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HEALTH INSURANCE AND LABOR MARKET OUTCOMES:

JOINT DECISION-MAKING WITHIN HOUSEHOLDS

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I. INTRODUCTION

In the United States, approximately 64% of non-elderly Americans obtain their health insurance through an employer (www.statehealthfacts.kff.org, 2004). Employer group insurance is generally less costly, is often simultaneously more generous than private insurance obtained in the non-group market, and enjoys a tax advantage relative to insurance not purchased through an employer. However, these advantages may well be offset by some less obvious welfare losses resulting from the link between access to health insurance and employment if labor market decisions are influenced by the access to health insurance that some jobs convey. In this study, we ask how an individual's labor market choices are affected by the link between employment and health insurance.

One way of gaining access to employer insurance when it is not available through an individual's own job, or when he or she is not employed, is through a working spouse. In an earlier study we found that having two earners in a household substantially mitigates the negative effect on access to health insurance of workers in part-time jobs, workers in small establishments, and self-employed workers (Abraham and Royalty (2005)). In our sample, 43% of wives whose husbands were not offered employer insurance were offered insurance. Among wives without own employer insurance, 65% had husbands who were eligible for insurance at the workplace. Knowing that a large proportion of married adults who do not have their own access to coverage have access through a working spouse does not tell us, however, whether this is merely fortuitous or whether these couples have sorted themselves systematically into such arrangements.[1]

Knowing the extent to which labor market outcomes depend on each partner's

[1] Monheit and Vistnes (1999) present evidence that single workers sort themselves into jobs with and without access to employer health insurance depending on their demand for health insurance, suggesting

access to coverage is critical to answering many current policy questions. For example, if couples sort themselves into jobs with and without health insurance, it will affect the demand for insurance by workers and therefore the likely effectiveness of policies designed to increase insurance coverage by encouraging employers to offer insurance in jobs where they have not done so historically. Understanding these joint decisions will also help us to identify how much health insurance drives other labor market decisions when access to health insurance depends on the choice made. If workers are locked into full-time jobs or choose to join the labor force because of employer health insurance, our system of employer-based insurance may produce large welfare losses.

We investigate how one spouse having access to employer insurance influences the probability that the other spouse also will be offered employer insurance. We then look at the effect of having access to health insurance through a spouse on decisions about hours of work. The innovation of the paper is to allow the health insurance of both spouses to be endogenous, controlling for bias due to assortative mating or income effects by looking at a second fringe benefit, paid sick leave. This allows us to examine how much behavior changes as married couples take advantage of the flexibility provided by being eligible for one another's health insurance and, conversely, by how much labor market outcomes may be distorted by having health insurance tied to employment when no other access to insurance is available.

II. Institutional Background and Hypotheses

We hypothesize that the probability a married person is offered employer insurance is inversely related to whether or not his or her spouse is offered employer

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that married couples are likely to sort themselves into jobs in ways that depend on a spouse's health insurance.

coverage. Because access to own employer insurance is highly correlated with hours of work, we also expect that working full-time (35 hours/week or more) and working more than half time (20hours/week or more) will be negatively associated with the spouse being offered employer insurance.

The predicted relationship between the health insurance offers of two spouses arises as a consequence of institutional features of the employer-based health insurance system. The key institutional feature is that of employers that offer health insurance, most offer family coverage.[2] A married worker who is offered insurance is able to cover a spouse and any children: having health insurance offers through the employers of both spouses is redundant with respect to *access* to coverage.

A second key fact is that offering health insurance is costly to employers. Employers incur costs associated with administering a health plan, including human resources staffing and the development of information materials. Most firms also incur direct premium costs by paying some portion of an employee's premium.[3] Employer costs also can vary with certain job characteristics. For example, the fixed costs of provision make it more expensive to provide health insurance for part-time workers.

Some workers have a preference for job characteristics that are associated with lower insurance offer rates such as fewer hours of work than the threshold associated with insurance eligibility. Workers with such preferences must make some tradeoff between having access to insurance through their employer and these job characteristics. And, of course, deciding not to participate in the labor force assures that a person will not

[2]The 2001 Medical Expenditure Panel Survey (MEPS) Insurance Component shows that less than 2% of workers in establishments offering insurance were not offered a family coverage option (Sommers, 2003).

have access to own employer coverage.[4]

These observations suggest that there should be a negative relationship between the employer health insurance offers of husbands and wives. To the extent that health insurance can be traded off for higher wages or other job characteristics such as part-time work that are negatively associated with health insurance, workers eligible for insurance through a spouse will maximize household utility by choosing jobs without employer insurance. Similarly, individuals on the margin of labor force participation may decide against employment if access to insurance is available through a spouse. Thus we hypothesize that, all else equal, the probability that a worker is offered employer insurance and the probability of working enough hours to be eligible for insurance is inversely related to whether or not the spouse is offered employer insurance.

In its most extreme form, this hypothesis would suggest that spouses should never both have an offer of employer insurance—they would always make the kinds of tradeoffs described above and would therefore never choose to both have employer health insurance offers. However, there are many factors likely to blunt observed job choice behavior relative to this most extreme conclusion. For example, it is important to note that although two offers of health insurance may be redundant with respect to the family's *access* to insurance, both spouses *holding* insurance, conditional on both having offers, may nonetheless be optimal in some cases, since some employers subsidize single premiums at a higher rate than family premiums. We abstract from this point in order to

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[3] Employers often have to subsidize premiums in order to obtain high enough participation rates to satisfy insurer requirements. In 2003, only 3% of employers contributed less than 50% toward the total premium for single coverage and 14% contributed less than 50% for family coverage (www.kff.org, 2004).

[4] Individuals have the option to seek health care coverage through non-employment sources, such as a policy in the non-group market or enrollment in public insurance if they qualify. In this paper, we analyze only access to insurance through an employer.

concentrate on the access to coverage represented by being offered employer insurance either through one's own employer or through a working spouse.[5]

Furthermore, we assume that workers cannot sort themselves perfectly along all dimensions of a compensation package or in terms of all job characteristics. There are institutional features of the labor market and the insurance market that prevent firms from offering a continuum of job packages along these dimensions, preventing perfect sorting. This imperfect sorting is another factor that will soften our hypothesis relative to the extreme case. Therefore, our hypothesis is that having access to employer insurance through a working spouse will lower the probability that a person is offered his or her own insurance. Labor market outcomes, such as the probability of full-time work, will be affected by a spouse's insurance in an analogous manner since they are associated with a greater likelihood of health insurance eligibility.

III. Econometric Approach

The issues that have arisen in previous work on related questions will make clear the problems that will have to be solved in order to obtain unbiased estimates. We first outline these problems and then present our solution.

Some analyses have assumed that some labor force decision is influenced by a spouse's employer insurance, assuming that the spouse's insurance is exogenous and using that assumption to identify the labor market effect of insurance. For example, a number of studies have focused on women's labor supply (Buchmueller and Valletta

[5] For discussions of double coverage by two-earner couples, see Monheit et. al. (1999), Marquis and Kapur (2004), and Abraham et al. (2005). We also ignore other differences in the generosity of benefits, such as what types of health plans are offered and the coverage provisions of those plans in order to concentrate only on access to health insurance. The same inverse relationship would be predicted to hold, however, with respect to spousal tradeoffs in generosity of employer insurance as those that we describe in access to employer insurance.

(1998), Olson (1998), Wellington and Cobb-Clark (2000), Schone and Vistnes (2001), and Bhargavan (2000)). Work on women's labor supply such as Buchmueller and Valletta (1998) assumes that a wife's decision to work and hours of work are sensitive to whether or not her husband has health insurance, since she is more likely to be offered insurance if she works full-time. These studies consistently find significant negative effects of husband's health insurance on wife's labor supply; however, these effects are identified by assuming that the husband's health insurance is exogenous.[6]

As Currie and Madrian (1999) point out, the assumption of exogeneity "is clearly problematic if husbands and wives make joint labor supply and job choice decisions." Schone and Vistnes (2001) attempt to account for the endogeneity of husband's health insurance by instrumenting for his insurance using husband's employment characteristics. Although job characteristics such as hours of work and establishment size are good predictors of insurance status, these may be the very job attributes that change as workers adjust in order to obtain health insurance if a spouse chooses a job without coverage. We want to allow for the endogeneity of all types of job choices. Under the hypothesis of joint job choice, the spouse's job characteristics that are correlated with his or her own insurance will be correlated with the worker's own probability of having insurance, and therefore the spouse's job characteristics are not appropriate instruments.

A second approach is to instrument spouse's health insurance with spouse's human capital characteristics (Olson (2000); Honig and Dushi (2005)). The rationale for this strategy is that factors such as spouse's age and education will affect the spouse's health insurance offer but not the worker's own offer. While a worker's age and

[6]A related literature stream focuses on the impact of health insurance access on job turnover. See Gruber and Madrian (2002) for a comprehensive review.

education are good predictors of having an insurance offer and should eliminate the endogeneity bias induced by spouses' strategic coordinating behavior, we argue that there are at least two reasons to think that these spousal characteristics could be correlated with the unobservable determinants of the worker's own insurance, making the IV procedure by itself insufficient to produce unbiased estimates of the behavioral effect of interest.

First, positive assortative mating on observable characteristics such as education is well-documented (Mare (1991), Pencavel (1998)). Given the strong positive association of spouses' observable characteristics, it is likely that any unobservable individual-specific factors that affect whether or not the worker is offered insurance are correlated with the spouse's personal characteristics. For example, if high ability workers are both more likely to have an offer of employer insurance and more likely to be married to workers with high levels of human capital, then the spouse's characteristics may simply pick up the unobserved own ability variable**.** This would produce an upward bias on IV estimates of the spouse's health insurance effect.

On the other hand, labor market models predict that many labor market outcomes will depend on household income. If our measures of household income are imperfect, which we think is possible, then the spouse's characteristics may be correlated with unobservables that affect own outcomes via an income effect. This would produce a downward bias on IV estimates that use spouse characteristics as instruments.[7]

More formally, consider the following equation for wife's health insurance:

$$H_{iw} = X_{iw}'\beta_w + \gamma_w' H_{ih} + \mu_{iw} + u_{iw} \quad (1)$$

where i subscripts the household, h subscripts husbands, and w subscripts wives. H_{ih} and

H_{iw} are binary indicators representing whether a husband and wife have employer health insurance offers respectively. X represents personal characteristics, β and γ are parameters, μ represents unobservable person- or household-specific effects such as ability, income, or tastes for work that influence whether an individual is offered insurance, and u is an error term. We are most interested in γ, the coefficient on husband's health insurance. The challenge is that H_h is endogenous and that our best instruments, husband's age and education, are thought to be correlated with μ_w. While an IV procedure using age and education as instruments should take care of any correlation between husband's health insurance and u_w, the IV estimator will be inconsistent because of the presence of μ_w and its correlation with the instruments.[8] The size of the bias will depend on the degree of correlation between husband's characteristics and unobserved attributes of the wife, such as ability or income, that affect her propensity to have a health insurance offer.

Our solution to this problem requires two steps. First, we instrument spouse's health insurance with spouse's characteristics as described above. This takes care of the simultaneity bias caused by joint decisions regarding health insurance. Second, we use data on whether husbands and wives have paid sick leave, a fringe benefit that should not depend in a causal way on spouse's health insurance, but, we argue, does depend on the

[7]Buchmueller and Valletta (1998) address these issues in a different way in their study of women's labor force participation but without allowing husband's insurance to be endogenous.

[8] We tested for the exogeneity of spouse's age and education by estimating a model of the effect of wife's insurance offer on husband's offer and the effect of husband's offer on wife's offer. Using a measure of race and quadratics in age and education of the spouse as instruments for spouse's health insurance implies that the model is overidentified. However, the model fails the overidentification test. The test statistics for overidentifying restrictions were 26.99 and 13.64 for the wife's and husband's equations respectively. The Chi-Square critical value is 9.49 for $p<.05$. Since the rationale for all of the instruments is the same (that spouse's characteristics do not belong in the worker's own equation), we conclude that these instruments

same types of unobservables as those that affect the own health insurance benefit. We argue that there is no causal effect of spouse's insurance on own sick leave since, while spouse's insurance confers own access to insurance, it does not provide any access to own sick leave.[9] Since spouse's health insurance should not have a behavioral effect on own sick leave, any estimated effects on sick leave should be due to the correlations induced by assortative mating and shared household income. We can net out these effects from our estimates in the health insurance equation to obtain the behavioral effect of spouse's insurance on own insurance.

More specifically, under the assumptions outlined in more detail below, the estimated bias on γ due to assortative mating or unobserved income will be the coefficient on H_h in the estimating equation for sick leave. We denote this coefficient as η. That is, although the sick leave equation does not contain H_h since we assume the behavioral effect of husband's health insurance on wife's sick leave is zero, our sick leave estimating equation *does* include H_h. As with the health insurance equation, we instrument for husband's health insurance in the sick leave equation using husband's quadratics in age and education. The key to our strategy is that, given our assumptions, the estimated coefficient on H_h in the sick leave equation will capture the partial correlation between husband's characteristics and wife's unobservable factors such as ability or tastes for work—the spousal correlations that we expect may be biasing our IV estimate γ_w. For example, we expect that a highly educated man is more likely to be

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are not exogenous due to assortative mating and unobserved income effects and that this approach by itself is unsatisfactory.

[9] This strategy is similar to that used by Royalty (2000) to estimate the effect of tax preferences on employer health insurance offers.

married to a woman of high ability who is in turn more likely to have both health insurance and sick leave. The husband's education being used to predict his health insurance will, in this case, pick up his wife's propensity to have fringe benefits. But only in her health insurance equation will there also be a behavioral effect. A comparison of the effect of (instrumented) spouse's health insurance on own health insurance to the effect of (instrumented) spouse's health insurance on own receipt of paid sick leave $(\hat{\gamma}_w^{IV} - \hat{\eta}_w^{IV})$ will help us tease out the behavioral effect of spouse's health insurance on own health insurance. However, this strategy relies on two key assumptions which we want to reiterate.

The first assumption is that the true effect of spouse's insurance on own sick leave is zero. The behavioral effect in the case of health insurance stems from the fact that a married person is eligible for a spouse's insurance, thereby lowering demand for own employer insurance. No such eligibility effects are in play in the case of sick leave. Spouse's health insurance confers no sick leave benefits. This is our justification for assuming that the causal effect of spouse's health insurance on own sick leave is zero.[10]

Second, we assume that there is a strong correlation between the unobservables that affect health insurance and sick leave. If the fixed effects (μ_w) are equal in the two equations, the bias is exactly identified. More likely, we argue that there is a high correlation between the μ_ws in the two equations and that the common factors are

[10] In their handbook on employee benefits, Beam and McFadden (2004) describe how sick leave plans generally work: "Sick leave plans, often called salary continuation plans, are uninsured and generally fully replace lost income for a limited period of time, starting on the first day of disability." The plans often cover only full-time employees but may also cover part-time employees. They report that most plans offer a set number of sick days per year and often allow for some, but not complete accumulation of unused days. BLS Employer Costs for Employee Compensation show that in 1998 the average cost to employers for all paid leave for civilian workers was $1.30/hour and the cost of health insurance benefits was

similarly correlated with predicted insurance of the spouse. The coincidence of having an offer of insurance and having paid sick leave for individuals in the MEPS provides support for the assumption of a strong fringe benefit effect on demand common to both health insurance and sick leave. In the data, we find that 45.3% of adults are eligible for both employer health insurance and paid sick leave while 39.7% are eligible for neither benefit. The high correlations in the unobservables across the two equations that we report also support this assumption. Also, data from the BLS National Compensation Survey show similar patterns of the incidence of sick leave and health insurance by worker and establishment characteristics. For example, in 2005, full-time workers, employees of larger firms, and those working in metropolitan areas are more likely to have access to both health insurance and paid sick leave than are their counterparts who work part-time, in small firms, or in rural areas. At the same time, there are a considerable number of cases where eligibility for these two benefits does not coincide. In our sample, 13.4% are eligible for health insurance but not paid sick leave, and 3.4% are eligible for paid sick leave but not health insurance. The identification strategy implied by these comparisons asks whether spouse's health insurance can help to explain when employer provision of sick leave diverges from provision of health insurance.

Other Labor Market Outcomes

Notice that, because a person must be employed to have his or her own offer of employer insurance, the dependent variable in Equation 1, whether the wife is offered employer health insurance, is equivalent to her labor force participation conditional on being offered employer health insurance. This suggests how our approach can be

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$1.15/hour. The cost of sick leave was $.19/hour and the balance of paid leave costs were accounted for by vacation, holidays, and other leave.

extended to examine other labor market outcomes such as the decision to work full-time. To look at full-time work, we condition working full-time on being offered employer insurance. We then compare the effect of spouse's insurance on working full-time with an offer to the effect of spouse's insurance on the outcome of full-time with paid sick leave. The intuition for this comparison is the same as above: the coefficient on spouse's insurance in the "full-time with sick leave" equation will capture assortative mating and income effects that may be correlated with spouse's characteristics. For example, having a husband with a "good job" may make it less likely that a woman will work full-time with an offer of coverage due to income effects. The predicted probability of the husband having insurance could pick up this "good job" effect if we did not control for it in some way. We pick up that effect in the full-time with sick leave equation. The difference-in-difference estimate will capture the effect of an increased probability in access to health insurance via a spouse on the own probability of a worker's full-time employment and own access to insurance. In addition to the full-time model where the hours threshold is 35 hours/week, we also present results for an hours threshold of 20 hours per week since the probability of being eligible for employer insurance also increases at that point.

IV. Data and Measures

We use data from Round 1 of the Household Component (HC) from the 1996, 1997, and 1998 Medical Expenditure Panel Surveys (MEPS). The MEPS-HC is a random sample of the civilian non-institutionalized population of the United States, containing the necessary individual level data on demographic characteristics, employment attributes, health insurance, and health status. Our study population consists of married households in which both partners are between 19 and 64 years of age, non-

disabled, and not full-time students. We restrict our sample to only those married households in which at least one partner is employed outside the home. Based on these criteria, our final sample includes 6,782 households.

Using MEPS employment and compensation information, we define two binary indicator variables corresponding to whether an individual had an offer of health insurance through his or her employer (H) and whether the individual had paid sick leave (S) as a fringe benefit.[11] Full-time work is defined as a binary indicator variable equal to one if the individual is employed outside the home and works at least 35 or more hours per week on average. Worker characteristics include both linear and quadratic measures of an individual's age and education, as well as a dummy variable corresponding to whether an individual is non-white. We control for the total number of children in the household who are 18 years of age or younger since the presence of children may make it less likely that an adult is employed or employed full-time. To capture the health status of household members, we define a measure corresponding to the number of serious

[11] We assume that, by definition, self-employed workers do not receive paid sick leave since their pay is directly tied to their productivity. Therefore we assigned self-employed workers a value of zero for the sick leave indicator although questions regarding paid sick leave were not asked of self-employed workers. Self-employed workers who employ more than one worker are asked about health insurance and are included in the sample. Self-employed workers employing only themselves were not asked about health insurance and are not included in the sample. When the offer variable was missing the observation was excluded from the sample. The values for offered insurance and paid sick leave of unemployed adults were also set to zero, since they have no employer benefits.

[12] We had the county-level unemployment rate merged onto a confidential version of the MEPS data file and performed all analyses for this study at the AHRQ Data Center in Rockville, Maryland.

medical conditions reported by all members using the MEPS Medical Conditions File. The predicted effect of health status is ambiguous. While poorer health status may decrease an individual's probability of working outside the home or working full-time, this effect may be offset by higher demand for employer health insurance. We also control for reported income from dividends and interest to capture income effects on these labor market outcomes.

In order to control for local labor market conditions, we include unemployment rate for the county of residence.[12] Since there may be geographic variation in employer health insurance offers and labor market outcomes that may not be controlled for with the unemployment rate, we also include a set of geographic region dummies (Northeast, Midwest, South, and West). To control for time trends, we include year indicator variables. Table 1 provides variable definitions and descriptive statistics.

V. RESULTS AND DISCUSSION

In Table 2 we report results estimated using linear probability models. A linear model allows us to use the standard instrumental variables procedures discussed in section III and to identify the parameter of interest with the simple difference of two coefficients as described above. In all cases, the variable for the predicted probability of spouse's insurance is scaled to represent the effect of a 10 point change in that probability. Panel A describes the model of spouse's offer on own offer; Panel B reports the effect of spouse's offer on own full-time work with offer; and Panel C describes the model of spouse's offer on own hours of work greater than 20 hours and an offer. The

first three columns of Table 2 report results for wives, while columns 4, 5, and 6 report results for husbands.

In Panel A, Column 1 reports results from a regression of whether the wife is offered employer health insurance on the predicted probability of her husband's having an offer. The results in Column 2 are analogous except that the dependent variable is the wife's sick leave rather than her health insurance. Column 3 reports the difference in the two coefficients on Columns 1 and 2. Husband's offer is predicted in a first stage linear probability model (results not reported) of husband's offer on quadratics in husband's age and education and all of the variables included in the wife's equation.[13] We also report the estimated correlation of the unobservables in the health insurance and the sick leave equations ($\hat{\rho}$). The full set of results for each model is included in the appendix.

Taking the difference of the coefficients on the husband's (wife's) predicted offer variable across the equations yields our estimates of the behavioral effect of spouse's offer on own offer. The estimates imply that a 10 point increase in the probability of the husband having employer insurance reduces the probability that the wife will have insurance by 1.5 points. The size of the same effect for men is a 1.9 point decrease. Standard errors for the difference-in-difference estimates were bootstrapped. Both of these estimates are significant.[14]

[13]Our two first-stage regressions to predict husbands' and wives' offers of insurance perform well with F-statistics of 28.23 and 39.49, respectively.

[14] Estimating this same model with the sample of two-earner households yields slightly larger effects. In particular, we find that a 10 point increase in the probability of the husband having employer insurance reduces the probability that the wife will have insurance by 2.89 points. For a 10 point increase in the predicted probability of the wife having an offer of coverage, the husband's probability of an offer decreases by 2.76 points.

Next, we examine other types of labor market outcomes that may be affected by whether or not an individual has access to health insurance through a working spouse. As reported in Panels B, we find that, as predicted, access to health insurance via a spouse decreases the probability of working full-time and being offered employer insurance. For women, the difference-in-difference estimate suggests that a 10 point increase in the probability of husband's offer is associated with a 1 point decrease (significant at 0.10 level) in the probability of full-time work with insurance. For men, the effect is a statistically significant 2.1 point decrease. The effects are more similar between women and men when we look at the decision to work 20 or more hours per week, conditional on being offered insurance. In this case, the effect for women is a significant and negative 1.45 points and, for men, 1.95 points.[15]

Although the behavioral effects are significant and of a similar size for men and women, our results also show an interesting asymmetry by gender. Recall that the coefficient on predicted spouse's insurance in the sick leave equation is the bias caused by assortative mating or unmeasured income effects. A positive assortative mating effect suggests an upward bias while an income effect implies a negative bias. For men, the assortative mating effects dominate. Having a wife with characteristics associated with having her own employer insurance is positively correlated with the husband having paid sick leave. For women, it appears that the income effect outweighs the assortative mating effect, producing a negative coefficient on predicted husband's offer in the women's sick

[15] We think that the stronger effect for women for the lower hours threshold is due to the fact that there is more variation in insurance offerings between 20 and 35 hours/week than above 35 hours and that there are more women in that portion of the hours distribution.

leave equation. For women, the effect of having a husband with characteristics associated with having his own insurance is negative – she is less likely to have her own employer insurance.[16] The strong income effect for women suggests a more traditional spousal relationship where women respond to husband's income by, say, working part-time but where men do not respond to the same degree to wife's income. Nonetheless, the incentives associated specifically with access to employer insurance appear to work similarly for husbands and wives, since the within-household decisions about employer health insurance that we estimate with the difference-in-difference approach are much more similar for men and women.

In all of the models the estimated correlation of the unobservables in the health insurance and the sick leave equation is high, ranging from .57 to .80. This supports our argument that the unobservable factors that affect both of these fringe benefits are likely to be very similar and provides some support for our approach.

Robustness Checks

We have run a number of alternative specifications and find that the patterns we report are robust to a number of changes. First, although we think that sick leave is the most appropriate fringe benefit to use as a comparison because it cannot be shared, we also ran models using whether a person had an employer retirement plan in place of the sick leave model. The patterns were similar to those we report. Second, we did not find significant differences between couples with children and those without, nor any non-linear effect of children or of young children. Third, the results were robust to using categorical, rather than quadratic, education measures, as well as to disaggregating the

[16] The asymmetry that we find mirrors the result of Pencavel (1998) in his investigation of the effect of spouse's education on own hours of work. He finds that men married to more highly educated women

race variable. Fourth, we tried entering the number of serious medical conditions separately for household members, as well as using an alternative measure corresponding to self-reported health status. Our results did not change. Finally, to check whether our results might be driven by the behavior of "near-elderly" households (age 55-64) approaching retirement, we re-estimated our models eliminating this group from consideration. Our results were qualitatively similar.

VI. Concluding Remarks

In this study, we have investigated how much behavior changes as married couples take advantage of the flexibility provided by being eligible for one another's employer health insurance and, conversely, by how much labor market outcomes may be distorted by having health insurance tied to employment when no other access to insurance is available.

One key challenge in examining the joint decision-making of husbands and wives is finding valid instruments for spouse's health insurance. Though a worker's age and education are good predictors of having an insurance offer, using these measures in an instrumental variables (IV) framework may still lead to biased estimates if positive assortative mating or unmeasured income effects are present. To estimate the direction and size of the bias due to assortative mating and income effects, we look at a second fringe benefit, paid sick leave, in addition to health insurance. Under certain assumptions, using the sick leave estimates we can identify the bias due to assortative mating and income effects and then net out these effects to obtain the behavioral effect of spouse's insurance on own insurance.

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work more while women married to more highly educated men work less.

As hypothesized, we find that spouse's insurance has statistically significant negative effects on being offered own employer insurance. In all cases, we see that a greater probability that one has access to insurance through a spouse reduces the probability of labor market outcomes associated with employer insurance such as full-time work. Or, when addressing the possibility of labor market distortions caused by our employer health insurance system, perhaps we should state the result differently: a lower probability of access to health insurance through a spouse increases the probability of particular labor market outcomes, including having one's own access to employer insurance and working full-time. The relationship is significant for both men and women.

Another pattern that holds consistently across models is the gender difference in the bias term estimated in the sick leave equation. In every case, the bias for women is negative while the bias for men is positive. We interpret this to mean that the bias due to income effects outweighs any positive assortative mating effect for women while the opposite is true for men. This can be explained if women's labor market decisions are more sensitive to household income than men's.

Knowing the extent to which labor market outcomes depend on each partner's access to coverage can provide important insights for assessing the potential effectiveness of policies designed to increase access to coverage, either through employer incentives to offer insurance in jobs where typically they have not done so or through premium subsidies to employees. If, as we find, married households actively sort into jobs with and without health insurance knowing that only one source of employer coverage is needed to ensure access, then part-time workers who become eligible for coverage through a policy intervention, may not exhibit strong demand for insurance. On the

other hand, our results imply that other access to insurance is likely to increase part-time work. Therefore, if insurance became more widely available in part-time jobs, some workers currently working in full-time jobs for the sake of health insurance may switch jobs. These workers would be expected to have a higher demand for insurance than workers in those jobs who are already eligible for an alternative source of insurance.

Our results also imply some welfare losses due to the link between health insurance and employment. We find that individuals are more likely to work in jobs that offer insurance and to work full-time when the probability of having insurance through a spouse is lower. If employer insurance were offered more widely or if insurance were available through non-employer sources on similar terms, individuals would make some different choices about their employment.

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REFERENCES

Abraham, Jean M. and Anne Beeson Royalty. April 2005. "Does Having Two Earners in the Household Matter for Understanding How Well Employer-Based Health Insurance Works?" *Medical Care Research and Review* 62(2), pp. 167-186.

Abraham, Jean M., William B. Vogt, and Martin Gaynor. 2005. "How Do Households Choose Their Employer-Based Health Insurance?" University of Minnesota, Working Paper.

Beam Jr, Burton T. and John J. McFadden. Employee Benefits (6th Edition), 2001. Chicago, IL: Real Estate Education Company, pp. 171-172.

Bhargavan, Mythreyi. 2000. "The Effect of Employer-Provided Health Insurance on Labor Market Participation." Ph.D. Dissertation, Rutgers University.

Buchmueller, Thomas C. and Robert G. Valletta. 1998. "The Effect of Health Insurance on Married Female Labor Supply." *Journal of Human Resources* 34(1): 42-71.

Currie, Janet and Brigitte Madrian. 1999. "Health, Health Insurance, and the Labor Market." *Handbook of Labor Economics*, Volume 3C, pp. 3309-3416.

Gruber, Jonathan and Brigitte C. Madrian. March 2002. "Health Insurance, Labor Supply, and Job Mobility: A Critical Review of the Literature." National Bureau of Economic Research Working Paper #8817.

Honig, Marjorie and Irena Dushi. April 2005. "Household Demand for Health Insurance: Price and Spouse's Coverage." Hunter College, Working Paper.

Lundberg, Shelly. 1988. "Labor Supply of Husbands and Wives: A Simultaneous Equations Approach" *Review of Economics and Statistics*, vol. 70(2): 224-35.

Mare, Robert D. 1991. "Five Decades of Educational Assortative Mating." *American Sociological Review* 56(1), pp. 15-32.

Marquis, M. Susas and Kanika Kapur. 2004. "Family Decision Making When Two Workers are Offered Group Coverage." Unpublished manuscript.

Monheit, Alan C., Barbara Steinberg Schone, and Amy K. Taylor. 1999. "Health Insurance Choices in Two-Worker Households: Determinants of Double Coverage." *Inquiry* 36: 12-29.

Monheit, Alan C. and Jessica Primoff Vistnes. 1999. "Health Insurance Availabiliy at the Workplace: How Important are Worker Preferences?" *Journal of Human Resources* 34(4): 770-785.

Olson, Craig A. 1998. "A Comparison of Parametric and Semiparametric Estimates of the Effect of Spousal Health Insurance Coverage on Weekly Hours Worked by Wives." *Journal of Applied Econometrics* 13(5): 543-565.

Olson, Craig A. 2000. "Part-Time Work, Health Insurance Coverage, and the Wages of Married Women." in Employee Benefits and Labor Markets in Canada and the United States, William T. Alpert and Stephen A. Woodbury, eds. Kalamazoo, Michigan: W.E. Upjohn Institute for Employment Research. Pp. 295-324.

Pencavel, John. 1998. "Assortative Mating by Schooling and the Work Behavior of Wives and Husbands." *American Economic Review* 88(2), pp. 326-329.

Royalty, Anne Beeson. 2000. ATax Preferences for Fringe Benefits and the Health Insurance Offered by Employers, *Journal of Public Economics*, 75(2), pp. 209-227.

Schone, Barbara Steinberg and Jessica Primoff Vistnes. 2001. "The Relationship Between Health Insurance and Labor Force Decisions: An Analysis of Married Women." Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Working Paper.

Sommers, John. 2003. Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Personal correspondence with the authors.

U.S. Bureau of Labor Statistics. 2005. "National Compensation Survey: Employee Benefits in Private Industry in the United States, March 2005." Summary 05-01.

U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey: Household Component. September 2001. http://www.meps.ahrq.gov/data_pub/hc_toc.htm.

Wellington, Alison and Deborah Cobb-Clark. 2000. "The Labor-Supply Effects of Universal Health Coverage: What Can We Learn from Individuals with Spousal Coverage?" in Research in Labor Economics (S. Polachek (editor)), vol. 19 Amsterdam: Elsevier Science, pp. 315-344.

Table 1: Variable Definitions and Descriptive Statistics

Variable	Definition	(N=6782)	
		Mean	SD
Insurance Offer – male	=1 if husband has an offer of employer health insurance, 0 otherwise	.675	.468
Insurance Offer – female	=1 if wife has an offer of employer health insurance, 0 otherwise	.458	.498
Paid sick leave – male	=1 if husband has paid sick leave through employer, 0 otherwise	.528	.499
Paid sick leave – female	=1 if wife has paid sick leave through employer, 0 otherwise	.414	.493
Works 35 hours plus - male	=1 if husband is employed 35 or more hours per week, 0 otherwise	.88	.325
Works 35 hours plus - female	=1 if wife is employed 35 or more hours per week, 0 otherwise	.516	.50
Works 20 hours plus - male	=1 if husband is employed 20 or more hours per week, 0 otherwise	.922	.269
Works 20 hours plus - female	=1 if wife is employed 20 or more hours per week, 0 otherwise	.658	.474
Age-male	Age of husband	42.36	10.46
Age-female	Age of wife	40.14	10.15
Education-male	Number of years of education of husband	12.80	3.10
Education-female	Number of years of education of wife	12.67	3.02
Non-white-male	=1 if husband is non-white, 0 otherwise	.136	.343
Non-white female	=1 if wife is non-white, 0 otherwise	.138	.345
Total number of kids ≤18	Number of children in the household who are 18 years of age or younger	1.30	1.28
Number of medical conditions	Number of serious medical conditions reported by all household members	.448	.809
Investment income (1000s)	Annual reported dividend and interest income reported by household members (thousands of dollars)	.579	2.395
Local unemployment rate (%)	Unemployment rate for county in which household resides	5.54	3.54
Northeast	=1 if household resides in Northeast Census Region, 0 otherwise	.1806	.385
Midwest	=1 if household resides in Midwest Census Region, 0 otherwise	.216	.411
South	=1 if household resides in South Census Region, 0 otherwise	.365	.482
West	=1 if household resides in West Census Region, 0 otherwise	.238	.426
Year 1996	=1 if year is 1996, 0 otherwise	.496	.500
Year 1997	=1 if year is 1997, 0 otherwise	.265	.441
Year 1998	=1 if year is 1998, 0 otherwise	.238	.426

Table 2: Linear Probability Models for Two-Adult Households

Panel (A): Effect of a 10 point increase in the predicted insurance offer of a spouse on own offer						
	Wife (n=6454)			Husband (n=6419)		
	Insurance Offer[a]	Paid Sick Leave[b]	Difference[c]	Insurance Offer[a]	Paid Sick Leave[b]	Difference[c]
Predicted Insurance Offer – Spouse	-.0352*** (.0077)	-.0202*** (.0076)	***-.0150** (.0059)***	-.0010 (.0055)	.0176*** (.0059)	***-.0187*** (.0052)***
$\hat{\rho}$	.72			.57		
Panel (B): Effect of a 10 point increase in the predicted insurance offer of a spouse on own employment of 35+ hours per week with offer						
	Wife (n=6370)			Husband (n=6323)		
	Works 35+ hours with Insurance Offer[d]	Works 35+ hours with Paid Sick Leave[e]	Difference[f]	Works 35+ hours with Insurance Offer[d]	Works 35+ hours with Paid Sick Leave[e]	Difference[f]
Predicted Insurance Offer – Spouse	-.0365*** (.0077)	-.0269*** (.0075)	***-.0096* (.0050)***	-.0005 (.0056)	.0206*** (.0059)	***-.0211*** (.0050)***
$\hat{\rho}$	.80			.60		
Panel (C): Effect of a 10 point increase in the predicted insurance offer of a spouse on own employment of 20+ hours per week with offer						
	Wife (n=6370)			Husband (n=6323)		
	Works 20+ hours with Insurance Offer[d]	Works 20+ hours with Paid Sick Leave[e]	Difference[f]	Works 20+ hours with Insurance Offer[d]	Works 20+ hours with Paid Sick Leave[e]	Difference[f]
Predicted Insurance Offer – Spouse	-.0361*** (.0078)	-.0216*** (.0076)	***-.0145** (.0057)***	-.0017 (.0056)	.0178*** (.0059)	***-.0195*** (.0051)***
$\hat{\rho}$	.74			.58		

[a]Dependent variable: = 1 if employed with an offer of employer insurance; =0 otherwise.
[b] Dependent variable: = 1 if employed with paid sick leave; =0 otherwise.
[c] Difference = Effect of 10 point increase in predicted offer probability on employed with offer minus effect of 10 point increase in predicted offer probability on employed with sick leave.
[d] Dependent variable: = 1 if employed working hours ≥ threshold (20 or 35 hours/week) with an offer of employer insurance; =0 otherwise.
[e] Dependent variable: = 1 if working hours ≥ threshold (20 or 35 hours/week) with paid sick leave; =0 otherwise.
[f] Difference = Effect of 10 point increase in predicted offer probability on working hours ≥ threshold with offer minus effect of 10 point increase in predicted offer probability on working hours ≥ threshold with sick leave.

For each equation, additional explanatory variables include: own age, own age-squared, own education, own education-squared, own non-white, number of kids, household medical conditions, household investment income, unemployment rate, geographic region dummies, year dummies, and a constant. Instruments for spouse's offer: spouse's education, education-squared; spouse's age, age-squared, non-white.

*p<.10, **p<.05, ***p<.01

Appendix

Table 1: Effect of spouse insurance offer on own employment with offer

	Wives		Husbands	
Parameter Estimates	**Any employment with Insurance Offer**	**Any employment with Paid Sick Leave**	**Any employment with Insurance Offer**	**Any employment with Paid Sick Leave**
Predicted Insurance Offer – Spouse	-.0352*** (.0077)	-.0202*** (.0076)	-.0010 (.0055)	.0176*** (.0059)
Age	.0530*** (.0052)	.0492*** (.0051)	.0458*** (.0047)	.0273*** (.0050)
Age-squared	-.0007*** (.0001)	-.0006*** (.0001)	-.0006*** (.0001)	-.0004*** (.0001)
Education	.0289*** (.0092)	.0132 (.0091)	.0339*** (.0087)	-.0003 (.009)
Educ-squared	.0004 (.0004)	.0013*** (.0004)	-.0003 (.0004)	.0016*** (.0004)
Non-white	.0979*** (.0174)	.0762*** (.0171)	.0235 (.0174)	.0532*** (.0185)
Number of kids 18 and under	-.0760*** (.0053)	-.0657*** (.0052)	-.0138** (.0063)	-.0031 (.0067)
Household Investment Income	-.0000 (.0000)	-.0000 (.0000)	-.0000 (.0000)	-.0000*** (.000)
Number of HH medical conditions	-.0059 (.0074)	-.0015 (.0072)	.0047 (.0071)	.0066 (.0076)
Local unemployment rate	-.0085*** (.0019)	-.0035* (.0019)	-.0082** (.0017)	-.0029 (.0019)
South	.0260* (.0158)	.0202 (.0154)	.0222 (.0150)	.0285* (.0160)
Midwest	.0678*** (.0187)	.0391** (.0183)	.0669*** (.0173)	.0172 (.0184)
Northeast	.0359* (.0191)	.0462** (.0187)	.0522*** (.0177)	.0641*** (.0189)
Year 1998	.0112 (.0153)	.0152 (.0150)	.0469*** (.0141)	.0423*** (.0151)
Year 1997	-.0466 (.0143)	-.0306** (.0140)	-.0016 (.0139)	.0322** (.01485)
Constant	-.5810*** (.1030)	-.6705*** (.1010)	-.5193*** (.1028)	-.3262*** (.1095)
$\hat{\rho}$	0.72		0.57	
Number of obs	6454		6419	

*p<.10, **p<.05, ***p<.01

Table 2: Effect of spouse insurance offer on working 35+ hours with offer

	Wives		Husbands	
Parameter Estimates	**Working 35 hours or more and Insurance Offer**	**Working 35 hours or more and Paid Sick Leave**	**Working 35 hours or more and Insurance Offer**	**Working 35 hours or more and Paid Sick Leave**
Predicted Insurance Offer – Spouse	-.0365*** (.0077)	-.0269*** (.0075)	-.0005 (.0056)	.0206*** (.0060)
Age	.0498*** (.0052)	.0468*** (.0050)	.0491*** (.0048)	.0278*** (.0050)
Age-squared	-.0006*** (.0001)	-.0006*** (.0001)	-.0006*** (.0001)	-.0004*** (.0001)
Education	.0230** (.0092)	.0131 (.0089)	.0340*** (.0088)	-.0001 (.0093)
Educ-squared	.0005 (.0004)	.0011*** (.0004)	-.0004 (.0004)	.0015*** (.0004)
Non-white	.1029*** (.0173)	.0798*** (.0168)	.0295* (.0178)	.0483** (.0187)
Number of kids 18 and under	-.0787*** (.0053)	-.0707*** (.0052)	-.0146** (.0065)	-.0002 (.0068)
Household Investment Income	-.0000** (.0000)	-.0000* (.0000)	-.0000 (.0000)	-.0000*** (.0000)
Number of HH medical conditions	-.0133* (.0074)	-.0095 (.0071)	.0015 (.0073)	.0065 (.0077)
Local unemployment rate	-.0076*** (.0019)	-.0034* (.0018)	-.0076*** (.0018)	-.0023 (.0019)
South	.0310** (.0157)	.0372** (.0152)	.0263* (.0153)	.0287* (.0162)
Midwest	.0441** (.0186)	.0359** (.0180)	.0699*** (.0176)	.0138 (.0186)
Northeast	.0125 (.0190)	.0283 (.0185)	.0535*** (.0181)	.0648*** (.0191)
Year 1998	.0067 (.0152)	.0184 (.0148)	.0466*** (.0144)	.0528*** (.0152)
Year 1997	-.0383*** (.0142)	-.0243* (.0138)	-.0030 (.0142)	.0384** (.0150)
Constant	-.4979*** (.1023)	-.5839*** (.0995)	-.586*** (.1048)	-.3548*** (.1106)
$\hat{\rho}$	0.80		0.60	
Number of obs	6370		6323	

*p<.10, **p<.05, ***p<.01

Table 3: Effect of spouse insurance offer on working 20+ hours with offer

	Wives		Husbands	
Parameter Estimates	**Working 20 hours or more and Insurance Offer**	**Working 20 hours or more and Paid Sick Leave**	**Working 20 hours or more and Insurance Offer**	**Working 20 hours or more and Paid Sick Leave**
Predicted Insurance Offer – Spouse	-.0361*** (.0078)	-.0216*** (.0076)	-.0017 (.0056)	.0178*** (.0059)
Age	.0532*** (.0052)	.0488*** (.0051)	.0471*** (.0047)	.0271*** (.0050)
Age-squared	-.0007*** (.0001)	-.0006*** (.0001)	-.0006*** (.0001)	-.0004*** (.0001)
Education	.0279*** (.0093)	.0130 (.0091)	.0336*** (.0088)	-.0002 (.0093)
Educ-squared	.0005 (.0004)	.0013*** (.0004)	-.0004 (.0004)	.0015*** (.0093)
Non-white	.1014*** (.0175)	.0789*** (.0172)	.0300* (.0176)	.0545*** (.0187)
Number of kids 18 and under	-.0757*** (.0054)	-.0651*** (.0053)	-.0149** (.0064)	-.0021 (.0068)
Household Investment Income	-.0000 (.0000)	-.0000 (.0000)	-.0000 (.0000)	-.0000*** (.0000)
Number of HH medical conditions	-.0078 (.0074)	-.0041 (.0073)	.0028 (.0072)	.0062 (.0077)
Local unemployment rate	-.0084*** (.0019)	-.0038** (.0019)	-.0077*** (.0018)	-.0026 (.0019)
South	.0245 (.0158)	.0255 (.0155)	.0238 (.0152)	.0287* (.0161)
Midwest	.0642*** (.0188)	.0424** (.0184)	.0691*** (.0174)	.0151 (.0185)
Northeast	.0347* (.0192)	.0486** (.0188)	.0511*** (.0179)	.0653*** (.0191)
Year 1998	.0144 (.0154)	.0201 (.0150)	.0468*** (.0143)	.0475*** (.0152)
Year 1997	-.0450*** (.0144)	-.0254* (.0141)	-.0017 (.0141)	.0340** (.0150)
Constant	-.5790*** (.1036)	-.6554*** (.1015)	-.5328*** (.1040)	-.3224*** (.1105)
$\hat{\rho}$	0.74		0.58	
Number of obs	6370		6323	

*p<.10, **p<.05, ***p<.01