may arise when analyzing parental time.

IV. Econometric considerations

There are two main econometric problems that we have to deal with in order to correctly estimate the effects of working schedules on parental time. The first one is that the working times are potentially endogenous. Moreover, as the dependent variable and the three potentially endogenous regressors (day, evening and night working hours) are limited variables, we need to estimate a 4-dimensional generalized tobit. Such a Full Information Maximum Likelihood can be burdensome to compute. We thus have two solutions at our disposal: the two-step methods and the Amemiya estimators (see Lee, 1981), that we tried to separately estimate. In the two-step model, we estimated in the first step the four endogenous

variables by using a Heckman Two-Step Estimator, which was preferred to tobit estimators, because large fractions of workers do not work in the evening or at night; in the second step we used the first-step predicted values of working times as regressors in our main equation (parental time). In the second case, we use the Amemiya Ordinary Least Square Estimator⁷ which is described by Lee (1981).

Our attempts to estimate simultaneously those four variables were not very conclusive. In fact, the effects of working schedules appeared to be very unstable, especially in the case of evening hours. This could be due to the fact that we were unable to find "good" instruments to estimate the hours worked in the evening and at night. There are, of course, variables that are good predictors of the likelihood of individuals to work in the evening or at night (sex, age, education level), but once this propensity is taken into account, almost no observable variables have an effect on the amount of hours worked at night or in the evening. Moreover, a Blundell and Smith (1986) test of endogeneity indicates that the working schedules may not be endogenous⁸. At first sight, this conclusion might appear surprising. But, we must keep in mind that people's schedules were observed during a single day. Of course, on the basis of a month or a year, working schedules and parental times are probably simultaneously determined. However, on a given day, an individual may work in the evening (after 6 p.m.) for non-structural reasons, for example because the job has to be finished or because commuting time, which is included in the working hours, was particularly long this day. This argument is less stringent for hours worked at night, but it is mainly for evening hours that we were unable to find instruments. Moreover we are more interested in the comparison between day hours and evening hours, as only a few people work at night. In the following, we will thus consider working schedules as exogenous variables. It is interesting to note that Hallberg and Klevmarken (2001) also found, by using augmented regression test for endogeneity, that own and spouse's market hours can generally considered as exogenous variables when they estimate parental time.⁹

⁷ More simple to compute, but less efficient than the Amemiya Generalized Least Square Estimator.

⁸ The Blundell and Smith test which allows to test endogeneity in tobit models is not exactly adapted to our problem, because it assumes that the potentially endogenous variables are continuous, whereas, our variables are limited. However, under the assumption of continuity, we may consider that the working schedules are not endogenous.

⁹ However, joint F-test rejects the hypothesis that spouse's time with children, own and spouse's market time, own net wage rate, and if the household use out-of-home child care are all exogenous variables. They thus use 3SLS. However, this strategy does not allow to consider parental times as limited dependent variables.

The second problem we have to deal with, is that working schedules are, of course, observed only for working people. There are of course respondents who usually work, but who did not work on the Designated Day. We have simply considered them as working people with zero hours worked. However, we cannot include only working people into the analysis, because of a possible selectivity bias. One solution to solve this problem is to use working people and to correct this bias (Heckman, 1979, for example). The main shortcoming of this approach is that we do not use the whole information available for non-working people, especially the time that they devote to their children. For this reason, the solution we have retained is to use a switching regression model with endogenous switch (see, for instance, Maddala, 1983). The underlying idea is simple. People may be either in one or the other regime, and there exists a set of variables that determine to which regime they belong. In the present study, people are present or not on the labor market. Note that in this case, we observe the variable indicating in which regime the parent is. For each regime, the sets of independent variables may be different. For example, among working people, the working schedules are supposed to have an effect on the parental time. The switch is said to be endogenous, because we allow the residuals of each regime equation to be correlated with the residual of the latent variable determining the regime.

More specifically, the model can be written as below:

$$\begin{aligned} y_{1i} &= X_{1i} \mathbf{b}_1 + u_{1i} \\ y_{2i} &= X_{2i} \mathbf{b}_2 + u_{2i} \\ I_i^* &= \mathbf{Z}_i \mathbf{g} - \mathbf{e}_i \end{aligned} \tag{1'}$$

$$\begin{aligned} I_i &= 1 \text{ if } I_i^* > 0 \\ I_i &= 0 \text{ if } I_i^* \leq 0 \end{aligned} \tag{2}$$

$$\begin{aligned} y_i &= y_{1i} \text{ if } I_i = 1 \\ y_i &= y_{2i} \text{ if } I_i = 0 \end{aligned} \tag{3}$$

$$(u_1, u_2, \mathbf{e})' \sim N(0, \Sigma) \quad \Sigma = \begin{pmatrix} \mathbf{s}_{11} & \mathbf{s}_{12} & \mathbf{s}_{1e} \\ \mathbf{s}_{12} & \mathbf{s}_{22} & \mathbf{s}_{2e} \\ \mathbf{s}_{1e} & \mathbf{s}_{2e} & 1 \end{pmatrix} \tag{4}$$

y is the dependent variable (here parental time). I_i indicates to which regime individual i belongs.

Note that $\mathbf{s}_e=1$ because we only observe I_i^* and not I_i , and that \mathbf{s}_{12} cannot be estimated because we never observe y_{1i} and y_{2i} simultaneously (nobody is at the same time in regime 1 and in regime 2). Moreover, when $\mathbf{s}_{1e} = \mathbf{s}_{2e} = 0$, the switch is exogenous.

In fact, we did not really estimate this model, as the dependent variable may be censored (tobit model), mainly because some parents did not spend anytime with their children during the Designated Day (24 hours only). Accounting for this possibility, the estimated model is the following:

$$\begin{aligned} y_{1i} &= X_{1i} \mathbf{b}_1 + u_{1i} \text{ if RHS} > 0 \\ y_{1i} &= 0 \text{ if RHS} \leq 0 \\ y_{2i} &= X_{2i} \mathbf{b}_2 + u_{2i} \text{ if RHS} > 0 \\ y_{2i} &= 0 \text{ if RHS} \leq 0 \\ I_i^* &= Z_i \mathbf{g} - e_i \end{aligned} \tag{1}^{10}$$

The rest of the model (equations 2, 3 and 4) is unchanged.

The likelihood of the model is quite simple, and the model can be estimated by maximizing the log-likelihood.

V. Results and discussion

We will not comment nor display all empirical results. In particular, we do not present results of the switch part of the model (working / non working), and will just say below a few words about it.

[Tables 3a and 3b about here]

¹⁰ As usual, RHS is for Right Hand Side.

Table 3a presents estimation results for working women (regime 1) and non-working women (regime 2) for total parental time and for five different activities. Likewise, Table 3b gives results for working and non-working men.

Working schedules and parental time

The six first rows in Tables 3 concern our key variables and describe working time allocation. First, one notices that, as expected, working time has generally a negative impact on parental time, both for men and women, for total time and for all activities. Moreover, effects of working time are slightly higher on total maternal time than on total paternal time. For example, one minute worked between 6 a.m. and 6 p.m. substitutes for .426 minutes of maternal time and .372 minutes of paternal time. Second, for women, if negative effects on total parental time of minutes worked at night (-.498) and during the day (-.426) are identical, the effects are much higher for minutes worked in the evening (-.752). This pattern can be observed both in 1992 and in 1998, as cross effects with the year of survey are never statistically significant. For men, the pattern is quite similar; however, the higher negative effect of minutes worked at night is observed only in 1998: in 1992, negative effects of minutes worked were identical when worked at night (-.355), in the evening (-.372), and during the day (-.372), whereas, in 1998, there is a additional negative effect for minutes worked between 6 p.m. and 10 p.m. (-.255).

Hence, those results indicate that fathers' behavior relative to the substitution between working time and parental time that was to some extent different from mothers' in 1992, becomes similar in 1998, although in an attenuated way.

If working time substitutes to all kinds of activities – almost all the coefficients are negative and significant at the 5% or 1%-level -, the magnitude of the substitution greatly differs from one activity to another, and along with working schedules.

For women, negative effects are quite important on domestic tasks with children, and slightly higher for minutes worked in the evening and at night than for minutes worked during the day. For men, substitution effect was present for minutes worked in the evening only in 1998 (at the 10% level), and for minutes worked at night only in 1992.

Substitution effect for direct childcare is about twice for minutes worked at night and in the evening, both for men and women, and both in 1992 and 1998.

It is for social activities with children that substitution effects are the most important, and they are particularly high for minutes worked in the evening, what is not surprising as social activities are usually practiced in the evening. It is nevertheless worth noting that the larger effect of evening working time is observed for men only in 1998, and that night working time has no effect on social activities with children for women.

Not surprisingly, it is for meals (a necessary activity) that the substitution effects are the weaker; for women, the effect of minutes worked at night is not statistically significant.

Lastly, both for fathers and mothers, working time between 6 p.m. and 10 p.m. has a very high (and highly significant) negative impact on leisure time with children. Moreover, minutes worked during the day have also a negative impact, both in 1992 and 1998 for men, but only in 1998 for women, and minutes worked at night have a significant negative impact (only at the 10%-level), but only for fathers and only in 1998. Thus, for leisure with children, the substitution effect appears to be higher for men than for women. This is not really surprising, as other empirical analyses have shown that parental time devoted to leisure was higher for fathers than for mothers, contrarily to others kinds of activities (see Rapoport and Le Bourdais, 2002).

As often observed (Brayfield, 1995; Presser, 1988, 1989), spouse's working time has less effect for women than for men. For women, only time devoted to domestic tasks with children and to leisure with children are modified by spouse's working time. Indeed, the more her husband works during the day and in the evening, the more a mother devotes time to domestic tasks and to leisure with their children, and the less she devotes time to leisure with children (only for time worked during the day). Thus, time worked by the father induces, to some extent, a substitution between tasks (with children), and leisure. For men, total paternal time increases when the mother works; more specifically, paternal time devoted to domestic tasks with children and direct childcare increase. It is worth noting that, when the mother works in the evening, the father modifies his allocation of time with children: he increases greatly time devoted to childcare, which is an activity generally practiced by women, to the detriment of time devoted to leisure, an activity with children more likely practiced by men, as recalled above. For non-working parents, spouse's working time has only very weak

effects. Time devoted to leisure by non-working mothers significantly decreases with hours worked at night by their husbands, whereas time devoted to meals and domestic tasks increases. Moreover, time devoted to direct childcare by non-working fathers increases with hours worked at night by their wives.

Other variables describing working schedules have contrasted effects. Usually working a rotating shift does not modify neither paternal and maternal time, nor allocation of parental time. Fathers who work flexible schedules do not modify amount and allocation of time with children, whereas mothers who work flexible reduce time with children; they increase time devoted to direct childcare, but decrease leisure with children. Both mothers and fathers who have worked a split shift (more than 3 hours between two spells of work) during the Designated Day have increased direct childcare. Last, parents who sometimes work at home devote slightly more time to their children: women increase domestic tasks with children, whereas fathers increase time with children devoted to social activities and meals.

Differences between types of occupation are only modest. Compared to men who have a managerial position, almost all other male workers devote less time to domestic tasks with children and to direct childcare (although not always significantly in this case). Concerning domestic tasks, this observation is probably not restricted to domestic tasks with children, but is consistent with findings that show that men with higher professions often participate more to domestic chores. The result relative to direct childcare concerns also women. Table 3a also indicates that the allocation of maternal time differs significantly only for women that work in construction trades, but this professional category concerns only very few women, so that the coefficients are not very meaningful. In fact, we have no reason to expect differences between types of occupation, especially once we have controlled for working schedules.

Other results: working people and non-working people

The effects of other variables for working and non-working people can be compared, as they are measured for both types of respondents.

Not surprisingly, Tables 3 indicate that parental time is higher the weekend than during the week, for men and women, and also for working and non-working people. However, not only the amount of parental time is higher the weekend, but also the allocation of time. Working mothers increase time devoted to social activities and to leisure, as non-

working mothers. However, in return, the later reduces direct childcare. Likewise, both working and non-working fathers increase time devoted to social activities and to leisure, at the expenses of direct childcare (non-working men also decreases time devoted to domestic tasks with children, probably, because their wives, who often work during the week, are in charge of domestic tasks during the weekend). Thus, on the whole, parents reduce direct childcare, and increase leisure and social activities with children. Reduction of time devoted to direct childcare might be partly imputed to the fact that the parents do not need to prepare and to accompany them to school, nor to help them to do their homework.

As expected, generally, the younger and the more numerous the children are, the more time parents devote to them. These effects are often more important for non-working mothers than for working mothers. The affects of age of children appear to be higher for working fathers than for non-working fathers, whereas the effects of number of children are higher for non-working fathers than for working fathers. Of course, those effects differ along with the concerned activity. Time devoted to direct childcare decreases with the age of children, and generally increases with their number. On the contrary, especially for fathers, time spent in leisure with children increases with their age. Meals and social activities are only slightly influenced by the age or number of children. Time spent in domestic tasks when children are present is generally higher when the children are young, particularly for non-working women, who are often in charge of domestic chores. Other studies have found that time with children greatly depended on age of children (see, for example, Lefebvre et Merrigan, 1999). Silver (2000) notices that, in two-wage-earner households, time spent with children decreases when the children get older, just as differences between mothers and fathers.

Age of respondents has only a weak effect on parental time. This variable is nevertheless related to the age and to the number of children. Time devoted to direct childcare by working mothers increases with age, at the expenses of time devoted to social activities, whereas time devoted to meals with children by their non-working female colleagues increases with age. For working fathers, total parental time decreases with age; in fact, they devote less time to leisure with children, as non-working, although more moderately, fathers. Of course, differentiating age effects along with the age and the number of children could be of interest; however, such an analysis would probably necessitate a larger sample.

When born in Canada, working fathers spend less time with their children; they devote less time to direct childcare, as non-working mothers do. The later spend also less time in meals with children (as working mothers), but more time in social activities, so that total maternal time does not differ across working status of mothers.

Non-working fathers who go to the church (whatever their religion may be) at least sometimes spend more time with their children, especially time devoted to social activities and leisure, whereas non-working mothers devote more time to social activities with children and less time to direct childcare.

Time weekly devoted by the spouse to childcare has an effect on respondent's time with children, but only for working people. Empirical results indicate that among working people, paternal and maternal times are, to some extent, substitutes. Mothers increase time devoted to direct childcare, meals and leisure with children, and fathers increase time devoted to social activities and leisure with children. It is worth remembering that this variable is not measured as accurately as own parental time, as spouse's parental time is evaluated by the respondent on a weekly basis.

For women, there are no differences along with the region of residence,¹¹ although working mothers in Ontario spend more time in direct childcare. Differences are more important for fathers. In Quebec, fathers spend significantly less time with their children (except in British Columbia for working men). In particular, working fathers who reside in Ontario, Atlantic Region, and Prairie region spend more time in direct childcare; both working and non-working fathers in Atlantic Region and in British Columbia spend more time in domestic tasks with children than in Quebec; and fathers in Atlantic Region and in Ontario (but only non-working fathers) devote more time to leisure with children than in Quebec; in Ontario, fathers also spend more time in social activities than in Quebec. Lastly, in Quebec, almost all types of parents spend more time with their children for the meals.

Finally, except when one considers differentiated effects of working schedules, there appears to be only weak differences between 1992 and 1998 in parental time. Fathers have spent less time in meals with children in 1998; for non-working fathers, this is compensated by the fact that they have devoted more time in social activities. Moreover, working mothers have spent more time in direct childcare in 1998 than in 1992.

¹¹ See Tables 3, for detailed results.

VI. Conclusion

In this paper, we have analyzed the determinants of parental time in two-parent households. In particular, we have investigated the effects of working schedules on time devoted by mothers and fathers to different kinds of activities with children. Switching regression models have allowed us to model simultaneously labor market participation and allocation of parental time. We found that effects of exogenous determinants of parental time greatly differ between men and women and between working and non-working respondents. We also found that working time has a negative and very significant effect on parental time. Moreover, if hours worked during the day and hours worked at night have about the same impact on parental time, for fathers and for mothers, the effect of hours worked in the evening (between 6 p.m. and 10 p.m.) is about twice as the effect of hours worked at night and during the day. For mothers, this differential effect was observed both in 1992 and in 1998, whereas for fathers, it was observed only in 1998.

In a context of augmentation of evening work, this result may be interpreted as alarming, particularly because these are leisure and social activities that are mostly reduced, that is activities during which direct interactions between children and parents are important.

Of course, studying the effects of working schedules on parental time is a difficult exercise because data are often too imprecise to accurately study allocation of time when they are weekly retrospective data or because, although they are very precise, they cover a too narrow period when, as in the present paper, they are daily data. Ideal data would be data as those gathered in GSS92 and GSS98, but collected during at least a whole week, what would be indeed very costly for such a large sample. In particular, as stated above, daily data prevent us to fully study decisions of allocation of time, that is to simultaneously model choices of parental time and of working schedules.

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Table 1: Proportions of male and female respondents with children under 18 living in biparental families who have worked the Designated Day (DD), during the day, in the evening and at night, in 1992 and 1998

	1992			1998		
	Proportion	Minutes worked	Minutes worked if positive	Proportion	Minutes worked	Minutes worked if positive
Hours 6 a.m. - 6 p.m.	50.4%	236	468	55.1%	254	462
Men	64.2%	322	502	65.6%	323	493
Women	37.0%	151	409	44.4%	184	415
Hours 6 p.m. - 10 p.m.	18.4%	24	128	21.6%	24	113
Men	25.0%	31	126	28.9%	33	115
Women	12.0%	16	132	14.0%	15	109
Hours 10 p.m. - 6 a.m.	11.1%	13	114	12.8%	18	142
Men	16.3%	19	115	18.4%	27	145
Women	6.0%	7	112	7.1%	10	135

Table 2: Average parental times in minutes for male and female respondents with children under 18 living in biparental families, depending on whether they have worked in the evening and at night, the Designated Day (DD), in 1992 and 1998

		1992		1998		Pooled	
		Fathers	Mothers	Fathers	Mothers	Fathers	Mothers
Has worked the DD	No	391 (266)	495 (229)	386 (255)	479 (235)	388 (260)	487 (232)
	Yes	178 (143)	244 (168)	159 (153)	228 (180)	168 (149)	235 (175)
Has worked at night the DD	No	268 (224)	410 (238)	251 (227)	375 (244)	259 (225)	392 (242)
	Yes	160 (164)	210 (195)	157 (166)	239 (232)	158 (167)	227 (216)
Has worked in the evening the DD	No	284 (228)	425 (235)	281 (233)	389 (243)	282 (231)	406 (240)
	Yes	152 (151)	202 (180)	115 (116)	221 (213)	131 (133)	213 (200)
Total		251 (219)	398 (241)	233 (220)	365 (246)	241 (219)	381 (244)

Standard deviations in brackets

Table 3a: Estimation of parental time by activity, for women (two-parents families with children under 18)

	Total	Domestic Tasks	Direct Child Care	Social Activities	Meals	Leisure
Regime 1: working people						
Hours worked between 6 a.m. and 6 p.m. the DD	-0,426*** (0,037)	-0,206*** (0,029)	-0,143*** (0,022)	-0,322*** (0,042)	-0,047*** (0,008)	-0,045 (0,032)
Hours worked between 6 p.m. and 10 p.m. the DD	-0,752*** (0,101)	-0,299*** (0,082)	-0,308*** (0,069)	-0,593*** (0,165)	-0,053** (0,025)	-0,560*** (0,137)
Hours worked between 10 p.m. and 6 a.m. the DD	-0,498*** (0,105)	-0,311*** (0,091)	-0,221*** (0,076)	-0,214 (0,208)	-0,035 (0,039)	-0,262 (0,176)
Hours worked between 6 a.m. and 6 p.m. the DD *(1 if 1998 sample)	0,041 (0,043)	0,016 (0,033)	0,045* (0,024)	0,114** (0,051)	0,007 (0,009)	-0,105*** (0,037)
Hours worked between 6 p.m. and 10 p.m. the DD *(1 if 1998 sample)	0,150 (0,154)	0,157 (0,121)	0,086 (0,089)	0,104 (0,221)	-0,019 (0,039)	-0,129 (0,197)
Hours worked between 10 p.m. and 6 a.m. the DD *(1 if 1998 sample)	0,200 (0,173)	0,183 (0,115)	0,180 (0,127)	0,056 (0,253)	0,018 (0,045)	0,210 (0,201)
1 if worked a split shift the DD	0,022 (0,022)	0,021 (0,017)	0,036*** (0,013)	-0,017 (0,025)	0,001 (0,004)	-0,011 (0,023)
1 if sometimes work at home	0,029* (0,016)	0,027** (0,011)	-0,008 (0,008)	0,008 (0,018)	0,001 (0,003)	0,008 (0,012)
1 if has flexible schedules	-0,024* (0,012)	-0,010 (0,009)	0,017** (0,007)	-0,008 (0,015)	-0,001 (0,003)	-0,038*** (0,010)
1 if usually works a rotating shift	-0,022 (0,022)	-0,013 (0,016)	0,007 (0,011)	-0,021 (0,023)	-0,002 (0,004)	0,006 (0,018)
Standard Occupational Classification (1980) (Ref.: Managerial and other professional)						
<i>Clerical</i>	-0,008 (0,014)	0,015 (0,010)	-0,021*** (0,008)	-0,002 (0,016)	0,001 (0,003)	0,010 (0,012)
<i>Sales</i>	0,007 (0,021)	-0,007 (0,015)	-0,029** (0,012)	0,026 (0,023)	0,001 (0,005)	0,034* (0,020)
<i>Services</i>	0,029* (0,017)	0,010 (0,012)	-0,023** (0,011)	0,007 (0,019)	-0,001 (0,004)	0,044*** (0,015)
<i>Primary occupations</i>	0,043 (0,040)	0,032 (0,024)	-0,048** (0,021)	0,023 (0,033)	0,010 (0,009)	0,011 (0,033)
<i>Processing, machining and fabricating</i>	0,000 (0,025)	-0,005 (0,020)	-0,003 (0,016)	-0,039 (0,030)	0,000 (0,006)	0,017 (0,028)
<i>Construction trades</i>	0,144* (0,079)	0,077*** (0,018)	-0,090*** (0,032)	0,286*** (0,034)	-0,021** (0,010)	0,008 (0,095)
<i>Transport equipment operating</i>	0,013 (0,040)	-0,004 (0,033)	0,048 (0,045)	0,002 (0,051)	-0,006 (0,017)	0,016 (0,046)
<i>Material handling and other crafts</i>	-0,008 (0,034)	0,036 (0,035)	0,017 (0,027)	-0,094 (0,072)	0,000 (0,011)	0,021 (0,048)
<i>Missing</i>	0,013 (0,027)	-0,009 (0,023)	0,032* (0,018)	0,004 (0,038)	0,000 (0,007)	-0,002 (0,031)

In all tables below, *** is for significant at the 1%-level, ** at the 5%-level, * at the 10% level. Standard errors in brackets.

Spouse's hours worked between 6 a.m. and 6 p.m. the DD	0,022 (0,024)	0,045*** (0,017)	0,018 (0,014)	-0,009 (0,025)	0,004 (0,005)	-0,042** (0,019)
Spouse's hours worked between 6 p.m. and 10 p.m. the DD	0,102 (0,087)	0,156** (0,074)	0,016 (0,05)	-0,044 (0,113)	-0,020 (0,021)	0,074 (0,079)
Spouse's hours worked between 10 p.m. and 6 a.m. the DD	-0,026 (0,064)	-0,015 (0,058)	0,043 (0,052)	-0,174 (0,111)	0,024 (0,016)	-0,106 (0,085)
Age and number of children (Ref.: 1 0-2 years old child)						
1 0-2 yrs old + 1 0-4 yrs old	0,068*** (0,026)	0,034* (0,020)	0,033* (0,017)	0,008 (0,030)	0,010* (0,006)	-0,021 (0,023)
1 0-2 yrs old + 1 5-18 yrs old	-0,006 (0,025)	0,038** (0,019)	-0,043** (0,017)	0,028 (0,032)	-0,009 (0,007)	0,030 (0,024)
1 0-2 yrs old + more than 1 5-18 yrs old	0,008 (0,025)	0,049** (0,024)	-0,059*** (0,018)	0,046 (0,032)	0,002 (0,009)	0,044 (0,029)
1 0-2 yrs old + 1 0-4 yrs old + 1 or more 5-18 yrs old	0,114** (0,051)	0,027 (0,022)	0,022 (0,022)	0,080 (0,054)	0,016 (0,012)	0,036 (0,041)
1 3-4 yrs old	-0,076** (0,034)	0,009 (0,022)	-0,065*** (0,016)	-0,071 (0,050)	-0,001 (0,007)	-0,026 (0,029)
1 3-4 yrs old + 1 5-18 yrs old	0,003 (0,029)	0,042** (0,018)	-0,059*** (0,015)	-0,043 (0,030)	0,000 (0,006)	0,050** (0,021)
1 3-4 yrs old + 0 or 1 3-4 yrs old + one or more 5-18 yrs old	0,022 (0,031)	0,058*** (0,022)	-0,095*** (0,017)	0,051 (0,036)	0,002 (0,007)	0,024 (0,025)
1 5-12 yrs old	-0,137*** (0,025)	-0,036** (0,016)	-0,147*** (0,014)	0,023 (0,029)	-0,014** (0,006)	0,019 (0,022)
2 5-12 yrs old	-0,068*** (0,019)	0,001 (0,015)	-0,109*** (0,012)	0,033 (0,024)	-0,002 (0,005)	0,029 (0,022)
1 5-12 yrs old + 1 13-18 yrs old	-0,174*** (0,024)	-0,047*** (0,018)	-0,179*** (0,014)	-0,001 (0,029)	-0,014** (0,006)	0,013 (0,025)
1 13-18 yrs old	-0,214*** (0,034)	-0,051** (0,024)	-0,267*** (0,020)	0,023 (0,041)	-0,021** (0,008)	-0,017 (0,032)
2 13-18 yrs old	-0,186*** (0,032)	-0,030 (0,025)	-0,244*** (0,026)	-0,018 (0,040)	-0,021*** (0,008)	0,002 (0,032)
More than 2 5-18 yrs old	-0,104*** (0,026)	-0,020 (0,018)	-0,148*** (0,015)	0,007 (0,028)	-0,011** (0,006)	0,046* (0,023)
Hours spent looking after children by the spouse (week before survey)	0,065* (0,038)	0,001 (0,023)	-0,003 (0,019)	0,085** (0,034)	-0,002 (0,007)	0,057* (0,033)
1 if time spent by spouse with children missing	0,035* (0,019)	0,028** (0,014)	-0,009 (0,013)	0,013 (0,023)	0,004 (0,004)	0,000 (0,018)
Age (5-year group)	-0,004 (0,005)	-0,001 (0,004)	0,008** (0,003)	-0,026*** (0,007)	0,002 (0,001)	0,001 (0,005)
1 if respondent born in Canada	-0,005 (0,015)	-0,003 (0,011)	0,003 (0,008)	0,012 (0,017)	-0,008** (0,003)	-0,015 (0,014)
1 if attended religious services at least one time 12 last months	0,004 (0,013)	0,002 (0,009)	-0,006 (0,007)	0,013 (0,014)	0,003 (0,003)	0,010 (0,010)
1 if interviewed Saturday or Sunday	0,072*** (0,017)	0,001 (0,012)	-0,042*** (0,010)	0,087*** (0,016)	0,003 (0,004)	0,052*** (0,014)
Region of residence (Ref. Quebec)						
Atlantic region	0,061*** (0,015)	0,065*** (0,011)	0,032*** (0,009)	0,011 (0,019)	-0,015*** (0,004)	0,026* (0,014)
Ontario	0,041*** (0,015)	0,015 (0,011)	0,022** (0,009)	0,037* (0,019)	-0,016*** (0,004)	-0,009 (0,014)
Prairie region	0,034** (0,015)	0,021* (0,011)	0,023*** (0,008)	0,013 (0,019)	-0,016*** (0,004)	-0,003 (0,014)
British Columbia	0,015 (0,020)	0,030** (0,014)	-0,002 (0,011)	-0,001 (0,023)	-0,011*** (0,004)	0,001 (0,017)
1 if surveyed in 1998 (Ref.: 1992)	-0,037* (0,020)	-0,024* (0,014)	-0,013 (0,010)	0,003 (0,019)	-0,010*** (0,004)	0,007 (0,015)
Intercept	0,527*** (0,046)	0,086** (0,034)	0,186*** (0,029)	0,126** (0,057)	0,073*** (0,011)	0,023 (0,045)

Regime 2: non-working people

Spouse's hours worked between 6 a.m. and 6 p.m. the DD	0,050 (0,030)	0,032 (0,027)	0,065*** (0,017)	-0,059* (0,033)	0,004 (0,008)	-0,007 (0,031)
Spouse's hours worked between 6 p.m. and 10 p.m. the DD	-0,024 (0,151)	-0,084 (0,103)	0,054 (0,089)	0,016 (0,154)	-0,011 (0,043)	-0,036 (0,125)
Spouse's hours worked between 10 p.m. and 6 a.m. the DD	0,065 (0,091)	0,066 (0,086)	0,097 (0,081)	-0,085 (0,129)	0,049* (0,029)	-0,154 (0,149)
Hours spent looking after children by the spouse (week before survey)	0,036 (0,035)	0,038 (0,029)	-0,001 (0,024)	-0,020 (0,047)	-0,004 (0,011)	-0,012 (0,040)
1 if time spent by spouse with children missing	0,029 (0,029)	0,007 (0,025)	0,002 (0,016)	0,025 (0,033)	-0,007 (0,006)	0,020 (0,026)
Age and number of children (Ref.: 1 0-2 years old child)						
1 0-2 yrs old + 1 0-4 yrs old	0,101*** (0,029)	0,084*** (0,031)	0,053** (0,023)	0,009 (0,033)	0,031*** (0,007)	-0,008 (0,024)
1 0-2 yrs old + 1 5-18 yrs old	0,050 (0,038)	0,088*** (0,027)	-0,021 (0,031)	-0,002 (0,040)	0,016* (0,008)	0,022 (0,031)
1 0-2 yrs old + more than 1 5-18 yrs old	0,015 (0,037)	0,085*** (0,028)	-0,027 (0,031)	-0,054 (0,040)	0,027** (0,011)	0,046 (0,035)
1 0-2 yrs old + 1 0-4 yrs old + 1 or more 5-18 yrs old	0,070* (0,039)	0,108* (0,059)	0,096*** (0,032)	-0,057 (0,048)	0,037*** (0,008)	-0,055 (0,036)
1 3-4 yrs old	-0,050 (0,050)	0,011 (0,052)	-0,198*** (0,045)	-0,026 (0,079)	0,060*** (0,023)	0,057 (0,055)
1 3-4 yrs old + 1 5-18 yrs old	-0,059 (0,036)	0,036 (0,032)	-0,072** (0,030)	-0,056 (0,039)	0,027*** (0,010)	-0,040 (0,035)
1 3-4 yrs old + 0 or 1 3-4 yrs old + one or more 5-18 yrs old	-0,006 (0,035)	0,095*** (0,032)	-0,053** (0,026)	-0,011 (0,039)	0,012 (0,008)	0,005 (0,032)
1 5-12 yrs old	-0,196*** (0,039)	-0,001 (0,043)	-0,203*** (0,027)	-0,051 (0,037)	0,003 (0,008)	0,004 (0,032)
2 5-12 yrs old	-0,147*** (0,036)	0,023 (0,041)	-0,167*** (0,025)	-0,062 (0,039)	0,017* (0,009)	-0,011 (0,028)
1 5-12 yrs old + 1 13-18 yrs old	-0,217*** (0,042)	-0,028 (0,058)	-0,237*** (0,032)	-0,032 (0,045)	0,014 (0,010)	-0,010 (0,036)
1 13-18 yrs old	-0,402*** (0,056)	-0,115** (0,051)	-0,314*** (0,042)	-0,081 (0,061)	-0,029 (0,018)	-0,083 (0,057)
2 13-18 yrs old	-0,229*** (0,067)	-0,109* (0,064)	-0,334*** (0,041)	-0,125** (0,056)	-0,012 (0,014)	0,137* (0,078)
More than 2 5-18 yrs old	-0,197*** (0,038)	0,006 (0,039)	-0,180*** (0,027)	-0,051 (0,039)	0,001 (0,009)	-0,018 (0,031)
Age (5-year group)	0,002 (0,007)	-0,004 (0,006)	-0,001 (0,005)	-0,006 (0,008)	0,004** (0,002)	0,004 (0,007)
1 if respondent born in Canada	-0,011 (0,019)	-0,018 (0,016)	-0,034** (0,015)	0,061*** (0,023)	-0,016*** (0,005)	0,009 (0,019)
1 if attended religious services at least one time 12 last months	0,021 (0,019)	0,010 (0,015)	-0,022** (0,010)	0,07*** (0,021)	-0,002 (0,004)	-0,007 (0,018)
1 if interviewed Saturday or Sunday	0,050*** (0,017)	-0,026** (0,013)	-0,032*** (0,010)	0,071*** (0,019)	-0,003 (0,005)	0,049*** (0,016)
Region of residence (Ref. Quebec)						
Atlantic region	0,058*** (0,021)	0,055*** (0,015)	0,020 (0,015)	0,017 (0,022)	-0,018*** (0,005)	0,035* (0,020)
Ontario	0,068*** (0,023)	0,018 (0,033)	-0,014 (0,016)	0,048* (0,025)	-0,014** (0,006)	0,046** (0,021)
Prairie region	0,060*** (0,024)	0,029 (0,031)	-0,018 (0,015)	0,059** (0,025)	-0,018*** (0,005)	0,019 (0,022)
British Columbia	0,092*** (0,027)	0,072*** (0,028)	-0,018 (0,019)	0,043 (0,03)	-0,021*** (0,007)	0,041 (0,025)
1 if surveyed in 1998 (Ref.: 1992)	0,009 (0,016)	-0,007 (0,019)	0,003 (0,012)	0,045** (0,018)	-0,014*** (0,004)	0,003 (0,016)
Intercept	0,461*** (0,047)	0,031 (0,062)	0,13*** (0,034)	-0,075 (0,050)	0,062*** (0,011)	0,026 (0,044)

Table 3b: Estimation of parental time by activity, for men (two-parents families with children under 18)

	Total	Domestic Tasks	Direct Child Care	Social Activities	Meals	Leisure
Regime 1: working people						
Hours worked between 6 a.m. and 6 p.m. the DD	-0,372*** (0,032)	-0,220*** (0,027)	-0,108*** (0,018)	-0,282*** (0,041)	-0,052*** (0,009)	-0,187*** (0,033)
Hours worked between 6 p.m. and 10 p.m. the DD	-0,374*** (0,084)	-0,006 (0,088)	-0,222*** (0,058)	-0,317** (0,126)	-0,076*** (0,023)	-0,504*** (0,121)
Hours worked between 10 p.m. and 6 a.m. the DD	-0,355*** (0,110)	-0,256** (0,102)	-0,235*** (0,058)	-0,326** (0,164)	-0,110*** (0,030)	0,065 (0,104)
Hours worked between 6 a.m. and 6 p.m. the DD *(1 if 1998 sample)	-0,003 (0,041)	0,001 (0,032)	-0,027 (0,025)	0,025 (0,051)	0,004 (0,011)	-0,009 (0,039)
Hours worked between 6 p.m. and 10 p.m. the DD *(1 if 1998 sample)	-0,255** (0,130)	-0,225* (0,134)	0,027 (0,095)	-0,398* (0,217)	-0,039 (0,036)	-0,114 (0,174)
Hours worked between 10 p.m. and 6 a.m. the DD *(1 if 1998 sample)	0,016 (0,131)	0,240** (0,114)	0,024 (0,081)	0,167 (0,213)	0,048 (0,037)	-0,255* (0,142)
1 if worked a split shift the DD	0,005 (0,016)	0,008 (0,014)	0,032*** (0,011)	0,026 (0,025)	0,006 (0,005)	0,005 (0,019)
1 if sometimes work at home	0,027** (0,014)	0,005 (0,011)	0,000 (0,008)	0,058*** (0,018)	0,007* (0,004)	0,000 (0,015)
1 if has flexible schedules	-0,004 (0,011)	-0,003 (0,009)	0,001 (0,007)	-0,011 (0,015)	-0,004 (0,003)	-0,003 (0,012)
1 if usually works a rotating shift	0,003 (0,017)	0,000 (0,015)	-0,011 (0,011)	0,024 (0,024)	0,006 (0,004)	0,008 (0,017)
Standard Occupational Classification (1980) (Ref.: Managerial and other professional)						
<i>Clerical</i>	-0,028 (0,026)	-0,038* (0,019)	-0,023 (0,016)	-0,013 (0,038)	-0,010 (0,006)	0,033 (0,029)
<i>Sales</i>	-0,012 (0,019)	-0,038*** (0,016)	-0,001 (0,012)	0,010 (0,028)	-0,001 (0,006)	-0,025 (0,021)
<i>Services</i>	0,020 (0,025)	-0,040** (0,019)	0,005 (0,014)	0,027 (0,035)	-0,002 (0,006)	-0,004 (0,023)
<i>Primary occupations</i>	0,021 (0,022)	-0,044** (0,019)	-0,039** (0,016)	-0,020 (0,031)	0,020** (0,009)	0,007 (0,022)
<i>Processing, machining and fabricating</i>	-0,007 (0,015)	-0,022* (0,012)	-0,017* (0,009)	-0,010 (0,020)	0,000 (0,004)	0,002 (0,015)
<i>Construction trades</i>	-0,001 (0,018)	-0,021 (0,016)	-0,031** (0,012)	0,018 (0,025)	-0,002 (0,004)	0,001 (0,019)
<i>Transport equipment operating</i>	0,014 (0,025)	-0,043** (0,020)	-0,021 (0,023)	-0,069** (0,031)	0,003 (0,006)	0,040* (0,024)
<i>Material handling and other crafts</i>	-0,032 (0,026)	-0,058*** (0,022)	-0,008 (0,016)	-0,013 (0,038)	-0,001 (0,007)	-0,023 (0,027)
<i>Missing</i>	-0,017 (0,026)	-0,041 (0,027)	0,007 (0,020)	0,003 (0,037)	0,005 (0,007)	-0,074** (0,034)

Spouse's hours worked between 6 a.m. and 6 p.m. the DD	0,060** (0,024)	0,068*** (0,019)	0,064*** (0,020)	-0,011 (0,033)	0,005 (0,006)	0,007 (0,025)
Spouse's hours worked between 6 p.m. and 10 p.m. the DD	0,127 (0,136)	0,137 (0,098)	0,292*** (0,088)	0,081 (0,167)	-0,052 (0,044)	-0,335*** (0,126)
Spouse's hours worked between 10 p.m. and 6 a.m. the DD	-0,029 (0,106)	-0,118 (0,086)	-0,103 (0,063)	-0,121 (0,212)	0,098* (0,055)	0,218* (0,126)
Age and number of children (Ref.: 1 0-2 years old child)						
1 0-2 yrs old + 1 0-4 yrs old	0,040* (0,020)	0,032** (0,016)	0,057*** (0,015)	-0,056* (0,030)	0,008 (0,006)	-0,004 (0,022)
1 0-2 yrs old + 1 5-18 yrs old	0,003 (0,027)	0,050** (0,022)	-0,011 (0,015)	-0,080** (0,035)	0,017** (0,007)	0,009 (0,028)
1 0-2 yrs old + more than 1 5-18 yrs old	0,093*** (0,029)	0,087*** (0,028)	0,028 (0,019)	0,024 (0,037)	0,016 (0,015)	0,041 (0,032)
1 0-2 yrs old + 1 0-4 yrs old + 1 or more 5-18 yrs old	0,026 (0,030)	0,026 (0,025)	0,027 (0,018)	-0,088* (0,047)	0,012* (0,007)	-0,007 (0,032)
1 3-4 yrs old	-0,007 (0,028)	0,019 (0,020)	-0,021 (0,018)	0,016 (0,039)	0,007 (0,007)	0,001 (0,029)
1 3-4 yrs old + 1 5-18 yrs old	-0,009 (0,023)	0,042** (0,021)	-0,031** (0,013)	-0,023 (0,031)	0,006 (0,006)	0,002 (0,026)
1 3-4 yrs old + 0 or 1 3-4 yrs old + one or more 5-18 yrs old	0,011 (0,028)	0,046** (0,023)	-0,029* (0,016)	-0,017 (0,042)	0,005 (0,007)	0,050* (0,026)
1 5-12 yrs old	-0,025 (0,024)	-0,015 (0,020)	-0,086*** (0,015)	0,009 (0,034)	-0,007 (0,006)	0,069*** (0,024)
2 5-12 yrs old	0,015 (0,020)	0,023 (0,017)	-0,036*** (0,012)	-0,034 (0,029)	0,011** (0,005)	0,086*** (0,021)
1 5-12 yrs old + 1 13-18 yrs old	-0,046** (0,024)	-0,020 (0,020)	-0,101*** (0,017)	-0,019 (0,034)	0,001 (0,006)	0,048** (0,025)
1 13-18 yrs old	-0,086*** (0,032)	-0,064* (0,034)	-0,144*** (0,027)	-0,071 (0,049)	0,002 (0,008)	0,034 (0,037)
2 13-18 yrs old	-0,052 (0,039)	-0,039 (0,029)	-0,168*** (0,024)	-0,097** (0,039)	0,014 (0,010)	0,113*** (0,037)
More than 2 5-18 yrs old	-0,021 (0,023)	-0,013 (0,019)	-0,064*** (0,016)	-0,008 (0,033)	-0,002 (0,006)	0,057*** (0,022)
Hours spent looking after children by the spouse (week before survey)	0,065*** (0,022)	0,026 (0,016)	0,027* (0,015)	-0,005 (0,027)	0,010* (0,005)	0,039* (0,021)
1 if time spent by spouse with children missing	0,006 (0,021)	0,005 (0,018)	-0,001 (0,015)	-0,046* (0,028)	0,000 (0,006)	0,014 (0,022)
Age (5-year group)	-0,014*** (0,004)	-0,002 (0,004)	-0,005 (0,003)	-0,009 (0,006)	-0,002 (0,001)	-0,019*** (0,004)
1 if respondent born in Canada	-0,041*** (0,015)	-0,014 (0,011)	-0,021** (0,010)	-0,018 (0,018)	-0,005 (0,004)	-0,016 (0,017)
1 if attended religious services at least one time 12 last months	0,013 (0,011)	0,013 (0,009)	0,005 (0,007)	0,004 (0,015)	0,004 (0,003)	0,009 (0,012)
1 if interviewed Saturday or Sunday	0,065*** (0,016)	0,008 (0,011)	-0,015 (0,010)	0,039** (0,019)	-0,001 (0,004)	0,025* (0,014)
Region of residence (Ref. Quebec)						
Atlantic region	0,024 (0,015)	0,025** (0,012)	0,0140 (0,009)	0,060*** (0,021)	-0,015*** (0,004)	0,008 (0,014)
Ontario	-0,005 (0,014)	-0,006 (0,011)	0,025*** (0,009)	-0,003 (0,020)	-0,009** (0,004)	-0,018 (0,014)
Prairie region	0,003 (0,014)	0,011 (0,012)	0,002 (0,008)	0,018 (0,020)	-0,011*** (0,004)	0,003 (0,014)
British Columbia	0,005 (0,016)	0,002 (0,015)	0,011 (0,01)	0,028 (0,023)	-0,009** (0,004)	0,004 (0,018)
1 if surveyed in 1998 (Ref.: 1992)	-0,001 (0,023)	-0,001 (0,014)	0,032** (0,013)	-0,004 (0,022)	-0,008 (0,006)	0,005 (0,019)
Intercept	0,444*** (0,044)	0,034 (0,031)	0,113*** (0,025)	0,068 (0,053)	0,070*** (0,011)	0,124*** (0,046)

Regime 2: non-working people

Spouse's hours worked between 6 a.m. and 6 p.m. the DD	0,173*	0,059	0,079	-0,095	0,016	0,134
	(0,104)	(0,074)	(0,069)	(0,104)	(0,021)	(0,096)
Spouse's hours worked between 6 p.m. and 10 p.m. the DD	-0,240	-0,404	-0,127	-0,098	-0,129	0,096
	(0,593)	(0,319)	(0,235)	(0,469)	(0,112)	(0,65)
Spouse's hours worked between 10 p.m. and 6 a.m. the DD	-0,449	0,454**	0,049	-0,060	0,186***	-1,544***
	(0,275)	(0,209)	(0,273)	(0,267)	(0,065)	(0,492)
Hours spent looking after children by the spouse (week before survey)	-0,082	-0,128	-0,018	0,030	-0,002	-0,115
	(0,090)	(0,087)	(0,053)	(0,095)	(0,017)	(0,090)
1 if time spent by spouse with children missing	0,045	-0,024	0,048	0,110	-0,013	-0,046
	(0,072)	(0,06)	(0,042)	(0,068)	(0,015)	(0,062)
Age and number of children (Ref.: 1 0-2 years old child)						
1 0-2 yrs old + 1 0-4 yrs old	0,062	-0,008	0,036	0,082	-0,006	0,038
	(0,087)	(0,057)	(0,043)	(0,077)	(0,021)	(0,074)
1 0-2 yrs old + 1 5-18 yrs old	0,143	-0,004	0,013	0,097	0,036	0,065
	(0,112)	(0,106)	(0,064)	(0,112)	(0,031)	(0,094)
1 0-2 yrs old + more than 1 5-18 yrs old	0,128	-0,035	0,001	0,008	0,047*	0,090
	(0,098)	(0,085)	(0,076)	(0,091)	(0,027)	(0,063)
1 0-2 yrs old + 1 0-4 yrs old + 1 or more 5-18 yrs old	0,302***	0,020	0,037	-0,104	0,066**	0,306***
	(0,103)	(0,091)	(0,066)	(0,113)	(0,029)	(0,096)
1 3-4 yrs old	0,204**	0,076	-0,047	0,147**	0,023	0,244***
	(0,080)	(0,060)	(0,053)	(0,072)	(0,021)	(0,076)
1 3-4 yrs old + 1 5-18 yrs old	0,205**	-0,054	0,046	0,109*	0,031**	0,201**
	(0,081)	(0,059)	(0,067)	(0,059)	(0,016)	(0,079)
1 3-4 yrs old + 0 or 1 3-4 yrs old + one or more 5-18 yrs old	0,102	-0,044	-0,051	0,071	0,026	0,210**
	(0,083)	(0,064)	(0,068)	(0,152)	(0,023)	(0,085)
1 5-12 yrs old	0,040	-0,066	-0,034	0,024	-0,008	0,111
	(0,080)	(0,067)	(0,045)	(0,075)	(0,019)	(0,072)
2 5-12 yrs old	0,011	-0,042	-0,113**	-0,184**	0,037	0,112
	(0,112)	(0,103)	(0,051)	(0,088)	(0,025)	(0,081)
1 5-12 yrs old + 1 13-18 yrs old	-0,071	-0,272***	-0,149***	-0,002	0,010	0,124
	(0,106)	(0,092)	(0,055)	(0,083)	(0,021)	(0,097)
1 13-18 yrs old	-0,178*	-0,321***	-0,159**	-0,180*	-0,038*	0,062
	(0,104)	(0,108)	(0,074)	(0,109)	(0,022)	(0,097)
2 13-18 yrs old	-0,116	-0,122	-0,290***	0,020	-0,042	0,171**
	(0,140)	(0,116)	(0,103)	(0,128)	(0,035)	(0,084)
More than 2 5-18 yrs old	0,158*	-0,042	-0,089*	-0,004	0,022	0,268***
	(0,089)	(0,079)	(0,046)	(0,074)	(0,018)	(0,078)
Age (5-year group)	-0,005	0,010	0,011	0,021*	-0,003	-0,024*
	(0,014)	(0,011)	(0,009)	(0,013)	(0,003)	(0,014)
1 if respondent born in Canada	0,001	0,082	-0,048	-0,043	-0,003	-0,006
	(0,053)	(0,053)	(0,038)	(0,083)	(0,012)	(0,043)
1 if attended religious services at least one time 12 last months	0,130***	0,020	0,026	0,098**	0,014	0,102**
	(0,048)	(0,038)	(0,029)	(0,044)	(0,010)	(0,046)
1 if interviewed Saturday or Sunday	0,135***	-0,017	-0,059**	0,075*	0,016	0,172***
	(0,042)	(0,032)	(0,025)	(0,042)	(0,010)	(0,041)
Region of residence (Ref. Quebec)						
Atlantic region	0,037	0,032	0,011	0,133**	-0,029**	0,040
	(0,060)	(0,048)	(0,039)	(0,061)	(0,013)	(0,049)
Ontario	0,050	0,037	-0,038	0,046	-0,020	0,083*
	(0,060)	(0,051)	(0,041)	(0,055)	(0,013)	(0,049)
Prairie region	0,032	0,045	-0,086**	0,088	0,012	-0,001
	(0,065)	(0,064)	(0,042)	(0,071)	(0,018)	(0,057)
British Columbia	0,101*	-0,005	0,000	0,059	0,011	0,085
	(0,059)	(0,048)	(0,042)	(0,055)	(0,014)	(0,053)
1 if surveyed in 1998 (Ref.: 1992)	-0,001	0,042	0,033	-0,017	0,000	-0,044
	(0,042)	(0,036)	(0,03)	(0,038)	(0,01)	(0,039)
Intercept	0,163	-0,020	-0,195**	-0,499***	0,112***	0,060
	(0,114)	(0,106)	(0,097)	(0,175)	(0,029)	(0,110)