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Non-Participant Fathers in Time-Use Studies: Uninvolved or Data Artifact?

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Abstract It is well-established that time spent with parents is beneficial for children's development. However, time-use studies from various countries consistently indicate that there are a substantial number of parents, especially fathers, who report spending no time with their children. Much of the literature on parental time simply ignores these parents or assumes that they are similar to other parents. Using data from the 2005 Canadian General Social Survey time-use survey, this study takes a closer look at respondents who report spending 0 min with their children and asks whether they are simply an artifact of the data or whether they have distinct social, economic and demographic characteristics. The findings indicate that while data anomalies may partially explain the existence of this group, non-participants also differ in terms of their family, work, and demographic characteristics. Both the methodological and substantive implications of these findings are discussed.

Keywords Time use · Parental time · Time diary · Fathers · Childcare · Non-participant

1 Introduction

Parental time investment in children has a significant impact on children's development. Reading to children, playing with children, and having regular family meals are activities that are known to have significant effects on children's behavior, health and academic success. (Bianchi and Robinson 1997; Bianchi 2000; Mestdag and Vandeweyer 2005; Yeung et al. 2000; Zick et al. 2001). As a result, much of the parental time literature attempts to illuminate which parents spend the most time doing childcare activities, why

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some parents are more involved than others, and what kinds of activities parents engage in. However, in time-use surveys, a non-negligible proportion of parents, especially fathers, report no time on childcare activities. These parents, dubbed "non-participants", are rarely the subject of investigation, and are usually ignored or treated as an artifact of the data by assuming that they normally spend time on childcare but simply happened not to do so on their diary day (e.g. see Craig 2006; Hook 2006; Romano and Bruzzese 2007; Sayer et al. 2004a). The purpose of this paper is, therefore, to take a close look at these non-participants and ask whether they are, in fact, a result of methodological anomalies, or whether there are other factors that explain why they devote no time to childcare. We contend that the answer to this question has important substantive and methodological implications.

2 Background

2.1 The 24-h Diary and "Non-Participant" Parents

In the time-use literature, the 24-h diary has been shown to be the most reliable instrument to capture people's allocation of time to various activities (Fisher et al. 2007; Robinson and Godbey 1997). This is in contrast to retrospective questions about how much time was spent on specific activities during a recall period, for example, of 1 week, since such questions are more prone to recall and social desirability biases. Yet the 24-h diary instrument is also known to be better suited to activities that occur regularly instead of those that occur irregularly. For instance, the 24-h diary is not the ideal instrument to capture volunteer work if such an activity occurs infrequently or irregularly. When it comes to childcare activities, however, we can expect that most parents must spend at least a few minutes on childcare every day of the week. There can, of course, be exceptions; therefore, on any diary day it would be normal to observe a relatively small number of parents who did not devote any time to childcare activities because of various circumstances, such as a business trip. In reality, however, the percentage of parents who report 0 min on childcare activities on their diary day far exceeds expectations. In the 2005 Canadian time-use survey, 43% of fathers with children under the age of 15 did not spend any time on childcare activities on their diary day. For mothers the percentage was smaller, but nonetheless reached nearly 22%. These figures are not unique to this Canadian time-use survey. As we show later, figures of a comparable magnitude are observed in recent European time-use surveys.

Increasingly, time-use researchers from various countries are acknowledging the issue of non-participation; however, the solutions are far from perfect. Non-participants are often included with other parents on the grounds that they constitute few cases (e.g. see Kan 2008), or that they are similar to other parents (Smith and Williams 2007) so do not warrant separate consideration. For example, Hook (2006) posits that non-participant fathers are no different from other fathers, stating, "I do not separately analyze men who report zero minutes (from men who report some minutes) because there is little reason to believe that these men constitute a distinct group" (p. 649). In other cases, the problem of non-participation is implicitly acknowledged by analyzing the data using a Tobit model: a statistical model that accounts for a large percentage of 'zeros' (e.g. see Craig 2006; Romano and Bruzzese 2007; Sayer et al. 2004a, b). In these analyses, the assumption is that the same independent variables explain participation (and non-participation) in, and

time allocated to, childcare activities without specifically asking who the non-participants are.[1]

Due to the lack of research on non-participants, an important question remains unanswered: are parents that fall into this group simply a result of the time-diary method or are they significantly different and, therefore, should be considered a distinct subgroup of parents? Below we discuss how the nature of time-use diaries and the nature of childcare activities provide possible support for the notion that non-participation is a result of methodology. We then examine social, demographic and economic explanations which instead suggest that non-participation is the result of distinct parental characteristics.

2.2 Data Artifact Explanations for Non-Participation

First, there is the possibility that the diary day simply happened, by chance, to be one when the mother or father was not able to allocate time to his or her child(ren). Perhaps these parents did not spend time on childcare on their diary day because they were out of the house during the children's waking hours, they travelled out of town for the day, they were sick, etc. It is also possible that the diary day was an unusual day because the child was absent, thus preventing the parent from dedicating time to him or her.

There is also the possibility that a parent appears to be a non-participant because he/she does not usually spend time with his/her child on a particular day of the week, and that day happened to be his/her diary day. For example, a father may regularly commute to another city for business every Wednesday, or he may play tennis every Wednesday evening, thus preventing him for spending time with his children that day. Non-participation in such cases would partly be an artifact of the data, but would also point to the non-regularity of parental time, which is something more likely to characterize fathers than mothers. For example, we know that there are variations in parental time by day of the week, with fathers usually spending more time on childcare on weekends than weekdays (Rapoport and Le Bourdais 2002).

The other explanation for the 'artifact' argument has to do with childcare activity codes. In the Canadian time-use surveys, as in time-use surveys from other countries, childcare activities encompass a range of activities including providing basic childcare (e.g. bathing a child, putting a child to bed, attending to a sick child), doing child-related activities (e.g. reading to a child, playing with a child), and travel done in connection with children (e.g. driving a child to school). There are two important issues to consider here. First, these activities are geared mainly to activities done with young children, especially when it comes to basic childcare activities. While a parent may help his/her teenage son with homework and may still drive him to school, by and large the childcare activities as defined in time diaries tend to be better suited to capture parental time investment with younger children. Non-participation in childcare activities when older children are present could therefore reflect the nature of the activities rather than capturing non-involvement with children.

The second point has to do with childrearing and child-caring activities; in particular, the fact that while such activities can be easily identified, the time allocated to them can be difficult to measure because they often take place in parallel with other activities. For example, a parent may be talking to a child while preparing dinner, or may be cleaning the

[1] There is currently a debate in the literature as to how best to handle this 'zero' problem (e.g. see Flood and Grasjo 1998; Stewart 2006). However, to our knowledge there are no studies in which non-participants are the focal point.

house while keeping an eye on the child. In the time-use literature, this phenomenon of parallel or simultaneous activities is usually captured by drawing a distinction between the primary activity (i.e. the main activity that the respondent was doing) and the secondary (or parallel) activity. It is estimated that for every 1 h of childcare reported as main activity, there is another half hour of secondary activities (Allard et al. 2007; Fedick et al. 2005).[2] What this means is that non-participation in childcare activities could be largely overestimated when the analysis is restricted to childcare as a main activity.

2.3 Social, Economic and Demographic Explanations for Non-Participation

While there is little literature on the topic of "non-participating parents", there is a great deal of research on the determinants of parental time. However, the focus in this literature is on explaining the quantity of parental time rather than the issue of parental non-involvement. Nevertheless, this work illuminates some possible theoretical explanations for non-involvement.

The time availability/constraint framework posits that time spent in housework and childcare is the result of rational considerations of who has the most time to do household tasks in view of other time commitments. Especially salient here is paid work. The labor force status of spouses (Bianchi 2000; Sandberg and Hofferth 2001) and their respective work schedules (Presser 1988) both play a role in parental involvement. Parents working at night or working long work hours may, for instance, find it much more difficult to allocate time to their children. We also know from previous research that the more hours fathers spend at work, the less involved they are in the care of young children (Bonney et al. 1999; Pleck and Masciadrelli 2004; Russell and Hwang 2004). We also know that the more hours mothers work outside the home, the more time fathers spend taking care of children (Beitel and Parke 1998; Bonney et al. 1999; Pleck 1997). Finally, the number and age of children (Sayer et al. 2004a, b; Silver 2000) also affect the time availability of spouses and therefore their respective contribution to paid and unpaid work—although the work elasticity of men and women may differ (Shelton and John 1996).

Second, the socialization/gender ideology perspective suggests that people perform housework and childcare in differing amounts depending on what they have learned and come to believe about appropriate behavior for men and women (Hofferth 2003). Scholars employing this perspective hypothesize that those with more traditional attitudes will have a more unequal division of household labor than those with egalitarian attitudes (Greenstein 1996; Huber and Spitze 1983). It is possible that some parents (most likely fathers) are not involved with their children because they favor a very traditional approach to childrearing (Pleck and Masciadrelli 2004). As education (Kitterød and Pettersen 2006) and religious involvement (Lehrer 1996) are associated with attitudes about family and gender, these variables have often been used as proxies for gender ideology. The expectation is that highly educated fathers may be more receptive to the recent social ideal of involved fathering (Sayer et al. 2004b) and consequently are more likely to be more involved in childcare. There is also some debate in the literature as to whether cohabiting parents and blended families are more or less traditional, which may, in turn, affect the

[2] Estimates from Australia are even larger. For example, using Australian survey data, Bittman (2000) found that for every hour recorded as a primary childcare activity there are three more hours recorded of childcare as a secondary activity. Also using Australian data, Ironmonger (2004) found that childcare estimates are four times higher when secondary activities are included.

amount of time these parents spend with children (Cooksey and Fondell 1996; Thomson et al. 1992, 1994).

Together, these two theoretical perspectives[3] point to several social, economic and demographic factors that may be at work in influencing the quantity of time devoted to child-caring/child-rearing activities, but also in explaining non-participation for specific subgroups of parents. Below, we examine the extent to which these social, economic and demographic characteristics explain non-participation in childcare activities, or whether non-participation is best explained by peculiarities of the data as highlighted above. We do so by first examining the prevalence of non-participation and then by carrying out a series of analyses that test the plausibility of these two opposing explanations.

3 Data and Method

We use data from Statistics Canada's 2005 Canadian General Social Survey (GSS) time-use survey. The universe for this survey consists of individuals aged 15 and older living in private households in the 10 Canadian provinces. One random individual per household was interviewed. Data were collected from a total of 19,597 persons using computer-assisted telephone interviewing (CATI). The time-use information was collected using a 24-h diary (a so-called 'yesterday' diary). The data collection was spread out throughout the year in order to take into account possible variations in time-use patterns across different months of the year. The response rate for this survey was 58.6%.

For our analysis, we restricted the sample to married or cohabiting individuals between the age of 25 and 54 who resided with at least one dependent child under the age of 15. We excluded single-parents from our analysis as their time-use is known to differ significantly from that of married or cohabiting parents (Hofferth 2001). This restricted our sample to 3,439 cases (1,592 fathers and 1,847 mothers). In our regression analysis, missing values on a number of independent variables further restricted our sample to 1,431 fathers.[4] The results presented below were all weighted to provide nationally representative estimates.

3.1 Dependent Variable: Parental Time Measure

We use two measures of parental time derived from the time-use diary. The first one is based on time spent doing childcare activities (as a main activity). This includes time spent on basic childcare activities, such as bathing a child and taking care of a sick child; time spent on enrichment activities, such as reading to a child; and time spent on travel related to children, such as driving a child to school. As noted above, such a measure represents a narrow estimate of parental time, as it ignores time spent with children when doing other (non-childcare) activities (Fedick et al. 2005).

In contrast, our second measure is a more inclusive one based on time spent in the presence of children regardless of the activity (using the 'who was with you' information collected in the time-use diary). This 'with whom' information allows one to estimate time

[3] A third perspective has also been suggested in the literature, namely the resource-power perspective, which posits that resources such as income, education, and occupational status contribute to relationship power, making it possible for partners with the most power to engage in fewer tasks, such as housework, which are deemed to be less rewarding (Brines, 1994; Huber & Spitze, 1983). We do not draw on this theory since we do not have reliable data on spouses' income and have no data on occupational status.

[4] This is the un-weighted number of cases and differs slightly from the weighted one.

allotted to all activities that were done in the presence of children. A typical example would be preparing dinner with the children being present. As such, the 'with whom' information allows one to indirectly capture childcare as a secondary activity. In fact, it probably captures more than that as it includes all activities, regardless of their nature, done in the presence of children. In other words, it includes activities done in the presence of children and involving a high level of interaction between the parent and the child, but it also includes activities done in the presence of children and involving little or no interaction between the parent and the child. Unfortunately our data cannot distinguish between these two situations.

We also made use of two additional measures of parental time. The first one is based on a supplemental childcare module that attempts to identify additional childcare episodes not captured by the time-use diary. The information was collected immediately following the time-use diary and was obtained by asking respondents: 'On (diary day), at what other times were you looking after your child/children?'. The second measure is based on a retrospective question about time spent on childcare activities during the week prior to the survey: "Last week, how many hours did you spend looking after one or more of the children in your household, without pay?". In the time-use literature, such a retrospective question is considered a less reliable instrument than the 24-h diary (Robinson and Godbey 1997). Nonetheless, we use it in our analysis to provide external validity to our diary-based estimates.

3.2 Independent Variables

We include in our analysis a series of variables to capture respondents' family and work responsibilities as well as a number of other personal characteristics. These variables are used to test the socio-demographic explanation for non-participation.

3.2.1 Family responsibilities

The number of children less than 15 years old residing in the household was coded as a series of dummy variables in order to handle possible non-linearity. We distinguish parents with one child (as our reference category) from those with two children, and three children or more. We also included one variable to indicate the presence of a pre-school aged child (age 0–5 years). The number and age of children are variables that are related to time demands. They can also test the degree to which diaries are better suited to capture childcare time with younger children. Because of the possible influence of family structure on the level of involvement of parents in childcare activities, we include one variable that contrasts two-parent biological families with others (two-parent step families) and one variable that contrasts married and cohabiting respondents.

3.2.2 Work Responsibilities

We capture a respondent's employment status and number of hours of work through a series of dummy variables: not employed, 1–34 h per week, 35–44 h (our reference category), 45–54 and 55 h or more. Spouse's employment status was coded as not employed (our reference category), employed part-time (defined as <30 h per week), and employed full-time. In the analysis restricted to employed respondents, we further characterize the nature of work by adding four additional variables. The first one indicates whether or not

the respondent held multiple jobs. The second one contrasts respondents who worked at home with those who did not (based on the question: "Some people do all or some of their paid work at home. Excluding overtime, do you usually work any of your scheduled hours at home? Yes/no). The third one contrasts respondents who had a flexible work schedule with those who did not (based on the question: "Do you have a flexible schedule that allows you to choose the time you begin and end your work day? Yes/no). And the fourth one contrasts respondents who had standard work hours (i.e. a regular daytime schedule or shift) with those who did not.[5]

3.2.3 Ideologies and Policies

The time-use survey unfortunately does not contain variables that directly measure parenting or gender ideology. However, as noted above, there are a number of variables that may be proxies for ideologies. In our model, we include respondent's education, which was coded into three categories: low education (high school diploma or less) (our reference category), medium education (some post-secondary education), and high education (university degree). We also include dummies indicating whether the respondent lives in a rural or non-rural area (our reference category) and whether the respondent regularly attends religious services. We also control for the province of residence by including a dummy variable for Quebec (as compared to the rest of Canada). We expect fathers in Quebec to be more involved in light of their less traditional gender and family ideologies and possibly because of the more supportive policy environment provided to parents in Quebec (Roy and Bernier 2007).

In addition, we include a series of variables to control for other characteristics of the respondents. The age of respondents was coded into three age groups: 25–34 (our reference category), 35–44, and 45–54. Finally, we include one variable to indicate whether the diary was collected on a weekend day (as opposed to a weekday).

3.3 Method of Analysis

As explained earlier, the usual way of modeling parental time-use data does not distinguish the non-participating parents (i.e. those who devote no time to their children) as a separate subgroup. In our case, it was important to do so in order to test whether or not these non-participating parents are the direct consequence of the type of time-diary instrument used (and related childcare activities codes), or whether they instead represent a distinct social, economic and demographic group. However, simply contrasting participants and non-participants could obscure substantial differences in the actual level of parental time investment in children. As will be described in the results section, we instead classified our parents into four subgroups based on their time allocation to children. In our multivariate analysis, these four groups were then compared using a multinomial logistic regression model.[6]

[5] Ideally, we would have preferred to contrast respondents with a regular daytime schedule with everybody else, but the data coded together 'regular daytime schedule or shift'.

[6] This method is appropriate to answer our research question; that is, whether or not non-participants differ in their characteristics from participants. However, this method would be less satisfactory if our aim was to model the actual time devoted to children, as collapsing respondents into four subgroups results in a loss of information.

4 Results

4.1 What Is the Magnitude of Non-participation in Time-use Surveys?

In the 2005 Canadian time-use survey 43% of married (or cohabiting) fathers with children under the age of 15 reported spending no time on childcare activities (as their primary activity) on their diary day, compared to 22% for mothers. This is not unique to the Canadian time-use survey. Table 1 reports the corresponding figures for 15 countries that participated in the European time-use survey around the year 2000. These data refer to a slightly different subgroup of parents; namely, those whose youngest child is under the age of 18. Consequently these data are not totally comparable to the Canadian data. Nonetheless, they clearly indicate the magnitude of the phenomenon: across fifteen countries, 55 percent of fathers did not spend time on childcare activities on their diary day, compared to 32 percent for mothers. There are obviously large differences between countries in the size of the non-participation rate, but the explanation for these differences lies beyond the scope of this paper. Our point here is simply that non-participation in childcare activities is not an unusual Canadian phenomenon.

4.2 Non-Participation Based on Different Definitions of Parental Time

The rates of non-participation presented above are based on a narrow definition of parental time restricted to time spent on childcare activities only (as main activity). Parents may, however, spend time doing other activities with their children. Among the non-participants in the Canadian survey, about 66% of fathers did spend time doing other activities with their children on their diary day. For mothers, the figure was 76%. Consequently, if we expand the definition of parental time to include both time spent on childcare activities and time spent on other activities with children, the non-participation rate is reduced to 15% for fathers and 5% for mothers (see the first two columns of Table 2).

Table 1 Non-participation rates in childcare activities[a] among married or cohabiting parents whose youngest child is under the age of 18 in various countries around the year 2000

Country	Fathers	Mothers
Belgium	54	31
Bulgaria	74	48
Estonia	59	30
Finland	46	27
France	59	30
Germany	48	37
Italy	47	21
Latvia	76	41
Lithuania	70	44
Norway	43	24
Poland	54	33
Slovenia	61	39
Spain	54	29
Sweden	32	17
UK	45	25
Average	55	32

[a] The activities include: physical care and supervision of a child, teaching, reading and talking with a child, and transporting a child

Source: computed by the authors from the Harmonised European time-use survey (online database version 2.0)

Table 2 Non-participation rates by type of activities, gender, and age of the youngest child, Canada 2005[a]

Type of activity	Mothers	Fathers	Age of youngest child (fathers only)		
			0–4	5–11	12–14
Childcare activities	.22	.43	.29	.47	.74
Other activities done with children	.09	.20	.15	.21	.33
All activities done with children	.05	.15	.10	.15	.29
Number of cases[b]	1,651	1,788	784	699	305

[a] The subsample is restricted to married or cohabiting couples with children under the age of 15

[b] This is the weighted number of cases

The difference in non-participation between the narrow (childcare activities only) and broader definition (all activities done with children) is also particularly evident when taking into account the age of the youngest child. When based on childcare activities only, the non-participation rate for all fathers is 43%; it reaches 74% for fathers whose youngest child is 12–14 years old (see the last column of Table 2). This much higher non-participation rate reflects two things. First, as children grow up and gain independence, parents gradually reduce the time that they spend with them (Bulcroft et al. 1996). Second, and more importantly for our analysis, childcare activities—as coded in most time-use surveys—are better suited to capture activities done with younger children than older ones. Therefore, the narrow definition of parental time is probably not appropriate when analyses include parents with older children. In such cases, not only does the narrow definition seriously under-estimate parental time, it also greatly inflates the non-participation rates. From this point on, our analysis therefore adopts the broader definition by including all activities done with children. For analytical purposes we further label parents who devote no time to childcare activities on their diary day and no time doing other activities in the presence of children as 'non-involved' to distinguish them from the 'non-participants' in Table 1 (which refer strictly to childcare activities). Further, in the remainder of the paper we focus exclusively on fathers since the issue of non-participation is of far greater magnitude than for mothers.

4.3 From Non-Participation to Non-Involvement

The contrast between non-participant and participant fathers is a very crude one in that it ignores considerable differences in terms of time allocation to children. We consequently distinguish four subgroups of parents: (1) the non-involved (i.e. those who reported no time on childcare activity on their diary day and spent no time doing other activities in the presence of children); (2) those who devoted little time to children (which we defined as devoting <50% of the mean childcare time of participants); (3) those who devoted average time to their children (which we defined as devoting between 50 and 149% of the mean childcare time of participants); and (4) those who devoted more than average time to their children (which we defined as devoting more than 150% of the mean childcare time of participants). These cut-off points attempt to distinguish very different levels of parental involvement.[7]

[7] There is no consensus in the literature as to what constitutes low, average, or above average time in childcare, so these cut-off points are somewhat arbitrary. However, they are roughly similar to Bianchi et al. (2004), who use 25th, 50th, and 75th percentile of the mean.

Table 3 Mean value of parental time investment in children (in minutes per day) for four subgroups of fathers, Canada 2005[a]

	Non-involved	Low level	Medium level	High level
All activities done with children	0	56.1	194.6	560.8
Childcare activities	0	19.4	69.2	116.7
Other activities done with children	0	36.7	125.5	444.1
Number of cases[b]	265	337	694	491
Percent distribution	14.8	18.9	38.8	27.4

[a] The subsample is restricted to married or cohabiting fathers with children under the age of 15

[b] This is the weighted number of cases

The distribution of fathers into these four subgroups and their respective time allocation to children appears in Table 3. According to our four-fold classification, 15% of Canadian fathers were non-involved, 19% had a low level of involvement, 39% had a medium level, and 27% had a high level of involvement. Not surprisingly, time allocation varied greatly across these four subgroups, from a value of 0–561 min per day (i.e. just over 9 h).

Our key research question is whether non-involved fathers constitute a distinct subgroup, or whether they are a result of the time-diary method. To begin answering this question, we first examined the parental time investment of fathers using two alternative measures included in the survey. Results appear in Table 4. The figures in rows 2 and 3 are based on the childcare module of the survey which captured additional time dedicated to children not revealed in the diary. First, it is important to note that only a minority of fathers reported spending additional time with children: around 10% for the non-involved group and just over 30% for the other subgroups. Furthermore, the differences between subgroups according to this source of information mirror those based on our previous measure of parental time, being lowest for the non-involved fathers and highest for the fathers with greater levels of involvement. It is also worth noting that the results are not zero for the non-involved group, unlike our previous estimate of parental time. A small proportion of non-involved fathers did spend some time on their children on their diary day, but this time allocation was not captured by the time-use diary.

Similar results are obtained when using the estimates of parental time based on the retrospective question (row 4) ranging from a minimum value of 17 h per week for the non-involved group to 37 h for the high group. This is an important finding as it shows that the difference in parental time investment in children across the four subgroups is not only observed on the diary day (rows 1–3) but also when a non-diary measure is used (which involves a longer frame of reference). In other words, the results appear to confirm that the four subgroups genuinely differ in their level of time involvement with children. The results also show that the non-involved group of fathers do spend some time with their children (in contrast to the diary results). However, they appear to allocate much less time to their children than the other subgroups of fathers.[8]

[8] It is important to note that time spent on childcare during the previous week can also include unusual days, however we have no way of knowing this. For example, if a father was on a business trip the previous week, it would substantially lower his weekly total of childcare time.

Table 4 Mean value of parental time using alternative measures for four subgroups of fathers, Canada 2005[a]

	Non-involved	Low level	Medium level	High level
1. All activities done with children (minutes per day)	0	56.1	194.6	560.8
2. Additional time spent looking after children based on the childcare module (minutes per day)	18.2	57.0	65.3	140.8
3. Proportion of fathers reporting some additional time based on the childcare module	.11	.31	.38	.32
4. Time spent looking after children based on the retrospective question (hours per week)	17.1	21.6	27.8	36.9
Number of cases[b]	265	337	694	491

[a] The subsample is restricted to married or cohabiting fathers with children under the age of 15

[b] This is the weighted number of cases. It is slightly smaller for the estimate based on the retrospective question

4.4 Non-Involvement As a Result of an Unusual Day?

As noted earlier, it is possible that non-involvement could be due to an unusual event or series of events that may have prevented respondents from spending time with their children. Unlike several of the European time-use surveys, the Canadian survey does not directly ask respondents whether the diary day was an unusual one or not. However, we indirectly examined this by determining whether or not the respondent's children were home on the diary day. In the Canadian survey, this information is included in the childcare module, where respondents could indicate that they did not allot additional time to childcare because their children were absent from home. This is not a perfect piece of information, as respondents could have spent time with their children outside the home. Nevertheless, this turned out to be a key piece of information: in the non-involved group, 25% of fathers reported that their children were absent on the diary day, compared to <3% for the other subgroups (results not shown). We do not know why these children were absent, but ignoring this information would artificially inflate the subgroup of non-involved fathers. By removing cases where children were absent, the relative size of the non-involved group was reduced to 12%. The analysis below is based on this reduced sample.

We also checked for the possibility that non-involvement was linked to fathers' absence from home by using information on the location of activities as reported in the diary. The non-involved group again appears to be different from the other groups of fathers: on their diary day, 6% of non-involved fathers reported spending no time at home compared to <2% for the other subgroups (results not shown).[9]

Finally, we checked the sensitivity of our results in terms of the day the diary was filled out. As fathers tend to increase their allocation of childcare time on weekend days (likely as a result of more time availability), diary day could be an explanation for fathers' non-involvement. For example, some fathers may spend no time at all with their children on weekdays but spend time with them on weekends. Because respondents in the Canadian time-use survey only kept one diary day, we cannot fully check this weekend versus weekday hypothesis at the individual level. What we can check is whether the proportion

[9] Unfortunately, the survey does not contain precise information for the reasons why these respondents were not home.

of fathers who filled out their diary on a weekend varies across the four subgroups. The difference is in fact striking: 58% of the highly involved fathers filled in their diary on a weekend day as opposed to <25% for the other subgroups (Table 5). But perhaps more importantly, the type of day does not seem to make a difference for the non-involved fathers compared to fathers in the low and medium level subgroups. In fact, the percentage of fathers who filled in a diary on a weekend day is higher among the non-involved group (21%) than the low (13%) and medium level (12%).

What we conclude so far is that non-involved fathers do spend significantly less time with their children than other fathers, even when using different measures of childcare time. However, we also find that this may be partially due to the fact that non-involved fathers and/or their children were more likely to be absent on their diary day. In addition, we found that filling in a diary on a weekend day is linked to more childcare time for highly involved fathers, but not for non-involved fathers. Below, we turn our focus to other

Table 5 Social, demographic and economic characteristics of fathers by subgroup[a]

	Non-involved	Low	Medium	High
Type of day				
Weekend diary	.21	.13	.12	.58
Respondent not home	.06	.00	.00	.02
Family responsibilities and family structure				
Number of children	1.50	1.64	1.76	1.83
Proportion with young child (0–4)	.28	.35	.48	.53
Cohabiting couple	.17	.16	.13	.21
Step-parent family	.20	.10	.09	.11
Work responsibilities and work conditions				
Employed respondent	.90	.94	.92	.79
Number of hours usually worked at all jobs in a week (among those employed)	51.1	48.9	45.9	44.8
Spouse employed full-time	.39	.37	.38	.48
Multiple job holder[b]	.07	.04	.05	.06
Works at home[b]	.22	.23	.21	.23
Flex-time[b]	.41	.42	.50	.41
Regular day time work schedule[b]	.62	.72	.76	.73
Regular evening or night shift[b]	.04	.04	.03	.07
Irregular work schedule and other[b]	.34	.24	.21	.20
Values				
High level of education	.41	.46	.49	.52
Regular religious attendance	.18	.12	.19	.18
Quebec	.17	.27	.20	.25
Age of respondent	41.8	40.7	39.3	39.2
Valid *N* (listwise)[c]	166	303	606	394

[a] All the figures are expressed as proportions unless indicated otherwise

[b] The figures are for the subsample of respondents who are employed

[c] This is the weighted number of cases for the full sample, excluding the variables that are restricted to employed respondents. The number of cases is smaller than those in the previous tables because of missing values on some independent variables

possible explanations for fathers' non-involvement by examining social, economic and demographic characteristics. We do so in order to determine whether the non-involved group present distinct characteristics compared to the other subgroups of fathers.

4.5 Alternative Explanations for Non-Involvement

We start by running a simple descriptive analysis to show the composition of the subgroups. Results (in Table 5) show that the non-involved fathers do differ from the other subgroups on several dimensions. First, they differ in terms of their family characteristics: the non-involved fathers have a smaller number of children, a smaller proportion of them have a young child, and a larger proportion of them are members of a step-parent family. They also differ in terms of their work characteristics: the non-involved fathers are more likely to be employed (especially compared to the highly involved fathers), they work longer work hours, on average, and are more likely to work irregular work hours. Finally, the non-involved fathers are less likely to have a high level of education.

The results above are descriptive; therefore, in Table 6, we carry out a multinomial logistic regression in order to identify the variables that significantly contribute to 'membership' into one subgroup or another. We use non-involved as our reference group since we are interested in seeing whether this subgroup differed in its characteristics from the others. If the non-involved group is simply an artifact of the data, we would expect the day of the week to be the sole determinant of membership. What we found suggests that while the day of the week matters, it does so in a complex way (as will be discussed below), and is not the only variable of importance.

More specifically, our results show that having filled in a diary on a weekend day (as opposed to a weekday) strongly increased the likelihood of being in the highly involved category (as opposed to the non-involved category). On the other hand, having filled in a diary on a weekend day decreased the likelihood of being in the low or medium category as opposed to the non-involved one. Thus, while the type of day may to some extent 'artificially' inflate the category of highly involved fathers, it does not explain the category of non-involved especially compared to the low and medium levels. Other economic and demographic characteristics instead appear to characterize the non-involved group.

In particular, our results show that family responsibilities do matter significantly. In particular, we found that having a pre-school aged child substantially increases the likelihood of being in the medium and highly involved categories as opposed to the non-involved one. There could be two explanations for this. First, there is a 'demand' explanation due to the fact that a young child requires more care and attention. Second, there is also the possibility that, as pointed out earlier, the childcare activities coded in the time-use survey are better suited to describe activities involving young children. Having a larger number of children (two or more as opposed to only one) was also found to increase the likelihood of being in the medium or highly involved categories (as opposed to the non-involved one).

We also found that being part of a step-parent family substantially increased the likelihood of being in the non-involved category. The literature on step-parent families is inconclusive in this regard. Some research indicates that step-parents spend the least amount of time with their children, compared to other parents (Cooksey and Fondell 1996; Thomson et al. 1992, 1994). One explanation may be because they do not live with their biological children and/or are less committed to their step-children. However, when researchers distinguish between step-parents and remarried biological parents, the conclusions become more complicated—remarried custodial fathers report parenting activities

Table 6 Results from the nominal logistic regression for fathers

	Low vs. non-involved	Medium vs. non-involved	High vs. non-involved
	Exp(B)	Exp(B)	Exp(B)
Type of day			
Weekend (vs. weekday)	.495***	.482***	5.778***
Family responsibilities and family structure			
Number of children (ref: one)			
Two	1.430	1.892***	2.926***
Three or more	1.680	2.390***	3.479***
Presence of a young child (yes = 1)	1.399	1.878***	2.180***
Cohabiting relationship (yes = 1)	1.081	1.039	1.595
Step-parent family (ref: two-biological parents)	.388***	.349***	.274***
Work responsibilities and work conditions			
Weekly hours of work (ref: 35–44)			
None	.321***	.623	1.900*
1–34	1.761	1.415	3.610*
45–54	1.061	.762	.565**
55 and more	.786	.323***	.296***
Spouse employment status (ref: non-employed)			
Employed part-time	1.566	1.592	1.903**
Employed full-time	1.067	1.273	2.301***
Values			
Education of the respondent (ref: low level)			
Medium	2.532***	2.528***	1.956**
High	1.711**	1.978***	2.244***
Regular religious attendance (yes = 1)	.611*	.991	1.018
Province of Quebec (ref: rest of Canada)	1.757**	1.121	1.414
Age of respondent (ref: 24–34)			
35–44	1.136	1.493	1.126
45–54	1.128	.694	.665

* $p < .10$

** $p < .05$

*** $p < .01$

that are similar to those reported by stepmothers. On average, they show the highest number of hours with children, as compared to all other types of fathers (Cooksey and Fondell 1996; Thomson et al. 1994). Unfortunately, our data do not allow us to shed further light on this issue.

Long hours of work also appear to be a major obstacle to spending time with children. In particular, working long hours (55 and more hours per week as opposed to 35–44 (our reference category)) significantly reduced the likelihood of being in the medium or highly involved group as opposed to the non-involved one. Interestingly, working long hours made no difference for the low versus non-involved comparison. Having an employed spouse also increased the likelihood of being in the medium or highly involved category. In this case, a spouse's time availability (or non-availability) appears to influence fathers'

own contribution to childcare. We also found that working non-standard hours decreased the level of parental involvement of fathers.

In addition to family and work responsibilities, we found that ideologies also contribute to the level of parental time involvement. Having a higher level of education increased the likelihood of being in the involved categories as opposed to the non-involved one. Since we already control for work-related characteristics in the model, what is captured by the education variable may be related to parenting and gender ideologies, especially ideologies regarding fathers' involvement. In this case, the phenomenon of non-involvement appears to be strongly associated with a low level of education. In contrast, we found no impact of cohabitation and religious attendance (both proxies for ideologies).[10] Finally, we were expecting fathers in Quebec to be more involved because of their less traditional gender and family ideologies and because of the more supportive policy environment provided to parents in Quebec. Our results supported this hypothesis but only for the comparison of low versus non-involved.

Finally, we ran an additional analysis restricted to employed fathers in order to check whether having multiple jobs, working at home, working flex time and working non-standard hours were significant. Results suggest that working irregular work hours (as opposed to regular daytime hours) decreases the likelihood of being in the low and medium- and high-level categories (as compared to the non-involved ones). The other variables were not statistically significant (results not shown).

The picture revealed by this analysis is that the non-involved group constitutes a different subgroup of fathers. In particular, non-involved fathers are more likely to have a smaller family size, older children, belong to a step-parent family, have a lower level of education, work longer hours and have a non-employed spouse.

5 Discussion and Conclusion

The key question in this paper is whether methodological issues related to the time-use diary (i.e. type of day, temporary absences and childcare activity codes) explain why a non-negligible proportion of fathers spend no time with their children on their diary day, or whether non-involved fathers instead constitute a distinct subgroup in terms of their social, economic and demographic characteristics. Our results suggest that both explanations are valid. In support of the data artifact explanation, we found that non-involved fathers (as opposed to highly involved fathers) were much less likely to have filled in their diary on a weekend day, were more likely to be absent from home on their diary day (as were their children) and were less likely to have very young children. However, we also found that non-involved fathers differed on numerous characteristics, not only from the highly involved fathers, but also from those in the low and medium involvement categories.

These results carry important methodological and statistical implications, as well as substantive ones. Methodologically, our findings caution against the use of a parental time measure based on childcare activities only (as main activity), as this measure inflates the percentage of non-participants, some of whom do in fact spend time with children doing other activities. Furthermore, our results suggest that even when a broader definition of parental time is used, a non-negligible proportion of fathers still devote no time to their

[10] In the case of religious attendance, only the result for the comparison low vs. non-involved was statistically significant and ran counter to our theoretical expectations. Regularly attending religious services decreased the likelihood of being in the low involved category as opposed to the non-involved one.

children. Not only do these 'zeros' violate the normal distribution assumption common to numerous statistical models, our results also indicate that non-involved fathers differ in their social, economic, and demographic characteristics from other fathers. What this suggests is that the unique characteristics of non-involved fathers should be taken into account in statistical models and may require separate analyses. Methodologically, our results also highlight the importance of checking whether or not children were at home on the respondents' diary day so as not to artificially inflate the category of non-involved fathers.

Substantively, our findings suggest that there is a distinct group of fathers who can be legitimately labeled non-involved (i.e. those who spend no time in childcare and no time in the presence of children) and who differ in their characteristics from other fathers. What we do not fully know is whether they are non-involved because they do not want to allocate time to their children or if they have other reasons that prevented them from doing so. We did note that these non-involved parents had a lower value of parental time when alternative measures were used, which indicates that their non-involvement was not the result of an unusual day. We also noted that they tended to work long hours, which we interpreted as having less time availability, and that they tended to have lower levels of education, which we interpreted as holding more traditional family/gender values. But beyond these pieces of information, we do not fully understand the reasons that kept them away from parental involvement including other possible workplace characteristics, health issues, availability of childcare arrangements and children's gender. Future time-use surveys may want to explore these issues in greater depth in order to shed more light on non-involvement.

Finally, we should mention that the Canadian time-use survey interviewed only one random individual per household, therefore preventing us from jointly analyzing the patterns of time-use of both parents. As a result, we could not observe possible synchronization or de-synchronization of parents' schedules, which may translate into different co-parenting strategies and may help further explain the phenomenon of parental non-involvement.

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