The effect of marital dissolution on the labour supply of males and females: Evidence from Canada

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Abstract

The literature on divorce and labour supply generally analyzes standard labour supply measures such as annual hours worked. We include hours per day and days per week as two new dimensions of work time, and use a 3-year panel which allows us to address the effects of divorce on five time dimensions simultaneously. For males, we find that divorce can result in short-term labour supply changes as high as 10–20% of pre-divorce labour supply levels, depending on the time dimension and comparator group. For females, our data do not reveal any significant changes in labour supply.
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1. Introduction

Significant research has been conducted into the labour supply consequences of family change. Generally this research has focused on the impact of children on the labour supply of females, since women are still the primary caregivers in the family and their labour force attachment is considered more transitory than that of males. A few studies have been conducted on the effects of marriage and the division of spousal labour between home-based and market-based activities. These studies tend to focus on the impact of these marital changes in the cross-section and use aggregated labour supply measures such as weeks or hours per year. Still fewer studies have been estimated on the labour supply implications

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of marital dissolution. When these effects have been estimated, they have concentrated on women and often suffer from similar data and methodological limitations.

The existing literature on the relationship between labour supply and marital dissolution tends to view the direction of causality as some labour supply aggregate (generally labour force participation) leading to an increased probability of divorce.[1] Much of this literature concentrates on the effects of female labour force participation on divorce rates using micro or aggregated cross-sectional data. As a result, while correlation between these two variables can be shown in these data, causality is implied only because of the construction of the theoretical models. These generally suggest that as a woman's labour force participation increases, she becomes less dependent on her husband, the power structure within the marriage swings in her favour, and divorce is more likely as a result, other things equal. A number of economic theories would suggest that causality runs from divorce to changes in labour supply. Yet with few notable exceptions (e.g., Johnson and Skinner, 1986; Gray, 1998), the economics literature has failed to look at the labour supply implications of divorce. When these analyses have been conducted, they too have tended to use cross-sectional data, have focused on a limited number of labour supply variables, and have generally limited the analysis to the effects of divorce on female labour supply.

Our main intention throughout this paper is to examine some of the correlates of marital dissolution and labour supply. Along with analyzing the usual labour supply aggregates, we broaden the analysis to include two labour supply dimensions understudied in the literature (in general) and in this context (in particular): days per week and hours per day. We also explicitly include the effects of divorce on male labour supply. There has been almost no research conducted in this area, although there are theoretical reasons to suspect that male labour supply will also be affected by the termination of a marriage. Finally, we use a 3-year panel of microdata. Although not without methodological problems, the longitudinal aspect of these data allow us a better empirical basis for inferring a causal relationship between marital dissolution and labour supply compared to most previous work.

Conducting this exercise will shed some light on the effects of marital separation on these disaggregated labour supply measures. We will also be able to offer make some inferences about the division of home-based production within marriage. These labour supply effects of divorce may be of interest to policymakers, who might plan better programs such as unemployment insurance and other income-maintenance programs. Also, family courts may be better able to design divorce settlements by taking into account both income and the labour market consequences of divorce. For example, we are able to value household and labour market effort (say) per unit of labour. But, how does labour supply change following a divorce? Similarly, if the oft-cited male marriage premium exists and is based on productivity differences, how might the present value of a future income stream change if market productivity changes due to changes in labour supply? How do these factors affect an individual's ability to pay following a divorce? What was the contribution of either spouse to the household during the marriage? If this is viewed as an asset, what is the value of a particular marriage? Surely both the earnings capacities and contributions to household

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[1] The sociology literature is full of these types of studies. See Ruggles (1997a,b) and Oppenheimer (1997) for a good review and debate of this literature and some of the associated methodological problems in determining causality.

production of both spouses must be considered? Employers too might benefit from such information by better tailoring their expectations of employees following such a dramatic lifestyle change and offering, for example, more flexible working arrangements to recently divorced employees.

2. Theoretical considerations

The theory of marriage outlined by Becker (1981) asserts that the value of the marriage depends on the degree of specialization of each partner within the marriage. If one of the partners is more specialized (i.e., has a comparative advantage) in home-based activities (generally the female), and the other in market-based activities (generally the male), and each is rewarded accordingly, the former partner will decrease his/her labour market activity in favour of home production and the latter will increase his/her time spent working for pay in the labour market.[2]

Related to this are the labour supply consequences of divorce. Insofar as males are concentrated in the labour market, the loss of specialization in the theory of marriage, if applied symmetrically to divorce, means that the opportunity costs of working in the market would now be relatively higher, and thus less time would be spent in the labour market and more time on home production. We would also expect that this negative labour supply effect would be stronger if the female partner does not work full-time, and therefore contributes more to home-production in the period preceding the divorce.[3]

For women, however, we would expect the opposite outcome, at least for those women who do not work full-time. Divorce would mean that women could no longer be based solely in home-based production since the opportunity cost of doing so induces them to increase their labour supply. We would further expect these labour supply effects to be stronger if the male partner worked full-time, thus further increasing the opportunity cost of remaining at home.[4]

The impact of decreased specialization will also depend on the degree of substitutability or complementarity of the spouses in home production. If the efforts of spouses are complements (substitutes) we would expect that marital dissolution would lead to increased (decreased) time in the labour market for both spouses, all else equal. Empirical evidence

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[2] The cohabitation of marriage partners also results in economies of scale, thereby influencing the labour supply of either partner via the income effect. An additional labour supply effect is the result of complementarity of leisure. To the extent that marriage partners enhance the quality of each other's leisure, this increases the opportunity costs of working in the labour market, leading to a decrease in labour supply in the presence of a fixed wage rate. In the period leading up to the marital breakdown, leisure taken together is likely not enjoyed. We will generally abstract from these arguments throughout the remainder of the paper.

[3] Theoretically, economies of scale in marriage would now be lost, leading to a positive change in labour supply through the income effect. Conversely, an increase in the disposable income of the male partner could result in less labour supplied to the market, again through the income effect. The relative amount of alimony and child-support payment following divorce could influence the labour supply in either a positive or negative direction. If payments are relatively high (low) compared to his contribution to the well being of the marital unit, then the income effect would dictate that divorced men supply more (less) labour to the market.

[4] This income effect assumes that there is no transfer of income between spouses following marital dissolution. In the absence of children, this is a reasonable assumption given the current divorce laws in Canada.

(Kniesner, 1976; Lundberg, 1988) is supportive of the complementarity hypothesis, thus we would expect both spouses to work more hours in the labour market following separation, as the marginal productivity in home production of either spouse declines, thereby increasing the opportunity cost of not working. Johnson and Skinner (1988), however, fail to confirm the complementarity of spousal labour, casting doubt on its importance in the labour supply decision.

The income effects of divorce are also important since the distribution of family income between spouses is likely to change following the divorce.[5] If the wife's non-wage income drops dramatically following a divorce, the income effect would dictate that she provide more hours to the labour market. For husbands, the opposite is likely to hold as their post-separation incomes increase.[6]

Bargaining models of marriage (e.g., Manser and Brown, 1980; McElroy and Horney, 1981) address how labour market and home production decisions are made in a marriage when marital dissolution is costly. Since men generally have higher market wages compared to their spouses, they are likely to have a relatively stronger bargaining position which may result in the wife doing more household production, thus supplying relatively less labour to the market.[7] With divorce, the results of this model will be identical to those of the Becker model; the male (female) will increase (decrease) home production by reducing (increasing) the amount of time spent in the labour market.[8]

As an alternative to the above models of marriage and labour supply, Lundberg (1988) outlines a theory in which the labour supply of both partners is determined simultaneously. She concludes that the labour supply of husbands and wives who do not have pre-school children is not jointly determined in the short-run.[9] Thus, we would expect that the end of

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[5] The size of these income effects has been shown to depend on the relative incomes of spouses, the probability of divorce, and the costs of divorce in a neoclassical model of spousal labour by Grossbard-Schectman and Keeley (1993). They also provide some empirical evidence on the importance of these effects using a model which simultaneously estimates labour supply and the probability of divorce.

[6] Recent evidence from Statistics Canada (1997) suggests that the median family income for males (adjusted for family size) increases by 10% in the year following marital separation or divorce. For females, however, median adjusted family income falls by 23%.

[7] Recent evidence for the United States (Hersch and Stratton, 1997) has shown that the housework time of married women is three times that of married men on average. Women supply less labour to the market in such situation for two reasons. First, more time at home necessarily means less time can be spent in the labour market. Second, more time at home means less effort can go into the labour market, less human capital through formal education will be attained, etc. These have a negative effect on the wage rate which will influence the labour supply decision further via the substitution effect. See Hersch and Stratton (1994) for discussion. For males, Korenman and Neumark (1991) showed that married men work an average of 2 h per week and 1 week per year more than never married men, implying that marriage allows males to increase time in the labour market.

[8] Chiappori (1988, 1992) accommodates both the Becker-type model and the simple bargaining models as special cases of his more general model of collective labour supply. Grossbard-Schectman (2002), based on her earlier studies, argues that these bargaining models of marriage should be viewed as complementary to Becker's theory, since they influence the division of goods in a marriage when the market mechanism is not sufficient to allocate these goods. In addition, most of the predictions of these models can also be derived from Becker's model or its extensions (which includes much of Grossbard-Schectman's work).

[9] In the presence of young children, however, she concludes that the hours of work of husbands and wives are jointly determined. Del Boca (1997), using Italian data, comes to a similar conclusion.

a marital union to have little effect on the labour supply of either partner in the marriage, at least in the absence of children.

Johnson and Skinner (1986) develop a model in which a woman will invest more in human capital by increasing her supply of labour if she anticipates a future divorce. They argue that the economic theory of specialization in marriage (Becker, 1981) suggests that if a woman with a wage rate less than that of her husband were to divorce, both the income effect and the loss of specialization would increase her labour supply, hence raising the return to her accumulation of human capital.[10] Thus, the income effect from the loss of the husband's income leads to an increase in the labour supply of divorced women.[11]

Finally, Feminist/Marxist as well as Institutionalist theorists generally reject any economic or biological reasons for the division of household labour.[12] In the former case, traditional women's work (i.e., household production) is not valued either within society or the marriage. The division of labour based on sex is a direct consequence of the lower status of women in society vis-à-vis men; a situation brought about by the development of the class society. Generally, "voluntary choices," a fixture of neoclassical models, are limited for women. According to McCrate (1987), the relationship between husband and wife is similar to that between capitalist and worker in that both may be free to choose, but one has much better options available than the other.[13]

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[10] To the extent that alimony or child-support payments are part of the divorce settlement, however, this could reverse the predictions of this model. This is unlikely since alimony and child-support payments do not replace the lost earnings contribution of the husband, at least in the US (Weitzman, 1985; Duncan and Hoffman, 1985). Similarly, in Canada divorce laws were changed in 1986 so that the expectation of self-sufficiency was built into the new law. This effectively limited the number of cases in which alimony payments were awarded. Furthermore, child support payments are not likely to be high in Canada since the amounts awarded are less than adequate for supporting children, and because delinquency rates are high (Baker, 1995, Chapter 8).

[11] Haurin (1989) arrives at the same conclusion by modeling the female labour supply decision as a function of the deviation of her husband's actual leisure time from its expected value.

[12] See Folbre (1996) for a nice collection of the seminal essays on each of these perspectives. See also Hadfield (1999) and Bianchi et al. (2000) for brief reviews of each. The latter paper also offers two other sociological perspectives on the household division of labour. First, the *time availability perspective* suggests simply that the spouse with the largest amount of non-market labour time spend more time in household labour for the simple reason that they have more time available to do so. However, no explanation is given as to how differing time availability between spouses initially came about. The *relative resources perspective* suggests that spouses bring certain resources into a marriage and these determine how much domestic labour is done by each spouse, either through the relative power that these resources bestow upon each partner (as in the bargaining models of marriage discussed above), or (as in Becker) because of efficiency (i.e., the gains from specialization). Hadfield (1999) develops a coordination model of household organization and argues that the traditional division of labour can persist long after the norms, culture or economic conditions that gave rise to this division have changed (i.e., hysteresis in economic terms). Despite the fact that these gendered categories may be arbitrary from an economic point of view, the inability to adhere to these customs may result in the lower probability of success in the marriage market (i.e., "coordination"). Thus, this model "... provides an account for the gendered nature of work: the association between the sex of an individual and his or her particular task in the economy is a function not of his or her sex per se but rather social organization overlaid on biological differences (p. 147)". Grossbard-Schectman (2002) and Ishida (2003) each discuss the importance of social norms in marriage and divorce.

[13] Bolin (1997) comes to a similar conclusion on household production using a theoretical Stackelberg game model where the dominant husband has first mover advantage. The wife then chooses her labour supply and home production time subject to her husband's exogenous labour supply decision.

In the Institutionalist perspective, the development of social institutions is what is responsible for the lower status of household production. The implication of both of these models is quite simple: women will decrease the time spent on home production as the repressive relationship ends, whereas men will have to increase the time spent at the household chores which they (and society) have hitherto eschewed. Of course, these societal norms may take some time to break down.

The theory of the effects of divorce on disaggregated measures of labour supply does not exist, although some theoretical and empirical evidence on these labour supply (dis)aggregates does. Hamermesh (1996) informally presents a theory of the importance of disaggregating weekly hours into days per week and hours per day. He asserts that just as there are fixed costs to labour force participation, there are also fixed costs per day of work and even costs per hour of work. The costs of commuting to and from the workplace, for example, are borne on a daily basis, regardless of how many hours per day are actually worked. We therefore anticipate that a divorced individual will change his/her weekly labour supply along the least costly dimension, other thing equal. If a woman desires to increase weekly hours, then hours per day will increase by a relatively greater proportion than days per week. Similarly, a divorced man wishing to reduce weekly hours will reduce his days by a greater proportion than hours as he reduces his labour supply. We might suppose, however, that the loss of household specialization will also result in changes in the optimal combination of hours and days for either partner, again depending on the frequency with which household chores are performed (daily versus weekly) and the complementarity of spousal labour in home production. This might change the predictions of weekly labour supply being adjusted along the least costly dimension.

Theory then appears to offer little guidance regarding the effects of divorce on changes in the labour supply of individuals along various dimensions. In fact, the various theories all tend to agree on the direction of change, if not the magnitude, albeit for different reasons. The empirical part of this paper may shed some light on this ambiguity.

3. Data and methodological issues

The data are drawn from the 1988–90 longitudinal file of the Labour Market Activity Survey (LMAS), collected by Statistics Canada from interviews with households throughout the country (with the exception of the territories). Each household was interviewed for 3 years in the months of January and early-February following the year of analysis. Each record includes demographic information for those household members between the ages of 16 and 69, along with job information for up to five jobs per year held by each individual. Information on a total of 97,081 jobs and 55,434 individuals (27,056 males and 28,378 females) was collected in the longitudinal file. Persons who were coded as being full-time students during any one of the 3 years were removed from the sample, as were those who were either under 17 years or over 64 years of age in 1988. To simplify computations, persons holding more than two jobs over the period of analysis were dropped. The initial sample contains 18,074 males and 19,600 females. It is this sample that will be used to analyze the effects of divorce on labour force participation and annual weeks worked. Since data on annual hours worked are not collected for self-employed individuals, analysis of

this dimension of work time will utilize a smaller sample of 12,434 males and 12,178 females.

The LMAS is ideal for this type of analysis in many respects. First, it contains variables for hours per day and days per week; measures not normally contained in labour market surveys.[14] The analysis of changes in these variables represents one of the major contributions of this paper. Second, the time period used (1988-90) is a period when divorce laws in Canada remained unchanged (Allen, 1998).[15] Changes in divorce laws have been shown to change the allocation of time spent at home production and in the labour market for both males and females.[16] Third, the sex ratio is stable over this period. It has been argued that changes in the ratio of males to females of marriage age influence the labour supply of married women through both the relative bargaining position of the wife as well as the standard income effects (Grossbard-Schectman, 1984, 1993; Grossbard-Schectman and Granger, 1998; Chiappori et al., 2002; Angrist, 2002).[17] Fourth, over this relatively short period of time there is unlikely to have been any changes in cultural norms, which have been shown to influence divorce laws (e.g., Grossbard-Schectman and Neuman, 1998, 2003; Ishida, 2003). Changes in laws can alter the transfer between spouses and hence labour supply following divorce (via the income effect). Finally, changes in technology, taxes and leisure opportunities, which could also have an impact on labour supply, are unlikely to be a factor over this short duration (Juster and Stafford, 1991).

Since we are ultimately concerned with the labour supply changes of those with *significant attachment to the labour market*, the sample is further restricted by dropping those who did not work during the 3-year period. Furthermore, those who started their first job after the first 2 weeks of 1988 as well as those who finished the last of their jobs before the final 2 weeks of 1990 were removed. In other words, we focus on individuals who were working at both the beginning and the end of the reference period, although individuals may not be working in the intervening period either because of an intra-job or an inter-job nonemployment spell. Similarly, to avoid job overlap, persons were removed from the sample if the start week of their second job preceded the stop week of the first job. The self-employed were also removed since data on hours and days were not recorded for all of these individuals. Records were also dropped if usual hours worked per day were greater than 18 at either of the two jobs. The final sample consists of 7295 females (1517 job changers and 5778 stayers) and 8940 males (1669 changers and 7271 stayers).[18] It is this restricted sample that will be used in our analysis of days and hours changes.

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[14] As far as we know, few data sets contain detailed information on these two variables. Two exceptions are the various May supplements to the Current Population Survey (CPS) in the United States, and the German Socioeconomic Panel (GSOEP) (see Hamermesh, 1996). The successor to the discontinued LMAS in Canada, the Survey of Labour and Income Dynamics (SLID), does not contain such measures.

[15] Unlike laws in the US, divorce laws in Canada fall under federal jurisdiction. No-fault divorce laws were introduced in 1968. The Divorce Act was enacted in June 1986 and reduced the grounds for divorce from 15 to 1 (marital breakdown). This could be established by living apart for 1 year, adultery, or cruelty.

[16] For example, Peters (1986), Carlin (1991), Parkman (1992), and Chiappori et al. (2002).

[17] Grossbard-Schectman and Neuman (2003) provide a nice review of most of this sex ratio and marriage market literature.

[18] Starting from our initial sample of 18,074 males (19,600 females), some 5546 (10,591) observations were dropped because the individuals did not meet our criteria for working the entire 3-year period. A further 3247 (1338) were dropped because they were self-employed at either one or both jobs held over the period (and hours

The LMAS contains demographic variables for each of the 3 years. The exceptions to this rule are time-invariant variables such as mother tongue, immigrant and minority status. In addition, individuals are coded into age groups only once, in 1988. Marital status is given for each of the 3 years as "married" (including common law), "single" (never married), or "other" (divorced, separated or widowed). The marriage or common-law relationship of an individual was considered to have ceased in 1989 if marital status was coded as "married" in 1989 and as "single" or "other" in 1990. In this case a dummy variable was appropriately coded to equal one, and zero otherwise.[19]

Finally, the LMAS does not contain an explicit variable for the full-time working status of spouses in the reference year 1988. A dummy variable for a full-time working spouse was coded to equal one if the respondent was either the head of the family or the spouse of the head, and a separate variable indicated that both the head and spouse had full-time, full-year jobs in 1988. The dummy was also assigned a value of one if the respondent was either the head or spouse, worked less than 49 weeks in 1988 (i.e., not full-year), and either the head or spouse (but not both) worked full-time, full-year. By default, this would be the spouse of the respondent.

Table 1 presents the three average labour supply measures (labour force participation rates, weeks worked in the year and hours worked per year) in the 3 years from 1988 through 1990 for the nondivorced sample, along with those who were divorced in 1989.[20] The table also presents average days per week and hours per day worked in 1988 and 1990 for our subsample of individuals with significant labour force attachment.[21] The first panel of each table shows the raw labour supply data, the second panel the 1988–1990 "within group" changes and the "difference-in-difference," comparing those who divorced in 1989 to those

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and days data are not available for these individuals). The remaining 341 (376) observations were eliminated because of job overlap or because the individual claimed to have regularly worked more than 18 h per day at one or both jobs.

[19] Some inconsistent responses were given when we compared the marital status of individuals over the 3-year period. For example, a person could be defined as married in 1989 but single in 1990, even though this person should have been coded as "other". In order to preserve the sample size, it was decided that such seemingly inconsistent responses would not pose much of a problem since these individuals likely were divorced or separated, but considered themselves to be single. A larger concern was the fact that we could not disentangle the "other" category. In particular, we were not able to distinguish between those who were widowed and those who were divorced or separated. The effects of being widowed have been shown to differ from those of divorce or separation (Haurin, 1989). However, few individuals in our divorced sample were greater than 54 years of age, and therefore mortality is not likely to seriously bias our estimates. Similarly, it is possible that an individual divorced in 1989 and remarried again in that same year, but we deemed this improbable. Again, it should be noted that the LMAS was administered in January and early-February of 1990 (for 1989 data) and over the same period in 1991 (for 1990 data). At these times, respondents were asked about their current marital status. It is possible, for example, that some respondents were separated from their spouses in January 1990 and thus the dummy for divorce in 1989 was coded as one. Ideally, of course, we would have liked to be able to pinpoint the exact date of marital dissolution to remove this potential source of bias from our estimates. From this point forward, when we mention divorce in 1989, we are technically referring to changes that could have occurred at any point in time between January 1989 and early-February 1990.

[20] As mentioned in the text, in the case of some self-employed workers there is limited information available on annual hours worked. For this reason, the sample is further restricted to 12,434 males and 12,178 females when we address total annual hours worked.

[21] Given the design of our sample, 1989 data on these two labour supply dimensions are not available.

Table 1
Correlates of divorce with selected labour supply measures

	Males		Females	
	Divorced	Nondivorced	Divorced	Nondivorced
Labour supply measure				
Labour force participation				
1988	0.917 (.021)	0.900 (.002)	0.672 (.034)	0.680 (.003)
1989	0.917 (.021)	0.894 (.002)	0.677 (.034)	0.672 (.003)
1990	0.817 (.029)	0.863 (.003)	0.631 (.035)	0.647 (.003)
No. of observations	180	17894	195	19405
Annual weeks				
1988	44.92 (1.25)	44.62 (0.13)	30.06 (1.73)	31.28 (0.17)
1989	43.53 (1.32)	43.68 (0.13)	31.10 (1.72)	31.09 (0.17)
1990	39.11 (1.59)	42.58 (0.14)	28.34 (1.76)	30.48 (0.18)
No. of observations	180	17894	195	19405
Annual hours				
1988	2016 (63.5)	2003 (6.2)	1382 (70.3)	1429 (7.4)
1989	1862 (60.6)	1909 (7.0)	1443 (68.9)	1377 (7.4)
1990	1708 (71.2)	1863 (7.1)	1369 (74.7)	1363 (7.5)
No. of observations	137	12297	129	12049
Days per week				
1988	4.978 (.064)	5.008 (.005)	4.824 (.095)	4.664 (.011)
1990	4.966 (.049)	4.982 (.006)	4.878 (.079)	4.658 (.011)
No. of observations	89	8851	74	7221
Hours per day				
1988	8.697 (.171)	8.422 (.015)	7.473 (.173)	7.483 (.019)
1990	8.317 (.160)	8.354 (.015)	7.205 (.193)	7.423 (.018)
No. of observations	89	8851	74	7221
Change from 1988 to 1990				
Labour force participation	−0.100[***] (.026)	−0.037[***] (.002)	−0.041 (.027)	−0.032[***] (.003)
Annual weeks	−5.82[***] (1.46)	−2.03[***] (0.11)	−1.72 (1.23)	−0.80[***] (0.13)
Annual hours	−308.0[***] (71.7)	−139.9[***] (7.3)	−13.3 (64.1)	−65.7[***] (7.5)
Days per week	−0.011 (.065)	−0.026[***] (.006)	0.054 (.086)	−0.006 (.010)
Hours per day	−0.380[***] (.139)	−0.068[***] (.015)	−0.268 (.167)	−0.060[***] (.018)
Change relative to nondivorced (difference-in-difference)				
Labour force participation	−0.063[**] (.026)	0.000	−0.009 (.027)	0.000
Annual weeks	−3.78[**] (1.47)	0.000	−0.93 (1.24)	0.000
Annual hours	−168.2[**] (72.1)	0.000	52.4 (64.6)	0.000
Days per week	0.015 (.065)	0.000	0.060 (.086)	0.000
Hours per day	−0.312[**] (.140)	0.000	−0.208 (.168)	0.000

Note: [***] and [**] denote significance at 1 and 5%, respectively. Standard errors are in parantheses.

who did not. For example, males who divorced in 1989 worked 44.92 weeks on average in 1988, 43.53 weeks in 1989, and 39.11 weeks in 1990. From 1988 to 1990, this represents a statistically significant within-group decline of 5.82 weeks, or about 13% of the mean 1988 value of 44.92 weeks. Compared to the nondivorced sample, however, the relative average number of weeks worked decreased by 3.78, but still significant at the 5% level.

Labour supply in all five dimensions decreases slightly throughout the 3-year period for both of the male samples. The interesting result is for men who divorced in 1989. Their average participation rate is constant in 1988 and 1989, before falling dramatically (and significantly at the 1% level) from .917 to .817 in the year following the divorce. Weeks worked also dropped sharply and significantly in the period spanning the separation, as did annual hours and hours per day. Labour supply in each of these four dimensions also dropped compared to the nondivorced sample of males. These declines are significant, both statistically as well as economically. Furthermore, these changes are much larger than the measures reported by Johnson and Skinner (1986), Korenman and Neumark (1991), and Finnie (1993), although comparisons here are less than ideal.[22]

Table 1 also shows that, as with the case of males, the five measures of female labour supply generally decline throughout the 3-year period for both the divorced and nondivorced samples. Days per week for divorced females is the only exception. None of the declines in average divorced female labour supply is statistically significant, either within group or compared to the broader sample. These results are at odds with those of Johnson and Skinner (1986) who found that women actually increased their average annual hours worked, before, during, and after the date of divorce. Finnie (1993) also finds an increase in female labour force participation in the years following a divorce.[23] These divergent results, however, might be reconciled in the work of Sen (2000) who discovered that the risk of divorce on the labour supply of two cohorts of women was less influential on the younger cohort. Similar to the case of males, however, is the fact that women change weekly hours by decreasing hours and increasing days.

To summarize, the relationship between labour supply and divorce is highly gender-specific, at least in these data: divorced males experienced rather large and statistically significant declines in four of the five measure of labour supply compared to males who did not divorce. Conversely, the same comparisons using the female subsample tended to be much smaller and were statistically insignificant along each of the five dimensions of labour supply. Perhaps the most important lesson that we learn from our initial look at the data is that 1989, the year in which divorce occurs, is not an appropriate year to use as our unit of analysis. Insofar as divorce is related to changes in labour supply, these did not become fully manifest in the data until 1990. Thus, cross-sectional analysis of 1989 would underestimate the correlates of demographic changes and labour supply. Similarly, only using the changes that occur between any of the 2 years would also provide biased estimates of the divorce effect. Thus, in the empirical work that follows, we will use changes in labour supply between 1988 and 1990, in whatever dimension, as the dependent variable.[24]

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[22] All of these results are for different time periods. Furthermore, the Johnson and Skinner, and Korenman and Neumark estimates are for the United States. The Finnie results are only for labour force participation and he pools data over a number of pre- and post-divorce periods from 1982–86 and doesn't compare divorced and nondivorced individuals. His results could therefore be picking up other influences on male labour supply which are common to both divorced and nondivorced individuals.

[23] Finnie, however, defines labour force participants to be those who earned more than $1500 (in 1986 dollars) per year. Our definition of labour force participation is less restrictive and includes individuals who held at least one job (regardless of duration or earnings) during the reference year.

[24] We do not include estimates which control for the endogeneity of divorce in our estimates. These were attempted by using two-stage least squares with divorce as the dependent variable in the first stage. Using Hausman tests,

4. Multivariate estimation of labour supply

The simple tabulations in Table 1 have shown that divorce is negatively correlated with only male labour supply, and these changes tend to be quite large. This is an interesting result. To further investigate the importance of these correlates, OLS estimates of each labour supply measure for males and females are presented in Tables 2 and 3. Changes in labour supply in each dimension between 1988 and 1990 is assumed to be a linear function of the usual demographic control variables and divorce in 1989. Since we expect that individuals with spouses who worked before the break-up of the marriage will have different labour supply experiences following divorce, separate regressions including a dummy variable set equal to one if the spouse worked full-time in 1988 (the year preceding the end of the marriage) were estimated. This variable is included directly and interacted with the divorce dummy. For economy of space, only the coefficients on the variables discussed are included in the tables.[25]

In the case of males, the changes in labour force participation estimates show that divorce is significant at 1%, suggesting that divorce is related to a drop in labour force participation of seven percentage points. This coefficient magnitude reflects the raw data in Table 1. Those who divorced in 1989 experienced large mean declines in annual weeks (4.1 weeks) and total annual hours (183 h). Both are significant at at least the 5% level. Days per week did not fall measurably for this group of men, while the number of hours per day fell by almost one-third and is significant at the 5% level. Compared to the mean values in Table 1, these declines appear large; approaching 10% for both annual weeks and annual hours.

Adding the full-time spouse variable does little to change the divorce coefficient in any of the five estimates. In none of the cases is the divorce/full-time spouse interaction term statistically important. Tests for the joint significance of the divorce and divorce/full-time spouse interaction (not reported) fail to reject the zero null at 5% in all cases. Thus, those without working spouses had drops in labour supply measurably different from zero, while those with working spouses did not. In fact, in the former case, these changes in labour supply are larger in absolute value for each of the five measures compared to when the full-time spouse variable and interaction term is not included. In other words, controlling for males with a

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we could not reject the null hypothesis that divorce is endogenous in most estimates. However, no appropriate instruments were found and thus divorce was very poorly predicted by the first stage equation. It should also be noted that a similar endogeneity problem has been addressed in the literature on fertility and labour supply. In his review, Browning (1992) notes that in studies that do not make any correction for the possible endogeneity of fertility (the majority of studies), the coefficient on children can only be interpreted as measuring the direct effect if it is assumed that fertility is exogenous for labour supply. Theoretically, at least, fertility may be endogenous to a woman's labour supply decision. The common remedy in addressing endogenous fertility is to find suitable instrumental variables to estimate fertility. Nakamura and Nakamura (1992), however, cast doubt on this approach, noting that valid instruments are hard to find and that estimates of the effects of fertility on female labour supply using instrumental variables are indeed different than those using OLS, but not necessarily better. Likewise, in the case of divorce, it is not clear what types of instruments may be useful in avoiding this endogeneity problem. A perusal of the relevant sociology literature revealed that variables such as age at first marriage, parental divorce history, etc. are the strongest predictors of divorce. Unfortunately, none of these variables is available in our data. Thus, we will acknowledge these criticisms of using comparable variables directly and in our estimation will include all available variables that we believe to be correlated with both divorce and labour supply.

[25] Full results of all empirical estimates are available from the author.

Table 2

Partial cofficients from OLS estimates of changes in labour force participation, annual weeks, annual hours, days per week and hours per day, 1988–1990, males

	ΔLFP		ΔWeeks/year		ΔHours/year		ΔDays/week		ΔHours/day	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Divorce	−0.071 (3.72)	−0.078 (3.40)	−4.148 (3.80)	−4.946 (3.78)	−183.129 (2.65)	−236.941 (2.83)	0.015 (.25)	0.017 (.22)	−0.325 (2.20)	−0.487 (2.62)
Divorce × full-time spouse in 1988		0.020 (.48)		2.550 (1.08)		160.127 (1.08)		−0.008 (.07)		0.439 (1.44)
Full-time spouse in 1988		0.012 (2.64)		0.323 (1.23)		39.437 (2.34)		0.018 (1.34)		−0.015 (.45)
R^2	.0269	.0273	.0238	.0239	.0243	.0249	.0018	.0020	.0061	.0063
No. of observations		18074		18074		12434		8940		8940

Note: Controls for age group, number of childen in various age groups, highest level of education attained, household head, minority, immigrant and language, all in 1990, were also included. Absolute values of *t*-ratios are in parentheses.

Table 3
Partial cofficients from ols estimates of changes in labour force participation, annual weeks, annual hours, days per week and hours per day, 1988–1990, females

	ΔLFP		ΔWeeks/year		ΔHours/year		ΔDays/week		ΔHours/day	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Divorce	−0.008 (.03)	0.024 (.68)	−0.708 (.55)	1.332 (.77)	39.805 (.55)	200.261 (1.90)	0.055 (.53)	0.081 (.51)	−0.209 (1.15)	−0.218 (.77)
Divorce × full-time spouse in 1988		−0.070 (1.33)		−4.520 (1.76)		−298.776 (2.07)		−0.043 (.20)		0.017 (.05)
Full-time spouse in 1988		0.009 (1.47)		−0.035 (.12)		−38.281 (2.27)		−0.032 (1.33)		−0.032 (.77)
R^2	.0136	.0138	.0224	.0226	.0327	.0335	.0066	.0068	.0057	.0058
No. of observations	19600		19600		12178		7295		7295	

Note: Controls for age group, number of childen in various age groups, highest level of education attained, household head, minority, immigrant and language, all in 1990, were also included. Absolute values of *t*-ratios are in parentheses.

spouse who works full time prior to divorce, the large and negative divorce effects on labour supply experienced by males with working spouses are completely mitigated, but are accentuated for those without working spouses. In the cases of weeks and hours per year, these represent declines of over 10% of the mean values presented in Table 1. Similarly, labour force participation and hours per day both fall by almost 10% compared to values in 1988.

This result is consistent with both the household production and bargaining models of marriage, as well as the Feminist and Institutionalist models. Specifically, once the marriage has ended the male substitutes out of market-based production and into home-based production. That the decline in labour supply is not significantly different from zero for divorced males with spouses working full-time further strengthens this result. This suggests that this group of males shared in the household production before the dissolution of the marriage and is consistent with evidence from the United States showing that husbands do devote more hours per week to household chores as the wife takes on employment (Demo and Acock, 1993).

The evidence is also consistent with a negative income effect on labour supply. If the female partner works full time, she is likely to require fewer resources from her male partner during the marriage. Conversely, if she is not employed, the male is likely to contribute monetarily to her welfare. Upon dissolution of the marriage, assuming that these transfers would cease, the male's income would increase, and his labour supply would be negatively influenced via the income effect.

For females, none of the divorce coefficients in any of the five equations is significant at the 5% level (Table 3). Similarly, tests on the joint significance of the divorce and divorce/full-time spouse coefficients only allow rejection of the zero null hypothesis in the cases of weeks per year (a fall of about 3.2 weeks), but only at the 10% level. In absolute terms, these are much smaller than the changes experienced by males in these data.

The male results from Table 2 are the same in direction, but larger in magnitude, compared to those obtained by Johnson and Skinner (1986), Korenman and Neumark (1991), and Finnie (1993) in simple cross-tabulations. The results on hours per day agree in direction and magnitude with the empirical work of both South and Spitze (1994) and Hersch and Stratton (2000). These authors show that divorced males' weekly allocation of time to "traditionally female" household tasks, i.e., those generally performed on a daily basis such as meal preparation and dishes, is higher than that for both married and never-married males.

For women, Johnson and Skinner find that divorce has a positive effect on labour supply. We find mixed results from our sample. None of which, however, is significant at the 5% level, nor particularly large in magnitude. This could be an artifact of the limited number of years in our panel. If the lessons of Johnson and Skinner are applicable to the Canadian women in our sample, then much of the labour supply effects of divorce could become manifest over a large number of years on either side of the actual date of separation.

Until this point, we have been unable to disentangle the labour supply consequences of divorce. The results in Tables 2 and 3 show that there is some movement in hours and days following divorce. These movements may be worthy of further investigation. To do so we will continue to focus on those males and females with *a significant labour force attachment*. By this we mean those individuals who worked at only one or two jobs between 1988 and 1990. Every person in the sample must hold their first (and perhaps only) job at the beginning of 1988 and must hold the same job, or a second non-overlapping job, at the end of

1990. Since changes in hours and days between 1988 and 1990 may only occur if jobs also change, the sample is divided into job stayers and job changers. In other words, if people are constrained in their choices at their current jobs, they may have to change jobs in order to realize their optimal combination of days and hours, the possibility of which increases following a shock such as divorce. Our sample design allows us to test the hypothesis that job changers have more flexibility in changing hours and days than those who remain at their initial jobs. In addition, we use changes in log hours and log days between 1988 and 1990 as the dependent variables in our estimation. This allows us to test hypotheses regarding the equality of percentage changes in days and hours over the 3-year period.

Regressions of changes in log days and log hours between 1988 and 1990 for males and females, job stayers and changers, are given in Tables 4 and 5. Once again, only the relevant coefficients are listed.

The first thing to note about Table 4 is the differences in coefficient estimates for job stayers and job changers in comparable equations. Standard tests for coefficient differences between equations confirm that the divorce coefficients (with or without interactions) in the job changer and job stayer equations are significantly different from zero at at least the 5% level in all but the case of log days without the interaction term. The coefficient estimates for changers are generally larger in absolute value, suggesting that those whose marriages end and change jobs are better able to change both hours and days.

For job stayers, the coefficients on the divorce variables are small in magnitude and insignificantly different from zero in all cases at the 5% level. This suggests that divorce itself has little effect on days and hours, at least within our period of reference. For job changers, the coefficient on the divorce variable in the log hours equation has a value of about -0.10 and is significant at the 1% level. This indicates that males who divorced in 1989 decreased daily hours by about 10% between 1988 and 1990 as they moved between jobs.

To compare divorced men who had working spouses preceding the break-up of the marriage to those who did not, we interact the divorce dummy with another dummy for those with spouses working full-time in 1988. Again, the rationale for conducting this exercise is that those with and without employed spouses prior to divorce are likely to have different experiences. For both changers and stayers, in both log days and log hours equations, the coefficient estimates on the full-time spouse interaction are significant at the 5% level, indicating that the divorce effect on labour supply is dependent on the labour force status of the spouse. For stayers whose spouses worked, this shows that days fall by 7.3% while daily hours increase by 9.1% compared to males whose spouses did not work. For changers, however, the movements are larger in absolute value and different in sign: days increased by about 20% while hours decreased, also by about 20%. These are large changes in labour supply along these two dimensions.[26] Testing for the joint significance of the divorce terms we can reject the zero null at the 1% level, but only for job changers. This result suggests that job changers do indeed have greater latitude in changing their desired hours/days combinations. Furthermore, changes occur by decreasing hours per day, and increasing days per week.

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[26] These numbers should be interpreted with some caution. Of the 69 job stayers who divorced, 26 had spouses working full-time. For job changers, these numbers are 22 and 7, respectively.

Table 4

Effects of divorce on log hours and log days, male job stayers and job changers, 1988–1990

	Job stayers				Job changers			
	Δ log days	Δ log hours	Δ log days	Δ log hours	Δ log days	Δ log hours	Δ log days	Δ log hours
Divorced, separated or widowed in 1989	0.002 (.136)	−0.011 (.536)	0.030 (1.487)	−0.047 (1.745)	0.026 (.644)	−0.101 (2.553)	−0.039 (.809)	−0.039 (.810)
Divorce × full-time spouse in 1988			−0.073 (2.251)	0.091 (2.123)			0.204 (2.399)	−0.197 (2.335)
Full-time spouse in 1988			0.008 (2.326)	0.002 (.416)			−0.003 (.307)	0.001 (.120)
R^2	0.0507	0.0268	0.0520	0.0274	0.0974	0.1382	0.1006	0.1411
Correlation coefficient of residuals	−0.0488		−0.0483		0.0855		0.0892	
Breusch-Pagan test of independence (*p*-value)	0.0000		0.0000		0.0005		0.0003	
No. of observations	7271		7271		1669		1669	

Note: Regressions also included controls for age, number of children in various age groups, education, relationship to household head, language, minority, and immigrant status, all for 1988. Job controls for industry, occupation, tenure, part-time status, union status, and pension status, all for the first job held in 1988 were also included. Absolute values of *t*-ratios are in parentheses.

Table 5
Effects of divorce on log hours and log days, female job stayers and job changers, 1988–1990

	Job stayers				Job changers			
	Δlog days	Δlog hours	Δlog days	Δlog hours	Δlog days	Δlog hours	Δlog days	Δlog hours
Divorced, separated or widowed in 1989	0.026 (.760)	−0.051 (1.561)	0.022 (.431)	−0.095 (1.893)	0.037 (.505)	0.015 (.238)	0.070 (.615)	0.068 (.685)
Divorce × full-time spouse in 1988			0.006 (.083)	0.076 (1.149)			−0.054 (.364)	−0.086 (.676)
Full-time spouse in 1988			−0.010 (1.267)	−0.015 (1.874)			−0.028 (1.390)	−0.022 (1.243)
R^2	0.0529	0.0561	0.0532	0.0569	0.1705	0.1343	0.1718	0.1356
Correlation coefficient of residuals		−0.0862		−0.0867		0.0167		0.0152
Breusch–Pagan test of independence (p-value)		0.0000		0.0000		0.5156		0.5526
No. of observations		5778		5778		1517		1517

Note: Regressions also included controls for age, number of children in various age groups, education, relationship to household head, language, minority, and immigrant status, all for 1988. Job controls for industry, occupation, tenure, part-time status, union status, and pension status, all for the first job held in 1988 were also included. Absolute values of *t*-ratios are in parentheses.

Finally, we perform statistical tests on the equality of the absolute values of the divorce and divorce/full-time spouse interaction coefficients on changes in log hours and log days for both stayers and changers. Since many of the effects of divorce on days are opposite to the effects on hours, we want to know if these are equal but opposite changes. Since these variables are expressed in logarithmic format, coefficients can be loosely interpreted as percentage changes. If we cannot reject the null hypothesis of no difference in absolute value, then we can assert that divorce has equal but opposite effects on days and hours. In no case can we reject these null hypotheses. The implication of this is that weekly hours of work do not change, even though there may be changes in the composition of hours and days within the week.[27] This casts doubt on the hypothesis that an income effect changes the male labour supply following marital dissolution.

These results are only somewhat expected. We did anticipate the job changers would have more latitude in their hours and days choices as they changed jobs. The above estimates clearly support this assertion. Almost without exception the coefficients on divorce and the divorce/full-time spouse interaction variables are much larger in absolute value for changers and statistically different from the corresponding coefficients for job stayers. Also, the fact that the divorce/full-time spouse interaction dampens the effect on the divorce variable in each case also makes sense in terms of the theory of household production and existing evidence which says spouses' time is complementary in household production. We would expect that those without spouses working full-time would have to make more of a labour force adjustment by shifting into home-based production. Conversely, those with full-time spouses had already made adjustments so that the loss of a working spouse will not cause as great a disruption to the labour supply preferences of the male.

Whether it is hours or days that is the time dimension most affected by divorce when the spouse is not working full-time is not clear. When we do not interact divorce with the full-time spouse dummy variable, the divorce coefficient in the log hours equation is negative and larger in magnitude than that in the log days equation for both job changers and stayers, although only statistically different from one another in the latter case at 5%. In the two equations for stayers that include the full-time spouse interaction term, the pure divorce effect on days and hours remain indistinguishable from zero, but jointly they differ from one another at 5%. For changers, however, both coefficients are negative and statistically indistinguishable from zero, both individually and across equations.

In sum, these results are not inconsistent with the theory of specialization in marriage since men will alter their hours in the labour market (and hence their hours in household production) following a divorce. They do, however, cast doubt on the negative income effect hypothesis, as weekly hours do not change following a divorce, regardless of the working status of the spouse. Given the evidence presented above on the decline in hours and weeks per year for divorced males, however, this could also be interpreted that divorced males prefer to consume their leisure in weekly increments, rather than by taking more hours and days of leisure within the weeks that they work. The results also point to rigidities in the ability of men to change hours within jobs. Although we expected workers to decrease weekly hours by decreasing days per week, since we have assumed this should be the least

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[27] In fact, in separate regressions using weekly hours as the dependent variable (not reported here), we are not able to reject the null that divorce has no effect on weekly hours of work.

costly method of reducing weekly hours, this could be the result of at least two different factors. First, although workers could be constrained in their choice of total weekly hours by constraints in both the days and hours within jobs, moving to a new job may only relax the hours and not the days constraint. Second, insofar as divorced males reduce market labour supply to transfer labour into household production, the decline in hours rather than days could be the result of the burden of household production being borne on a daily (e.g., childcare and cooking) rather than a weekly basis.

For females, none of the coefficients on the divorce or divorce/full-time spouse interaction dummy variables is significantly different from zero at the 5% level in any of the regressions in Table 5. Furthermore, standard tests do not allow us to reject the hypothesis that divorce has different effects on hours and days. We are also not able to say with any degree of certainty that the effects of divorce on hours and days are different for job changers and job stayers.

Of particular interest to us are the relative within-group changes of log days and log hours, since we assume that there should be some movement in relative days and hours worked in response to divorce and these should be especially pronounced for job changers if days and hours choices are in fact constrained within jobs. In every instance we are unable to reject the hypothesis that any pair are equal, implying that divorce has similar effects on the change in log days and log hours. If costs per day of employment are indeed higher than costs per hour, we expected there to be a decline in days per week and an increase in hours per day. Although these results do not support the hypothesis of higher costs per day, it must be remembered that we have purposefully limited the sample to include only those with significant labour force attachment, and for this reason, this subsample of women may not significantly alter their labour market supply in response to divorce, at least over the time frame that we study.

5. Summary and conclusions

We have focused on the effects of divorce on the labour supply of males and females over a 3-year period. We have extended the analysis to include days per week and hours per day as labour supply measures, broadening previous research which generally uses aggregated measures, such as hours per year, as the labour supply variable.

We began the paper by looking at the effects of divorce on the common aggregated labour supply measures of labour force participation, weeks worked per year and hours worked per year. Of particular note is the large negative impact that divorce has on the labour supply of males in these three dimensions, over 10% in the latter two cases, but only when his spouse was not employed full-time in the year before the divorce. This has not been previously addressed in the literature. These results, however, can be viewed as supportive of an extension of Becker's theory of marriage. This evidence is also consistent with an income effect on labour supply, since those without working spouses do experience significant declines in labour force participation, weeks per year and hours per year, while those with working spouses do not.

Addressing the more narrow measures of days and hours worked and the impact of divorce on these variables, we find a number of significant results for males. In particular,

we find that an increase in days worked is compensated for by an equivalent decline in hours per day. This then implies that weekly hours are not affected by divorce. It is often assumed that men gain monetarily from divorce especially if their spouse is not working, since they no longer have the same burden of sharing their resources with their spouses (either directly or indirectly through support payments). These results do not support this assumption.

If we cannot use the income effect to explain male changes in hours and days following divorce, obviously another explanation is necessary. We do find that this group of men decrease their supply of hours more than their supply of days, although they may have to change jobs to do so. Once again, this result is consistent with our interpretation of the theory of marriage outlined above. The fact that men change jobs to change their hours/days combination suggests that within-job time changes may be constrained. Furthermore, since hours but not days decline following job change and divorce, and by a magnitude of up to 20%, this may indicate that days prove to be the more binding constraint. Another reading of this result is that any increase in home-based activities following the loss of specialization in marriage take place on a daily rather than a weekly basis. Other things equal, we would expect that days would decline more than hours since the costs of working days are usually considered to be proportionately higher than working hours.

For women, we fail to find any divorce effects on labour supply, in whatever time dimension. This is not to say that the divorce has no labour supply implications for females, only that the time span of our data may not capture these changes. If the analysis of Johnson and Skinner (1986) is correct, than we would expect that a female changes her labour supply in anticipation of a divorce. This is perhaps why our data fail to find any significant changes.

It is intuitively appealing that the full effects of marital dissolution are not felt in the short-term, but begin in the years preceding the change and end only a number of years following the change. Even (1987) and Johnson and Skinner (1986) show that family changes can indeed have an impact the labour supply of individuals for many years surrounding the year of the change itself. Likewise, Finnie (1995, p. 116) says: "Because the consequences of divorce unfold over time, they require similarly dynamic data to be properly analyzed. That is, a proper study of the economics of divorce requires data that follow given individuals over time, through the divorce years." It would therefore likely prove fruitful to perform a similar analysis on a panel which spans a greater number of years.

Can the present work be generalized to other countries? There is essentially no evidence on the effects of divorce on labour supply for countries outside of the US and Canada.[28] As with the case of North America, most research tends to be focused on the labour market causes of divorce, or else its economic consequences (mainly in terms of the incomes of divorced men and women). Juster and Stafford (1991), however, do provide some representative evidence on household production in various countries that allows us to hypothesize about the possible effects of divorce in countries outside of North America.[29] In general, they find that the largest number of hours of housework per week by males in industrialized

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[28] Literature searches in EconLit, JSTOR, and ISI Web of Science for the labour supply consequences of divorce outside of Canada and the United States returned no pertinent results. The latter two databases also include the sociology literature.

[29] Shelton and John (1996) provide a useful review of this and other allocation of housework literature across countries.

countries tends to be done in Scandinavian countries, and the fewest in Japan. Furthermore, housework hours appear to be negatively correlated with labour force participation (Blau et al., 1998, Chapter 11). These variations appear to be due to differences in culture, taxation regimes, and the provision of day care and other services in each of these countries.[30] Regardless of the source of these differences, the implication of these time allocation data, coupled with the results presented above, is that males in countries with low male participation in household activities will have the largest adjustments to make following divorce. Clearly an analysis similar to one above to include other countries is an interesting and potentially important area for future research.

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[30] According to Grossbard-Schectman and Neuman (2003, p. 233) "The countries most likely to discourage women's employment in the paid labor force also tend to encourage traditional roles in marriage." In other words, in traditional societies women tend to spend more time in home production and less in the labour market.

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