Does Unemployment Insurance Crowd out Spousal Labor Supply?

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Previous research on unemployment insurance (UI) has emphasized the program’s effect on individual search behavior. This state-contingent income may also reduce the labor supply of family members during the unemployment spell. We investigate this question within the context of wives’ labor supply responses to their husbands’ unemployment spells. We find strong “crowdout” of this form of family self-insurance; our estimates imply that for each dollar of UI receipt wives earn up to 73 cents less. The reduction in spousal hours of work is over 40% as large as previous estimates of the effect of UI on search time of husbands.

One of the most important government interventions in the labor market in the U.S. is the unemployment insurance (UI) program, which provides income to workers who have lost their jobs. At the same time, the UI program may increase the duration of unemployment spells. Previous research has emphasized this potential labor supply distortion, and em-

We are grateful to Josh Angrist, David Cutler, Jerry Hausman, Larry Katz, Jim Poterba, and seminar participants at the Bureau of Labor Statistics, Massachusetts Institute of Technology, Ohio State, the University of Chicago, and the National Bureau of Economic Research for helpful comments. We would like to thank Beethika Khan for research assistance and the National Institute of Aging for financial support.

[JOURNAL OF LABOR ECONOMICS, 2000, VOL. 18, NO. 3]
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0734-306X/2000/1803-0098$02.50

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 empirical estimates of the elasticity of spell duration with respect to UI benefit levels are quite large (e.g., Meyer 1990).

The unemployed worker is not the only person whose labor supply decision may be affected by the generosity of the UI program, however. One potential source of private insurance against unemployment is increased labor supply by other family members. In the face of a negative shock to the earnings of one family member, other family members can increase their labor supply to compensate for the resulting income loss. This response will be mitigated by the state-contingent income stream that is provided by UI; that is, UI may “crowd out” this form of private insurance against income loss during unemployment spells. Given the fact that the elasticity of labor supply of secondary earners is generally estimated to be higher than that of primary earners, this “spillover” effect may be large relative to the search effects documented elsewhere.

There are two previous literatures that bear on the question of the extent to which spousal labor supply is affected by UI during spells of unemployment. The first tests for the “added worker effect” (AWE), which is the entry of wives into the labor force when their husbands lose their jobs. Empirical studies of the AWE have generally not found evidence consistent with this contention. However, testing for an AWE runs into a number of empirical problems, such as correlated tastes for work across spouses and the fact that the wife’s employment prospects may be affected by the factors causing the husband’s unemployment spell (e.g., local economic conditions). Moreover, the very presence of UI may be responsible for a low AWE on average.

The second is the literature on the income elasticity of labor supply of secondary earners, traditionally married women. In principle, the response of wives’ labor supply to UI benefits could be backed out from previous estimates of this income elasticity. In practice, however, this literature has produced a wide range of elasticity estimates, making it difficult to find a summary statistic for the expected effects of income flows through UI. Moreover, the income elasticity during periods of unemployment may be higher than the average across the full sample of married women if the family faces capital market imperfections in smoothing consumption across spells of employment and unemployment.

In this paper, we conduct a direct test of the effect of UI on the labor supply of spouses of unemployed workers. We do so by modeling the work decisions of wives of unemployed men as a function of the generosity of the UI benefits received by their husbands. While a focus on wives as secondary earners is somewhat anachronistic in light of the increased labor force participation of married women, in 87% of married couples the husband earns more, and in 73% the husband works more
hours (over a 2-year period) than the wife. Thus, this remains a natural starting point for examining the response of secondary earners.

We carry out the analysis using the Survey of Income and Program Participation (SIPP), a large nationally representative survey that follows families over a period of 2–3 years. This longitudinal survey contains information on the unemployment experiences of husbands and the concurrent labor supply of their wives. We match to the SIPP information about the UI regime in the state in which a family resides to consider the crowdout role of UI.

We find that there is a very large crowdout effect. Our estimates imply that in the absence of UI, wives’ total hours of work would rise by 30% during their husbands’ spells of unemployment. The implied reduction in spousal hours due to UI is over 40% as large as estimates of the increased time spent in search by the husband. At the same time, we find that the spousal response would make up only a small share (about 13%) of the associated reduction in family income, suggesting that even in the absence of UI spousal labor supply would not provide an effective source of insurance against income fluctuations due to unemployment. The response to UI income flows is much larger for families for whom the spell is relatively unanticipated, which is consistent with the notion that families who expect unemployment use mechanisms other than spousal labor supply to smooth consumption. The response is also much larger for families with small children, which is consistent with standard models of the allocation of time within the household.

The paper is divided into five sections. In Part I, we discuss the theoretical motivation for spousal labor supply as insurance and previous research on this question. In Part II, we describe our data and empirical strategy. In Part III, we estimate the effect of UI on spousal labor supply. Part IV presents the extensions. Part V concludes.

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1 Figures are tabulated from Survey of Income and Program Participation (SIPP) data for the years 1983–93 described below.

2 We explored the consequences of broadening this definition by considering the behavior of husbands who appear to be secondary earners according to observable characteristics of the couple. The implied effects of wives’ UI benefits during spells of unemployment on husbands’ labor supply were very similar to our measured effects of husbands’ UI benefits for our sample of wives. However, the sample of secondary-earner husbands was too small to yield precise estimates or to merit separate analysis.

3 We do not necessarily intend “crowdout” to be a pejorative term in this context. The welfare implications of crowdout are ambiguous, as spousal labor supply may be a very inefficient means of insuring family income during spells of unemployment.
I. Background on Spousal Labor Supply as Insurance

The theory underlying the notion of spousal labor supply as insurance against unemployment is developed in Ashenfelter (1980), Heckman and MaCurdy (1980), and Lundberg (1985). In a simple static model, there is presumed to be an “added worker effect” because the transitory reduction in family income will raise the labor supply of the wife (if her leisure is a normal good). This effect may be enhanced if increased nonmarket time for the husband lowers the opportunity cost of market work for the wife through substitution in home production, though the extent of complementarity or substitutability of spousal labor supply remains an unresolved question. As Heckman and MaCurdy highlight, the AWE should be comparatively small in the context of a life-cycle model with perfect capital markets, as long as the income loss from unemployment is small relative to the husband’s lifetime earnings. In this case, wives of husbands who face higher unemployment risk should increase their earnings at all times, not just while the husband is unemployed.

There are at least three reasons, however, why the event of unemployment might be expected to cause wives to work more. First, as noted above, the leisure of wives and husbands may be substitutable through home production. Second, as noted by Mincer (1962) and Lundberg (1985), families may be liquidity constrained or face fixed consumption commitments and be unable to smooth consumption over the husband’s unemployment spell. Finally, as Dynarski and Sheffrin (1987) demonstrate in their analysis of unemployment and consumption, even in a life-cycle model with perfect capital markets there will be behavioral responses to both job loss and reemployment if these events convey information about lifetime prospects.

There is a small literature that attempts to estimate the labor supply response of wives to their husbands’ unemployment. This empirical

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4 Kneisner (1976) suggests that the labor supply of spouses is complementary for older couples, but there is no more recent evidence of which we are aware.

5 One interesting question is why wives increase labor effort, as opposed to the husband taking a new job immediately. The answer implicit in the previous literature, and in our paper, is that there is some required period of search by the husband for a new job match. We do not model the husband’s search behavior or the duration of the spell but simply condition on separation. We do so because search behavior among the unemployed has been shown to be a function of UI generosity (e.g., Meyer 1990), so that it would be an endogenous regressor in our models of spousal labor supply.

6 No study of which we are aware considers the response of husbands to wives’ labor supply, although a number of papers do model joint family labor supply more generally; see Killingsworth and Heckman (1986) for a review.
work has generally been unable to document a significant AWE. The inability of previous studies to uncover an AWE may be due to the mixed success with which these studies address two important methodological problems. The first is that there may be underlying differences in the taste for work between wives of men who become unemployed and wives of men who do not. The bias imparted by this heterogeneity is not obvious, but if there is “ assortative mating” in tastes for work, then it will bias against finding an AWE in a cross section of data. The second is the “ discouraged worker effect” (DWE): if the husband’s unemployment is due to a general economic downturn, then the wife’s shadow wage may be falling as well, making her less likely to work. It is difficult to control for the specific correlation between the job prospects of husbands and wives using aggregate data on economic conditions, again biasing against finding an AWE.

A second possible reason for the lack of a measured AWE is that the key underlying behavioral parameter, the income effect on wives’ labor supply, may be quite small. Evidence on this point is mixed, as is discussed in detail in Killingsworth and Heckman (1986). A careful overview analysis by Mroz (1987) finds very small long-run income effects. If the income effect is small, there may simply be no AWE to measure, particularly if there is any complementarity between the leisure of husbands and wives.

Finally, both the previous theoretical and empirical literatures have ignored the potentially important role of UI. Since UI mitigates the income loss from unemployment, the UI program will have an effect on the spousal labor supply decision during the unemployment spell. Thus, there may be a qualitatively important income effect, but the AWE may to some extent be crowded out by UI. We estimate the effect of UI during the spell of unemployment and address whether crowdout from the public insurance program can explain the lack of an AWE.

II. Data and Empirical Strategy

A. Data

We use the 1984–88 and 1990–92 panels of the Survey of Income and Program Participation. The SIPP is a nationally representative survey that collects information from a large sample of households every 4 months over a period of 2–2½ years. The interviews that we use span the period

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7 See, e.g., Layard et al. (1980); Heckman and Macurdy (1980, 1982); Lundberg (1985); Maloney (1987, 1991); Cullen and Gruber (1996); and Spletzer (1997).

8 The aggregate literature on the AWE has generally concluded that the DWE dominates the AWE in economic downturns. See Mitchell (1979) for an attempt to distinguish between the two effects using aggregated microdata across areas.
from the middle of 1983 to the end of 1993. At each interview, households are asked questions about each month in the previous 4-month period. Data are collected on the demographic and economic characteristics of each household and household member.

Our sample consists of married couples in which both the husband and wife are between the ages of 25 and 54 and in the sample for at least two years. We impose the age restriction in order to avoid planned jobless spells for students or early retirees. We also restrict our sample to months after we observe at least 3 months of employment by the husband, since information on past earnings is necessary to assign potential UI benefits. We exclude unemployment spells from the analysis if the husband’s work history prior to the spell appears to make him ineligible for UI. Similarly, we exclude couples if the husband is always self-employed since he cannot avail himself of the UI system. And, last, we restrict our analysis to spells in which the husband is looking for work in at least some months, in order to focus on unemployment and not labor force leaving.

B. Regression Framework

In our empirical analysis, we relate the labor supply of wives of unemployed men to the UI benefits for which the husband is eligible. We run regressions of the form

$$LS_{it} = \alpha + \beta \text{UI}_{it} + \mathbf{X}_{it}\Omega + \delta_j + \gamma_s + \epsilon_{it},$$

where $LS_{it}$ is the labor supply of the wife of couple $i$ during spell $t$ and $\text{UI}_{it}$ is the level of benefits for which the husband of couple $i$ is eligible during spell $t$. The vector $\mathbf{X}_{it}$ is a set of economic and demographic variables that will be described below, and $\delta_j$ and $\gamma_s$ are year and state controls, respectively. If UI is crowding out a spousal response, then we would expect the coefficient $\beta$ to be negative.

Our unit of observation is a spell of the husband’s unemployment ($t$) for couple $i$. All consecutive months of unemployment are collapsed into a single observation, and our dependent variable is average spousal labor

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9 We include only couples that are married for the duration of the panel, thereby ignoring the endogeneity of marital status to either the unemployment of the husband or the generosity of UI. These are worthy topics for future analysis.

10 This left-censoring only excludes 9% of the observations in this age range. Note that these excluded months include all months for husbands who never work in 3 consecutive months, as well as initial months for husbands whose first 3 months of work come at some point during the SIPP panel.

11 We also exclude outlying observations with hourly wages below $1/hour and above $100/hour and with monthly hours of more than 400.
supply during the spell. The $t_i$ observations for each couple correspond to the husband’s $t_i$ spells of unemployment.

This spell-based approach is important for two reasons. First, there is likely to be significant correlation in the behavior of couples during a given spell, so that it would be inappropriate to treat monthly observations on labor supply during that spell as independent. Moreover, our independent variable of interest, potential UI benefits for which the husband is eligible, is constant throughout the spell so that there is only variation across spells. Second, by using one observation per spell, we do not “overweight” long spells. As noted above, previous empirical work suggests that the duration of spells is a function of UI generosity (e.g., Meyer 1990) so that using data on each month of unemployment would introduce selection bias by including more observations from cases where UI is disproportionately generous. By the same logic, we would like to avoid the over-weighting of short spells that would arise from including more observations for individuals who flow in and out of employment. We therefore weight each observation by the reciprocal of the number of spells for that couple, so that each couple’s weights sum to one.\(^\text{12}\)

We define spells of unemployment as jobless spells that contain at least one month when the husband is looking for work, beginning with the first full month he is without a job and ending with the first full month he is working and with a job.\(^\text{13}\) In doing so, we deviate from the usual definition of unemployment by excluding spells that include months where the husband is with a job but is on layoff (temporary layoffs). We exclude these spells both because wives may respond differently to temporary and permanent layoffs and because the unemployment of the husband may not be exogenous to the generosity of the UI regime. Feldstein (1978) and Topel (1983) find that the probability that an individual is laid off is a function of the generosity of UI benefits, although Anderson and Meyer (1994) find an inconsistent relationship between layoffs and benefits. This would be problematic for our approach if the wives of the men who are laid off when replacement rates rise have different tastes for work on the margin.\(^\text{14}\) Restricting the sample to unemployment spells that do not involve temporary layoff, we do not

\(^{12}\) An alternative, which deals with the intraspell correlation but not with the potential bias from endogenous duration, is to pursue the analysis using monthly observations on labor supply and to correct the standard errors for the correlation within spells. Doing so yields results that are similar to those reported below.

\(^{13}\) We exclude spells of less than 1 month from the analysis since it would be difficult to appropriately scale the spousal labor supply response for the share of the month unemployed. Also, many of the spells that last less than 1 month may be false transitions in the SIPP data.

\(^{14}\) For example, suppose that as UI rises the marginal job leavers have wives with particularly high distastes for work. Then the average labor supply response
find a significant correlation between UI benefits and the likelihood that a husband has a spell of unemployment during the SIPP panel. Our analysis is based on this sample for which selection cannot be driving the results.

Since there is no reliable measure of reason for separation in the SIPP, we focus on all job leavers rather than just job losers. This is unfortunate because spousal labor supply may respond very differently to a planned quit as opposed to a job loss. The issue is addressed to some extent by our exclusion of spells that do not result in job search. It is also addressed by our use of actual UI benefits received in some models. In these models we identify the impact on the population of interest since only job losers can receive UI.

Our key regressor for most of the analysis is the level of UI benefits for which the husband is potentially eligible. We measure potential benefits for our sample of husbands using their earnings prior to the spell of unemployment. To create this variable, we have built a simulation program that models each state’s UI system for the period 1983–93. The basis for this program is Employment and Training Administration (various years), which reports semiannual information on state benefit schedules. It was augmented by information from a number of states and from Levine (1990). Unemployment insurance benefits are a function of wages in the highest earnings quarter (called the “high quarter wage,” or HQW) in the “base period” (generally the first four of five quarters preceding the unemployment spell). Calculating benefits appropriately, therefore, requires at least five quarters of wage history, which is not available for most of our sample. Since we have at least one quarter of wage information, we use husband’s earnings in the quarter before his unemployment spell began as the HQW and four times that amount as the base period value. For the individuals in our sample for whom we have enough information to compute a true HQW, the correlation between potential benefits calculated using the true HQW and the measure calculated using to the husband’s unemployment will appear to be smaller where UI is more generous, even if there is not true crowdout.

15 More precisely, we estimated a probit model for all couples in which the dependent variable was an indicator for the husband having a spell of unemployment during the SIPP panel and the independent variables are as in equation (1). While the estimated coefficient on unemployment benefits was positive and significant for spells of temporary unemployment, it was wrong-signed (negative) and insignificant for permanent unemployment spells. Though we find that our basic results are similar for the sample of temporary unemployment spells, the results for that sample are difficult to interpret because of the potential bias through sample selection.
our simplifying assumption is 0.90. To be consistent, we use the approximate measure in all cases.

The vector $X$ is a set of demographic and economic control variables. The set includes the age and education of the husband and wife, the race of the wife, and the number of children aged 0–1, 2–5, and 6–18 years. We also include measures of the wife’s labor market opportunities since these may be important determinants of her labor supply decision. We include the unemployment rate and the average wage of women with the wife’s education level in that state at that point in time. These measures are computed at a 4-month frequency from the Current Population Survey’s Merged Outgoing Rotation Group data, the largest monthly employment microdata set available.

The vector $X$ also includes a number of (lagged) job characteristics of the husband’s job: industry, occupation, and a 14-piece spline in his quarterly earnings. The values of these job controls are based on the 3 months before a given spell begins and are held constant for the duration of the spell. As well as controlling for heterogeneity across couples, these variables are particularly important because the UI benefit for a given individual is a function of characteristics that might otherwise be correlated with his wife’s labor supply. For example, UI replacement rates fall with the husband’s wage (owing to the progressive nature of state benefit schedules), and the wife’s labor supply may fall as the husband’s

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16 In addition, individuals must have some minimum earnings during the base period, and in some states a certain distribution of earnings (e.g. a certain amount earned outside the high quarter), to qualify for benefits. We apply the state-specific rules for minimum earnings amounts to our estimated base period earnings, but we ignore the distribution rules. This results in 10% of the sample being coded as ineligible. Once again, for those who are in the survey more than 5 quarters preceding the spell, we can calculate eligibility exactly. The correlation between the two measures is 0.88. Unemployment insurance benefits were also tax subsidized before 1987 for low-income couples (those with family income below $18,000); we do not model this subsidy since family income is obviously endogenous to the labor supply decision of the spouse.

17 The spline points are at the 1st, 5th, 10th, 20th, ..., 90th, 95th, and 99th percentiles of the earnings distribution for the relevant sample under analysis. We deviate somewhat from previous labor supply literature by not including a predicted wage for the wife. All of the variables that we would use to form such a prediction are included in our specification, so that the predicted wage itself would be identified solely from assumptions in the prediction equation. Including a predicted wage as well has no effect on our basic results.

18 When we perform our specification check on couples where the husband is employed, we regress the wife’s average work effort during the husband’s employment spell on the average UI benefits for which the husband is potentially eligible during the spell. Thus, in these cases, we control for a spline in husband’s average lagged wage during the spell, as opposed to lagged wage at the start of the spell.
wage rises. Since we include the husband’s wage, as well as indicator variables for state of residence and calendar year, our model is identified only from higher order interactions of wage, state, and time, which are presumably legitimately excluded from the female labor supply equation. Our approach essentially compares the differential labor supply of wives of high and low-earning husbands across states that provide these earners with differing relative UI benefits.

We use two measures of wives’ labor supply: employment and the number of hours worked. Since we aggregate over spells of unemployment, our dependent variables are the share of months employed and average hours worked per month during the spell. Our total hours of work models that include zero and positive hours are estimated both by ordinary least squares (OLS) (which ignores the bunching of observations at zero) and as Tobits. Because the Tobit models the “latent” or “desired” hours decision, we translate the coefficients into the implied effect on observed hours of work. It is also of interest to separate the effect of UI on the wife’s decision to work and the number of hours conditional on work. We therefore estimate models of employment, by OLS, and of conditional hours of work, using a “Heckit”-type model (Heckman 1979) to account for selection into positive hours. We have no excluded instruments that separately identify selection, however, so that this model is identified solely from functional form assumptions.

C. Interpretation

There is an important issue of interpretation of the results from our analysis. Since our measure is potential benefits, the estimated parameter $\beta$ measures the spousal labor supply effect of raising UI generosity for the potentially eligible population. This is not the same as the husband receiving 1 more dollar of unemployment insurance. While we perform the analysis for husbands who are monetarily eligible for UI (they have sufficiently high past earnings), they may not meet the nonmonetary eligibility requirements (they may have quit their previous jobs). Moreover, even among the population of men that is eligible for UI, take-up of these benefits is much less than full, as has been documented by Blank and Card (1991). For our SIPP sample of unemployed husbands who appear

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19 The Tobit coefficient measures the marginal impact on desired hours. The implied effect on observed hours involves a simple transformation of this coefficient (see McDonald and Moffitt [1980] for a clear description).

20 We repeated the employment analysis using a dummy variable indicating whether the wife works at all during the spell as the dependent variable. This model, estimated either as a linear probability or a Probit model, yields very similar results to those presented for the share of months worked.
eligible for UI, 56% of the spells of unemployment are associated with UI receipt.

The question of how spousal labor supply responds to UI receipt cannot be answered by a direct regression of spousal labor supply on UI benefits received. The studies cited above consistently find that take-up of UI increases with the level of UI generosity, again leading to potential selection bias. Also, there is likely to be considerable measurement error in the SIPP data on UI benefits received.

There is a natural instrumental variable for benefits received, however: potential benefits. Potential benefits are clearly correlated with benefits received, and the working hypothesis of this paper is that potential benefits are uncorrelated with spousal labor supply other than through the effects of the UI system. In addition, while potential benefits are measured with noise as well, the instrumental variables strategy will correct the measurement error problem as long as the measurement error in our imputation is independent of that in reported benefit receipt. Thus, we estimate a system of equations of the form

\[
\begin{align*}
\text{BEN}_{it} &= \alpha_1 + \pi_1 \text{UI}_{it} + X_{it} \Omega_1 + \delta_{1t} + \gamma_{1i} + \epsilon_{1it} \\
\text{LS}_{it} &= \alpha_2 + \pi_2 \text{BEN}_{it} + X_{it} \Omega_2 + \delta_{2t} + \gamma_{2i} + \epsilon_{2it}
\end{align*}
\]

where BEN is the amount of unemployment insurance received by the husband in couple \(i\) (as opposed to UI which is benefits entitlement), and the other variables are defined above. Estimating this system by two-stage least squares (2SLS) yields the parameter coefficient of interest, \(\pi_2\), which is the effect of receiving another dollar of UI on spousal labor supply.

Both the reduced-form parameter from equation (1) (\(\beta\)) and the 2SLS parameter from equation (2) (\(\pi_2\)) are of interest. The former is most policy relevant, as argued by Gruber (1997), since government policy makers cannot directly control UI receipt but can control the level of potential benefits. The reduced-form parameter \(\beta\) measures the effect of raising UI generosity on the spousal labor supply of the potentially eligible population. On the other hand, \(\pi_2\) is the appropriate structural parameter for measuring how spousal labor supply responds directly to income received. In addition, \(\pi_2\) measures the effect on job losers (since only they can receive UI), mitigating the problem of having some quitters in our sample.

An important limitation of the 2SLS estimate \(\pi_2\), however, is that it might overstate the effect of UI receipt on spousal labor supply. There may be some “option value” of the program even for those couples where the husband does not take up benefits. If there is some fixed cost to taking up UI benefits, which is consistent with less than full take-up among
those eligible for the program, a newly unemployed husband may not take up UI until it appears that he will be jobless for a reasonably long time. However, the couple will account for the presence of UI in their choices, including the choice of labor supply by the wife. Since she knows that the couple can avail themselves of UI if necessary, the wife will work less than she would if this option were not available. In this case, \( \pi_2 \) will reflect the effect of benefits variation both on recipients and nonrecipients, leading to a likely upward bias to the estimate for recipients only. The sign and magnitude of this bias are explored further in the appendix.

In theory, this problem could be surmounted with a second instrument that could be used to model take-up of UI. We were unable to find such an instrument, however. It is worth noting that this is a general problem with the literature on social insurance programs; analysts either estimate the reduced form or 2SLS coefficients but are unable to measure the option value of these programs for those who do not take them up.

D. Means

The means of our data are presented in table 1. In the first column, we present the means for the spells of unemployment that satisfy the sample restrictions described above. In the second column, as a basis of comparison, we provide the means for spells of employment, defined as continuous months of work by the husband.

On average, wives of unemployed husbands work in 62% of the months in the SIPP data. Including those who work 0 hours, the average wife works slightly under 100 hours per month. Among those who work, the average amount of work per month is 149 hours, and average earnings per hour are $6.79. Comparing these findings to those for wives of employed husbands, there is only mixed support for an AWE. Wives are actually less likely to work when their husbands are unemployed, but conditional on working they work more hours; overall, there is only a small change in hours. Models in Cullen and Gruber (1996) that controlled for both heterogeneity and the DWE confirmed the absence of an AWE in these data. However, as noted earlier, the presence of the UI system may in part explain the absence of a measured AWE; husbands who are unemployed in this sample are eligible for $138 in UI benefits per week on average. The next section explores how this transitory income affects spousal labor supply during spells of unemployment.

III. Basic Results and Specification Check

A. Basic Results: Effects on Wives of Unemployed Husbands

The basic results for our UI reduced-form regressions based on equation (1) are presented in table 2. Our sample consists of one observation for each of the 2,560 spells of unemployment for which we calculate that
the husband is eligible for UI. In interpreting these results, it is important to keep in mind that we are measuring average labor supply per month, while potential (and actual) UI benefits are measured per week; on average there are 4.3 weeks per month.

21 Fourteen percent of our sample is repeat spells; correcting the standard errors for multiple observations on the same individual had little effect.
Table 2
Basic Results: Effect on Wives of Unemployed Husbands

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Hours</th>
<th>Employed</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS (1)</td>
<td>Tobit (2)</td>
<td>OLS (3)</td>
<td>Heckit (4)</td>
</tr>
<tr>
<td>Potential UI benefits</td>
<td>−.227</td>
<td>−.338</td>
<td>−.126</td>
<td>−.179</td>
</tr>
<tr>
<td></td>
<td>(0.090)</td>
<td>(0.132)</td>
<td>(0.051)</td>
<td>(0.097)</td>
</tr>
<tr>
<td>Effect on observed hours</td>
<td>−.246</td>
<td>−.246</td>
<td>−.246</td>
<td>−.246</td>
</tr>
<tr>
<td>Mean dependent variable</td>
<td>98.2</td>
<td>98.2</td>
<td>621</td>
<td>149.1</td>
</tr>
<tr>
<td>Implied effect at UI = 0</td>
<td>128.1</td>
<td>128.5</td>
<td>.788</td>
<td>172.6</td>
</tr>
<tr>
<td>Wife’s age</td>
<td>6.49</td>
<td>8.59</td>
<td>.029</td>
<td>3.71</td>
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<td></td>
<td>(3.09)</td>
<td>(4.54)</td>
<td>(0.181)</td>
<td>(3.00)</td>
</tr>
<tr>
<td>Wife’s age^2</td>
<td>−.090</td>
<td>−.121</td>
<td>−.0004</td>
<td>−.047</td>
</tr>
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<td></td>
<td>(0.040)</td>
<td>(0.059)</td>
<td>(0.002)</td>
<td>(0.040)</td>
</tr>
<tr>
<td>Husband’s age</td>
<td>.20</td>
<td>.87</td>
<td>−.006</td>
<td>1.12</td>
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<td>(4.49)</td>
<td>(0.017)</td>
<td>(2.74)</td>
</tr>
<tr>
<td>Husband’s age^2</td>
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<td>−.020</td>
<td>.00004</td>
<td>−.019</td>
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<td></td>
<td>(0.038)</td>
<td>(0.056)</td>
<td>(0.002)</td>
<td>(0.034)</td>
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<tr>
<td>Wife’s education:</td>
<td></td>
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</tr>
<tr>
<td>12 years</td>
<td>33.6</td>
<td>54.7</td>
<td>.196</td>
<td>16.0</td>
</tr>
<tr>
<td></td>
<td>(5.0)</td>
<td>(7.5)</td>
<td>(0.029)</td>
<td>(12.1)</td>
</tr>
<tr>
<td>13–15 years</td>
<td>36.5</td>
<td>57.8</td>
<td>.214</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td>(6.8)</td>
<td>(10.0)</td>
<td>(0.039)</td>
<td>(13.0)</td>
</tr>
<tr>
<td>16+ years</td>
<td>43.3</td>
<td>67.6</td>
<td>.241</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>(7.6)</td>
<td>(11.2)</td>
<td>(0.044)</td>
<td>(15.2)</td>
</tr>
<tr>
<td>Husband’s education:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12 years</td>
<td>1.4</td>
<td>.4</td>
<td>−.005</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td>(4.6)</td>
<td>(6.8)</td>
<td>(0.027)</td>
<td>(4.3)</td>
</tr>
<tr>
<td>13–15 years</td>
<td>8.8</td>
<td>11.5</td>
<td>.036</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>(5.7)</td>
<td>(8.3)</td>
<td>(0.033)</td>
<td>(5.2)</td>
</tr>
<tr>
<td>16+ years</td>
<td>9.4</td>
<td>9.5</td>
<td>.019</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>(6.9)</td>
<td>(10.1)</td>
<td>(0.039)</td>
<td>(5.7)</td>
</tr>
<tr>
<td>No. of children:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–1 years</td>
<td>−26.5</td>
<td>−41.0</td>
<td>−.153</td>
<td>−12.7</td>
</tr>
<tr>
<td></td>
<td>(4.7)</td>
<td>(7.1)</td>
<td>(0.027)</td>
<td>(8.9)</td>
</tr>
<tr>
<td>2–5 years</td>
<td>−18.2</td>
<td>−28.0</td>
<td>−.099</td>
<td>−9.6</td>
</tr>
<tr>
<td></td>
<td>(3.0)</td>
<td>(4.4)</td>
<td>(0.017)</td>
<td>(5.7)</td>
</tr>
<tr>
<td>6–18 years</td>
<td>−8.2</td>
<td>−12.2</td>
<td>−.035</td>
<td>−5.8</td>
</tr>
<tr>
<td></td>
<td>(1.6)</td>
<td>(2.4)</td>
<td>(0.009)</td>
<td>(2.4)</td>
</tr>
<tr>
<td>Wife white</td>
<td>−22.3</td>
<td>−32.6</td>
<td>−.122</td>
<td>−9.9</td>
</tr>
<tr>
<td></td>
<td>(4.7)</td>
<td>(6.8)</td>
<td>(0.027)</td>
<td>(6.9)</td>
</tr>
<tr>
<td>Female unemployment</td>
<td>25.9</td>
<td>37.1</td>
<td>.149</td>
<td>17.5</td>
</tr>
<tr>
<td></td>
<td>(6.4)</td>
<td>(9.4)</td>
<td>(0.067)</td>
<td>(5.5)</td>
</tr>
<tr>
<td>Average female wage</td>
<td>3.62</td>
<td>4.79</td>
<td>.015</td>
<td>2.66</td>
</tr>
<tr>
<td></td>
<td>(1.69)</td>
<td>(2.45)</td>
<td>(0.010)</td>
<td>(1.47)</td>
</tr>
<tr>
<td>Instrumental variables estimates:</td>
<td>Potential UI benefits</td>
<td>−.429</td>
<td>−.685</td>
<td>−.237</td>
</tr>
<tr>
<td></td>
<td>(1.81)</td>
<td>(2.94)</td>
<td>(1.03)</td>
<td>(2.49)</td>
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<tr>
<td>Effect on observed hours</td>
<td>−.499</td>
<td>−.499</td>
<td>−.499</td>
<td>−.499</td>
</tr>
<tr>
<td>No. of observations</td>
<td>2,560</td>
<td>2,560</td>
<td>2,560</td>
<td>1,667</td>
</tr>
</tbody>
</table>

**Note.**—The sample consists of unemployed spells from the SIPP that satisfy the restrictions described in the text. Each column presents the results from a specification based on a different dependent variable and method of estimation. The regressions also include a spline in husband’s quarterly earnings, indicators for husband’s industry and occupation, and state and year dummies. Column 1 presents OLS results for wife’s total hours. Column 2 presents Tobit results also for wife’s total hours, including the implied effect on observed hours. The next two columns break the response down according to the effect on employment and the effect on hours conditional on work. Column 3 presents OLS results for wife’s average share of months worked during the spell. Note that the coefficient on potential benefits is multiplied by 100. Column 4 presents Heckit results for hours worked conditional on working. The selection term, which is not reported, is positive but statistically insignificant. In all cases, observations are weighted by the reciprocal of the number of husband’s spells so that the weights sum to one for each couple. Standard errors, which are in parentheses, are corrected for unknown heteroskedasticity in both the reduced form and instrumental variables Heckit models to account for the two-step estimation process. The simultaneous equation Tobit model is also estimated using a two-step method, and the standard errors are calculated from Amemiya’s (1979) derivation of the asymptotic variance-covariance matrix.
As the first panel shows, there is a sizable significant effect of increases in UI generosity on spousal labor supply. According to the results from the linear regression of total hours, wives work 22.7 fewer hours for each $100 in potential benefits per week ($430 per month). The point estimate of the effect on observed hours is very similar though slightly larger from the Tobit specification. The results also suggest that UI crowds out wives’ labor supply both along the employment and hours of work margins. The employment coefficient implies that $100 in potential UI benefits per week would lower the probability that wives work by 12.6 percentage points. And the Heckit coefficient indicates that conditional on work the same level of potential benefits leads wives to work 17.9 fewer hours per month, although this estimate is not statistically significant.

The control variables generally have the expected signs. Wives of unemployed husbands who had been high earners are less likely to work; the implied income effect at mean husband earnings is \(-0.43\) for the linear total hours equation, which is much larger than the long-run estimates in Mroz (1987). Labor supply rises with the education of the wife. Employment and hours of work are much lower for those women with children, particularly young children. The control for average female wages is positive and (marginally) significant; the unemployment control is wrong-signed, but it is insignificant in all four cases.

One means of assessing the crowdout effect of the UI program is to predict what spousal labor supply would be in the absence of UI. Among the unemployed, the average wife works 98 hours per month. Our total-hours models predict that in the absence of UI she would work 128 hours per month (as shown in the fourth row of table 2). That is, hours of work would be roughly 30% higher during the husband’s spell of unemployment if there were no UI benefits. The nonemployment rate of wives with unemployed husbands would drop by almost 45%.

A natural question to ask within the AWE framework is how much of the loss in the husband’s earnings would be made up by increased spousal labor supply if there were no UI. For this calculation, we assume that wives who go to work or increase work effort earn the average hourly wage rate for current working wives of unemployed husbands. Under this assumption, our total-hours estimates imply that wives would make up only 13% of the husband’s lost earnings. While the crowdout is substantial, the replacement of lost earnings associated with eliminating UI is small because UI replaces only a small share of workers’ income and wives earn much less than their husbands. Thus, there are clearly other factors that stand in the way of a dollar-for-dollar AWE.

As noted above, from a behavioral perspective it is of more interest to examine the response of wives to the UI benefits actually received by their husband. An upper bound on this response can be estimated by the 2SLS system (eq. [2]). These results are presented in the bottom rows of table
2. We show only the estimated coefficient on benefits received in the four models, though the set of covariates includes all of the variables in the reduced-form specifications. The simultaneous equations Tobit model is estimated by the two-step method, and the standard errors are calculated from Amemiya’s (1979) derivation of the asymptotic variance-covariance matrix for this model.

As expected, the effect of UI receipt on the wife’s labor supply is much larger than the reduced-form effects of benefits eligibility. The OLS and Tobit total-hours estimates indicate that for each dollar of UI received per week wives work .43 and .50 fewer hours per month, respectively. Once again, there are effects on both employment and hours conditional on employment; wives are 0.24 percentage points less likely to work for each dollar of UI received per week, and they work 0.42 fewer hours conditional on participation (although again this last estimate is not statistically significant).

These results allow us to calculate the direct financial crowdout of UI: for each dollar received by the family, how much less does the wife earn? Making our average earnings assumption, our total hours estimates show that wives earn 67 to 73 cents less for each dollar of UI received.\(^2\) Recall that this is an upper bound on the extent of crowdout because of the option value argument described above. The true amount of crowdout lies between 36 cents (from our reduced-form estimates) and these instrumental variables estimates. Both cases suggest a critical crowdout role for UI.

These estimates also imply quite a large income effect for spouses of unemployed husbands. At the average nonwife monthly income during unemployment spells ($903), the implied income elasticity of labor supply for wives is between $-0.49$ (lower bound from reduced form) and $-1.07$ (upper bound from 2SLS system). Both of these estimates are much larger than the elasticities estimated by Mroz (1987); they are at the upper end of the range of elasticities surveyed by Killingsworth and Heckman (1986). This may reflect that fact that couples are liquidity constrained during periods of unemployment, a point to which we return below.\(^3\)

The effect of UI on secondary earners can be compared to the effect on

\(^2\) One means of assessing the validity of our average earnings assumption is to use earnings per month in place of hours per month as the dependent variable. Linear and Tobit earnings models yield crowdout estimates of 61%–68%, which are quite close to our approximations.

\(^3\) These estimates are also well above the elasticities implied by the coefficients on lagged husband’s income in our regressions. There are two reasons for this finding; first, this is lagged and not contemporaneous income, so that the interactions between income and liquidity constraints is not present as it is with UI; second, this income measure is not instrumented and is therefore potentially biased downward by measurement error.
unemployment duration found in the literature. The most widely cited evidence is Meyer’s (1990) study, which estimated an elasticity of unemployment duration with respect to benefit receipt of 0.8. This suggests that raising benefits by 10% would raise spell duration by 1.7 weeks from the sample mean of 21.6 weeks; at 40 hours per week, this is a reduction in hours worked of 68 hours. Our estimates of spousal labor supply imply that this same increase in benefits received per week ($14 per week) would lower total spousal hours per week during the spell by 1.4 to 1.6 hours, for a total reduction of 30–34 hours. That is, the reduction in spousal hours from the UI benefits increase is over 40% as large as the reduction in the hours of work due to the duration response. The income effect on the labor supply of secondary earners is therefore clearly an important one relative to the duration impact on unemployed husbands.

B. Specification Check: Effects on Wives of Employed Husbands

Our results thus far have assumed that, conditional on our controls and sample selection criteria, we are measuring a causal effect of UI on spousal labor supply through changes in the income of the husband. This may not be true for at least two reasons. First, UI benefit differences may not be exogenous to the labor supply of wives, even after conditioning on our rich set of controls for individual characteristics and labor market conditions. For example, it is possible that UI benefit setting responds to changes in the taste for work within states over time in a manner that is not captured by our control set. Second, own potential UI benefits may have a direct effect on the labor supply of wives, beyond the indirect effect through their husbands’ benefits. For example, if own UI generosity increases induce job separations for wives, then there would be a spurious (from our perspective) negative correlation between UI benefits and spousal labor supply. An alternative view, promoted by Mortensen (1977) and empirically supported by Hamermesh (1979), is that there is a UI “entitlement” effect, whereby increases in UI generosity increase the labor supply of workers who want to qualify for this generous benefit; this would bias against our findings.

Both of these arguments suggest that our estimated effect may be biased by omitted variables. One way to test for their importance is to examine the effect of UI on a control group for whom these spurious effects will operate but our crowdout effect will not: wives of employed husbands.

24 Note that this sample mean is large relative to a sample of all unemployment spells, since we have excluded temporary layoffs; but the comparison of the effect on the wife to the effect on the husband is independent of the sample mean for spell duration.

25 This view, of course, presumes that compensating wage differentials do not offset any increases in potential UI benefits from increased work effort.
UI and Spousal Labor Supply

Table 3
Specification Check: Labor Supply of Wives of Employed Husbands

<table>
<thead>
<tr>
<th></th>
<th>Hours OLS (1)</th>
<th>Hours Tobit (2)</th>
<th>Employed OLS (3)</th>
<th>Hours Heckit (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential UI benefits</td>
<td>-.052</td>
<td>-.058</td>
<td>-.014</td>
<td>-.049</td>
</tr>
<tr>
<td></td>
<td>(.025)</td>
<td>(.033)</td>
<td>(.014)</td>
<td>(.025)</td>
</tr>
<tr>
<td>No. of observations</td>
<td>30,056</td>
<td>30,056</td>
<td>30,056</td>
<td>22,153</td>
</tr>
</tbody>
</table>

Note.—Each column presents the estimated coefficient on potential UI benefits from the specification in the corresponding column in Table 2. All models include the covariates listed in Table 2, as well as a spline in husband’s quarterly earnings, dummies for husband’s industry and occupation, and state and year dummies. The sample consists of all spells of continuous employment for husbands who satisfy the sample selection criteria described in the text. Each observation is weighted by the reciprocal of the number of spells for a couple so that each couple’s weights sum to one. The implied effect on observed hours is shown in brackets for the Tobit specification. The coefficient for the employment specification in column 3 is multiplied by 100. Standard errors are in parentheses, and the Heckit standard error is corrected for unspecified heteroskedasticity using White’s (1984) generalized method to account for the two-step estimation process.

Since these husbands are not receiving UI, there should be little income effect on their wives. But, if UI is correlated with spousal labor supply through these other (spurious) channels, then there will be an important effect on these wives’ work decisions.

Table 3 estimates our reduced-form equations for spells of employment of the husband. We report the coefficient of interest from regressions that include all of the other regressors in Table 2. The results indicate that there is only a small effect of potential UI on the wives of employed husbands: each $100 in UI benefits per week lowers hours of work by 5.2 per month according to the linear model and by 4.7 according to the Tobit model. The effect on propensity to work is insignificant. These effects are statistically significantly different from the comparable effects on the wives of the unemployed, and the small measured response may reflect long-run labor supply decisions that incorporate husbands’ potential UI benefits. However, to the extent that the labor supply effects arise from other channels, the results for wives of the employed may imply that the reduced-form estimates from the previous section overstate the true impact of husbands’ potential UI benefits. In the context of the instrumental variables models, the small possible negative correlation between the instrument and the error term may be another reason to suspect that the estimates of the spousal labor response to benefit receipt are biased upward.27

26 There may be some effect if there is a life-cycle response to UI. This would be reflected in the labor supply of wives of employed husbands who face a high risk of unemployment. This effect will be small on average in our sample. See Cullen and Gruber (1996) for a further discussion.

27 The more that benefit generosity is correlated with other factors that affect
IV. Extensions
A. Liquidity Constraints

Relative to relying on capital markets, spousal labor supply is a potentially inefficient means of smoothing consumption over unemployment spells. In a life-cycle model with perfect capital markets, as long as there are adjustment costs to using spousal labor supply as insurance (e.g., fixed costs of work), the family would rely instead on saving and borrowing to smooth income across spells of unemployment. Thus, the fact that spousal labor supply is so sensitive to UI flows suggests that unemployed families are liquidity constrained to some degree during these spells.

One way to explore the possibility that the large estimated income sensitivity may arise from liquidity constraints is to interact UI with direct indicators of the ability of couples to smooth their consumption, such as accumulated assets. However, this type of analysis is inherently difficult since the choice of asset levels and labor supply should be modeled simultaneously. A further difficulty is that there is evidence that asset accumulation is endogenous to the generosity of UI (e.g., Engen and Gruber 1995). As an initial attempt to compare the responsiveness of couples with differing levels of assets, we split our sample of unemployment spells according to the age of the couple. Younger couples, in which both spouses are under 40 years of age, are less likely than older couples to have accumulated sufficient savings to smooth consumption over the spell. For these families, there should be a relatively stronger effect on spousal work during the unemployment spell if there are capital market imperfections impeding the use of borrowing as a smoothing mechanism.

The top panel of table 4 presents the results from estimating our basic reduced-form specification separately for younger and older couples. In all four columns the point estimates of the spousal labor supply response to potential UI benefits are larger for the younger couples. The estimates are fairly imprecise, though, and the two sets of coefficients are not statistically significantly different from one another.

In a more convincing test, we examine whether the effect of UI on spousal labor supply varies with the extent to which families anticipate the unemployment spell. Families for which a spell is very likely will be able to save to smooth consumption, reducing the need for spousal labor supply as a smoothing mechanism. If spells are fully anticipated, then UI

wives’ labor supply and the less it is correlated with unemployed husbands’ benefit receipt, the more misleading are the 2SLS estimates.

28 For example, in the model of Heckman and MaCurdy (1980), spousal labor supply does not rise during unemployment spells. Instead, wives of husbands facing higher unemployment risk work more at all times, and the family saves and borrows to smooth consumption over spells of unemployment and employment.
is simply an expected income flow and will be fully offset by savings decisions, with no need to borrow during the spell. Therefore, we would expect to observe greater sensitivity of wives’ labor supply to UI among families for which the spell is a surprise and savings are insufficient.

In order to test this implication, we split our sample of unemployment spells according to unemployment risk. Because we do not have a couple-specific indicator of the extent to which a given spell is anticipated, we first estimate a regression model of the likelihood that a husband has a spell of unemployment over the duration of the SIPP panel as a function of his initial job characteristics. We then apply these coefficients to our sample to form a predicted risk measure. We split the sample of unem-

29 The regression model includes the usual set of covariates from our basic regressions (except for UI benefits), along with interactions of our industry and...
ployed spells into those who are above the 75th percentile of the predicted risk distribution (who may be anticipating their spells) and those who are below the 25th percentile (for whom spells are more of a surprise). The results of this analysis are shown in the bottom panel of table 4. The total hours, employment, and conditional hours estimates all show a larger effect of potential UI benefits for the population that is unlikely to have a spell. Indeed, the point estimates are very close to zero for those couples where the husband’s predicted risk is above the 75th percentile. While the two sets of coefficients are again not statistically significantly different, the results are consistent with a differentially large response of spousal labor supply among those who were less able to anticipate their spells and to smooth consumption through own savings.

B. Presence of Young Children

A critical element in labor supply decision making for couples is family structure. In particular, the presence of young children may have an important effect on the responses of wives to the income flows from UI. As discussed in Killingsworth and Heckman (1986), it is likely that wives will respond more to the state-contingent stream of UI income if there are small children present.

In the context of a simple static model of the allocation of time, the income elasticity of labor supply of wives rises with their value in home production and falls with their net wage. If women are in charge of child care, their value in home production will be highest when there are small children in the household. And the presence of children means that the wife’s work will require the purchase of child care, lowering her net wage. Thus, a prediction of this model is that the elasticity of response to occupation indicators to increase the precision of our prediction. Our second-stage regression then includes these interactions as well.

Consider a family consisting of two persons, $m$ and $f$, with utility $U = Z$, where $Z$ is a consumption good produced according to the production function $Z = L_a^a L_m^b C^{1-a}$, $L_i$ is the hours of leisure of family member $i$, and $C$ is a consumer good. The family maximizes their utility subject to $C = R + w_m H_m + w_f H_f$, where $R$ is exogenous income, $w_i$ is the net hourly wage for person $i$, and $H_i = T - L_i$ is hours of work ($T$ is total time available). Differentiating the first-order condition for family member $f$ with respect to nonwage income $R$, one obtains $\delta L_f/\delta R = a/w_f$. So the response of the wife’s leisure (and thus her labor supply) to income changes will rise with $a$, her relative value in home production, and fall with $w_f$, her net hourly wage. It is important to emphasize that the level of labor supply falls with $a$, which is consistent with the large and significant negative coefficients on the presence of small children in table 2. But, conditional on a given level of labor supply, the elasticity of labor supply rises with $a$. 

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income flows during unemployment will be highest when there are small children present.\footnote{This prediction is also consistent with richer models of household allocation. For example, having children in the household may increase the responsiveness of labor supply to family income because family consumption is less flexible with respect to variations in income (due to the fixed consumption needs that are tied to children), so that leisure must be more flexible (Mincer 1962).}

In table 5, we assess how the effect of UI varies with the presence of children by including an interaction between potential benefits and an indicator for whether there is a child less than 6 in the household. In fact, there is a much stronger crowdout effect of UI in households with a small child. According to the linear and nonlinear total hours equations for households without a small child, each $100 in potential UI income per week results in 16.2 to 18.3 fewer hours of work per month. For those with a small child, each $100 results in 33.7 to 36.9 fewer hours, an effect that is over 50\% larger. In fact, the main effect of having a young child present is zero, which suggests that families with small children in which the head is unemployed appear no longer able to substitute the home production of the wife for lower consumption by the family. Thus, our findings are consistent with the notion that income variations are a more

\begin{table}
\centering
\caption{Extension: Effects of Having a Young Child Present}
\begin{tabular}{lcccc}
\hline
 & \text{Hours} & \text{Hours} & \text{Employed} & \text{Hours} \\
 & OLS & Tobit & OLS & Heckit \\
\hline
Potential UI benefits & -.162 & -.251 & -.098 & -.159 \\
 & (.094) & (.138) & (.054) & (.091) \\
\hline
Child < 6 years old & \ldots & \ldots & \ldots & \ldots \\
 & -2.6 & -4.6 & -0.41 & 1.6 \\
 & (10.1) & (14.9) & (.058) & (8.9) \\
\hline
UI benefits \times child < 6 years & \ldots & \ldots & \ldots & \ldots \\
 & -.175 & -.255 & -0.77 & -1.29 \\
 & (.068) & (.101) & (.039) & (.078) \\
\hline
No. of observations & 2,560 & 2,560 & 2,560 & 1,667 \\
\hline
\end{tabular}
\begin{flushleft}
\text{NOTE.—Each column presents the estimated coefficient on potential UI benefits from the specification in the corresponding column in table 2. All models include the covariates listed in table 2, as well as a spline in husband’s quarterly earnings, dummies for husband’s industry and occupation, and state and year dummies. The sample consists of spells of unemployment that satisfy the sample restrictions described in the text. Each observation is weighted by the reciprocal of the number of spells for a couple so that each couple’s weights sum to one. The implied effect on observed hours is shown in brackets for the Tobit specification. Note that the coefficient on potential UI benefits and the interaction between benefits and the indicator for having a young child present are both multiplied by 100 for the employment specification in col. 3. Standard errors are in parentheses, and the Heckit standard error is corrected for unspecified heteroskedasticity using White’s (1984) generalized method to account for the two-step estimation process.}
\end{flushleft}
\end{table}
important determinant of women’s labor supply when there are small children present.  

V. Conclusions

In the absence of private financial markets for insuring unemployment, a natural presumption is that other forms of insurance will arise to smooth the family’s consumption over this adverse shock. One source of such insurance is spousal labor supply. This family self-insurance may to some extent be crowded out by the state-contingent income stream provided by public insurance against unemployment. Our results demonstrate that this crowdout is quite sizable in practice; the estimates imply wives of unemployed husbands would work 30% more hours if there were no UI income. This finding points out a limitation in the previous work on labor supply effects of the UI system, which has focused solely on the unemployed worker. Our results indicate that the effect on secondary earners from UI benefits variation may be quite important, at least in terms of total hours of work.

Our findings also suggest one reason that previous work has had a difficult time uncovering an added worker effect in response to a spell of joblessness. Nevertheless, while we find a sizable crowdout, our estimates also suggest that in the absence of UI there would still be a large reduction in family income from the unemployment of the husband. Thus, spousal labor supply only provides at best partial insurance against the income risk from unemployment. This partial insurance may be due to the other forces counteracting the AWE, such as the DWE. Alternatively, it may simply reflect the fact that given the relatively low earnings of wives compared to their husbands, it is difficult to use this mechanism to substantially replace the reduction in family income from the husband’s unemployment.

Our estimated response to UI is quite large; the income effects implied by our results are much larger than those estimated in much of the previous literature on female labor supply. This large estimated income sensitivity may arise from the fact that households are liquidity constrained and have fixed consumption needs during unemployment spells. This would be consistent with our finding that the response of spousal labor supply to UI is larger for younger couples, for less predictable spells, and for couples with small children. This evidence is also consistent with the evidence in Gruber (1997), who...
insuring not only short-run income risk but also permanent changes in earnings prospects.

Appendix

Option Value and Bias to the Two-Stage Least Squares Estimate

In this appendix we explore the potential bias to the 2SLS estimate of the labor supply impact of UI arising from an option value effect. We do so within the framework of a simple two observation example, which allows us to compute the 2SLS estimate as a Wald estimator, or a ratio of the reduced-form and first-stage effects (Angrist 1990).

In this simplified example, spousal labor supply is modeled by

\[ LS = K + \beta \alpha \beta * \alpha + \beta * (1 - \alpha) * \alpha * UI, \]  

where

- \( LS \) is a wife’s labor supply;
- \( K \) is a constant;
- \( \beta \) is the true labor supply effect of UI receipt;
- \( \alpha \) is the fraction of unemployed husbands receiving UI;
- UI is potential benefits; and
- \( x \) is the option value of benefits (0 < x < 1).

The first term is some constant that is independent of the UI system. The second is the effect of UI on recipients, and the third is the effect on nonrecipients, which is nonzero only if there is some option value.

Differentiating this equation with respect to potential benefits yields

\[ \partial LS/\partial UI = \beta \partial \alpha/\partial UI * UI * (1 - x) + \alpha + (1 - \alpha) x, \]  

where \( \partial \alpha/\partial UI \) is the marginal take-up effect of increases in potential benefits.

We can compute the 2SLS coefficient of interest as \( (\partial LS/\partial UI)/(\partial BEN/\partial UI) \), where BEN is benefits received, which is determined according to

\[ BEN = \alpha * UI, \]  

so that

\[ \partial BEN/\partial UI = \partial \alpha/\partial UI * UI + \alpha. \]  

Combining these equations, we obtain a 2SLS coefficient of

finds a significant but small consumption smoothing effect of UI: each $1 of increased UI benefits leads approximately to a 27 cent consumption increase.
The second term is the bias to our parameter of interest, $\beta$. The sign of the bias is indeterminate. If $x = 0$, $\beta^{2SLS} = \beta$; there is no bias if there is no optional value, and the 2SLS estimate is appropriate. If $x > 0$ and $\partial\alpha/\partial\text{UI} = 0$ (there is no marginal take-up effect), then the bias is clearly upward. If $\partial\alpha/\partial\text{UI} > 0$ as well, the bias is indeterminate, but will be upward except when $\partial\alpha/\partial\text{UI}$ is very large.

Given the SIPP data available, we can compute the parameters that enter into equation (A5) except for $x$ (the unobserved option value). At the sample mean, UI is 138, $\alpha$ is .444, and $\partial\alpha/\partial\text{UI}$ is 0.0006.\(^{34}\) For these values, equation (A5) yields

$$\beta^{2SLS} = \beta^*[0.055^*(1 - x) + 0.444 + 0.556^*x]/[0.055 + 0.444] > \beta.$$  

(A6)

This expression is always greater than $\beta$, indicating that the bias is clearly upward in this case. For an option value of 0.2 (being eligible for $100 is equivalent to receiving $20 of UI), for example, there is an upward bias of 20% to the 2SLS estimate.

References


Cullen, Julie Berry, and Gruber, Jonathan. “Spousal Labor Supply as Insurance: Does Unemployment Insurance Crowd out the Added

\(^{34}\) The quantity $\alpha$ is computed by simply taking the sample mean of benefits received divided by benefit entitlement for the treatment group; this ratio is set to one for the few outlying observations that report more UI benefits than potential entitlement. The partial derivative $\partial\alpha/\partial\text{UI}$ is simply the first-stage coefficient on potential benefits from equation (2) in the body of the paper, minus $\alpha$, divided by the mean of potential benefits.
Mincer, Jacob. “Labor Force Participation of Married Women: A Study


