Spousal Labour Supply Adjustments to Extended Benefits Weeks

Evidence from Canada[+]

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Abstract

In this paper, we study the impact of increased unemployment insurance generosity in terms of additional weeks of benefits on a spouse's labour supply adjustments after the job loss of his/her partner. We exploit the longitudinal household format of the Canadian Labour Force Survey and the Survey of Labour and Income Dynamics to study the labour force transitions of each spouse over time and spousal labour supply responses arising from an added worker effect, whereby spousal labour supply increases following the partner's job loss. We examine whether the additional weeks of benefits offered by the Extended Weeks (EW) pilot, an initiative of the Employment Insurance program implemented in a subset of regions, had a differential impact on spousal labour supply adjustments. Employing a difference-in-differences (DiD) approach, the crowding-out effect of this increased EI generosity on spousal labour supply is identified. Our fixed-effect estimation results show a statistically significant added worker effect for women of 14 to 17 hours weekly following their partner's job loss if they are not eligible to receive EI benefits. The eligibility of employment insurance benefits reduces spousal labour supply among women by 3 to 6 hours per week, with a stronger effect among mothers.

Keywords: Employment Insurance; Unemployment Insurance Weeks; Spousal Labour Supply; Added Worker Effect; Crowding-Out Effect

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1-Introduction

Spousal labour supply plays a central role in many economic problems, including joint taxation, consumption smoothing and, more generally, intrahousehold risk-sharing.[1] There is increasing empirical evidence showing that modifications of both private and public insurance programs targeting individuals create cross- (and possibly unintended) effects on the labour supply of the spouse.[2] More specifically, given the rise in dual-earner couples in developed countries over the past 50 years, understanding the joint labour supply response to changes in income maintenance programs is of primary importance and, so far, overlooked in the Canadian context.

The idea of interdependencies in spouses' labour supply has been emphasized for several decades since the seminal work modeling family labour supply of Ashenfelter and Heckman (1974)[3] and the modeling of intra-household allocation decisions in a collective labour supply model first introduced by Chiappori (1988). However, empirical evidence of the magnitude of spousal labour supply adjustments has taken longer to emerge.[4] This paper analyzes how individual transitions out of employment, reflected in a job absence or a voluntary or involuntary job termination, impact their partner's labour supply and the extent to which labour supply adjustments as an income smoothing mechanism are affected by the generosity of the unemployment insurance system.

The initial empirical literature focused on estimating the labour supply response of a family member (usually the wife) to their spouse's unemployment spell, also referred to as the Added Worker Effect (AWE), found little to no evidence of it (Lundberg, 1985; Maloney, 1987;

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[1] The question of joint taxation is studied theoretically in Apps and Rees (1999) and empirically analyzed in Eissa and Liebman (1996), Lalumia (2008) and Crossley and Jeon (2007). The literature on intra-household risk sharing is broad, especially in the field of Development Economics. Implications for household consumption smoothing and savings as well as spousal labour supply are discussed in Baker and Benjamin (1995, 1997) concerning the joint labour market activities of immigrant households and more broadly in Shore (2010), Ortigueira and Siassi (2013) and Blundell, Pistaferri, Saporta-Eksten (2016).

[2] The evidence includes Kapinos (2009), and Boyle and Lahey (2015) for the impact of changes in the private and public health insurance systems in the US, respectively. Olsson, Slogman and Thoursie (2015) analyze the spousal labour supply implications of a Swedish public sickness insurance reform. Goux & all (2014) show that the French workweek reduction created substantial labour supply spillovers for the spouse. Autor & all (2019) find much stronger effect of the Norway Disability Insurance program for single and unmarried individuals than for married couples as spousal labour supply substantially buffers household income in case of claim denials.

[3] Keane (2011) provides a detailed survey of the labour supply literature emphasizing the key findings regarding male labour supply elasticities, the importance of female labour force participation, the modelling and evolving assumptions regarding taste shifters, and the recognition of the importance of family income first motivated by Mincer (1962).

[4] An exception would be within the empirical literature on immigrant assimilation and investigations of a family investment model starting with Long (1980). His work based on US census data finds evidence of a negative impact of years since migration on earnings for married immigrant women relative to native-born women. His interpretation is that wives in immigrant families that have recently entered the United States may have to work to help finance their husbands' initial investments in schooling or job skills required. Evidence of this type of interdependency in spouses' labour supply and schooling decisions was confirmed in later studies (Duleep and Sanders, 1993; Baker and Benjamin, 1997, Worswick 1999, Kim and Varasani 2010).

1991). However, more recent studies have found a positive AWE effect for wives of unemployed husbands. The magnitude of the impact appears to depend on several factors: the particular sample of married couples combined with the timing of measurement of the change in labour force status[5], the state of the economy[6], and the generosity of the welfare system[7]. Overall, studies based on shorter-term measurements of labour supply changes (shortly after a job loss rather than the following years) found a stronger AWE effect. Adjusting the estimates to account for unobserved joint tastes for leisure, the magnitude of the impact is reduced substantially.[8]

Moreover and more importantly for our present study, the family wealth effect and liquidity constraints that result from a spouse's loss of employment may be tempered by the generosity of the unemployment insurance system when the job loss comes with the receipt of unemployment insurance benefits. In this case, the employment insurance system would crowd out the spouse's labour supply, reducing the AWE effect. However, to identify such spousal labour supply adjustments, one must adequately account for unobserved heterogeneity, use short-term measures of changes in labour force activities to capture labour supply adjustments that reflect cross-substitution effects, and information on the reasons for labour force status changes and EI eligibility.

In the present paper, we study the labour supply adjustments arising from a spouse's movement out of the employment state, considering the identification issues mentioned above. We use two representative Canadian household panel datasets: the 6-month rotating panels of the Labour Force Survey (LFS) and the 6-year rotating panels of the Survey of Labour and Income Dynamics (SLID). We start by exploiting each dataset's household and longitudinal nature to follow the labour force transitions of each partner (married or in common-law unions) over time. From these transitions, we estimate the short-term and longer-term spousal labour supply responses of a spouse when their partner transits from employment into different categories of nonemployment[9]. More precisely, we estimate whether and if so how hours worked and labour force participation decisions change following the job loss of their partner. We apply individual

[5] See Spletzer (1997) and Stephens (2002) for US studies, and Fernandez and Felicio (2005) and Kohara (2010) for studies in Brazil and Japan respectively. Morissette and Ostrovski (2008) show some Canadian evidence based on an analysis of the earnings profile of different types of couples.
[6] See Parker and Skoufias (2004) and Star (2014).
[7] See Gruber and Cullen (2000) for the US and Bredtman, Otten and Rulff (2017) for Europe.
[8] Under the assumption of a positive correlation between husbands' and wives' tastes for leisure (assortative matching would suggest this assumption is reasonable), the AWE for wives of unemployed husbands is biased upward if the husbands who have a higher taste for leisure are also more likely to lose their job.
[9] The nonemployment states include: absence from work, unemployment (voluntary quits or involuntary layoffs), and out of the labour force.

fixed-effects estimations to remove unobserved heterogeneity caused by couples' joint taste for leisure correlated with job loss and work decisions.

The LFS data includes monthly information on actual weekly hours worked in the reference week, which is better than usual hours worked for capturing monthly short-term labour supply adjustments. The SLID data also contains monthly information on weekly hours worked at all jobs. However, a primary advantage of this yearly panel data for our analysis is the information on an individual's annual hours in all jobs in the reference year, which will help capture longer-term yearly labour supply adjustments.

In addition to monthly information on weekly labour force status, the LFS and the SLID data also contain variables describing each spouse's work history. We use this data to impute unemployment insurance benefit eligibility for couples whose spouses experienced a layoff after accumulating the necessary minimum number of insurable hours. Therefore, we can estimate and test for differences in the AWE impact between couples whose spouse is eligible for EI benefits and couples whose spouse's job loss does not qualify for EI benefits. Moreover, an additional advantage of the SLID data is that it has information on whether an individual received EI benefits in a given month. This information enables us to check the quality of our eligibility imputations for this data.

Our initial analysis serves as a benchmark for comparison with the empirical literature studying the AWE effect. The results, however, may still be contaminated by endogeneity because job loss in general and many layoff decisions are not purely exogenous events. To address this issue, we exploit variations from a change in the Canadian Employment Insurance (EI) system, the Extended Weeks (EW) pilot initiative, which increased the system's generosity by offering EI-eligible displaced workers up to five additional weeks of benefits. The EW pilot took place in a subset of EI regions from June 2004 to February 2009, giving us a quasi-experimental design with treated and comparison groups of EI regions to differentiate between policy and time-specific effects.

Using a difference-in-differences framework, we estimate whether the increased EI generosity resulting from additional weeks of EI benefits impacted the spouse's labour supply. In particular, we investigate whether the estimate of the AWE effect in the treated EI regions differs from the estimate of the AWE effect in the untreated EI regions. However, one limitation of the pilot design is the non-random selection of pilot and nonpilot EI regions.[10] This non-random

[10] The pre-2008 pilot regions were chosen according to their unemployment rate prior to the pilots implementation date which makes the pilots regions high-unemployment regions (rate >= 10%).

selection may create a confounding bias in estimating the spousal labour supply adjustments to a partner's job loss. We address this limitation by obtaining estimates using a subsample of the pilot and non-pilot regions with regional unemployment rates before the pilot implementation that are closer to each other. We can also identify individuals in the treated regions that receive a null treatment. This group of individuals enables us to estimate triple difference models, which further isolates the impact of the increased benefit weeks on the strength of the spousal labour supply response to a partner's job loss covered by additional benefits weeks.

The initial fixed-effect estimates show a statistically significant and substantial AWE effect shortly after a spouse moves from employment to out of the labour force. The AWE response for wives corresponds to an increase, on average, of 1.8 weekly hours in all jobs and 1.3 weekly hours in the main job when their husbands drop out of the labour force. We also find an AWE effect for husbands when their wives become unemployed and are ineligible to receive EI benefits. However, there is no statistically significant AWE effect if the wife is eligible to receive EI benefits. This statistically significant difference suggests evidence of a crowding-out effect of EI on spousal labour supply for husbands of unemployed wives. The DiD estimates, which attempt to isolate better the impact of the unemployment insurance system on spousal labour supply, confirm the existence of a crowding-out effect of EI for both husbands and wives (although stronger for husbands). Our results on the crowding out of EI complement the evidence found in the US (Cullen and Gruber, 2000 and Guler and Taskin, 2013).

The rest of the paper is structured as follows. In the next section, we discuss the recent literature on spousal labour supply adjustments that arise from policy or regulation changes and the added worker effect; we then summarize the changes associated with the employment insurance weeks of benefits over the 2004-2009 time period. Section 3 presents the data and empirical strategy, Section 4 presents the results, and Section 5 concludes.

2-Background

This section summarises the theoretical literature developments on the predictions of spousal labour supply adjustments. It presents the most recent empirical investigations of economic, public policy or regulation changes emphasizing the spousal labour supply response since the seminal study of Cullen and Gruber (2000).

2.1-Spousal Labour Supply Literature

In the theoretical literature, the prediction of spousal labour adjustments is derived from different models following various assumptions or mechanisms at play. It took, however, several decades to develop, resulting in two mainstream labour supply theoretical frameworks: the dynamic life-cycle model and the collective model.

Initially, and starting with Mincer (1962), a transitory change in a husband's income should not affect the wife's market hours as she allocates work over the life cycle based on periods when her market wages are high. However, the paper presented some empirical evidence that women work more if the husband is unemployed. In the initial formalization of Heckman and McCurdy's dynamic life-cycle labour supply model (1980, 1982), a wife's labour supply adjustment to her husband's unemployment cannot arise under the assumptions of perfect foresight or no borrowing constraints. However, the empirical evidence in Heckman and MaCurdy (1982) shows that the husband's unemployment hours have a negative effect on married women's labour supply, although the impact is only marginally significant. Therefore, predicting an added worker effect can be obtained under the assumption of imperfect foresight or imperfect capital markets. Gruber and Cullen (2000) discuss the idea of introducing a taste shifter affecting the value of home production (footnote 30). These ideas have since been formalized in Guler and Taskin (2013).

Alternative ways to generate predictions of an added worker effect can be found under the assumptions that the leisure of the husband and wife are non-separable or that the husband's time spent at home impacts the wife's taste for work. These assumptions, however, cannot be incorporated in the previous models because they are built on the concepts of unitary preferences (where the household is defined as a single decision-making unit) and income pooling. While the role of the family as insurance against income shocks is not new (Kotlikoff and Spivak, 1981), only much more recently, was the concept of a family labour supply introduced in a two-earner life-cycle model as a possible source of consumption smoothing (Blundell, Pistaferri and Saporta-Eksten, 2016). The added worker effect is defined in this context as a key insurance channel along with credit markets and government transfers available to families in response to a shock to economic resources. The estimation of the model based on US data reveals that the family labour supply provides the largest insurance channel against income shocks. The authors also note the heterogeneous use of the different insurance channels across couples and over the life-cycle. An added worker effect is more likely to occur early in the life cycle, while self-insurance through savings and borrowing is more important at later stages.

Another stream of the household economics literature developed from addressing the limitation of earlier models built on the assumption of unitary preferences for understanding joint labour supply decisions. The new framework models a collective labour supply which defines the household in terms of multiple decision-makers (Chiappori, 1988, 1992). This collective model adds a negotiation effect to the typical income and substitution effects. The model defines an intra-household sharing mechanism and distribution factors that affect each spouse's labour and consumption decisions within the household where a change in the bargaining power of one spouse may lead to an increase in their labour supply, generating an added worker effect.

There have since been many studies focusing on the identification and various implications of the collective model's sharing rule (Donni and Molina, 2018). Donni and Matteazzi (2018) extend the collective bargaining model to include home production activities separately from leisure activities to model the participation decision. The resulting joint labour supply model illustrates differences within couples' individual labour supply and responsiveness to wage changes. Using US data from the PSID, estimations of their model highlight the larger labour supply response (marginal effect of wages on working hours) of women compared to men consistent with the literature on gender differences in labour supply elasticities. While the collective labour supply model has not been tested in a dynamic setting, for example, in response to a shock to economic resources, or a tax or income support program reform, Chiappori and Mazzocco (2017) discuss how the model can be used to address policy changes that could influence the bargaining positions of each spouse and therefore potentially lead to an added worker effect. If individual incomes enter the bargaining process, the income-pooling property may not be satisfied, and a targeted transfer coming from a welfare program may lead to downwards labour supply adjustments.

The life cycle and collective labour supply models recently incorporated intrahousehold allocations of leisure, market work, housework, and childcare. The model in Blundell, Pistaferri and Saporta-Eksten (2018) highlights the complementarity in male and female partners' leisure and substitutability in the time put in childcare. When the male partner suffers a job loss, the model predicts that the
female partner will increase her labour supply to insure the household against the income shock. With the presence of children, the jobless male partner can spend more time at home and assume childcare responsibilities. The female partner can substitute away from time at home with the children towards market work, generating a substantially larger worker effect than couples without children.

Browning, Donni and Gørtz (2021) extend the collective labour supply framework predictions to incorporate the value of together time. This extension is the first and most recent attempt within the collective labour supply literature at empirically estimating, using Danish time-use survey data, how joint time use co-varies with economic variables and the interdependence of market work, housework, childcare and leisure. Their data measure leisure at the individual and distinguish between joint leisure and private leisure, and also explicitly measure childcare hours. One of the model's new results is that higher wages for the female partner lead to both partners doing more housework and the intrahousehold gender gap in housework reduces slightly at higher female wages. It is worth noting that this last result is obtained with data from Denmark and may not generalize to other countries with a different evolution of gender identity norms.[11]

We conclude from this review of the theoretical literature that the added worker effect can occur when a sufficiently large differential in the labour supply elasticity of each spouse exists, income shocks do not perfectly correlate across spouses' employment sectors, so spousal labour supply serves as a potential insurance mechanism, and couples are at a life stage where liquidity constraints are more likely. In the first case, we expect to find greater responsiveness from women's more elastic labour supply to their partner's job loss than men's. The second case suggests the importance of controlling for local labour market conditions and the industries of each spouse. Depending on each spouse's current or potential employment sector, recessions may reduce or enhance the added worker effect (driven by labour demand shocks which could be correlated). In the third case, we expect to find stronger effects among younger couples and couples with children who are either liquidity or time constraint.

Papers in the past five years that have empirically estimated the direction and magnitude of spousal labour supply adjustments and the added worker effect can be grouped into two categories based on the main source of the labour adjustment, a labour response to a) a spousal job displacement (involuntary unemployment, mass layoff) or b) a change in labour regulation or income support program changing the relative cost of spousal labour supply adjustment as insurance against income shock.

In the first case, the papers study within couple variations in hours and/or earnings around recessionary periods (compared to a control group of individuals with continuous

[11]More research is needed to understand how the evolution of social norms away from the traditional gender roles impact individual and joint labour supply decisions. Using US data Bertrand, Kamenica and Pan (2015) find a different result than in Denmark with the female partner increasing housework in couples where she earns more than her partner.

employment episodes) with the possibility to study longer-term effects several years following the initial work disruption. The added worker effect in these studies, both in terms of work hours and employment earnings, is generally small and short-term. However, there are important country-specific differences driven by the relative generosity of the welfare systems and social norms regarding women as breadwinners. In the second case, the hours/earnings variations come from an unanticipated program or labour regulation change impacting direct or expected costs of a work (and income) interruption due to a disability, sickness or standard workweek restriction. The estimated spousal adjustments in the form of a reverse added worker effect are generally substantial with important gender differences.

**Empirical studies focusing on mass or recession-driven job loss*

Recent empirical studies (Smith and Mattingly (2014), Brian and Longhi (2017) and Cummeraat et al. (2022)) exploit variations in job losses through the business cycle to study spousal labour supply adjustments and a possible added worker effect along the business cycle focusing on the Great Recession in the US, the UK and the Netherlands respectively.

The main results are that the added worker effect is small, and labour supply adjustments at the extensive or intensive margin go up and down depending on whether the sectoral recessionary shocks impact one or both spouses simultaneously, on the extent to which couples were already both working a large number of hours before the job loss reducing the margin of adjustments for the spouse who stayed employed, or the profile of couples studied (couples with more traditional joint labour supply with the husband working and his wife staying at home do respond with an added worker effect). Therefore it depends on the question initially studied. A particular focus of analysis on a profile of couples most likely to generate an added worker effect confirms that the effect exists. A more aggregate macroeconomic analysis of its importance and magnitude concludes that the overall impact is small.

Smith and Mattingly (2014) use CPS data spanning the last three US recessions (1981-1982, 1991-1992 and 2007-2009) and create an analytic sample of wives who were not in the labour force (either keeping house, retired, disabled, discouraged workers) in May 2008, May 1990, or May 1981. They find a strong, statistically significant effect of husband's job loss on wives' propensity to enter the labour force for all three recessions. The largest impact appears to be for the Great Recession, where a husband's stopping work was associated with more than double the likelihood the wife entered the labour force.

Brian and Longhi (2017) compare the pre-2007 period with the 2008-2011 period and find little evidence of an added worker effect and instead of a mix of positive and negative spousal labour supply response consistent with the idea that the recession impacted labour supply and labour demand factors simultaneously and differently across spousal sectors of employment.

Cummeraat et al. (2022) also study a longer period beyond the Great Recession to analyze possible added worker effects driven by secular changes in the labour market. They find a small and short-term increase in earnings among women following their partner's job loss, but it disappears shortly after the end of the Great Recession.

Halla et al. (2018) exploit mass layoffs associated with plant closures as an exogenous source of job loss using Austrian data. They perform various checks of the exogeneity of the job loss, including whether the partner's job loss is anticipated by the other partner and confirm that there is little evidence of anticipatory responses to a partner's job loss. Their results show little evidence of an added worker effect in Austria among the full sample of women with a displaced partner. However, their heterogeneity analysis shows stronger positive added worker effects for couples with children and higher female labour earnings before marriage. Their analysis related to the local labour market conditions of the husband suggests the importance of correlated shocks at the household level minimizing spousal labour supply response in high unemployment local labour markets. Overall, their conclusion highlights the specificity of the Austrian economy. Despite finding evidence of an added worker effect for female partners of displaced workers with children, the increased earnings cover a small fraction of the husband's income loss. They interpret the limited impact of the intrahousehold insurance mechanism through spousal labour supply as reflecting prevailing traditional gender roles and the generosity of government transfers.

Bredtmann et al. (2017) exploit recessionary time variations and cross-country variations in welfare regime generosity and traditional gender norms to describe the added worker effect using longitudinal data from 28 European countries between 2003 and 2014. The magnitude of the estimated added worker effect varies over the business cycle and welfare regimes, with stronger effects in low-welfare countries and diminished effects during recessionary periods.

**Empirical studies focusing on policy/public program change*

The importance of interdependencies in spousal labour supply and its implications for the design of income maintenance programs and tax or labour regulations is not new (Hollister, 1974), but empirical investigations of the cross-effects of labour programs or regulations on spousal labour supply developed more rapidly following the seminal work of Grueber and Cullen

(2000). The authors note the role of unemployment insurance benefits received by displaced workers in crowding out the labour supply of their spouses. They find evidence using US data that the generosity of the husband's unemployment benefits significantly and substantially reduces the hours of work of his wife. Raising benefits by 10% results in a reduction of 1.4-1.6 hours per week for the working wife during the unemployment spell. Their estimates imply that if there were no unemployment insurance income, spousal labour supply would increase by 30%.

Goulx et al. (2014) study the impact of mandating a reduction in the legal workweek from 39 to 35 hours keeping constant monthly earnings. The French reform created within-household variation in the workweek reduction affecting about a third of households. With the absence of income effects, the reform provides an ideal scenario for assessing cross-hour effects within the household. They find strong gender differences in the cross-hour effects of the reform. They estimate an average reduction of about 2 hours in the workweek of employees whose employers signed a workweek reduction agreement. When looking at spousal responses, they find that men tend to work about half an hour less per week when their wives become treated. In contrast, women's response to their husbands' treatment is not statistically significant, possibly because they already work fewer hours. The cross-effects are stronger among couples with young children.

Olsson and Thoursie (2015) analyze a reform of the Swedish public sickness insurance system increasing the replacement rate. They find negative cross-effects on the other spouse's labour supply suggesting another situation where public insurance is crowding out spousal labour supply. In couples for whom only the husband receives a higher replacement rate, wives increase their total number of sick days by more than 9% on average per month. The cross effect on total sick days for husbands to treated wives is 6.1% on average. The authors interpret the cross-effect estimated as coming from the more generous insurance benefit level, which increases the expected household income because the costs of future illnesses decrease. Spousal labour supply would become less important as a form of insurance for future income shocks to the family, leading to increases in sickness reporting by the indirectly affected spouse.

In their study evaluating the disability insurance (DI) program in Norway, Autor et al. (2019) obtain plausibly exogenous variation in DI allowances by exploiting the random assignment of applicants to Norwegian judges who differ systematically in their leniency. Noting that spousal labour supply responses provide partial insurance against the impact of DI denials on income and consumption of married households (DI denials creates a shock in expected permanent income), they find sizable added worker effects induced by DI denials among spouses.

Our paper combines approaches from both kinds of literature. Our data allow us to distinguish the involuntary job loss of displaced workers who are eligible or not eligible to receive EI benefits. Recognising the possibility of layoff selectivity, we also exploit a change to the generosity of the Canadian EI program over the period 2004-2009 in a subset of EI regions providing us with a quasi-experimental design to test the importance of spousal labour supply adjustments in response to a change in the generosity of the unemployment insurance program. By determining the EI eligibility of jobless spouses, we can identify an added worker effect separately from a crowding-out effect generated by a change in benefits weeks in the pilot regions.

We are aware of only one study of spousal labour supply adjustments in Canada that focuses on identifying an added worker effect, the work of Morissette and Ostrovsky (2008). Using data from the Longitudinal Administrative Databank, they obtain income and employment insurance benefits and some demographic information for a 20% random sample of tax filers. By linking the LAD data to the employment insurance database, they can identify layoffs based on information taken from the record of employment during the 1987 to 2001 time period. They are also able to measure the presence of EI benefits received.

Their analysis finds little added worker effect from the Canadian wives of laid-off husbands. Their longitudinal analysis is similar to the approaches taken in Halla et al. (2018) and Cannemaat et al. l (2022), who also find little evidence of an added worker effect. Given the high EI take-up rate in Canada, the lack of a finding of an added worker effect may be coming from the fact that most of the laid-off spouses received benefits, crowding out the labour supply of the other partner.

Identifying job loss that is ineligible to receive EI benefits seems an important contribution to the literature. This information is not available in tax data such as the LAD data, which provide no information on insurable hours worked in the past job or reason for job loss. Furthermore, the authors use yearly earnings as their main outcome variable to measure spousal labour supply adjustments. While this is informative for understanding longer-term adjustments which could be small overall, it is missing the potentially important monthly adjustments that could take place during the year of the spouse's unemployment spell. The monthly data variations on hours worked from the Labour Force Survey, and the Survey of Labour and Income Dynamics can capture such variations making the data superior to administrative data for addressing the question of the existence of spousal labour supply adjustment, at least in the shorter run.

Finally, regarding the existence of a potential labour supply response of women with large labour supply elasticities and how the response interacts with recessionary periods, we can take a preliminary look at the data from the monthly labour force survey from 1976 to 2020 to create Figures 1 and 2. Figure 1 illustrates the growth in the employment rate of married (or in a common-law union) women in couples with an employed husband and shows a gradual but steep increase in the rate over the first 25 years (1976-1990). The growth rate slowed down during the following 25 years (1990-2005) and has remained flat at about 76% ever since. From a Statistics Canada study, between 1976 and 2015, the percentage of dual-income families with at least one child went from 36 per cent to 69 per cent.

The predominance of dual-earner couples in Canada over the past 15 years would suggest that added worker effect plays only a minor role in explaining recent changes in labour supply, at least at the extensive margin. Figure 2 shows the evolution of the employment rate and labour force participation rate of women with a nonemployed husband using the same labour force survey seasonally adjusted monthly data. The graph shows that employment rates evolve counter-cyclically over the business cycles, with a sharp increase at the beginning of each recession and a gradual decrease following the end of the three recessionary periods. This evolution could be entirely driven by compositional effects or may reflect some degree of behavioural change in women's labour supply in response to their husband's employment loss. We can only address this question with disaggregated data following each spouse's over time and exploiting within couples' labour supply changes. In this paper, we will take advantage of two unique sources of information: a) household survey-based and longitudinal questions about the nature of the labour supply change of each spouse, and b) an increase in the employment insurance generosity in terms of increased benefits weeks that changed the relative cost of spousal unemployment in a subset of EI regions to estimate differential labour supply responses leading up to differential added worker effects.

2.2-Employment Insurance 2004-2009 Pilots

Starting in June 2004, the Evaluation Directorate at Employment and Social Development Canada (ESDC) launched a pilot initiative within its Employment Insurance Program called the Extended Weeks pilot. The pilot increased the duration of benefits by five weeks (to a maximum of 45 weeks) with the objective of providing EI claimants with additional financial support while they find new employment. The first pilot was initiated on June 6, 2004, and ended on June 4, 2006, in 24 of the 58 economic regions of the country. The EW pilot was subsequently extended

until February 2009 in 21 economic regions, after which the extended benefit feature applied to all EI regions as part of the 2009 Economic Action Plan.

The rationale for the EW pilots was based on research showing that a segment of the seasonal claimant population experienced time gaps in income (referred to as seasonal gappers), during which they receive no EI benefits or employment income (ESDC 2010). It was later found that seasonal workers are not unique in their difficulties of establishing a regular income stream and that the pilot benefitted non-seasonal workers as well. Claim spells were found to be longer for a significant proportion of claimants (seasonal as well as occasional claimants), and employment spells to qualify for EI were found to be shorter after the establishment of the pilot (ESDC 2010; Leonard and Gray, 2019). This finding is consistent with the main prediction of job search theory which is that increasing the length of unemployment benefits reduces the incentive of unemployed workers to search for and accept a job. It is also consistent with the abundant empirical evidence confirming that extending the duration of benefits creates work disincentives (Katz and Meyer, 1990; Hunt, 1995; Card and Levine, 2000; Lalive 2007 and 2008; Tatsiramos, 2009; Schmieder, von Wachter and Bender, 2012; Farber and Valletta, 2015; Lluis & McCall, 2019).

In the context of a household and a joint labour supply model, the EW pilot is expected to create work disincentives for the job-displaced spouse eligible to receive the benefits. It may also impact the work incentives of the working spouse or delay the decision to join the labour force for the non-working spouse. Following the reasoning behind the added worker effect, the reduction in family income created by the job loss of a family member can be offset, at least temporarily, by other family members' decision to either join the labour force or increase their hours of work. Such labour supply adjustment from the spouse reflects a cross-substitution effect. In the dynamic life-cycle labour supply model, this labour supply adjustment arises in the short-run from liquidity constraints or uncertainty or imperfect information about job finding rates following a job loss.

Unemployment insurance benefits received over an extended duration through the EW pilot, by further prolonging the temporary financial relief to a household, can reduce the cross-substitution effect and the positive labour supply response of the spouse. So we may observe no adjustments or perhaps a downward adjustment in spouses' labour supply in the EW pilot regions relative to the non-pilot regions. According to the collective labour supply model, a spouse's job loss creates a negative income effect that can shift the intrahousehold bargaining power of the job displaced spouse. Government transfers coming from the extended duration of the EI benefits

may rebalance the intrahousehold bargaining power of each spouse, mitigating the other spouse's response to entering the labour force or increasing hours worked.

In sum, deriving from both kinds of theoretical literature, the job loss of one spouse is predicted to generate an added worker effect on the other spouse, increasing hours worked or entering the labour market. The added worker effect reflects either an insurance mechanism or results from a shift in intrahousehold bargaining power following an unexpected income loss. But the financial relief brought by the additional weeks of EI benefits from the EW pilot is predicted to crowd out the labour supply of the spouse, mitigating the extent of the added worker effect.

In the following subsection and section 3 of the paper, we describe our identification strategy for separately estimating the added worker effect (AWE) and the crowding-out effect (COE) considering the various identification challenges noted in the empirical literature and using the design of the employment insurance pilot initiatives.

2.3 Identification approaches

First, we will follow the empirical studies that focused on the AWE, which identify the effect of the involuntary (exogenous) job loss of a spouse by comparing couples with an involuntarily displaced spouse to couples whose spouse experienced continued employment along the line of the approach taken in Hall et al. (2020). The methodology section will give more details on the sample selection criteria and restrictions on the spouse's labour market outcomes that we use.

We use this initial empirical framework to examine the crowding-out hypothesis. In particular, we test whether the AWE estimate associated with a spousal job loss for which the spouse is eligible or has received EI is equal to the AWE estimate associated with a job loss where the spouse is not eligible for EI benefits. Using this strategy relies on accurately determining EI eligibility and measuring the receipt of EI benefits. Moreover, we employ household fixed-effect estimations to eliminate potential confounding bias from within couples' unobserved and time-invariant taste for leisure impacting one spouse's hours or employment decision and correlated with the job loss probability of the other spouse.

In a second step, we will take advantage of the quasi-experimental design of the 2004-2009 pilot initiatives related to extending the weeks of benefits in a subset of EI regions. This design is possible thanks to the datasets providing detailed geographical information about the economic region where couples live (available in the Master files of both the LFS and the SLID data). A simple difference-in-differences estimation will compare the magnitude of the estimated

AWE and COE effects in the treated EI pilot regions to those in the comparison EI regions. This approach will allow us to remove any endogeneity bias due to the non-randomness of the involuntary job loss of the spouse.

A few identification issues arise from exploiting the EW pilot initiatives because not long after the implementation of the first EW pilot, three additional pilots were introduced to strengthen individuals' labour force attachment: The working while on claim (WWOC) pilot, the NERE pilot and the Best 14 pilot. Appendix A describes the other pilot initiatives and their timing in detail. In particular, Appendix A Table A1 provides a list of the EI regions involved in each pilot, including the 21 pilot regions common to all four pilots until August 2008; we exclude from the analysis the regions that were subject to three or fewer of the pilots. Table A1 also indicates the timing of the introduction of the pilots, starting with the first EW pilot in June 2004, then the Best 14 in October 2005, and the WWC and NERE in December 2005. The EW pilot was extended in June 2006, but only for the 21 pilot regions included in our sample. In 2008, the WWC pilot was extended to all EI regions, whereas the other three pilots continued only in the 21 pilot regions.

Given the different timing of implementation of the EW pilot compared to the other three pilots and the fact that all pilots were implemented in the same subset of economic regions, we can separately identify the impact of the EW pilot from the other three pilots. The model specification for our DiD analysis (described in the next section) will control for any potential additional combined impact of these other three pilots on spousal labour supply.[12]

Another limitation to note in the pilot initiatives' design is that the pilot regions were not chosen randomly. The threshold to be part of the pilot initiative was a regional unemployment rate of 10 percent or more in the three months before the June 2004 start of the first pilot. This way of determining pilot status can weaken our ability to make causal inferences from our analysis. One might expect the AWE and COE effects to be more pronounced in high unemployment rate regions regardless of the EW benefits weeks added through the pilot.

We address this issue by selecting the subset of EI regions within a range of 3 percentage points of the 10 percent unemployment rate cut-off (7-13%). Lluis and McCall (2019) use a similar strategy when analyzing the pilots' impact on individual labour force transitions, and the

[12] While the WWOC pilot creates unambiguous work incentives which are likely to encourage spousal labour supply and strengthen the AWE effect, the impact of the other two pilots on spousal labour supply adjustments are not as clear. These pilots were developed to facilitate the take up of short earnings/hours jobs but the new benefit formula of the Best 14 pilot, by increasing the amount of benefit received will likely create work disincentives. The more generous eligibility criteria of the NERE pilot also induces less work "intensity" to meet requirements for collecting the benefits.

estimates are similar to those based on the full sample. We also include the regional unemployment rate as a control variable in all the estimations.

In addition, we exploit the fact that for some range of unemployment rates and hours of insurable employment, the maximum benefit weeks of 45 weeks was already available before the pilot started. Therefore, the EW pilot did not "extend" the maximum weeks of benefit in some pilot regions, making them similar to the comparison group of non-pilot regions.[13] Appendix A Table A2 shows the difference in the pre- and post-EW pilot maximum benefit weeks by unemployment rate and hours of insurable employment.

An example might help clarify our approach. For regions in the EW pilot and individuals who have accumulated at least 1820 insurable hours, Table 1 shows the maximum number of weeks benefits for pilot regions before and after EW pilot implementation for EI region unemployment rates from 6 to 16+. Only those individuals in EI regions with a monthly unemployment rate of less than 10 percent receive an increase in their maximum weeks of benefits relative to the counterfactual of not receiving the EW pilot treatment.

We use these differences to run a falsification test whereby the estimated effect of those receiving the EW treatment with zero weeks should not be statistically significantly different from zero, while the effect of those receiving the EW treatment with 1 to 5 weeks should be statistically significantly different from zero. In particular, by creating an additional treatment, we will estimate a "triple differences" regression where the EW pilot regions are separated into those receiving zero and those receiving one to five extended benefit weeks treatment using the information in Appendix A Table A2.

While non-random selection into job loss as well as into the status of eligibility or ineligibility to EI benefits limit our ability to infer a causal impact of a partner's job loss on spousal labour supply adjustment and the AWE, the choice of pilot and nonpilot regions in the mid-range of regional unemployment rates (7-13%), the triple difference design along with the falsification test can further address confounding bias coming from joint labour supply behaviour specificities in high- unemployment regions. We can conclude with greater confidence that the spousal labour supply adjustments (AWE and crowding out) are due to the increased generosity of the EI system.

The following section describes the data and our identification strategy for estimating the AWE and crowding-out effects based on exploiting variations in within couple's transition out of

[13] In other words, the EW pilot increased the maximum number of weeks of benefit by at most five weeks.

employment relative to couples whose spouse experienced continuous employment throughout the sample period, on the definition of job loss with or without EI benefits and based on whether the couple lives in a pilot region with a one to five additional benefits weeks treatment compared to no additional benefits weeks in some of the pilot regions or the non-pilot regions.

3-Data and Empirical Strategy

3.1 Datasets and samples

Our analysis relies on two representative household survey data with a short 6-month and a longer 6-year panel format for the analysis, the Canadian Labour Force Survey (LFS) and the Survey of Labour and Income Dynamics (SLID).

The LFS data provides a large and representative sample of about 50,000 Canadian households each month. One-sixth of the total sample is replaced with a new group of households every month. The rotating panel sample design of the LFS includes six rotations, and there is potential to link the data on the same household members over six consecutive months.[14] The monthly panel format of the LFS data allows us to address endogeneity coming from unobserved couples' heterogeneity in their taste for leisure affecting the labour supply.

The data is collected at the household level and in the confidential microdata files, every individual in the household (including children or other family members living with the main respondent) is uniquely identified, allowing us to study the labour market behaviour of each married (or common law) individual together with their spouse, given their own demographic and labour market information. Demographic information (including marital status), labour force status and hours worked are asked every month. Job-related information, including earnings, is asked every month only if there is a job change.

While researchers have extensively used the longitudinal format of the LFS data, the household format of the data has been exploited in only a few studies related to the labour force participation decision of older couples (Schirle, 2008), mothers' labour supply response to the Canadian child benefit policy (Schirle, 2015; Koebel and Schirle, 2015) and wives' labour supply response to an amendment to Quebec's family patrimony rules (Lluis & Pan, 2018). For a thorough review of the LFS data and its past and future applications, see Brochu (2021).

[14] Rotation 1 corresponds to the group of households who entered the survey in the month of January or July, rotation 2 identifies the group of households who entered in February or August, …etc

The SLID data is a longitudinal survey of Canadian households drawn from the same sampling design as the LFS. Once a household is chosen, all its original members are interviewed annually for six years. The size of the first six-year panel is about 15,000 households. This panel includes about 31,000 persons aged 16 years and over who answered questions about their work and income during the previous year. The sampling design incorporates rotating overlapping panels adding about 15,000 households every three years to ensure the panel remains representative. To cover the 2004-2009 period of employment insurance changes implemented in a subset of EI regions, we use panel 3 (reference years covering 1999 to 2004), panel 4 (reference years covering 2002 to 2007) and panel 5 (reference years covering 2005 to 2010).

The SLID has been the most commonly used dataset to study the dynamics of household labour supply and income until 2011, the last year that the survey was produced. In addition to the long panel format of the data and the focus on labour market and income questions, the SLID data also has the advantage of providing information on employment insurance benefits receipts (Kapsalis 2011).

In both datasets, we select individuals who indicate being married (or in a common-law union) in their first month entering the sample and have remained married throughout the panel period. In order for our labour supply analysis to avoid picking up variations in labour supply coming from decisions related to human capital investment or retirement, we select couples aged 25 and 54 years old. We also impose minimum conditions for the length of time in the sample for both panels to ensure we observe sufficiently stable couples' labour force decisions. Each partner must be observed in the sample for at least four consecutive months in the LFS and six consecutive years in the SLID.[15]

In our analysis, the main explanatory variable of interest is the labour force status of the spouse. Since we are interested in the potential monthly transitions of the spouse's labour force status out of employment into nonemployment, we further select the sample of couples whose spouse is reporting being employed and at work in the first month entering the panel either through reporting the information in the reference week of the LFS or reporting four consecutive

[15] Non-random sample attrition issues are discussed in Lluis and McCall (2019) for the LFS panel and in Boudarbat and Grenon (2013) concerning the SLID data. In Lluis and McCall (2019), we show that sample attrition rates at four to six months months are relatively small (below 6%) and that the rates between the pilot and nonpilot regions are very similar. Boudarbat and Grenon (2013) show that attrition leads to significantly less representative samples of Canadian couples in terms of employment and income. Our strategy to select couples continuously observed over six years implies that we are oversampling individuals more likely to be employed and less likely to be drawn from the lower end of the income distribution.

weeks of employment at work in the SLID data. While we allow the main respondent to be non-employed and work zero hours at any point during the sample period, including at the beginning, our selection criteria on the employment status at the start of the sample period only applies to their spouse.

The next subsection details the key information used in each dataset for defining the type of job loss, EI eligibility, hours worked, and spouses' labour force participation.

3.2-Labour force status, hours worked and EI measurements

On the first month entering the sample and following subsequent months, the LFS survey obtains information about the labour force status of each household member referring to the reference week (the week of the month containing the 15th). There are six possible categories: employed at work, employed absent from work (for own illness, caring for own children or elder relative, parental leave, vacation/public holiday or other reasons such as work schedule or labour dispute), unemployed, and out of the labour force.

We use the weekly labour force status information in a few different ways. First, we use it to identify each spouse's employment and non-employment status, assigning zero hours worked whenever a person does not indicate they are employed in the reference week or the past year. Second, our key main explanatory variable is the spouse's response to the labour force question. A month-to-month change in labour force status from employment into unemployment identifies a spousal job loss. We further expand the definition of the labour force status of the spouse to distinguish whether the spouse is eligible to receive EI using additional survey questions (available in both LFS and SLID data) on the reason for losing the job and on hours worked in the lost job to measure insurable employment.

We define the state of "EI eligible" unemployment based on the indication that the job was lost for involuntary reasons (business or economic, and temporary or permanent layoffs), and the maximum of insurable hours for receiving regular EI benefits has been met. In terms of months of job tenure, this corresponds to having worked full-time for at least 4 months or part-time for at least 12 months.[16] In Lluis and McCall (2019), we use the same definition based on the LFS data and in Appendix A Table A6 and A7 of this paper, we do additional checks of the

[16] Before 2010, the maximum hours in low unemployment regions was set at 690 hours. The minimum was and still is at 420 hours. Also, we estimate full-time hours at 40 and part-time hours at 16 (the average hours worked among part-timers over the full sample of individuals. We perform robustness checks in the last section exploiting additional information on the unemployment rate in the EI regions to define a measure of eligibility based on region-specific cut-offs in insurable hours.

comparability of the eligibility rates with those from the potential EI eligibility definition and eligibility measures in Employment Insurance Coverage Survey.

Similarly, we define a state of unemployment where the individual does not qualify for EI benefits based on responses indicating employer dismissal and include involuntary unemployment with less than three months of job tenure in the lost job.[17] When using the SLID data, we can also combine the EI eligibility status with an alternative indicator of whether the person received EI benefits in the given month.

From the distinct categorizations of the non-employment status of the spouse and the selection of couples based on the spouse being employed in the first month of the sample period, we study the monthly variations in the spouse's labour force status out of employment and estimate how any change out of employment into to a state of EI eligible or EI not eligible unemployment impact hours worked for the main working spouse (intensive margin) or impact the likelihood that the main spouse enters the labour force (extensive margin). A positive estimate or increase in hours worked or in labour force participation would indicate evidence of an added worker effect (AWE). A negative estimate or decline in hours worked, or the likelihood of participating in the labour force suggests a crowding-out effect (COE).

There are some similarities and a few differences to note for the analysis with the SLID data. The SLID labour survey interviews occur annually in January and refer to the previous 12 months. The variables are annual (one observation for the year) except where specified as monthly or weekly. The monthly and weekly variables are based on the more detailed spell data and job characteristics. In particular, individual labour force status is available weekly. Labour force status is inherently difficult to measure in a retrospective setting accurately. We use job and work absence spell data to ensure consistency in the weekly and monthly labour force status information provided from the different sources. [18] In addition, in the job data part of the SLID, average weekly hours by month are collected for each job held in a given month. There is also information on weekly hours by month averaged and summed across all jobs and annual total hours worked per job and at all jobs. [19] For the outcome variables on hours worked, we consider

[17] Classified as involuntarily unemployed: end of seasonal or temporary or contract/casual job, company moved or went out of business, business conditions (not enough work). [17] Classified as voluntarily: quits and dismissal by employer.
[18] Labour force status is inherently difficult to measure in a retrospective setting and we use information from the job spell and work absence spell data to ensure consistency in the labour force information provided from the different sources. For more details on the retrospective information related to unemployment collected in the SLID, see Lemaître (1992).
[19] Note that the SLID questionnaire does not refer or define the concept of a main job. The job characteristics and work schedule/absence spell data collect information on each job.

total hours worked at all jobs per week and annually and use the weekly labour force survey information to identify labour force participation of the main respondent. The total annual hours will be useful to understand the longer-term spousal labour supply adjustments resulting from job loss and EI use.

The weekly labour force status variable can be defined with the same criteria as the LFS data, using additional questions on reasons for losing a job or work absence. The criteria for EI eligibility based on job tenure and hours worked in the lost job are the same as those used with the LFS data.

The Master files of the LFS and the SLID data have the advantage of providing the geographical location of the households' dwelling categorized according to the EI region where the household lives. We will use this information to identify the pilot regions that experienced the five additional weeks of the Extended Weeks (EW) pilot. The following section presents summary statistics for each dataset's key variables of interest.

3.3-Main summary statistics

Table 2 and Table 3 present weighted summary statistics of demographic and labour market information for each man and woman by the labour market status of their respective spouse or partner for the LFS and SLID data, respectively. The most frequent joint labour force status in both datasets is the one with both partners employed. Regarding hours worked, wives' hours are on average greater when their husbands are employed than wives with non-employed husbands, which seems inconsistent with the presence of an added worker effect on average and likely reflect assortative mating. Differences in couples' averages are likely contaminated by endogeneity from non-random selection into marriage. We address this issue by exploiting within-couple labour supply adjustments before and after a spouse's job loss.

Our labour supply estimations ignore labour earnings as this creates additional endogeneity issues. Still, we control for the age and educational attainment of each spouse in the estimations and whether the couple has children. We also perform robustness checks further controlling for the industry of each spouse to remove the impact of correlated sectoral shocks impacting both partners' labour supply (Appendix C Table C3).

In Lluis and McCall (2019) we note that the samples of pilot and nonpilot regions do not differ strongly in terms of average demographic characteristics. However, the unemployment rate

in the pilot regions is twice as large as that in the non-pilot regions. All of our regressions control for the regional unemployment rate.

4- Spousal labour supply adjustments and added worker effect

This section estimates the added worker effect separately from the effect coming from EI benefits crowding-out spousal labour supply and does so in two steps. In the first step, we estimate the added worker effect following the literature's approach, whereby identification comes from the spouse's job loss. The estimate reflects the labour supply adjustments of the other spouse using within couples' variations in hours worked or labour force participation and between couples' variations in labour supply outcomes where couples with both spouses continuously working is the comparison group.

In the second step, we apply that empirical framework in the context of a quasi-experiment in which couples in a subset of EI regions were exposed to five additional weeks of benefits. In this setting, we estimate whether the previously estimated added worker effect changes following the increased generosity in EI benefits weeks compared to the added worker effect estimated in the comparison group of EI regions.

4.1-Estimated model of the added worker effect

In our initial framework, we examine whether and if so how a partner's change in labour force status impacts their partner's labour supply (hours worked and participation), separately for men and women. To identify the AWE effect, we select couples such that at least one of the spouses indicates being employed (at work) in the starting month (the status of the other spouse can be employed or nonemployment in the first month). Following the literature estimating an AWE from a partner's jobless event, we create a treated group of couples where one of the spouses experienced a transition out of employment after a month into the sample and a comparison group of couples where the spouse experienced continuous employment throughout the sample period. The resulting sample selection rule excludes couples with both partners indicating being non-employed at the start of the sample period.[20]

The estimation equation is defined as follows:

[20] From the LFS data, the sample size resulting from this selection is 1.91M observations (1.05M observations for female partners and 0.86M observations for male partners) and 31.6% of the couples have a spouse who experienced a change in labour force status sometime between the second month and last month they are in the sample. From the SLID data, the sample size is smaller with 51K total observations (28.8K observations for female partners and 22.9K observations for male partners) and a similar proportion of couples with a spouse who experienced an unemployment episode.

$$y_{it} = \beta_0 + \sum_{k=1}^{4} \beta_k SP\_LFS_{kit} + \theta_1 X_{it} + \theta_2 SP\_X_{it} + \alpha_i + \epsilon_{it} \quad (1)$$

Where y_{it} is hours of work (including zeros for those switching out of employment after the first month in the sample) or an indicator of labour force participation for an analysis of the labour supply at the extensive margin. The subscript *i* refers to the partner in the household, and *t* is the month.

The variable SP_LFS_{1t} indicates that in month *t* the spouse is employed but was absent from work in the reference week (e.g., sickness, holiday, caring for a family member), SP_LFS_{2t} indicates that in month *t* the spouse is unemployed and eligible for or has received EI benefits, SP_LFS_{3t} indicates unemployment with no EI eligibility status and SP_LFS_{4t} indicates that in month *t* the spouse is out of the labour force (with the baseline category being that the spouse is employed in month *t*). The variables X_{it} and SP_X_{it} include age and education dummies for both individual *i* and their spouse, and we also include an indicator variable for whether the couple has children or not at time *t* and include the regional unemployment rate at time *t* to control for local labour market conditions impacting both partner's labour supply decisions. The term α_i is a time-invariant unobserved individual and couple fixed-effect modeling unobserved joint taste for leisure. The added worker effect within this framework is modelled from the coefficients associated with the transition to non-employment, which can be either: unemployment eligible or ineligible to EI benefits (β_2, β_3) or out of the labour force (β_4).

Based on the empirical literature discussed in the previous section, testing for strictly positive coefficients reflecting increased hours worked or labour force participation of the spouse following their partner's transition out of employment would provide evidence of an added worker effect.**4.2-Evidence of an AWE**

Table 4 presents the estimation results for the model in equation (1) for the different labour supply outcomes y_{it} (actual hours in the main job, in all jobs and labour force participation). Columns 1 through 3 present coefficient estimates for the sample of female partners, while columns 4 through 6 present coefficient estimates for the sample of male partners.

Based on the LFS data, we see statistically significant declines in hours worked and the likelihood of entering the labour force for both men and women associated with the absence from work of their respective partners. Women reduce their hours by about 15 hours per week when their partner indicates a work absence, while men reduce their hours by 16 hours per week following their partner's work absence. This corresponds to about two days of work a week for full-timers. Further investigations of the reduction in hours by type of work absence reveals

(results available upon request) that the largest hours' response of about 7-9 hours comes when indicating a public holiday or a vacation in the reference week.[21]

Regarding the response associated with the spouse's transition from employment and into unemployment, we see statistically significant hours declines for both men and women when the unemployed partner is eligible to receive EI benefits. This result is consistent with the literature indicating little added worker effect and the possibility that the EI system crowds out spousal labour supply.

When unemployment is not eligible for EI benefits, we do not expect a decline in hours and the circumstances would be most inducive of an added worker effect in this case. We see no statistically significant change in hours worked or labour force participation decisions for women. For men, we still see a decline in hours worked.

In addition, a partner's transition out of the labour force shows a consistent statistically significant decline in both hours worked and the likelihood of labour force participation of the other spouse for both men and women. Assortative matching and the fact that both spouses work in the same employment sector could reduce employment opportunities for wives when their husbands are displaced, creating a joint discouraged worker effect.

Overall, at least in terms of monthly adjustments within 4 to 5 months after a spouse's job loss, this first set of results based on the LFS data shows evidence of complementarity in the joint labour supply response mainly reflective of complementarity in leisure or non-market work activities and no evidence of a strictly positive added worker effect, at least in the short-run.

Table 5 shows the results based on the SLID data where the dependent variable is weekly hours at all jobs (column 1), annual hours at all jobs (column 2) and a labour force participation dummy (column 3), with the following three columns describing the equivalent male labour supply measures with his partner's transition out of employment.

The female partner's response to her spouse's job work absence in terms of weekly hours worked at all jobs (column 1) is similar in magnitude to the estimate found with the LFS data related to absences for own illness or caring for a family member. Work absence does not seem to

[21] Other reasons for absences such as "Own illness", "Caring for a family member", "Parental leave" or "Other reasons" are associated with a decline in hours of about 1-5 hours per week depending on the reason. From the design of the LFS data, the reference week in the middle of the month will often include public holiday days such as Good Friday (all provinces except Quebec) or Easter Monday (Quebec) in April.

be associated with a statistically significant labour supply response in terms of annual hours worked or labour force participation for women (columns 2 and 3).

There is no statistically significant response from women's hours worked or labour force participation associated with their partner's unemployment status whenever it is eligible to or coming with the receipt of EI benefits consistent with the LFS results in Table 2.1.

The most striking result from this table is the positive and statistically significant added worker effect from women associated with the unemployment of their partner when there is no EI benefits receipt or eligibility. The estimated adjustment corresponds to 14.5 hours per week, representing the move from a part-time to a full-time job or from not working to taking up a part-time job. In terms of yearly increase in hours and reflecting a longer run adjustment, it is estimated at 1960 hours, representing taking up on average a full-time job (39 hours/week over 50 weeks)—the likelihood of entering the labour force increases by an estimated 0.3 percentage points.

There is little response for men from their partner's transition out of employment except for some evidence of a small decline in annual hours worked associated with unemployment with no EI benefits contradicting the added worker effect prediction found for women.

Overall, we find some evidence of an added worker effect reflecting the particular response of women to their partner's job loss associated with no EI benefits. The effect is found with the SLID data, which measures hours worked at all jobs weekly and annually and in terms of labour force participation. The next section further exploits variations from the EI system to better distinguish the added worker effect from the possible crowding out of the spouse's labour supply in response to the partner's transition to unemployment exposed to an increase in the generosity of the EI system.

5-Impact of EI changes on spousal labour supply adjustments

5.1-Estimated model

The previous results illustrate the different types of spousal labour supply adjustments by the nature of the spouse's job interruption. Focusing now on the event of a spouse's unemployment (eligible to or receiving EI benefits versus not eligible), we study the extent to which the EI system's increased generosity crowds out the spouse's labour supply adjustment. We take advantage of a quasi-experiment that modifies the generosity of the EI system by extending the number of benefits weeks in a subset of regions and allows us to conduct a DiD analysis and further identify the AWE separately from a possible crowding-out effect of EI on spousal labour

supply. Our setting also allows us to test the difference in the magnitude of each effect predicted to go in the opposite direction.

Let A_{EW} be a dichotomous variable that equals 1 for all months after implementing the Extended Weeks pilot and 0, otherwise. Let P be a dichotomous variable that equals 1 for all EI regions included in the EW pilot and 0, otherwise. The DiD analysis is performed by estimating an equation of this form:[22]

$$y_{it} = \beta_0 + \sum_{k=1}^{4} \beta_k SP\_LFS_{kit} + \delta_0 P + \sum_{k=1}^{4} \delta_k SP\_LFS_{kit} \times P$$
$$+ \gamma_0^0 A_{EW0} + \sum_{k=1}^{4} \gamma_k^0 SP\_LFS_{kit} \times A_{EW0} + \eta_0^0 (A_{EW0} \times P) + \sum_{k=1}^{4} \alpha_k^0 SP\_LFS_{kit} \times (A_{EW0} \times P)$$
$$+ \gamma_0^1 A_{EW1} + \sum_{k=1}^{4} \gamma_k^1 SP\_LFS_{kit} \times A_{EW1} + \eta_0^1 (A_{EW1} \times P) + \sum_{k=1}^{4} \alpha_k^1 SP\_LFS_{kit} \times (A_{EW1} \times P)$$
$$+ \theta_1 X_{it} + \theta_2 SP\_X_{it} + \alpha_i + \epsilon_{it} \qquad (2)$$

In this specification, the coefficients η_0^0 and η_0^1 measure the DiD impacts of the EW zero extension weeks and 1 to 5 extension weeks on individuals whose spouses are *employed at work* in the pilot regions. The coefficient α_k^1 measures the DiD estimates of the EW 1 to 5 extension weeks on individuals whose spouse transitioned to one of the other labour market states k=1 to 4 (where we have kept the distinction between those who are unemployed and eligible to receive EI benefits and those who are unemployed and ineligible to apply for EI benefits).

Our set of hypothesis testing and implications go as follows:

1-H_{o1}: $\alpha_2^0 = \alpha_2^1$, Rejecting the null implies a true causal effect of the extended weeks pilot

2-H_{o2}: $\alpha_3^0 = \alpha_3^1$ Can't rejecting the null implies AWE is independent of EI generosity

A key assumption for identifying the DiD estimates is the existence of parallel trends before introducing the pilot treatment. Starting with preliminary graphical evidence, the figures in Appendix B use the LFS data to show actual hours worked of female and male workers whose partners experienced a job loss and are eligible to receive EI. While the figure for women suggests parallel trends seem to be present, this is not the case for men. This is confirmed through the parallel trend test results in Appendix B Table B1 (LFS) and B2 (SLID). Based on the failed parallel trend test results for men, we perform the rest of the analysis focusing on women's labour supply adjustments in couples where the male partner experiences a job loss.

[22] For simplicity of presentation, the interaction terms associated with the other three pilots, which are included in all our specifications, are not explicitly represented in (2) but are implicitly contained in X_{it}.

5.2-Evidence of a Crowd-Out Effect (COE) of EI

Table 6 presents the estimation results for the model in equation (2), focusing on women and showing the results associated with their partner's transition out of employment into either unemployment with EI benefits or eligible for it and with unemployment but no receipts of benefits and EI ineligibility.[23] The first three columns display the labour supply response of women based on the LFS 6-month panel data and the next three columns, the labour supply response of women based on the SLID 6-year panel data.

The bottom half of the table shows the estimates for the EW pilot extending weeks of benefits by 1 to 5 weeks. We note from the LFS results in columns 1-3 that the increased generosity of the pilot led to a crowding out of the labour supply of women following their partner's job loss and the receipt of or eligibility to EI benefits. The decline in weekly hours is estimated at 3.8 (main and all jobs). Labour supply at the extensive margin is not statistically impacted.

The null H_{01} of equality of EW pilot impact is rejected at the 5% level, which makes us confident that the reduced hours of women is a true response from the increased benefits weeks of the spouse's unemployment and not a result of leaving in a higher unemployment pilot regions. There is some evidence (although not sufficiently precisely estimated) of an added worker effect for women whose partner's unemployment is not eligible to receive the EI benefits. The estimate of about 2 hours weekly is slightly smaller in magnitude than the crowding-out effect of EI. We test and can't reject the null (H_{02}) of equality of the added worker effect across the potential EI weeks, which confirms that the effect is independent of the generosity of the EI system whenever the unemployed are not eligible for EI benefits.

Columns 4 to 6 show the results based on the SLID data. In this case, likely due to the much smaller sample size of the SLID, there is some imprecise evidence of a crowding-out impact of the partner's unemployment with EI eligibility on a women's weekly hours worked. Despite the small sample size, the added worker effect, at least at the intensive margin, is precisely estimated and, as expected, important whether the ineligible unemployed spouse is in a region with some or no extra weeks of benefits. In terms of magnitude, the estimates imply an increase in hours worked of 15.5-17 weekly hours or 1300-1800 annual hours. The estimates based on EI ineligible displaced workers are similar in magnitude to those estimated in Table 2.2 without further

[23] The other spousal labour force status impacts (work absence and out of the labour force) are not shown but are part of the estimation framework.

consideration of the generosity of the EI program. A difference in estimates would have been difficult to explain.

Further investigations by education of the spouses confirms that the added worker effect is stronger among couples with a low educated (some post secondary but no degree or less) female worker, irrespective of whether their partner has similar or a higher education level. The crowding out impact of EI is stronger among couples with a high educated (post-secondary college or university degree) female worker, especially when the spouse's education level is also high.[24]

5.3-Mothers labour supply adjustments

Based on the literature empirically estimating labour supply adjustments and finding stronger added worker effect among women under different time and liquidity constraints, we re-estimate over the sample of mothers with kids 0 to 18 leaving at home and show the results in Table 4 based on the LFS (columns 1-3) and SLID data (columns 4 to 6).

Consistent with Cullen and Gruber (2000), the crowding out estimates from the LFS estimations in Table 7 are greater with a doubling of the decline in hours to working about six fewer hours when the spouse is unemployed and eligible for EI benefits and the benefits extension. Interestingly, the SLID results show a stronger and statistically significant decline of 28 hours weekly. On the other hand, the small sample size and smaller group of ineligible unemployed male spouses in the SLID sample make it difficult to identify and estimate an added worker effect for mothers with an unemployed husband not eligible for EI benefits.

Appendix C Table C4 shows the results after adding controls for each spouse's current or lost job's industry (4 digit level). The result is shown for the larger sample from the LFS data and confirms that the negative impact of crowding out on women's labour supply remains, although it is smaller in magnitude and less precisely estimated. Interestingly, once we control for each spouse's industry and remove any sectoral shock that could be correlated between spouses, we find evidence of a statistically significant added worker effect of 5 to 6 weekly hours for women but not mothers.

[24] Results not shown but available upon request.

6-Conclusions

In this paper, we exploit the longitudinal and household format of the Canadian Labour Force Survey and the Survey of Labour and Income Dynamics following labour force transitions of each partner over time to estimate the spousal labour supply responses arising from an added worker effect, whereby spousal labour supply increases following their partner's job loss.

Based on a sample of 25 to 54-year-old men and women in a couple (married or in a common-law union) throughout the sample period spanning the years 1999 to 2009, we find evidence that women increased their hours worked by up to 6 hours/week based on the LFS data and up to 17 hours per week based on the SLID data following the job loss of their spouse whenever the unemployment episode is not eligible to receive EI benefits.

The positive added worker effect seems to also accumulate in the longer run, with total hours worked increasing by the equivalent of the take up of a full-time full-year job. (the estimate of the female labour supply increase is 1800-1900 total annual hours).

On the other hand, when the unemployed spouse is eligible to or has received EI benefits, our results show that increasing the generosity of EI benefits by extending weeks of benefits by 1 to 5 weeks leads to a decline in hours worked of women and mothers by 3-6 hours per week.

We find no evidence of a longer run crowding out effect persisting in the form of a decline in total hours accumulated in the year of the spouse's job loss. The crowding-out impact of EI seems to be limited to reduced weekly hours at a given time during the year and does not translate into an annual decline in total hours worked. However, we find that EI's short-run crowding out effect is stronger among mothers and women with a post-secondary degree.

The stronger crowding-out effect of EI benefits received by unemployed fathers on mothers' hours of work is somewhat puzzling. The impact is consistent with the empirical findings in Kruger and Cullen (2000). Still, it contradicts theoretical predictions in Blundel et al. (2018), whose model and US estimate predict stronger added worker effects for mothers based on the assumption that the jobless partner can take over some childcare responsibilities, thereby boosting the mother's labour supply. EI benefits provide a source of household income and an opportunity to increase leisure time together and towards greater childcare time spent at home, reducing the mother's incentive to work. This could also be consistent with Bertrand et al. (2015),

who show, using US data, that the gender gap in household and childcare responsibilities increases in couples where mothers earn more than their spouses.

The work disincentive results for mothers with unemployed partners question the effectiveness of parental and, more particularly, paternal leaves in supporting and boosting a mother's attachment to the labour force, career goals and progression following a maternity leave break. Given the existing discussions regarding the provision of high quality and affordable childcare currently taking place across the country, the present findings, which reflect the larger labour supply responsiveness of women to assume a greater share of the home childcare responsibilities even when their jobless partner is available, makes it especially important to develop other high quality, reliable and affordable childcare options.

References

Apps, P.F. and Rees, R., 1999. Individual versus joint taxation in models with household production. *Journal of Political Economy*, *107*(2), pp.393-403.

Ashenfelter, O. and Heckman, J., 1974. The estimation of income and substitution effects in a model of family labor supply. *Econometrica: Journal of the Econometric Society*, pp.73-85.

Autor, D., A. R. Kostol, M. Mogstad, and Bradley Setzler, 2017. Disability Benefits, Consumption Insurance, and Household Labor Supply. NBER Working Paper No. 23466

Baker, M. and Benjamin, D., 1995. The receipt of transfer payments by immigrants to Canada. *Journal of Human Resources*, pp.650-676.

Baker, M. and Benjamin, D., 1997. The role of the family in immigrants' labor-market activity: an evaluation of alternative explanations. *The American Economic Review*, pp.705-727.

Bertrand, M., Kamenica, E. and Pan, J., 2015. Gender identity and relative income within households. *The Quarterly Journal of Economics*, *130*(2), pp.571-614.

Blundell, R., Pistaferri, L. and Saporta-Eksten, I., 2016. Consumption inequality and family labor supply. *American Economic Review*, *106*(2), pp.387-435.

Blundell, R., Pistaferri, L. and Saporta-Eksten, I., 2018. Children, time allocation, and consumption insurance. *Journal of Political Economy*, *126*(S1), pp.S73-S115.

Boudarbat, B. and Grenon, L., 2013. Sample Attrition in the Canadian Survey of Labor and Income Dynamics. *Available at SSRN 2241959*.

Boyle, M.A. and Lahey, J.N., 2016. Spousal labor market effects from government health insurance: Evidence from a veterans affairs expansion. *Journal of health economics*, *45*, pp.63-76.

Bryan, M. and Longhi, S., 2018. Couples' labour supply responses to job loss: growth and recession compared. *The Manchester School*, *86*(3), pp.333-357.

Brochu, P., 2021. A researcher's guide to the labour force survey: Its evolution and the choice of public use versus master files. *Canadian Public Policy*, *47*(3), pp.335-357.

Browning, M., Donni, and Mette Gørtz, 2021. Do you have time to take a walk together? Private and joint time within the household, *The Economic Journal*, Volume 131, Issue 635, April, pp 1051–1080.

Card, D. and PB Levine. 2000. "Extended benefits and the duration of UI spells: evidence from the New Jersey extended benefit program." *Journal of Public Economics,* 78(1): 107-138.

Crossley, T.F. and Jeon, S.H., 2007. Joint taxation and the labour supply of married women: evidence from the Canadian tax reform of 1988. *Fiscal Studies*, *28*(3), pp.343-365.

Cullen, J.B. and Gruber, J., 2000. Does unemployment insurance crowd out spousal labor supply?. *Journal of labor Economics*, *18*(3), pp.546-572.

Donni, O. and Matteazzi, E., 2018. Collective decisions, household production, and labor force participation. *Journal of Applied Econometrics*, *33*(7), pp.1064-1080.

Donni, O. and Molina, J.A., 2018. Household collective models: Three decades of theoretical contributions and empirical evidence. *Available at SSRN 3286175*.

Duleep, H.O. and Sanders, S., 1993. The decision to work by married immigrant women. *ILR Review*, *46*(4), pp.677-690.

Eissa, N. and Liebman, J.B., 1996. Labor supply response to the earned income tax credit. *The quarterly journal of economics*, *111*(2), pp.605-637.

ESDC Evaluation Report. 2010. "Evaluation of the Pilot Project to Extend Employment Insurance Benefits by Five Weeks: 2004-2009", accessible at https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/skills-and-employment-2010-03- march.html

Farber, H. and R. Valletta. 2015. "Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence from Recent Cycles in the US Labor Market." *Journal of Human Resources* 50(4):873-909.

Goux, D., Maurin, E. and Petrongolo, B., 2014. Worktime regulations and spousal labor supply. *American Economic Review*, *104*(1), pp.252-76.

Halla, M., Schmieder, J. and Weber, A., 2018. Job Displacement, Family Dynamic, and Spousal Labor Supply.

Hunt, J. 1995. "The Effect of Unemployment Compensation on Unemployment Duration in Germany." *Journal of Labor Economics* 13(1):88-120.

Katz, L. and B.D. Meyer. 1990. "The Impact of the Potential Duration of Unemployment Benefits on the Duration of Unemployment." *Journal of Public Economics* 41(1):45-72.

Kapsalis, C., 2001. *An Assessment of EI and SA Reporting in SLID* (No. 2001166e). Statistics Canada, Analytical Studies Branch.

Keane, M.P., 2011. Labor supply and taxes: A survey. *Journal of Economic Literature*, *49*(4), pp.961-1075.

Kim, S. and Varanasi, N., 2010. *Testing the Family Investment Hypothesis: Theory and Evidence*. Working Papers UWEC-2010-01, University of Washington, Department of Economics.

Koebel, K. and Schirle, T., 2016. The differential impact of universal child benefits on the labour supply of married and single mothers. *Canadian Public Policy*, *42*(1), pp.49-64.

Lalive, R. 2007. "Unemployment Benefits, Unemployment Duration, and Post-Unemployment Jobs: A Regression Discontinuity Approach." *American Economic Review*, 97(2):108-112.

Lalive, R. 2008. "How do Extended Benefits Affect Unemployment Duration? A Regression Discontinuity Approach." *Journal of Econometrics* 142(2):785-806.

LaLumia, S., 2008. The effects of joint taxation of married couples on labor supply and non-wage income. *Journal of Public Economics*, *92*(7), pp.1698-1719.

Lemaître, G. "The Measurement of Job Search and Unemployment in a Retrospective Setting", retrieved at https://www150.statcan.gc.ca/n1/en/catalogue/75F0002M1992004

Leonard, Phil and D. Gray, 2019. "Impacts of EI Pilots to extend benefit entitlements", slides prepared for CEA Conference, Banff.

Long, James E. 1980. "The Effect of Americanization on Earnings: Some Evidence for Women." Journal of Political Economy, Vol. 88, No. 3, pp. 620-29

Lluis, S. and McCall, B., 2019. Employment and Job Search Implications of the Extended Weeks and Working While on Claim Pilot Initiatives. *Canadian Public Policy*, *45*(2), pp.129-172.

Lluis, S. and Y. Pan, 2018, "Quebec Family Patrimony and Women Labour Supply", mimeo, University of Waterloo.

Lundberg, S., 1985. The added worker effect. *Journal of Labor Economics*, *3*(1, Part 1), pp.11-37.

Maloney, T., 1987. Employment constraints and the labor supply of married women: A re-examination of the added worker effect. *Journal of Human Resources*, pp.51-61.

Maloney, T., 1991. Unobserved variables and the elusive added worker effect. *Economica*, pp.173-187.

Mincer, J., 1962. Labor force participation of married women: A study of labor supply. In *Aspects of labor economics* (pp. 63-105). Princeton University Press.

Michaud, P.C. and Vermeulen, F., 2011. A collective labor supply model with complementarities in leisure: Identification and estimation by means of panel data. *Labour Economics*, *18*(2), pp.159-167.

Morissette, R. and Ostrovsky, Y., 2008. *How Do Families and Unattached Individuals Respond to Layoffs?: Evidence from Canada*. Ottawa: Statistics Canada, Analytical Studies Branch.

Olsson, M. and Thoursie, P.S., 2015. Sickness insurance and spousal labour supply. *Labour Economics*, *33*, pp.41-54.

Ortigueira, S. and Siassi, N., 2013. How important is intra-household risk sharing for savings and labor supply?. *Journal of Monetary Economics*, *60*(6), pp.650-666.

Schirle, T., 2008. Why have the labor force participation rates of older men increased since the mid-1990s?. *Journal of Labor Economics*, *26*(4), pp.549-594.

Schirle, T., 2015. The effect of universal child benefits on labour supply. *Canadian Journal of Economics/Revue canadienne d'économique*, *48*(2), pp.437-463.

Schmieder, J., T. von Wachter, and S. Bender. 2012. "The Effects of Extended Unemployment Insurance Over the Business Cycle: Evidence from Regression Discontinuity Estimates Over 20 Years." *Quarterly Journal of Economics* 127(2):701-752.

Shore, S.H. and Sinai, T., 2010. Commitment, risk, and consumption: do birds of a feather have bigger nests?. *The Review of Economics and Statistics*, *92*(2), pp.408-424.

Smith, K.E. and Mattingly, M.J., 2014. Husbands' Jobs Loss and Wives' Labor Force Participation during Economic Downturns: Are All Recessions the Same. *Monthly Lab. Rev.*, *137*, p.1.

Statistics Canada Catalogue no. 11-630-X, "The rise of the sural-earner family with children" retrieved at https://www150.statcan.gc.ca/n1/en/pub/11-630-x/11-630-x2016005-eng.pdf?st=Ej5RiETh

Stephens, Jr, M., 2002. Worker displacement and the added worker effect. *Journal of Labor Economics*, *20*(3), pp.504-537.

Tatsiramos, K. and J.C. Ours. 2014. Labor Market Effects of Unemployment Insurance Design." *Journal of Economic Surveys* 28(2):284-311.

Worswick, C., 1999. Credit constraints and the labour supply of immigrant families in Canada. *Canadian Journal of Economics*, pp.152-170.

Figure 1: The Rise of Dual-Earner Couples

Employment rate of female reference person/spouse
among couples with an employed male partner*

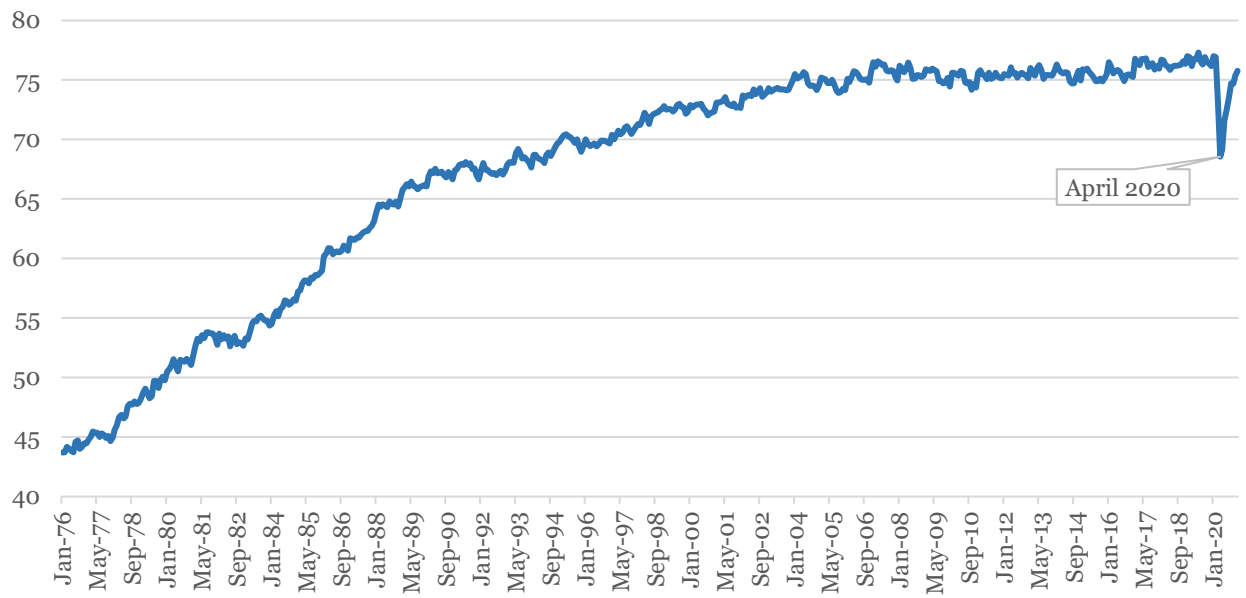
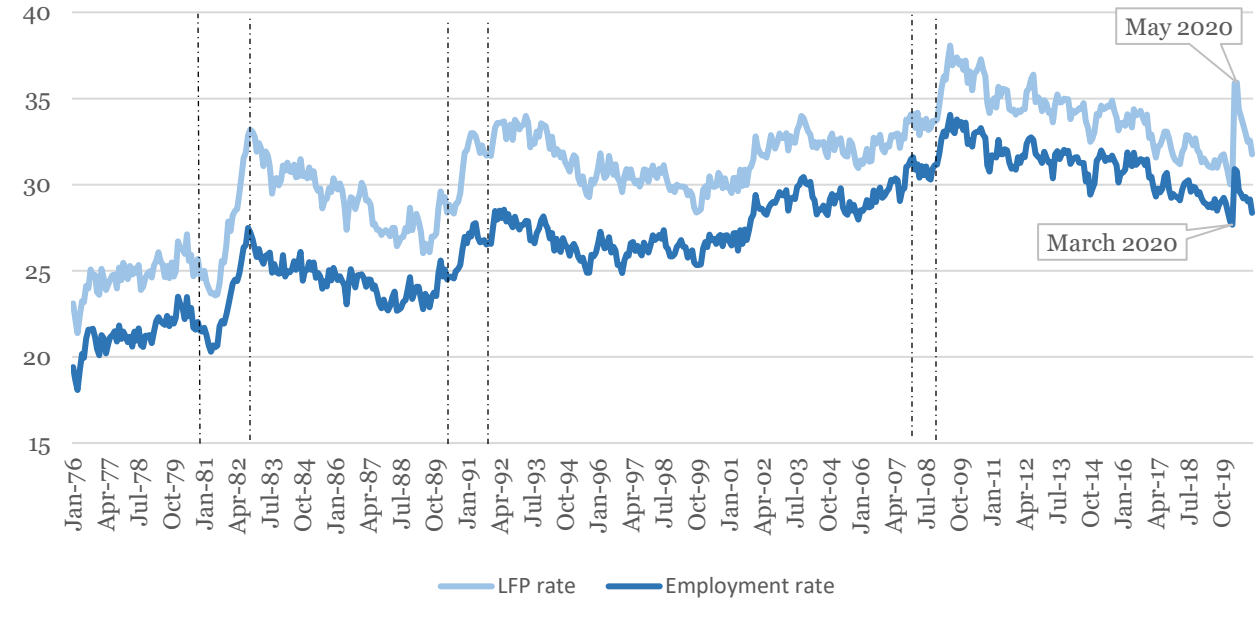


Figure 2: Possible Added Worker Effect

LFP and Employment rates
of female reference person/spouse among couples
with a non-employed male partner*



* LFS data. Seasonally adjusted based on residual estimations of rates on monthly dummies. Last data is Dec 2020.

Table 1: Maximum Unemployment Duration before and after the EW pilot – Example with Insurable hours ≥ 1820

U-rate	< 6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16+
Before EW	36	38	40	42	44	45	45	45	45	45	45	45
EW	41	43	45	45	45	45	45	45	45	45	45	45
Diff max weeks	5	5	5	3	1	0	0	0	0	0	0	0

Table 2: Summary Statistics - LFS Data[1]

	Female Spouse Means conditional			**Male Spouse Means conditional**		
	On Husband:			**On Wife:**		
	Employed	**Unemployed**	**OLF**	**Employed**	**Unemployed**	**OLF**
Employed	0.929 (0.256)	0.868 (0.335)	0.859 (0.348)	0.947 (0.223)	0.884 (0.319)	0.912 (0.282)
Usual Hours Main Job	31.74 (12.24)	29.99 (14.16)	29.73 (14.63)	38.12 (11.24)	35.95 (14.97)	37.43 (14.12)
Usual Hours, > 0 Main Job	34.15 (8.89)	34.54 (8.29)	34.61 (8.95)	40.24 (6.93)	40.67 (7.84)	41.01 (8.46)
Hrly Earnings, > 0 Main job	19.46 (9.29)	16.94 (8.24)	17.79 (8.96)	24.12 (10.81)	22.14 (10.06)	22.91 (12.09)
Usual Hours, > 0 All jobs	34.74 (9.11)	35.01 (8.80)	35.24 (9.35)	40.84 (7.65)	41.19 (8.49)	41.59 (8.97)
Age	39.92 (8.00)	39.26 (8.21)	41.19 (8.82)	40.95 (7.90)	40.72 (7.80)	39.83 (8.17)
Post-Secondary	0.712 (0.448)	0.652 (0.476)	0.636 (0.481)	0.699 (0.458)	0.653 (0.475)	0.661 (0.473)
Secondary	0.206 (0.404)	0.212 (0.409)	0.218 (0.412)	0.195 (0.396)	0.198 (0.399)	0.192 (0.394)
Elementary	0.072 (0.260)	0.134 (0.341)	0.146 (0.353)	0.105 (0.307)	0.148 (0.355)	0.147 (0.354)
Children	0.708 (0.454)	0.669 (0.470)	0.621 (0.485)	0.682 (0.465)	0.683 (0.465)	0.743 (0.436)

Notes: 1- LFS data over 2002-2009. Standard deviation in parenthesis. Total observation number is 699,682 individuals-months for wives and 717,256 individuals-months for husbands.

Table 3: Summary Statistics - SLID Data[1]

	Female Spouse Means conditional			Male Spouse Means conditional		
	On Husband:			On Wife:		
	Employed	Unemployed	OLF	Employed	Unemployed	OLF
Employed	0.810 (0.391)	0.789 (0.408)	0.835 (0.371)	0.882 (0.321)	0.838 (0.369)	0.934 (0.248)
Usual Hours Main Job	37.28 (15.51)	25.89 (15.57)	28.54 (14.77)	36.33 (15.17)	38.89 (22.75)	39.27 (14.88)
Usual Hours, > 0 Main Job	33.31 (9.54)	32.30 (9.47)	32.98 (10.45)	40.58 (9.13)	45.88 (17.20)	41.48 (9.17)
Earnings[2] > 0	65,652.9 (31686.7)	52,291.7 (33181.7)	45,199.9 (35534.3)	66,167.3 (30185.1)	51,284.1 (26427.7)	51,382.1 (25135.7)
Usual Hours, > 0 All jobs	34.30 (10.74)	31.22 (11.78)	33.05 (11.40)	41.52 (10.32)	47.40 (18.29)	41.71 (10.12)
Age	35.67 (7.62)	40.10 (8.03)	42.83 (9.275)	37.43 (7.27)	39.01 (8.23)	34.27 (5.76)
Post-Secondary	0.708 (0.454)	0.707 (0.455)	0.491 (0.500)	0.772 (0.419)	0.669 (0.471)	0.819 (0.385)
Secondary	0.137 (0.343)	0.120 (0.325)	0.160 (0.367)	0.143 (0.350)	0.142 (0.350)	0.049 (0.217)
Elementary	0.092 (0.289)	0.172 (0.378)	0.348 (0.476)	0.084 (0.278)	0.188 (0.390)	0.131 (0.338)
Children	0.836 (0.370)	0.893 (0.309)	0.695 (0.460)	0.802 (0.398)	0.765 (0.424)	0.925 (0.263)

Notes: 1- SLID data over 1999-2009. Standard deviation in parenthesis. Total observation number is 28,885 individuals-months for wives and 22,949 individuals-months for husbands.
2-Includes wages and salaries before deductions and self-employment income from all jobs.

Table 4: AWE by Type of Spouse's Job Loss Distinguishing EI Benefits Eligibility and/or Receipts
(Fixed-Effect Estimations based on LFS Data)

Dependent Variable:	**Women**			**Men**		
	Actual Hours Worked[2]		**LFP**	**Actual Hours Worked[2]**		**LFP**
Main Variables[1]	Main Job (1)	All Jobs (2)	(3)	Main Job (4)	All Jobs (5)	(6)
Spouse's Labour Force Status: (base category is Employed at work)						
Employed, absent from work	-15.113*** (0.476)	-15.293*** (0.458)	-0.006*** (0.001)	-16.087*** (0.461)	-16.292*** (0.463)	-0.002* (0.001)
Unemployed, EI eligible	-1.610*** (0.327)	-1.734*** (0.310)	-0.006 (0.004)	-3.465*** (0.274)	-3.499*** (0.270)	-0.004 (0.004)
Unemployed, Not eligible	-0.653 (0.944)	-0.853 (0.815)	-0.012 (0.021)	-1.941*** (0.494)	-1.723*** (0.529)	0.005 (0.005)
Out of the Labour Force	-2.553*** (0.263)	-2.676*** (0.250)	-0.032*** (0.005)	-3.491*** (0.406)	-3.764*** (0.384)	-0.019*** (0.003)
Constant	47.642*** (7.145)	49.615*** (5.795)	1.135*** (0.029)	46.005*** (9.109)	49.405*** (8.647)	0.929*** (0.042)
Ho: U EI eligible = U Not eligible						
F-Stat	0.764	0.845	0.092	11.389	13.539	2.703
(p-value)	(0.392)	(0.369)	(0.765)	(0.003)	(0.001)	(0.116)

Notes:
1-Also includes region-specific unemployment rates, age of each spouse and a dummy for whether the couple has children. Clustered standard errors in parenthesis (55 clusters). * $p < .10$, ** $p < .05$, *** $p < .01$
2-Weekly actual hours worked in the reference week (the week of the month that includes the 15th).

Table 5: AWE by Type of Spouse's Job Loss Distinguishing EI Benefits Eligibility and/or Receipts
(Fixed-Effect Estimations based on SLID Data)

Dependent Variable:	**Women**			**Men**		
	Total Hours All Jobs		**LFP**	**Total Hours All Jobs**		**LFP**
	Weekly	Annual[2]		Weekly	Annual[2]	
Main Variables[1]	(1)	(2)	(3)	(4)	(5)	(6)
Spouse's Labour Force Status: (base category is Employed at work)						
Employed, absent from work	-3.885**	54.537	0.022	3.780	516.958	0.004
	(1.681)	(203.993)	(0.034)	(5.638)	(465.750)	(0.021)
Unemployed, EI eligible	-2.877	82.341	-0.012	0.790	-176.619	-0.034
	(2.271)	(344.268)	(0.071)	(6.480)	(313.819)	(0.020)
Unemployed, Not eligible	14.467***	1958.318***	0.324***	-2.348	-1085.275**	0.013
	(2.732)	(327.096)	(0.091)	(4.670)	(454.409)	(0.164)
Out of the Labour Force	-0.588	-374.301	-0.031	3.439	-10.510	-0.041
	(4.186)	(631.738)	(0.119)	(4.115)	(577.614)	(0.040)
Constant	26.709**	2857.940*	0.635**	17.898	1556.166	1.077***
	(11.611)	(1500.913)	(0.273)	(13.504)	(1434.809)	(0.151)
Ho: $\beta_{U\ EI\ eligible} = \beta_{U\ Not\ eligible}$						
F-Stat	41.062	21.365	9.051	0.141	2.146	0.084
(p-value)	(0.000)	(0.000)	(0.006)	(0.711)	(0.156)	(0.774)

Notes:
1-Also includes region-specific unemployment rates, age of each spouse and a dummy for whether the couple has children. Clustered standard errors in parenthesis (55 clusters). * $p < .10$, ** $p < .05$, *** $p < .01$
2-Total hours worked in the reference year.

Table 6: DiD Estimations of AWE and Crowd-Out Effects of EI on Female Labour Supply[1]
(Fixed-Effect Estimations)

	Women - LFS			Women - SLID		
Dependent Variable:	**Actual Hours Worked[3]**		**LFP**	**Total Hours All Jobs**		**LFP**
Main Interaction Variables[2]	Main Job (1)	All Jobs (2)	(3)	Weekly (4)	Annual[3] (5)	(6)
	No additional benefits weeks					
$A_{EW0} \times P$[4]	0.272	0.186	-0.003	-2.729	-1259.928**	-0.236***
	(0.393)	*(0.438)*	*(0.007)*	(4.034)	(484.443)	(0.039)
$A_{EW0} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-1.610	-1.638	0.007	-6.532	419.214	-0.318*
	(1.899)	*(1.880)*	*(0.020)*	(5.929)	(866.630)	(0.183)
Not eligible for EI	0.975	1.917	-0.034	17.143**	1804.281*	0.003
	(2.477)	*(2.511)*	*(0.043)*	(6.537)	(1016.037)	(0.110)
	1 to 5 additional benefits weeks					
$A_{EW15} \times P$[4]	1.813*	1.731*	0.004	-1.023	-732.105	-0.291***
	(0.968)	*(0.942)*	*(0.015)*	(5.906)	(819.321)	(0.076)
$A_{EW15} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-3.804*	-3.853*	-0.012	-10.783	1292.418	-0.143
	(1.953)	*(1.949)*	*(0.023)*	(10.788)	(1258.896)	(0.230)
Not eligible for EI	2.474	3.192	-0.019	15.486*	1290.530	0.059
	(1.859)	*(1.978)*	*(0.042)*	(7.678)	(1150.879)	(0.130)
Constant	37.578***	39.437***	2.122	19.755*	1989.212	0.219
	(3.416)	*(2.466)*	*(0.000)*	(10.413)	(1673.329)	(0.000)
Tests						
H_{01}: $\beta_{EW0\ U\ EI\ eligible} = \beta_{EW15\ U\ EI\ eligible}$	**4.854**	**4.310**	1.362	0.286	0.796	1.123
(p-value)	***(0.039)***	***(0.051)***	*(0.243)*	(0.597)	(0.380)	(0.289)
H_{02}: $\beta_{EW0\ U\ Not\ eligible} = \beta_{EW15\ U\ Not\ eligible}$	**0.552**	**0.450**	0.205	0.081	0.448	0.645
(p-value)	***(0.466)***	***(0.510)***	*(0.651)*	(0.779)	(0.509)	(0.422)

Notes:

1- Sample of EI region with unemployment rates between 8% and 12%.

2- Also includes region-specific unemployment rates, age of each spouse and a dummy for whether the couple has children. The other spousal labour force status impacts (work absence and out of the labour force) are not shown but part of the estimation framework. Clustered standard errors in parenthesis (55 clusters). * $p < .10$, ** $p < .05$, *** $p < .01$

3- Weekly actual hours worked in the reference week (the week that contains the 15th) in LFS data and total hours worked in the reference year in SLID.

4- The $A_{EW} \times P$ interaction dummy indicates the period starting in June 2004 when the EW pilot was implemented in the pilot regions.

Table 7: DiD Estimations of AWE and Crowding-Out Effects of EI on Mothers' Labour Supply[1]
(Fixed-Effect Estimations)

	Mothers - LFS			Mothers - SLID		
Dependent Variable:	**Actual Hours Worked[3]**		**LFP**	**Total Hours All Jobs**		**LFP**
	Main Job	All Jobs		Weekly	Annual[3]	
Main Interaction Variables[2]	(1)	(2)	(3)	(4)	(5)	(6)
	No additional benefits weeks					
$A_{EW0} \times P$[4]	0.078	-0.147	0.006	1.245	-1688.760**	-0.204***
	(0.483)	*(0.503)*	*(0.010)*	(3.424)	(658.312)	(0.047)
$A_{EW0} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-3.228*	-3.161*	0.006	-12.078*	-71.616	-0.430**
	(1.616)	*(1.706)*	*(0.023)*	(6.575)	(920.659)	(0.199)
Not eligible for EI	1.982	2.988	0.024			
	(2.985)	*(3.050)*	*(0.047)*			
	1 to 5 additional benefits weeks					
$A_{EW15} \times P$[4]	2.286	2.108	0.021	10.505***	-709.635	-0.270***
	(1.462)	*(1.370)*	*(0.020)*	(3.539)	(905.407)	(0.093)
$A_{EW15} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-5.841***	-6.021***	-0.028	-28.692***	48.809	-0.337
	(2.034)	*(2.112)*	*(0.029)*	(8.082)	(1273.780)	(0.248)
Not eligible for EI	0.654	1.507	0.011			
	(3.034)	*(3.104)*	*(0.048)*			
Constant	33.716***	35.609***	1.059	12.510	2706.883	0.894
	(3.797)	*(2.657)*	*(0.000)*	(22.017)	(1851.301)	(0.000)
Tests						
H_{01}: β_{EW0} **U EI eligible =** β_{EW15} **U EI eligible**	**4.446**	**4.941**	2.378	**8.054**	0.014	0.337
(p-value)	***(0.048)***	***(0.038)***	*(0.123)*	**(0.009)**	(0.907)	(0.562)
H_{02}: β_{EW0} **U Not eligible =** β_{EW15} **U Not eligible**	**0.103**	**0.142**	0.129			
(p-value)	***(0.751)***	***(0.710)***	*(0.719)*			

Notes:
1-Sample of EI region with unemployment rates between 8% and 12%. Sample of 179,573 observations.
2-Also includes region-specific unemployment rates, age of each spouse and a dummy for whether the couple has children. The other spousal labour force status impacts (work absence and out of the labour force) are not shown but part of the estimation framework. Clustered standard errors in parenthesis (55 clusters). * $p < .10$, ** $p < .05$, *** $p < .01$
3-Weekly actual hours worked in the reference week (the week that contains the 15th).
4-The $A_{EW} \times P$ interaction dummy indicates the period starting in June 2004 when the EW pilot was implemented in the pilot regions.

APPENDIX A
Further on the EI Pilot Initiatives

About 18 months after implementing the extended weeks EW pilot, the government experimented with more changes to the EI programs in the form of three additional pilots. The WWOC pilot changed the allowable earnings formula for EI recipients living in 23 of the 24 EI regions selected for the EW pilot (Southern Interior British Columbia was excluded) on December 11, 2005.[25] This particular pilot project increased the level of allowable earnings from employment during a claim period from the maximum between $50 or 25% of weekly benefits to the maximum between $75 or 40% weekly benefits in 23 selected high unemployment regions in Canada. Such a change gives unemployed workers increased incentives to work while on claim. The NERE pilot project, applicable to new entrants and re-entrants reduces the entrance requirement from 910 to 840 hours.[26] The third pilot is the Best 14 pilot. According to the Best 14 pilot, only the 14 weeks of highest income is used to calculate the benefit amount (out of 52 instead of 26 weeks of the Rate Calculation Period).[27] This pilot began October 30, 2005 in the same 23 EI regions as the other pilots. Similar to the NERE pilot, this pilot should encourage the take up of part-time low earnings jobs.

The list of pilots and non pilots regions and the common set of regions for the four pilots is presented in Appendix A table A.1 next page.

[25] The pilot project was later extended to all regions effective December 7, 2008 through December 4, 2010 (and further extended for 8-month until June 25, 2011). For consistency, we will exclude Southern Interior B.C. from our analysis.

[26] This pilot began on December 11, 2005 in the same 23 EI regions as the other pilots. The pilot was designed to determine whether giving NEREs access to Employment Insurance regular benefits after fewer hours of work would improve their employability and help reduce future reliance on Employment Insurance regular benefits. The main results of the ESDC report on the NERE pilot is that the proportion of NEREs qualifying for regular benefits after having accumulated between 840 and 909 insurable hours increased, while the proportion of NEREs qualifying for regular benefits after accumulating between 910 and 949 insurable hours decreased. Thus, NERE individuals adapt their work patterns to these hour constraints, and are more likely to accept work with shorter hours when facing the lower hour requirement. Hence, the NERE pilot may potentially increase the take up of part-time or temporary work.

[27] For example, assume an individual has worked consistently over the last year and lives in an area where the unemployment rate is 13.1 per cent, the minimum divisor will be 14. In his or her best 14 weeks of work, he has earned $10,400. The average weekly earnings are calculated as $10,400 ÷ 14 weeks = $742.85 rounded to $743. The objective of the Best 14 is to encourage individuals to accept all available work by excluding weeks of low earnings from the benefit calculation, provided that the number of weeks of earnings exceeds the minimum divisor. It also extends the rate calculation period, from 26 weeks preceding the claim to 52 weeks preceding the claim.

APPENDIX A Table A1: List of EI Pilots Regions over the Period June 2004-March 2009

Timing		June 04	Oct 05	Dec 05	Dec 05	June 06	Oct 08	Dec 08	Dec 08	March 09
	EI Regions[1]	Increased Wks of EI Benefits Pilot #6	BEST 14 Pilot #7	Working on Claim Pilot #8	NERE Pilot #9	Extended EI Weeks[2] Pilot #10	BEST 14 Pilot #11, #16	Working on Claim Pilot #12, #17	NERE Pilot #13	Extended weeks EDB[3]
01	St-John's	✓	✓	✓	✓	✓	✓		✓	
02	Newfoundland/Labrador	✓	✓	✓	✓	✓	✓		✓	
03	PEI	✓	✓	✓	✓	✓	✓		✓	
04	Eastern Nova Scotia	✓	✓	✓	✓	✓	✓		✓	
05	Western Nova Scotia	✓	✓	✓	✓	✓	✓		✓	
08	Madawaska-Charlotte (NB)	✓	✓	✓	✓	✓	✓		✓	
09	Restiqouche - Albert (NB)	✓	✓	✓	✓	✓	✓		✓	
10	Gaspésie, îles-de-la Madelaine (Qc)	✓	✓	✓	✓	✓	✓		✓	
12	Trois-Rivières (Qc)	✓	✓	✓	✓	✓	✓		✓	
17	Central Québec	✓	✓	✓	✓	✓	✓		✓	
18	North Western Québec	✓	✓	✓	✓	✓	✓		✓	
19	Bas-St-Laurent – Côte Nord (Qc)	✓	✓	✓	✓	✓	✓		✓	
21	Chicoutimi, Jonquière (Qc)	✓	✓	✓	✓	✓	✓		✓	
26	Oshawa						✓		✓	
31	Niagara						✓		✓	
32	Windsor						✓		✓	
34	Huron						✓		✓	
36	Sudbury	✓	✓	✓	✓	✓				
38	Northern Ontario	✓	✓	✓	✓	✓	✓		✓	
41	Northern Manitoba	✓	✓	✓	✓	✓	✓		✓	
45	Northern Saskatchewan	✓	✓	✓	✓	✓	✓		✓	
48	Northern Alberta	✓	✓	✓	✓		✓		✓	
50	Southern Interior British Columbia	✓								
54	Southern Coastal British Columbia	✓	✓	✓	✓					
55	Northern British Columbia	✓	✓	✓	✓	✓	✓		✓	
56	Yukon	✓	✓	✓	✓	✓	✓		✓	
57	Northwest Territories	✓	✓	✓	✓	✓	✓		✓	
58	Nunavut	✓	✓	✓	✓	✓	✓		✓	
	TOTAL NUMBER OF PILOT REGIONS	**24**	**23**	**23**	**23**	**21**	**25**	**58**	**25**	**58**

[1] Excluded pilot regions are indicated in the light grey shaded area. Excluded nonpilot (pre-2008) regions for the pre-post 2008 analysis are indicated in the dark grey shaded area

[2] Pilot project #10 (June 2006 to Feb 2009) was replaced in March 2009 by extended duration of EI regular benefits that apply to all regions as part of the Economic Action Plan.

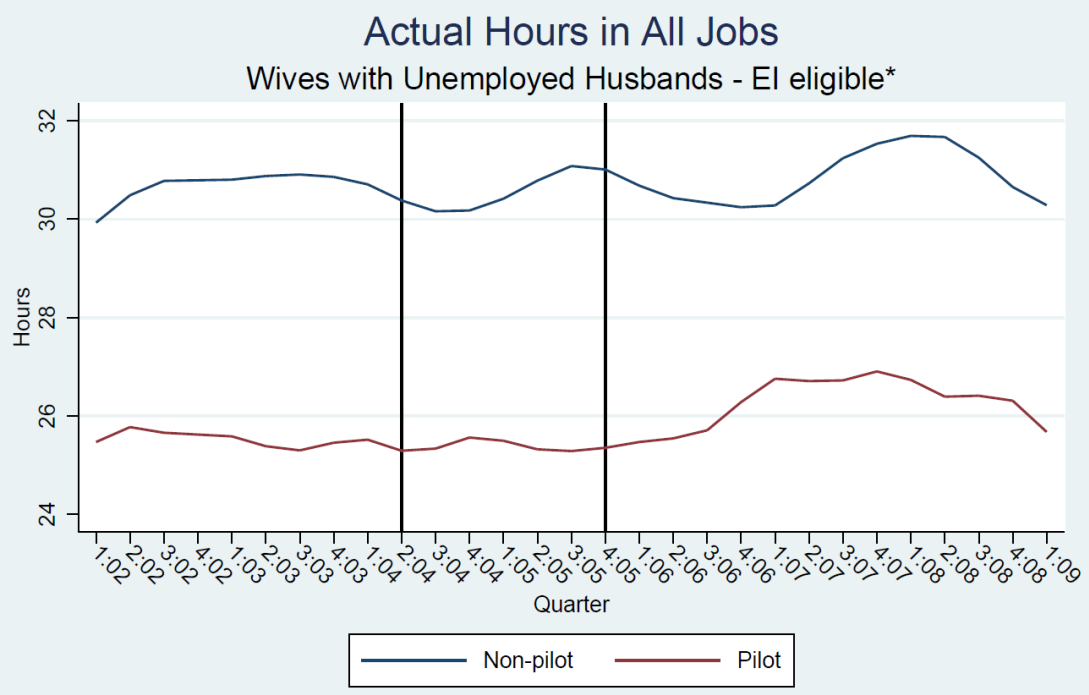
[3] Pilot project #15 replaced the extended duration of EI regular benefits that apply to all regions as part of the Economic Action Plan in September 2010 until September 2012

APPENDIX A

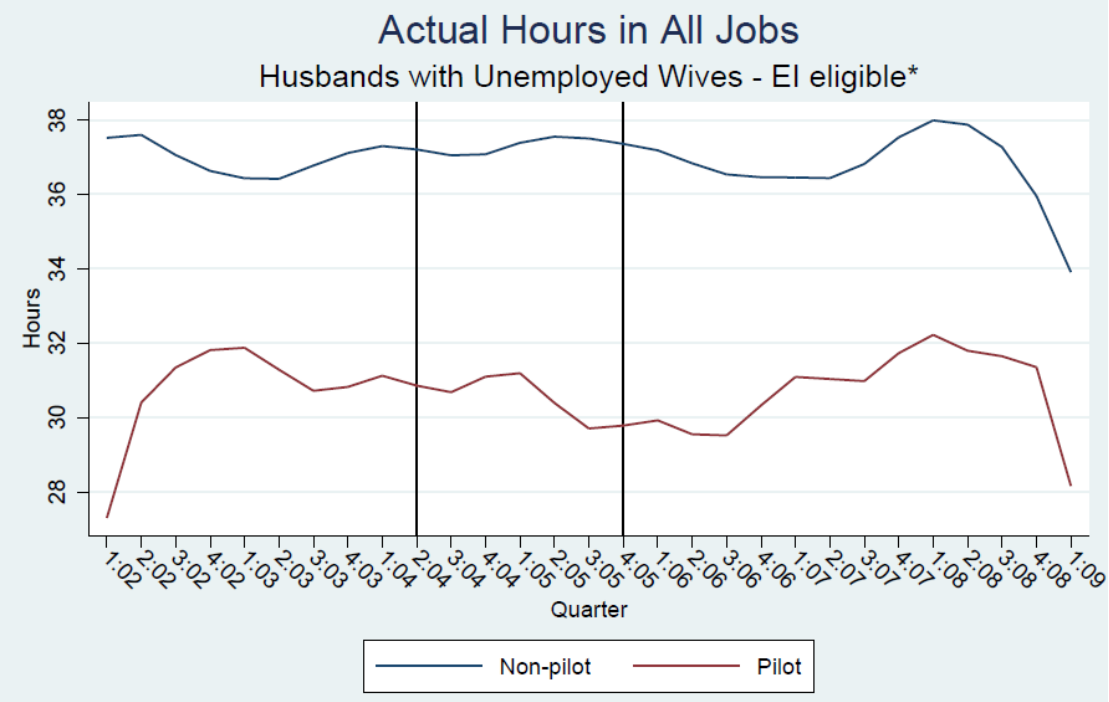
Table A2: Difference in Maximum Weeks of Benefits before and after the EW pilot

Hours	≤ 6%	6-7%	7-8%	8-9%	9-10%	10-11%	11-12%	12-13%	13-14%	14-15%	15-16%	>16
420-454									5	5	5	5
455-489								5	5	5	5	5
490-524							5	5	5	5	5	5
525-559						5	5	5	5	5	5	5
560-594					5	5	5	5	5	5	5	5
595-629				5	5	5	5	5	5	5	5	5
630-664			5	5	5	5	5	5	5	5	5	5
665-699		5	5	5	5	5	5	5	5	5	5	5
700-734	5	5	5	5	5	5	5	5	5	5	5	5
735-769	5	5	5	5	5	5	5	5	5	5	5	5
770-804	5	5	5	5	5	5	5	5	5	5	5	5
805-839	5	5	5	5	5	5	5	5	5	5	5	5
840-874	5	5	5	5	5	5	5	5	5	5	5	5
875-909	5	5	5	5	5	5	5	5	5	5	5	5
910-944	5	5	5	5	5	5	5	5	5	5	5	5
945-979	5	5	5	5	5	5	5	5	5	5	5	5
980-1014	5	5	5	5	5	5	5	5	5	5	5	5
1015-1049	5	5	5	5	5	5	5	5	5	5	5	5
1050-1084	5	5	5	5	5	5	5	5	5	5	5	4
1085-1119	5	5	5	5	5	5	5	5	5	5	5	4
1120-1154	5	5	5	5	5	5	5	5	5	5	5	3
1155-1189	5	5	5	5	5	5	5	5	5	5	5	3
1190-1224	5	5	5	5	5	5	5	5	5	5	4	2
1225-1259	5	5	5	5	5	5	5	5	5	5	4	2
1260-1294	5	5	5	5	5	5	5	5	5	5	3	1
1295-1329	5	5	5	5	5	5	5	5	5	5	3	1
1330-1364	5	5	5	5	5	5	5	5	5	4	2	0
1365-1399	5	5	5	5	5	5	5	5	5	4	2	0
1400-1434	5	5	5	5	5	5	5	5	5	3	1	0
1435-1469	5	5	5	5	5	5	5	5	4	2	0	0
1470-1504	5	5	5	5	5	5	5	5	3	1	0	0
1505-1539	5	5	5	5	5	5	5	4	2	0	0	0
1540-1574	5	5	5	5	5	5	5	3	1	0	0	0
1575-1609	5	5	5	5	5	5	4	2	0	0	0	0
1610-1644	5	5	5	5	5	5	3	1	0	0	0	0
1645-1679	5	5	5	5	5	4	3	1	0	0	0	0
1610-1644	5	5	5	5	5	4	3	1	0	0	0	0
1645-1679	5	5	5	5	5	4	2	0	0	0	0	0
1680-1714	5	5	5	5	5	3	1	0	0	0	0	0
1715-1749	5	5	5	5	4	2	0	0	0	0	0	0
1750-1784	5	5	5	5	3	1	0	0	0	0	0	0
1785-1819	5	5	5	4	2	0	0	0	0	0	0	0
1820-	5	5	5	3	1	0	0	0	0	0	0	0

APPENDIX B
Parallel Trends Figures



Source: LFS Data 2002-2009.



Source: LFS Data 2002-2009.

APPENDIX B
Table B1: Parallel Trends Tests - LFS

	Actual Hours Worked				LFP	
	Women		Men		Women	Men
	Main Job	All Jobs	Main Job	All Jobs		
F-test[1]	1.07	1.08	4.85	4.49	3.58	3.12
(p-value)	(0.386)	(0.381)	(0.011)	(0.014)	(0.032)	(0.049)
F-test[2]	0.94	0.90	4.65	4.63	3.81	1.12
(p-value)	(0.486)	(0.513)	(0.011)	(0.004)	(0.011)	(0.121)

Table B2: Parallel Trends Tests - SLID

	Hours Worked All Jobs				LFP	
	Women		Men		Women	Men
	Weekly	Annual	Weekly	Annual		
F-test[1]	0.01	0.03	4.85	4.49	2.81	3.12
(p-value)	(0.905)	(0.871)	(0.011)	(0.014)	(0.112)	(0.049)

[1]Test of equality of yearly trends between pilot and non pilot regions, 2002- 2004 (LFS), 1999-2004 (SLID).
[2]Test of equality of 6-months grouping trends between pilot and non pilot regions, 2000- 2004.

APPENDIX C Table C4: DiD Estimations of AWE and Crowd-Out Effects of EI on Female Labour Supply[1]
(Fixed-Effect Estimations based on LFS data)

	Women			Mothers		
Dependent Variable:	**Actual Hours Worked[3]**		**LFP**	**Actual Hours Worked[3]**		**LFP**
Main Interaction Variables[2]	Main Job (1)	All Jobs (2)	(3)	Main Job (4)	All Jobs (5)	(6)
	No additional benefits weeks					
$A_{EW0} \times P$[4]	0.066	0.032	-0.001	-0.001	-0.146	0.001
	(0.461)	*(0.458)*	*(0.006)*	*(0.721)*	*(0.739)*	*(0.008)*
$A_{EW0} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-1.712	-1.603	0.022	-3.311	-3.034	0.020
	(2.109)	*(2.009)*	*(0.017)*	*(2.805)*	*(2.738)*	*(0.021)*
Not eligible for EI	2.568	3.377	-0.095	1.162	2.078	-0.112
	(2.105)	*(2.067)*	*(0.059)*	*(3.137)*	*(3.040)*	*(0.080)*
	1 to 5 additional benefits weeks					
$A_{EW15} \times P$[4]	0.606	0.564	-0.005	0.154	0.106	0.006
	(1.777)	*(1.713)*	*(0.015)*	*(2.306)*	*(2.230)*	*(0.016)*
$A_{EW15} \times P \times$ **Spouse's Unemployment:**						
EI eligible	-2.181	-2.051	0.009	-3.068	-3.036	-0.012
	(2.384)	*(2.424)*	*(0.021)*	*(3.119)*	*(3.192)*	*(0.025)*
Not eligible for EI	5.805*	6.265**	-0.043	2.513	3.030	-0.062
	(2.865)	*(2.664)*	*(0.047)*	*(3.870)*	*(3.609)*	*(0.057)*
Constant	59.064***	57.831***	0.852	53.553***	52.189***	1.150***
	(9.313)	*(7.792)*	*(16.690)*	*(7.767)*	*(7.962)*	*(0.153)*
Tests						
H_{01}: $\beta_{EW0\ \text{U EI eligible}} = \beta_{EW15\ \text{U EI eligible}}$	0.120	0.092	0.735	0.015	0.000	2.867
(p-value)	*(0.733)*	*(0.765)*	*(0.391)*	*(0.904)*	*(0.999)*	*(0.090)*
H_{02}: $\beta_{EW0\ \text{U Not eligible}} = \beta_{EW15\ \text{U Not eligible}}$	1.569	1.424	2.411	0.117	0.068	1.317
(p-value)	*(0.225)*	*(0.247)*	*(0.120)*	*(0.736)*	*(0.797)*	*(0.251)*

Notes:

1- Sample of EI region with unemployment rates between 8% and 12%.

2- Also includes region-specific unemployment rates, age of each spouse and a dummy for whether the couple has children. The other spousal labour force status impacts (work absence and out of the labour force) are not shown but part of the estimation framework. In addition, the regressions include 4 digit industry dummies of the current or past job for each spouse. Clustered standard errors in parenthesis (55 clusters). * $p < .10$, ** $p < .05$, *** $p < .01$

3- Weekly actual hours worked in the reference week (the week that contains the 15th).

4- The $A_{EW} \times P$ interaction dummy indicates the period starting in June 2004 when the EW pilot was implemented in the pilot regions.