

Unemployment and Intra-household Time Allocation

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Abstract

Spells of unemployment can have dramatic effects on household dynamics. In this paper, I utilize American Time Use Survey data to determine the impact of unemployment on intra-household time use allocation as well as identify marginal impacts of spousal time use. I find an increase of about 1 hour of work per week for males and 1.5 hours of work per week for females whose spouse is unemployed, confirming previous studies of minimal, but statistically significant added worker effects. Higher incomes are associated with larger added worker effects. Unemployed females will roughly split their previous work time between one-half and two-thirds new household production, while men are more likely to report between one-third and one-half. Partner unemployment can result in reduction of about 2-2.5 hours of household production per week indicating most of the increase in household production is new. Marginal effects generated from estimated and matched spousal time use and indicate strong leisure complementarity and some substitutability of household production between spouses, with these effects much stronger on the weekend.

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1 Introduction

The loss of employment by one partner in a dual-headed household has numerous effects on the well-being of both parties. The loss of income can lead to a reduction in consumption for the entire household, and both individuals must reorganize the time usage of the household. No longer does the employed partner have several hours of each day devoted to paid work activity, and thus he or she must spend time on other activities such as more leisure or more household production if market work is no longer an option. The other spouse may feel the need to work more to make up for the loss income of the other spouse and may be able to spend less time in household production, depending on the time use of the unemployed partner. Alternatively more overall household production time may be needed as the household shifts towards more time intensive production activities.

The paper examines the effect of unemployment on the time use patterns of both partners in a household, with separate effects calculated for each sex and for weekday and weekend time use. I utilize multiple empirical specifications and construct predictions for the time use of unsurveyed partners to determine marginal effects using the American Time Use Survey (ATUS). Across most specifications, I find consistent estimates that females respond to partner unemployment by working 80-90 minutes per week more, with only small changes to leisure. Household production, however, declines by about 2 hours per week. Males respond similarly, taking on about 50-70 minutes per week. Own work time declines by about 32-35 hours per week for women and 36-39 hours a week for men. Additional household production is the result of one-half to two-thirds of this time for women and about one-third to one-half of this time for men. Adding income as controls has minimal effect on the average estimates, but there is indication that the effect of partner's unemployment differs by income. I also attempt to estimate the effect of a change in a partner's employment status on own time use but find only small responses for both sexes.

The economic significance of examining the effect of unemployment on time use is shown in two related strains of literature that examine household dynamics. When an income-producing member of a household loses his or her job, the family is then tasked with identifying alternate ways to meet the expenditure needs of its members. If an alternate job cannot be procured, a utility-maximizing household, in the traditional neo-classical framework such as first described in Becker (1965), have a variety of options from which they can draw. They may choose to utilize existing

savings or borrow against future earnings, they can reduce expenditures by changing leisure choices or identifying more time-intensive means of household production, or other household members can seek to increase their own labor supply.

This was detailed more broadly by Gronau (1977) who sought to emphasize the importance of treating home production and home leisure separately from each other. Consumption is modeled to be a combination of goods and services and time spent consuming them, but the goods and services themselves can be either produced with home production time or purchased in the market using income derived from time spent in market work. In this context, home production and market work are substitutes for each other since they both generate the goods and services which are complementary to leisure time.

A question that still remains however is how consumption and time use decisions are tied together within households. The literature examining the effect of unemployment on a household has mainly focused on labor supply models, with the predicted resulting positive impact on spousal work hours being termed the “Added Worker Effect”. The concept is important because such behavioral changes allow a household to self-insure against unemployment in addition to public unemployment insurance (Ashenfelter, 1980; Heckman and MaCurdy, 1980, 1982; Lundberg, 1985; Cullen and Gruber, 2000). Evidence for an Added Worker Effect was usually found to be existent but quite small and many times not statistically different from zero (Spletzer, 1997). Cullen and Gruber (2000) noted that unemployment insurance itself was found to crowd out increases in spousal labor supply and Bingley and Walker (2001) found similar evidence examining UK unemployment insurance programs. Those authors found means-based unemployment benefits based on household income reduced the labor supply of women with unemployed husbands. Related, Krueger and Mueller (2010) find that time spent on job search activities declines with benefit generosity and increases as benefits are set to expire utilizing the time use data used in this paper, and Güler and Taskin (2013) find that home production time falls with increases in unemployment benefits.

The implication for many of these studies is that when considering the reduction in household production and increases in spousal labor supply that result from unemployment benefits, said benefits crowd out these alternative household methods of insuring against welfare losses due to unemployment. However, the economic indications of whether household production is a substitute for market work is still questionable. Using American data, Burda and Hamermesh (2010) find

increases in household production generated by unemployment were between one-eighth and one-half the reduction in market work time in Italy, Australia and Germany; for America, this ratio was about 31%. Cyclical unemployment, however, is more likely to result in higher household production than long-term. Most recently, Aguiar et al. (2011) use ATUS data during the recent recession to determine how lost work hours were allocated, identifying 30-40% are spent on increases in household production.

There have also been a series of papers examining the effect of macroeconomic unemployment on time use as well as evidence these effects can be dramatically different depending on the culture or country. A paper utilizing the Spanish Time Use Survey by Gimenez-Nadal et al. (2010) sought to determine the impact of unemployment on household production as well as how the regional unemployment situation helped shaped that impact. They found only a small, but significant portion of time that would have otherwise been spent working is spent on household production (about 20%) with the majority devoted to leisure time. Their larger contribution however was identifying evidence that higher unemployment rates coincide with increase levels of household production for the unemployed. Ahn et al. (2005) find even larger effects of own-unemployment on home production. Conversely, Lee et al. (2011) find little effect on reduced hours worked on increased household production, however they were examining exogenous reductions in market work generated by legal reductions in the work week in Japan and Korea.

Most of these papers, however, only examine time use behavior of a single respondent. In this paper, I seek to examine the combination of the added worker effect as well as the intra-household effects (if any) that an increase in household production might arise. Note, household production resulting from lower income does not necessarily result in it being performed by the unemployed; while production occurring because unemployment reduces opportunity costs, prior specialization still might be a factor in potential increases. The effect of unemployment on spousal time use then is an interesting and theoretically and empirically ambiguous question which informs the general question of the substitutability of household production and market work.

Much of the past work on household labor supply has examined the effect of relative wages on intra-household bargaining over consumption and time use, examining tests of unitary vs. collective models of household labor supply (Fortin and Lacroix, 1997; Chiappori et al., 2002; Blundell et al., 2007). Most find difficulty reconciling the unitary model with strong empirical data suggesting

some bargaining and autonomy in decision making separate from the household. They also find increasing bargaining positions can increase women's labor supply (and vice versa). Bloemen et al. (2010) examine Italian couples using dual surveys and identify education levels of both the mother and father positively affect the time spent with children for the father, and trends change significantly between weekend and weekday. Child care and household production in general is larger with younger child presence.

Using time use data in particular has grown in recent years as the American Time Use Survey (ATUS) has aged and collected more waves. Friedberg and Webb (2006) estimate similar aspects of bargaining and use changes in time use to test bargaining models based on the effect of spousal relative wages. Utilizing leisure time as a measure of utility, they find higher relative wages for women result in more time spent in leisure and less time in household production. Such bargaining effects, they also conclude, are largest for childless couples, where gains are potentially greater due to less demand for household production. Bittman et al. (2003) found similar effects in Australian data, but only when the male-to-female wage ratio was greater than one and Daunfeldt and Hellström (2007) use Swedish data to examine the determinants of participation in different household activities, identifying wages and age as significant predictors.

The empirical part of this paper has two parts, one which estimates the effect of own and partner employment status on time use and a second which uses a synthetic measure of spousal time use to determine the marginal effects of changes in spousal time use on own time use. A large increase in unallocated hours due to unemployment is likely to be divided primarily between leisure and household production and it is an open empirical question as to how much of each will be allocated. For partner unemployment, own time use in work may increase due to the added worker effect and it is possible partner's increase in household production may allow for a decline in their own production. Income effects, however, may necessitate an increase in time-intensive household production which could even increase own time in such activities; therefore, the expected change in household production for partner unemployment is unclear.

The estimation of marginal effects necessitates a different discussion on expectation of changes. The estimation here specifically omits the joint decision, and without actual data on spousal time use, this may not be possible anyway. The estimation procedure below looks at the changes in own time use as if the spousal time use were independent. While this is a very strong assumption,

the use of artificial data allows the measurement of average changes to such behavior with fewer concerns about endogeneity. Admittedly, some, if not most, of the measured effect will be from not a direct response to a change in spousal time use, but rather reflect the totality of the joint household and individual utility maximization decisions as they are averaged across the population.

If there is an added worker effect, it is unclear how that marginal increase work time would have an effect on other time uses. There may be an increase in leisure activity and a decrease in household production as the household shifts to more more costly, less time-intensive household production (relative to no change in spousal work time) or such work time could be taken from the sleep and personal maintenance time with no change in spousal or even household leisure or household production time. One could expect an added worker effect would be larger for those with higher incomes who may have more flexibility in their choice of work hours, but due to the income effect, they may not necessarily have as much need for the higher income. Indeed, I find some empirical evidence both of these could be true resulting in U-shaped curve of estimates of the added worker with respect to income for males.

An increase in spousal leisure time may lead to an increase in own leisure time if there exists complementarities, which has been suggested based on the findings of Hamermesh (2002); Hamermesh et al. (2008). It is unclear what would be the effect of an increase in marginal spousal household production as a priori, it is unclear whether such activity is a net substitute for own household production or if there exists complementarities such as when a couple washes dishes together. If it is a new substitute, then we would expect a possible increase in either own leisure or work time.

2 Data

To explore the impact of unemployment on household time use, I utilize the American Time Use Survey (ATUS) from 2003-2010. Each respondent of the ATUS is informed of an upcoming day during which they are asked to keep a time diary of each activity they perform, its duration and location and whomever the respondent was with at the time. The sample is drawn from outgoing Current Population Survey (CPS) cohorts, which allow researchers to match ATUS and CPS data. Only one adult from each household is asked to respond, however, so interviews for both partners

in a couple are not available. For the time period I analyze, there were 112,038 diaries recorded; of these, 60,217 respondents reported a cohabiting partner for which CPS and ATUS survey data were available.

The sample was nationally representative but stratified by day of the week, with roughly a quarter of the sample diaries taken for Saturday and Sunday each and a tenth of the sample for each weekday. The BLS provides survey files that include the amount of total time each respondent spends in each activity. In addition, ATUS provides a variety of demographic and household information collected at the time of the survey as well as many reported from the final month of the CPS. Own employment at the time of the survey is recoded to Employed, Unemployed or Not in the Labor Force¹. Spousal unemployment is more difficult to ascertain as the ATUS does not ask questions that differentiate between those with partners who are unemployed but still in the labor force and those not in the labor force. Unemployment was constructed by coding those partners who reported either being employed or unemployed (in the labor force) during the CPS-8 interview 2-6 months prior AND coded as not employed in the ATUS. This has the potential of casting a wider net as it would also include those not in the labor force. As such, unemployment rates for partners are much higher than for the diary respondents. Those who were not in the labor force and are now unemployed are considered to still be not in the labor force for my purposes. The reasoning behind this choice was that this group did not experience a change in employment status that would affect household time use.

Each of the following analyses is performed separately for male and female and for weekday and weekend. Summary sample demographic statistics are reported for the population in Table 1. Summary statistics grouped by income category are reported in Tables 2 and 3. Males are more likely to be employed full time and women are more likely to be employed part time. In addition to differences in employment, there are substantial differences of demographic characteristics by income level. Income is negatively correlated with the likelihood of being black, hispanic or living in a non-metropolitan area. This could be provide evidence omitted variable bias may be a concern. If the physical size of a household's residence affects leisure and household production choices, this would introduce bias in the estimates of coefficients of variables which are correlated. It is unclear

¹Employed is divided into actively working and employed but absent from work and Unemployed is split between those who are without a job or laid off from a job with likely expectation of rehire. These are collapsed to compare with the spousal group for which this division is not recorded.

which direction overall omitted variable bias would be for each variable, but it is a potential source of concern with the data.

I aggregate the time use data into three categories, consisting of Work², Leisure³ and Household Production⁴. Activities types which do not fall into these categories include personal care, education and time spent traveling or on the telephone⁵. The type of activity recorded is based on the primary activity in which the respondent reports participating.⁶ As such, the ATUS will under-report such activities⁷.

Tables 4 and 5 show the mean average times spent in each category as well as the proportion of the sample whom participated in any activity within those categories. It is unsurprising that respondents in households with higher incomes work more on average, but the timing of household production is very different based on income. Weekday household production declines with income, while weekend household production increases with income. This may be due to higher degrees of market-substitution for household production which occurs on weekdays versus weekends.

Abraham et al. (2006) detail other issues involved with data collection for the ATUS citing the length and burden of the survey. They suggest non-response bias could be introduced if those who respond to the survey have time habits which differ from respondents. For example, ATUS respondents were much more likely to be volunteers based on linking them back to a CPS Volunteer Supplement. In addition, ATUS is exclusively a computer assisted telephone interview survey, given after participation in the CPS. This increases the difficulty in reaching respondents, and unlike the CPS, a specific member of the household is selected for response. Respondents who are unemployed, less educated, young, Hispanic and black all have lower response rates, primarily though lower contact rates. As such, the ATUS sample will have an unemployment rate that is

²ATUS code 05 consisting of time spent on work, income-generating activities and job search activities

³ATUS codes 12-15 consisting of Socialising, any leisure activity, sports and exercise, religious activity and volunteer activity.

⁴ATUS codes 2-4 and 7-10, consisting of household maintenance, care for household and non-household members, and time spent shopping and or acquiring professional, personal, household and government services

⁵Transportation and some telephone activities are considered activities which can be performed in service of another activity. While an argument could be made for including them as part of the total amount of time devoted to work, leisure and household production, I choose not to. This reflects a desire for the activity times to reflect the time devoted specifically towards the income generation, utility generation or time-money transformation that these three activities represent.

⁶For example, if a person is reading articles online with a laptop while also watching television, only one activity, whichever the respondent states as primary, will be recorded. Listening to the radio or music is known to be chronically underreported since the vast majority of such activity is performed as a secondary activity.

⁷Although I am not making use of this aspect of the data, one noteworthy exception is that the ATUS interviewer will specifically ask and record secondary activities as they relate to child-care where appropriate.

lower than the population rate at large. While I do not correct for that source of bias, results of any study using ATUS data should be interpreted with this in mind.

Additionally, there is a history of worry about the quality of labor statistics with regards to their ability to capture the underground economy⁸, there is no present validation study regarding the accuracy of the self-reported time use diaries. It should be noted that while ATUS interviewers do not ask questions related to the specifics of income-producing activities, they do probe respondents when they are unclear as to if a respondent is being paid for an activity or not as well as ask for the location of all activities. That said, the vast majority of the time reported in the Work category for the unemployed consists of job-search activities⁹, indicating respondents who are truthfully reporting their time use activities with substantial income-producing time in underground activities are properly coded as part-time or full-time workers. If respondents are purposefully misreporting income producing activities as other types of time use such as sleeping, leisure, or household production, this could bias the estimates of the effect of unemployment on those activities. This is particularly so, if they choose a time use mix that is substantially different from the activities of actual non-working unemployed respondents. Note the error here is not a misreporting of what unemployed people do, but a misclassification of the respondent as unemployed. That said, as these respondents have been primed through several rounds of CPS questions and have continued to participate in the ATUS, it seems unlikely this would be a substantial source of error in the data.

⁸Gutmann (1978) and McDonald (1984) provide early examples of attacks and defenses of the data on these grounds

⁹The mean time in Work activities for all unemployed respondents with partners is 29.9 minutes per day and the mean time in job search activities for the same group is 23.3 minutes per day.

3 Empirical Estimation

3.1 Effect of Spousal Employment Status

I perform two different estimations to calculate the interaction of spousal employment on household time use. I first use an OLS estimation of the following equation:

$$T_i = \beta_0 + \beta_1 FTE_i + \beta_2 PTE_i + \beta_3 UN_i + \beta_4 FTE_{P_i} + \beta_5 PTE_{P_i} + \beta_6 UN_{P_i} + \gamma_1 X_i + \gamma_2 X_{P_i} + \gamma_3 H_i + \gamma_4 T_i, \quad (1)$$

where FTE, PTE and UN represent indicators for full-time employment, part-time employment and unemployment for the respondent and their partner. Each coefficient estimate is thus calculated relative to those not in the labor force. X and X_p are individual characteristics of the respondent and partner including age, age squared, education and indicators for black and hispanic. H_i includes household level characteristics of the presence of any children, a child under the age of 5 and a child under the age of 10 as well as the state and metropolitan status of the household. T_i includes several controls for the date of the diary: the day, week, month and year of the survey and an indicator if the day of the survey was a holiday. The time and location based regressors along with race and education characteristics are unreported in the following regression results.

When confronted with data that include a large number of zero points or where the dependent variables are otherwise limited in some manner, the Tobit statistical model is frequently employed to model the underlying relationships. This is the procedure by which Connelly and Kimmel (2009b) use to construct their estimates of spousal time use in a Seemingly Unrelated Regression model. The Tobit specification, however, assumes the likelihood of participating in an activity and the amount of time spent in an activity are the result of the same underlying decision process (Stewart, 2009). This is unlikely to be true for time use in a number of cases. As Stewart (2009) explains, where there are large numbers of non-participation, Tobit performs poorly relative to OLS in generating unbiased and consistent results. The authors also found that OLS performs well, but might still be problematic since a linear specification permits prediction of time use that are negative, which is not possible.

Using Swedish data, Daunfeldt and Hellström (2007) come to a similar conclusion and utilize a

Cragg model to estimate the determinants of time use for various household production activities. The empirical strategy developed in Cragg (1971) appears to be a theoretically nice fit for time use data. Instead of a regressor forced to have the same directional affect on the probability of participation and the duration of activity, the Cragg model separately models both decisions Burke (2009). In particular, the model combines a probit with the truncated normal when the variable of interest t is positive:

$$f(s, t | \mathbf{x}_1 \mathbf{x}_2) = \{1 - \Phi(\mathbf{x}_1 \gamma)\}^{I(w=0)} [\Phi(\mathbf{x}_1 \gamma) (2\pi)^{-\frac{1}{2}} \sigma^{-1} \exp\{-(y - \mathbf{x}_2 \beta)^2 / 2\sigma^2\} / \Phi(\mathbf{x}_2 \beta / \sigma)]^{I(w=1)} \quad (2)$$

where s is an indicator equal to 1 if t is positive and 0 otherwise. In the above model, γ is the vector by which x_1 affects the probability of participation and β is the vector by which x_2 affects the amount of time spent in an activity. Of note, if $x_1 = x_2$ and $\gamma = \beta/\sigma$, then this is equivalent to the Tobit model (Burke, 2009; Cragg, 1971). Using the same covariates, I thus perform this two-part Cragg estimation that separately estimates the participation and time length decisions.

Since a continuous income variable is not readily available for the respondents, I repeat each of the above regressions by including income controls based on income categories which are provided for about 90% of the sample in the ATUS data¹⁰. Coefficient estimates are reported relative to those making between \$0 and \$30,000. Additionally, both the OLS and Cragg estimations are run on each income category subsample separately to determine if there is a differential impact on each of the coefficient estimates.

Table 6 presents the difference between the coefficients of full employment and unemployment (reported in weekly hours) for both respondents and partners for each of the respondent time use values. Table 7 present the same estimates when income controls are utilized. Full estimation results for the OLS regressions, with and without income controls, are found in Tables 8 - 11. Tables 12 - 15 report the Cragg estimates of the effect on unconditional time use. These are calculated by generating predicted values for the sample and then calculating the marginal effects on the probability of activity participation and on the amount of reported activity time conditional on ac-

¹⁰These categories are classified by \$0-\$30,000, \$30,000-\$50,000, \$50,000-\$75,000, \$75,000-\$100,000 and above \$100,000

tivity participation. The product of these two values gives the marginal effect on the unconditional activity time. Bootstrapped standard errors are reported.

A loss in employment leads to 32-35 less hours of work per week for women and 36-39 hours less work per week for men when looking at the OLS and Cragg estimations, which are roughly consistent with expectations, providing some validity to the empirical strategy. We see larger own-unemployment reductions in work time for men, as expected because they spent more time in work on average. With this increase in available time, about two-thirds to one-half is spent in household production for women and one-half to one-third for men. This provides evidence that unemployment does not lead to all extra time sleeping and watching television, although the remainder of the time is mostly spent in leisure activities. Additionally, such values are consistent with those found in Aguiar et al. (2011).

The impact of a change in employment by a respondent's spouse has a small, but statistically significant impact on labor supply of about an hour and half increase for females and about an hour for males per week. This is entirely consistent with previous literature on the Added Worker Effect. This effect is larger for women than men which may reflect higher flexibility for labor supply choice or a higher need for the household to replace the earnings of a male partner. These regressions include the sex of the partner, and tables 8-14 do seem to suggest those with male partners work less on weekdays for both sexes.

It is quite likely that a reduction of 2-3 hours per week of household work due to partner unemployment for both men and women does allow for this increased labor supply. As the amount of household production reduced by respondents whose partner is unemployed is much smaller than the increase by the unemployed respondents, it is likely that this extra production represents new household work as opposed to purely taking on the partner's responsibilities. This indicates either a substitution of household production for income from market work or a shift of household production time from the future for larger prospects that are not related to normal daily or weekly maintenance. There is little evidence of any noticeable impact of a partner's unemployment on leisure time.

Of note, the existence of children significantly increases the amount of household production and decreases leisure time for both sexes on weekdays and weekends. Changes are much smaller for men than women, however; having a child under the age of 5 increases household production time by

16.6 hours weekly for females and by 9.0 hours weekly for males¹¹. Similarly, leisure time is reduced by 8.5 hours for women and only 5.6 hours for men. Work time does not significantly change much except for mothers of children under the age of 5 on weekdays. Additionally, women with same sex partners work considerably more (7.0 hours a week) with most of that time (6.1 hours) coming from a reduction in household production. Males in same sex couples have the opposite direction, working less and spending more time in household production, however the effects are smaller and not statistically significant. Marginal effects from the Cragg estimation are similar, generating less leisure for more household production during weekdays for females and more reduction of leisure for males.

The addition of income controls does not substantially change the estimates of the coefficients from the estimation procedures or the difference between full-time employment and unemployment. There is some small indication it increases the measure of the added worker effect, particularly for men. This may be due to male partner unemployment occurring more likely in households at income levels which see lower added worker effects. Differences generated by income could be a result of either differences in the desire for more spousal work time or differences in the ability to obtain more spousal work time. I explore these potential differences by performing an OLS estimation separately for each income level¹². Calculated estimates of the time use effects of full employment to unemployment are plotted in Figure 1. Bars indicating 95% confidence intervals are included.

There does not appear to be substantial variation across income levels with respect to time use changes resulting from own unemployment, except for a couple key observations. Females of higher incomes report more of their time in household production and less in leisure than those of lower incomes. This may be the result of those households substituting market-based household production for one's own. This is consistent with the idea that higher income households would be more likely to obtain market-based household production. Interestingly, this observation does not seem to be generated for men indicating women are more likely to perform this substitution as a result of unemployment than men are.

¹¹Calculated by adding the three children-related coefficients 5 times for weekday and 2 times for weekend and then dividing by 60

¹²Note the sample size is now being split three ways (by gender, weekday/weekend and income), in addition to losing about 12% of the sample through omitted income. Each regression only includes about 2500-3000 observations. As such, the Cragg estimation procedure fails to converge for several of the subsamples.

The impact of partner’s unemployment does seem to generate an added worker effect that differs across income levels. The point estimate for females in households reporting income over \$100,000 is double that of those making below \$75,000. Sample sizes generate standard errors which are too large to confirm a statistical significance, but this would seem to be an economically significant difference. Females in this income group also experience more household production less of a decline in household production than those making less. While the added worker effect is smaller for men, there is also an indication that the added worker effect for males also increases with income, although there is also an increase for those making less than \$30,000 as well. This would be consistent with the idea that partners of the unemployed in households with high levels of income are more likely to either want to or be able to work more hours. Male workers in poor households are also more likely to illustrate an added worker effect compared to those in middle-income households, while this difference does not seem to be illustrated for females. Males in poor households also exhibit substantially less household production relative to the rest of the population.

3.2 Marginal Effect of Spousal Time Use

With the results of the estimation procedure above, it is then possible to construct out-of-sample predictions of spousal hours in each of the three activities of work, leisure and household production. These constructions are necessary because the ATUS asks of a diary from only one selected member of a household. From this, I estimate the average and marginal effect an additional minute of partner activity has on one’s own activity.

Connelly and Kimmel (2009a) discuss the fatality of not having dual diaries from a household. Using their model from Connelly and Kimmel (2009c) of the effect of relative wages on spousal time and child care, they jointly estimate time use using in-sample respondents for the out-of-sample spouses. Additionally, they use a propensity score matching system to “marry” two respondents with characteristics similar to each others’ spouses. Using German data that include spousal diaries, they evaluate the usefulness of each approach, determining that there are costs and benefits in the constructed or matched data versus actual data (which do not exist for ATUS). Matching models generate more variation and can lead to fewer significant results and different results that predicted or actual data, although they argue the ATUS matches are of higher quality than the tested German

data. Predicted out-of sample constructions generate results which are also less significant than actual data, but are generally consistent. They also note that actual spousal data is not necessarily the best option because of the endogeneity in jointly-considered household time choices and possible preferences for (or against) coordination, depending on the questions being asked. The estimate using the propensity score matching procedure, however, would seem highly dependent on the choice of matching procedure. Connelly and Kimmel (2009c) predict the gender of the spouse, but do not indicate why matching on “male-ness” would be the best suited variable of interest.

I do construct out-of-sample spousal time use by utilizing the previous Cragg estimation results (without the income indicators) to then estimate the probability of participation for spousal activity, the expected value of time conditional on activity participation from the truncated regression and then multiply the two to generate an estimate of the unconditional time use in work, leisure and household production for each spouse. The process generates means for the predictions of spousal time use which are very close to those of the sample itself.

Again, I perform an OLS regression and a two-part Cragg estimation on the sample with the constructed spousal time use to estimate the marginal effect of spousal time use. Endogeneity with the time use of the respondent may still a factor, but because these are constructed, out-of-sample time uses, concerns should be minimal. The OLS is of the form:

$$T_i = \beta_0 + \beta_1 FTE_i + \beta_2 PTE_i + \beta_3 UN_i + \beta_4 \widehat{Work}_{Pi} + \beta_5 \widehat{Leisure}_{Pi} + \beta_6 \widehat{HHProd}_{Pi} + \gamma_1 X_i + \gamma_2 X_{Pi} + \gamma_3 H_i + \gamma_4 T_i, \quad (3)$$

with the two-part Cragg estimation using the same covariates.

Tables 16 and 17 present a summary of the regressions reporting just the coefficient estimates for spousal time use from for each of the three own-time uses. Results are presented in minutes changed by the respondent per one hour change in spousal time. The magnitudes generated by the OLS and Cragg estimations are slightly high relative to the results from the first part, but most are consistently signed. The marginal effects are all of the same sign as the effects seen in Table 6. The magnitudes calculated using the OLS regression from the Cragg estimates are likely unreasonably high, but may be plausible if marginal activity is more likely to be dependent on spousal behavior.

Full results from the OLS regressions using the Cragg estimators are found in Tables 18 and 19. Results from the Cragg estimation using the Cragg estimators are found in Tables 20 and 21.

Results from own-employment time use coefficients are not substantially different from the other estimations.

Some interesting stories emerge from these results. For both males and females, weekday time use is much less responsive to the marginal time use of their partner relative to weekends. This is likely due to individuals being more likely to be in set routines during weekdays with less observed and less possible variability in time use choices. Females do respond to an increase in an hour worked by their partner by participating in about 5 minutes more of their own work according to the OLS regression, although this is not seen in the Cragg regression. This sign of the effect of partner leisure time on female work and leisure time is in opposite directions during weekdays, but they are not precisely estimated. The same sign difference occurs in the result for the male time use. Different signs could occur in the two specifications if the the probability of work is increased as a result of partner leisure time, but the conditional work time falls. An hour of partner household production on weekdays, however, is related with higher female labor supply of 6-9 minutes. Although imprecisely estimated, this may also result in lower household production for females by 3-5 minutes. Marginal male household production seems strongly related to an hour of partner's household production, falling by about 13 minutes during weekdays under both specifications.

On weekends, many of these relationships change. Partner work results in less female work and more female leisure. Partner leisure also generates less female work and quite a bit more female leisure. One hour of partner leisure results in 20 minutes of additional female leisure according to the OLS regression and 15 minutes according to the Cragg regression. The results suggest high complementarity of leisure on weekends, echoing the research in Hamermesh (2002). Additionally, an hour of partner household production is associated with declines in market work for females of 12 minutes, an increase in leisure of 11 minutes and a decrease in household production of 17 minutes when looking at the OLS estimates, although standard errors are somewhat high for each estimate. Although the estimate for leisure is imprecise, the estimate for the effect on own household production is almost a full half hour using the Cragg procedure, suggesting significant substitutability between partner's household production on the weekend, by which the female respondent can increase time in leisure, sleep or other personal activities.

Male work and household production is much more responsive to the time use decisions of

their partner relative to those time use categories for females, but their leisure time is much less responsive. An hour of partner work is associated with 11 more minutes of male work during the week and 22 minutes of work on the weekends according the OLS estimates using predicted spousal time use. Incidentally, men spend less time in household production as a result indicating income effects which may work to reduce the time demands on household production. There is some evidence female leisure may even reduce male leisure during the week, and an hour of weekend leisure for females only results in 11 minutes fewer for males, indicating male response to female leisure is much more muted. That said, an hour of household production on the weekend by a partner reduces a male's production by almost the exact same amount as the effect on female. While this paper does not go into detail about the nature of the household production utilized by each gender, a more close analysis of the data could possibly yield the nature of the household production activities that are affected by these seemingly intra-household transfers of responsibility given it appears strong substitutability between the spouses. This, however, could also be an indication of the asynchronicities in the timing of household work, as such an effect does not show up on during the weekday.

4 Discussion

In this paper, like past research, I do not find any evidence for a strong added worker effect, but I do calculate a small positive influence for unemployment on spousal labor supply. This measures to be about 1-1.5 hours per week. Controlling for income appears to increase this measurement by a small amount and higher levels of income are associated with higher added worker effects. Increases in household production by spouses due to unemployment do not lead to subsequent large declines in own household production, however each extra hour on household production by the spouse can lead to crowd out one's own production by 15-30 minutes for men all days of the week and for women on weekends.

Although this paper does not model a bargaining process, the empirical evidence found suggests other related insights to the time allocation process for a household. There appear to exist large complementarities to leisure. I do not include wage or income data, but the coefficient estimates for education do not show any noticeable difference between partner's responses to the bargaining

power of spouses based on education as found in Connelly and Kimmel (2009b). Additionally, at least on the margin, household production time by a partner does substitute for such time use by the other.

Although we use the same data but different methodologies, my results and those found in Aguiar et al. (2011) find similar measures of the proportion of foregone work hours allocated toward household production. The estimates found in this paper may be slightly larger than theirs, but I include child care in my measure, which they separately distinguish. Regardless, both are important findings because they begin to dispel the notion that unemployment generates substantial “free time” consisting of mostly leisure activity. While this is still partly true, the increase in household production suggests both a shift towards non-market means of household work and possibly a desire to “stay busy.” Of course, examining data which focused solely on couples and during a time period of economic instability may contribute to such findings. Gimenez-Nadal et al. (2010) specifically found evidence that unemployed persons are more likely to spend time in household production (versus leisure) when overall unemployment is higher.

Income does not appear to provide substantial variation on the hours changed as a result of respondent’s unemployment except for in households making above \$100,000. Males see less differences in work time in this income range, indicating they likely spending much more time in job search activities. If unemployment benefits are smaller relative to their household income level, they have a larger incentive to spend time looking for a job. They might also have the resources to not be required to substitute their own time for household production. This effect, however, is unique to male respondents. Female respondents in this income range see higher levels of household production relative to other income groups and no difference in the change in work time. Since income is calculated at the household level, this is likely the result of men being more likely to be the main bread winner in households making over \$100,000, but an interesting future research question would be to see if this effect is consistent regardless of the division of the source of household income. While research such as Friedberg and Webb (2006) and Connelly and Kimmel (2009c) has examined the effect of relative household wages, they come to different conclusions regarding whether this generate substantial differences in non-market time use, and neither directly examine the impact of household unemployment.

This research also has implications for unemployment insurance generosity. In addition to find-

ings that they slow job searches, unemployment insurance generosity decreases home production by the recipient (Güler and Taskin, 2013). This is consistent with theory that suggests such insurance payments may be used to purchase market-based substitutes for home production. This also generate significant rethinking of measures of a country’s economic well-being. Home production does not contribute to GDP in the same way market-based substitutes would, but to the extent it is utilizing idle resources of the unemployed, it could promote confidence, skill retention and avoidance of malaise that could cloud future job prospects. Additionally, different types of unemployment together to develop a large enough sample, there is theoretical and empirical reasons why different types of unemployment can lead to different types of behavioral adjustment. Dynarski and Sheffrin (1987) notes consumption changes are smaller for those who are laid off and face potential recall than those who are unemployed due to firing, such as with white collar workers and preliminary research by myself suggests such behavior is somewhat reflected in time use data as well. It will be useful to develop this research by better identifying how impacts differ short-term unemployed, long-term unemployed and laid-off workers or how responses differ by the industry or profession. The time use changes of the increasing number of individuals in recent years who have involuntarily moved from full time to part time work can also provide a source of measuring the psychological and economic impact of the labor market changes following the Great Recession.

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Table 1: **Summary Sample Statistics**

	Female		Male		Full Sample
	Weekday	Weekend	Weekday	Weekend	
<u>FT Employment</u>					
Self	0.428 (0.495)	0.439 (0.496)	0.714 (0.452)	0.730 (0.444)	0.570 (0.495)
Partner	0.681 (0.466)	0.688 (0.463)	0.413 (0.492)	0.420 (0.494)	0.558 (0.497)
<u>PT Employment</u>					
Self	0.191 (0.393)	0.187 (0.390)	0.0642 (0.245)	0.0580 (0.234)	0.129 (0.335)
Partner	0.0932 (0.291)	0.0895 (0.285)	0.183 (0.386)	0.187 (0.390)	0.135 (0.342)
<u>Unemployed</u>					
Self	0.0338 (0.181)	0.0347 (0.183)	0.0323 (0.177)	0.0317 (0.175)	0.0332 (0.179)
Partner	0.0509 (0.220)	0.0524 (0.223)	0.0653 (0.247)	0.0614 (0.240)	0.0572 (0.232)
<u>Age</u>					
Self	45.53 (14.04)	45.22 (14.04)	48.33 (14.31)	47.58 (14.33)	46.60 (14.23)
Partner	47.85 (14.40)	47.47 (14.39)	46.03 (14.07)	45.28 (14.03)	46.71 (14.27)
<u>HS degree</u>					
Self	0.910 (0.287)	0.904 (0.295)	0.897 (0.304)	0.892 (0.310)	0.901 (0.299)
Partner	0.887 (0.316)	0.880 (0.325)	0.905 (0.293)	0.906 (0.291)	0.894 (0.308)
<u>BA degree</u>					
Self	0.352 (0.478)	0.350 (0.477)	0.372 (0.483)	0.374 (0.484)	0.361 (0.480)
Partner	0.358 (0.480)	0.349 (0.477)	0.350 (0.477)	0.357 (0.479)	0.353 (0.478)
<u>Post-grad degree</u>					
Self	0.119 (0.324)	0.117 (0.322)	0.149 (0.356)	0.149 (0.356)	0.133 (0.339)
Partner	0.139 (0.346)	0.137 (0.344)	0.116 (0.321)	0.123 (0.328)	0.129 (0.335)
Partner Male	0.996 (0.0656)	0.995 (0.0679)	0.00358 (0.0597)	0.00484 (0.0694)	0.526 (0.499)
Any HH Child	0.596 (0.491)	0.597 (0.491)	0.572 (0.495)	0.596 (0.491)	0.590 (0.492)
Child 5 or under	0.291 (0.454)	0.299 (0.458)	0.281 (0.449)	0.294 (0.456)	0.292 (0.455)
Child 10 or under	0.447 (0.497)	0.451 (0.498)	0.425 (0.494)	0.448 (0.497)	0.443 (0.497)
<i>N</i>	15758	15963	14246	14250	60217

Sample proportions provided, except for age; sd in parentheses

Table 2: Summary Sample Statistics by Income : Part 1

	\$0- \$30,000	\$30,000- \$50,000	\$50,000- \$75,000	\$75,000- \$100,000	\$over \$100,000	Full Sample
% Black	0.116 (0.320)	0.0835 (0.277)	0.0646 (0.246)	0.0531 (0.224)	0.0416 (0.200)	0.0735 (0.261)
% Hispanic	0.285 (0.452)	0.170 (0.376)	0.0911 (0.288)	0.0619 (0.241)	0.0542 (0.226)	0.125 (0.331)
% Metro area	0.715 (0.451)	0.739 (0.439)	0.788 (0.408)	0.864 (0.343)	0.915 (0.279)	0.802 (0.399)
<u>FT Employment</u>						
Self	0.349 (0.477)	0.502 (0.500)	0.628 (0.483)	0.686 (0.464)	0.703 (0.457)	0.570 (0.495)
Partner	0.334 (0.472)	0.503 (0.500)	0.615 (0.487)	0.670 (0.470)	0.692 (0.462)	0.558 (0.497)
<u>PT Employment</u>						
Self	0.129 (0.335)	0.135 (0.342)	0.132 (0.338)	0.127 (0.333)	0.123 (0.329)	0.129 (0.335)
Partner	0.139 (0.346)	0.137 (0.344)	0.139 (0.346)	0.134 (0.341)	0.130 (0.337)	0.135 (0.342)
<u>Unemployed</u>						
Self	0.0596 (0.237)	0.0402 (0.197)	0.0311 (0.174)	0.0225 (0.148)	0.0171 (0.130)	0.0332 (0.179)
Partner	0.0848 (0.279)	0.0636 (0.244)	0.0525 (0.223)	0.0453 (0.208)	0.0422 (0.201)	0.0572 (0.232)
<u>Age</u>						
Self	47.74 (18.01)	46.56 (15.76)	45.12 (13.19)	44.94 (11.39)	45.91 (10.53)	46.60 (14.23)
Partner	47.98 (18.12)	46.79 (15.81)	45.22 (13.22)	45.01 (11.39)	45.89 (10.49)	46.71 (14.27)
<i>N</i>	9408	10763	12277	10599	10138	60217

Sample proportions provided, except for age and time use; standard deviations in parentheses

Table 3: **Summary Sample Statistics by Income : Part 2**

	\$0- \$30,000	\$30,000- \$50,000	\$50,000- \$75,000	\$75,000- \$100,000	\$over \$100,000	Full Sample
<u>HS degree</u>						
Self	0.690 (0.463)	0.870 (0.336)	0.954 (0.209)	0.983 (0.130)	0.991 (0.0933)	0.901 (0.299)
Partner	0.677 (0.468)	0.860 (0.347)	0.947 (0.224)	0.982 (0.131)	0.989 (0.106)	0.894 (0.308)
<u>BA degree</u>						
Self	0.0933 (0.291)	0.183 (0.386)	0.334 (0.472)	0.529 (0.499)	0.695 (0.461)	0.361 (0.480)
Partner	0.0940 (0.292)	0.172 (0.378)	0.325 (0.468)	0.521 (0.500)	0.685 (0.465)	0.353 (0.478)
<u>Post-grad degree</u>						
Self	0.0223 (0.148)	0.0484 (0.215)	0.0968 (0.296)	0.198 (0.398)	0.316 (0.465)	0.133 (0.339)
Partner	0.0232 (0.150)	0.0437 (0.204)	0.0934 (0.291)	0.196 (0.397)	0.307 (0.461)	0.129 (0.335)
Any HH Child	0.527 (0.499)	0.558 (0.497)	0.615 (0.487)	0.641 (0.480)	0.677 (0.468)	0.590 (0.492)
Child 5 or under	0.316 (0.465)	0.298 (0.457)	0.308 (0.462)	0.295 (0.456)	0.292 (0.455)	0.292 (0.455)
Child 10 or under	0.430 (0.495)	0.433 (0.496)	0.465 (0.499)	0.467 (0.499)	0.486 (0.500)	0.443 (0.497)
<i>N</i>	9408	10763	12277	10599	10138	60217

Sample proportions provided, except for age and time use; standard deviations in parentheses

Table 4: Mean Average Times and Participation Rates for Weekdays (min/day)

	Full Sample	Females	Males	\$0-\$30,000	\$30,000-\$50,000	\$50,000-\$75,000	\$75,000-\$100,000	above \$100,000
Work	284.1 (267.9)	220.7 (247.6)	354.3 (272.0)	175.8 (245.2)	250.4 (266.6)	309.5 (263.2)	338.4 (262.2)	356.7 (261.7)
Leis	248.1 (185.1)	235.4 (170.2)	262.1 (199.4)	310.4 (213.1)	271.9 (195.5)	235.2 (173.4)	211.1 (157.8)	202.1 (151.9)
HHPPr	212.0 (190.9)	276.4 (199.0)	140.9 (152.8)	233.0 (201.0)	218.5 (194.0)	208.2 (186.1)	203.7 (186.5)	196.9 (184.4)
Pr(Work)	0.604 (0.489)	0.512 (0.500)	0.705 (0.456)	0.396 (0.489)	0.539 (0.499)	0.656 (0.475)	0.710 (0.454)	0.739 (0.439)
Pr(Leis)	0.958 (0.200)	0.959 (0.197)	0.957 (0.202)	0.964 (0.187)	0.960 (0.197)	0.962 (0.191)	0.954 (0.210)	0.953 (0.211)
Pr(HHPPr)	0.919 (0.273)	0.972 (0.165)	0.860 (0.347)	0.907 (0.290)	0.914 (0.281)	0.925 (0.264)	0.927 (0.261)	0.925 (0.263)
<i>N</i>	30004	15758	14246	4688	5305	6151	5241	4982

Standard deviations in parentheses

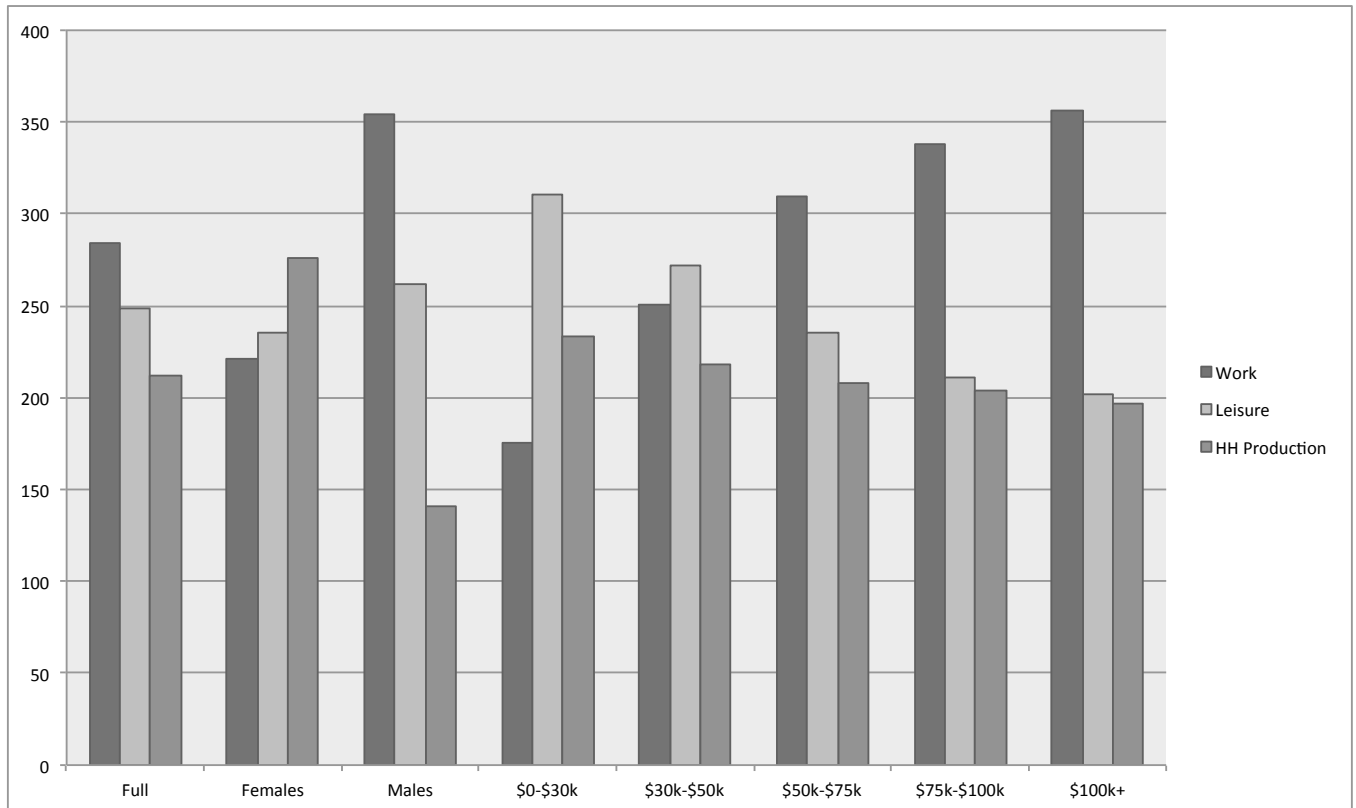


Table 5: Mean Average Times and Participation Rates for Weekends (min/day)

	Full Sample	Females	Males	\$0-\$30,000	\$30,000-\$50,000	\$50,000-\$75,000	\$75,000-\$100,000	above \$100,000
Work	71.79 (173.0)	51.04 (143.1)	95.04 (198.7)	68.90 (173.2)	74.20 (180.0)	76.51 (178.5)	72.35 (171.1)	67.04 (159.7)
Leis	363.3 (203.3)	333.5 (186.5)	396.7 (215.7)	398.3 (221.2)	375.6 (208.2)	358.7 (200.6)	341.5 (190.2)	333.0 (185.4)
HHPPr	248.5 (190.9)	288.6 (188.6)	203.4 (183.1)	213.6 (191.7)	235.4 (189.4)	251.8 (190.4)	270.3 (189.8)	277.1 (185.2)
Pr(Work)	0.245 (0.430)	0.194 (0.395)	0.302 (0.459)	0.183 (0.387)	0.209 (0.407)	0.254 (0.435)	0.273 (0.446)	0.311 (0.463)
Pr(Leis)	0.976 (0.153)	0.977 (0.151)	0.975 (0.156)	0.976 (0.154)	0.978 (0.148)	0.976 (0.155)	0.974 (0.158)	0.977 (0.151)
Pr(HHPPr)	0.921 (0.270)	0.963 (0.189)	0.874 (0.332)	0.876 (0.330)	0.918 (0.274)	0.928 (0.259)	0.943 (0.232)	0.948 (0.222)
<i>N</i>	30213	15963	14250	4720	5458	6126	5358	5156

Standard deviations in parentheses

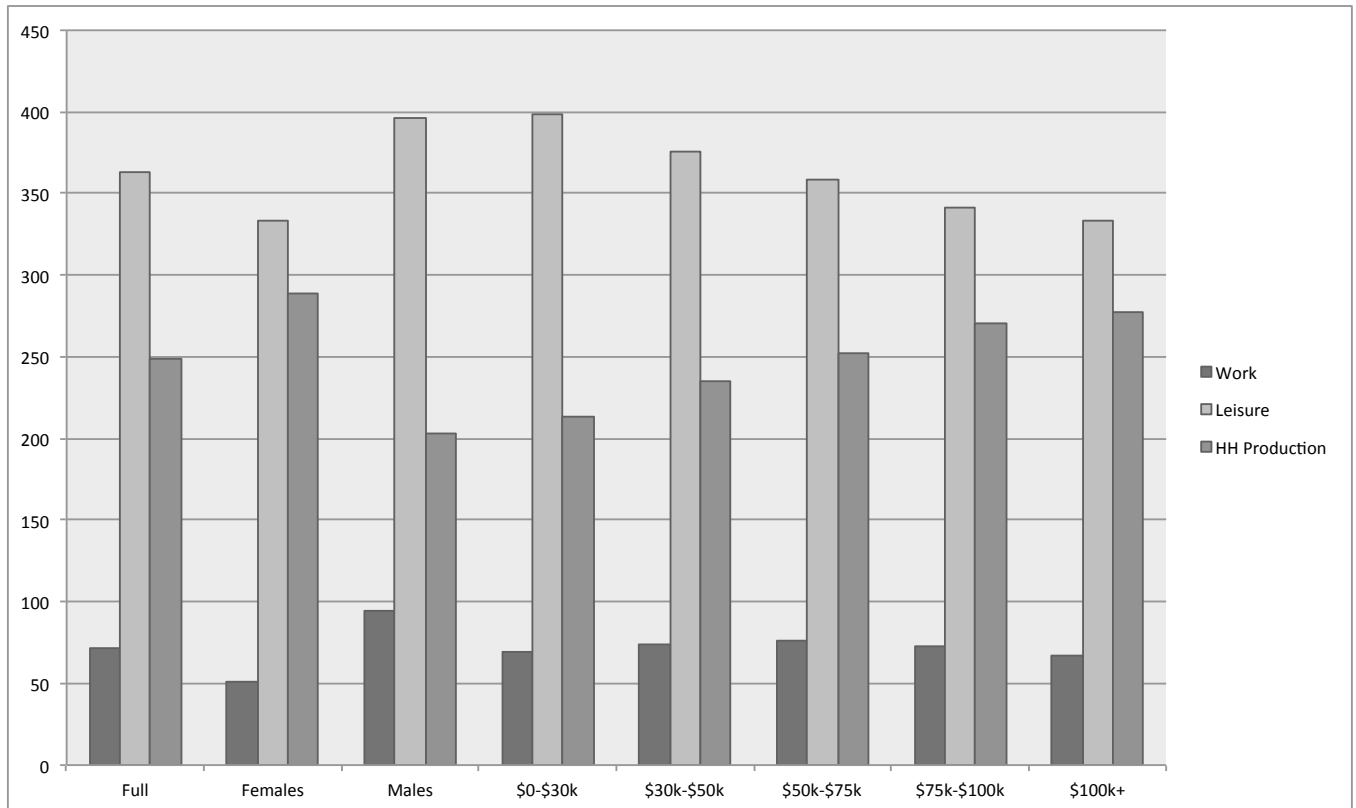


Table 6: **Time Use Effects of Full Employment to Unemployment**

(Hours per week change in each activity)

	Work		Leisure		HH Production	
	OLS	CRAGG	OLS	CRAGG	OLS	CRAGG
FEMALE						
Self	-34.67 (0.35)	-32.70 (1.09)	12.23 (0.35)	12.35 (0.33)	17.69 (0.38)	21.13 (0.36)
Partner	1.37 (0.36)	1.50 (0.36)	0.51 (0.36)	0.51 (0.39)	-2.23 (0.39)	-2.05 (0.46)
MALE						
Self	-36.36 (0.52)	-38.27 (1.84)	14.56 (0.47)	13.49 (0.48)	16.14 (0.41)	12.70 (0.38)
Partner	0.80 (0.36)	1.13 (0.37)	0.14 (0.33)	0.19 (0.33)	-2.44 (0.29)	-2.28 (0.30)

Estimates constructed from 5 times the weekday coefficients plus twice the weekend coefficients divided by 60 to convert to hours. Bootstrapped standard errors report for Cragg estimates.

Table 7: **Time Use Effects of Full Employment to Unemployment with income controls**

(Hours per week change in each activity)

	Work		Leisure		HH Production	
	OLS	CRAGG	OLS	CRAGG	OLS	CRAGG
FEMALE						
Self	-34.41 (0.37)	-32.51 (1.12)	11.65 (0.37)	11.80 (0.32)	17.64 (0.40)	20.86 (0.41)
Partner	1.53 (0.40)	1.74 (0.42)	0.13 (0.39)	0.12 (0.40)	-2.17 (0.42)	1.98 (0.47)
MALE						
Self	-36.07 (0.56)	-38.80 (2.21)	14.41 (0.50)	13.51 (0.48)	15.93 (0.44)	12.53 (0.41)
Partner	1.27 (0.39)	1.59 (0.38)	-0.01 (0.35)	0.03 (0.38)	-2.34 (0.31)	-2.22 (0.35)

Estimates constructed from 5 times the weekday coefficients plus twice the weekend coefficients divided by 60 to convert to hours. Bootstrapped standard errors report for Cragg estimates.

Table 8: OLS Estimates of the Effect of Employment Status on Time Use for Females

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment (self)	403.2*** (3.373)	-131.5*** (3.050)	-215.4*** (3.409)	82.86*** (2.852)	-55.30*** (3.635)	-18.70*** (3.695)
FT employment (partner)	2.278 (4.871)	-19.28*** (4.404)	35.20*** (4.924)	-0.202 (4.182)	-24.22*** (5.330)	25.61*** (5.418)
PT employment (self)	202.0*** (3.923)	-72.89*** (3.547)	-106.9*** (3.966)	70.49*** (3.335)	-36.39*** (4.250)	-30.08*** (4.320)
PT employment (partner)	12.18* (5.849)	-27.54*** (5.289)	28.20*** (5.912)	10.20* (5.033)	-15.90* (6.415)	5.857 (6.520)
Unemployed	18.44* (7.555)	-2.853 (6.831)	-14.24 (7.637)	4.677 (6.271)	-10.08 (7.993)	9.059 (8.125)
Unemployed (partner)	11.41 (7.104)	-16.66** (6.423)	18.46* (7.181)	18.09** (5.952)	-15.43* (7.586)	0.522 (7.711)
Male partner	-71.71*** (19.92)	1.009 (18.01)	62.44** (20.13)	-32.75* (16.13)	15.68 (20.56)	26.46 (20.90)
Age (Self)	1.885 (1.131)	-2.743** (1.023)	7.350*** (1.143)	-1.384 (0.947)	-3.253** (1.207)	7.500*** (1.227)
Age (Partner)	-1.079 (1.139)	-0.385 (1.030)	0.344 (1.152)	0.339 (0.959)	-1.898 (1.223)	2.332 (1.243)
Age ² (Self)	-0.0265* (0.0114)	0.0428*** (0.0103)	-0.0733*** (0.0115)	0.00994 (0.00960)	0.0472*** (0.0122)	-0.0749*** (0.0124)
Age ² (Partner)	0.0126 (0.0112)	-0.00124 (0.0101)	0.000539 (0.0113)	-0.00155 (0.00943)	0.0101 (0.0120)	-0.0150 (0.0122)
Any HH Child	-7.021 (4.310)	-18.77*** (3.897)	45.42*** (4.356)	1.234 (3.654)	-24.75*** (4.657)	32.93*** (4.733)
Child under 5	-15.29*** (4.305)	-28.86*** (3.892)	64.61*** (4.351)	1.722 (3.633)	-39.20*** (4.631)	63.50*** (4.707)
Child under 10	-6.291 (4.792)	-20.69*** (4.333)	36.05*** (4.844)	-5.366 (4.077)	-18.78*** (5.196)	36.50*** (5.282)
Observations	15758	15758	15758	15963	15963	15963

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: OLS Estimates of the Effect of Employment Status on Time Use for Females with Income Indicators

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	401.3*** (3.643)	-129.3*** (3.274)	-215.4*** (3.634)	84.53*** (3.068)	-53.17*** (3.897)	-21.72*** (3.952)
FT employment (partner)	-2.371 (5.387)	-18.12*** (4.840)	37.18*** (5.373)	2.899 (4.598)	-20.86*** (5.840)	22.52*** (5.924)
PT employment	201.2*** (4.189)	-71.01*** (3.764)	-106.4*** (4.178)	71.25*** (3.553)	-34.07*** (4.512)	-31.96*** (4.577)
PT employment (partner)	9.857 (6.357)	-27.77*** (5.712)	30.72*** (6.341)	11.31* (5.452)	-12.70 (6.925)	5.846 (7.024)
Unemployed	21.33** (8.119)	-6.746 (7.296)	-16.59* (8.098)	2.381 (6.598)	-10.01 (8.381)	10.12 (8.501)
Unemployed (partner)	8.448 (7.702)	-18.64** (6.920)	20.89** (7.681)	22.14*** (6.370)	-15.72 (8.092)	-1.966 (8.207)
Male Partner	-64.90** (21.08)	2.883 (18.94)	60.89** (21.03)	-32.49 (17.00)	32.36 (21.60)	13.06 (21.91)
Age	1.661 (1.224)	-2.609* (1.100)	7.318*** (1.221)	-0.949 (1.017)	-3.653** (1.292)	7.563*** (1.311)
Age (partner)	-1.702 (1.225)	0.642 (1.101)	0.425 (1.222)	0.459 (1.027)	-1.168 (1.304)	1.700 (1.323)
Age ²	-0.0247* (0.0124)	0.0418*** (0.0111)	-0.0721*** (0.0124)	0.00593 (0.0104)	0.0533*** (0.0132)	-0.0764*** (0.0134)
Age ² (partner)	0.0186 (0.0121)	-0.0122 (0.0108)	-0.000184 (0.0120)	-0.00274 (0.0102)	0.00116 (0.0129)	-0.00820 (0.0131)
Any HH Child	-5.600 (4.624)	-20.29*** (4.155)	46.60*** (4.612)	1.813 (3.886)	-24.32*** (4.936)	32.74*** (5.007)
Child under 5	-14.83** (4.544)	-30.19*** (4.083)	65.34*** (4.532)	1.309 (3.821)	-41.22*** (4.853)	64.72*** (4.922)
Child under 10	-9.422 (5.098)	-20.40*** (4.581)	38.44*** (5.085)	-3.391 (4.310)	-18.95*** (5.475)	36.24*** (5.553)
HH Income \$30k-\$50k	4.259 (4.748)	-4.489 (4.266)	-1.473 (4.736)	-5.417 (3.922)	-4.444 (4.982)	3.809 (5.054)
HH Income \$50k-\$75k	16.59*** (4.969)	-7.604 (4.465)	-9.873* (4.956)	-16.56*** (4.147)	-5.763 (5.267)	14.00** (5.342)
HH Income \$75k-\$100k	14.48** (5.487)	-15.70** (4.931)	-5.485 (5.473)	-23.79*** (4.560)	-11.61* (5.792)	23.20*** (5.875)
HH Income \$100k+	28.44*** (6.013)	-19.33*** (5.403)	-13.54* (5.997)	-20.53*** (4.965)	-16.16* (6.307)	28.92*** (6.397)
Observations	13841	13841	13841	14177	14177	14177

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: OLS Estimates of the Effect of Employment Status on Time Use for Males

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment (self)	443.4*** (5.678)	-230.8*** (4.752)	-135.4*** (4.223)	123.5*** (5.723)	-120.6*** (6.033)	7.569 (5.238)
FT employment (partner)	-11.66** (4.259)	-5.272 (3.564)	25.89*** (3.168)	-2.799 (4.241)	-8.999* (4.470)	19.33*** (3.881)
PT employment (self)	237.2*** (7.711)	-150.4*** (6.454)	-70.58*** (5.735)	96.96*** (8.008)	-92.66*** (8.440)	4.268 (7.328)
PT employment (partner)	-6.115 (4.973)	-1.392 (4.162)	14.18*** (3.699)	-0.00690 (4.951)	-10.91* (5.219)	13.44** (4.531)
Unemployed	51.25*** (10.30)	-83.19*** (8.617)	39.98*** (7.658)	13.15 (10.42)	-52.78*** (10.98)	53.21*** (9.533)
Unemployed (Partner)	-4.651 (7.048)	-6.110 (5.898)	2.112 (5.242)	3.641 (7.230)	-2.682 (7.621)	5.687 (6.616)
Male Partner	-38.42 (27.09)	12.81 (22.68)	3.592 (20.15)	9.757 (23.31)	-30.38 (24.57)	17.63 (21.33)
Age (Self)	-0.109 (1.384)	-2.386* (1.158)	3.966*** (1.029)	1.343 (1.364)	-3.602* (1.437)	6.195*** (1.248)
Age (Partner)	2.676* (1.353)	0.990 (1.133)	-0.658 (1.006)	-2.023 (1.341)	0.522 (1.414)	1.083 (1.227)
Age ²	-0.00717 (0.0136)	0.0304** (0.0114)	-0.0403*** (0.0101)	-0.00661 (0.0134)	0.0337* (0.0142)	-0.0621*** (0.0123)
Age ² (Partner)	-0.0265 (0.0137)	-0.00934 (0.0114)	0.0127 (0.0102)	0.0114 (0.0136)	0.00220 (0.0143)	-0.00655 (0.0124)
Any HH Child	2.092 (5.317)	-15.97*** (4.450)	10.59** (3.954)	2.833 (5.327)	-4.613 (5.615)	10.47* (4.875)
Child under 5	-2.295 (5.471)	-11.33* (4.579)	32.59*** (4.069)	-4.447 (5.330)	-22.02*** (5.617)	43.40*** (4.877)
Child under 10	-6.438 (6.047)	-14.57** (5.061)	29.30*** (4.497)	-12.32* (5.941)	-23.78*** (6.261)	34.37*** (5.436)
Observations	14246	14246	14246	14250	14250	14250

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: OLS Estimates of the Effect of Employment Status on Time Use for Males with Income Indicators

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	440.1*** (6.332)	-228.5*** (5.226)	-134.5*** (4.643)	126.3*** (6.305)	-119.3*** (6.633)	3.626 (5.764)
FT employment (partner)	-15.24** (4.662)	-3.427 (3.848)	24.74*** (3.419)	1.777 (4.576)	-9.202 (4.814)	14.22*** (4.183)
PT employment	243.0*** (8.469)	-154.2*** (6.990)	-70.75*** (6.211)	99.48*** (8.532)	-92.58*** (8.976)	4.434 (7.800)
PT employment (partner)	-7.879 (5.359)	-0.780 (4.424)	15.17*** (3.930)	3.766 (5.273)	-11.99* (5.548)	10.01* (4.821)
Unemployed	52.02*** (11.01)	-80.45*** (9.089)	35.66*** (8.076)	14.51 (11.12)	-56.87*** (11.70)	55.96*** (10.17)
Unemployed (partner)	-1.032 (7.588)	-5.779 (6.263)	-0.445 (5.565)	4.303 (7.712)	-3.472 (8.113)	7.038 (7.050)
Male Partner	-39.50 (27.71)	10.81 (22.87)	4.093 (20.32)	14.83 (24.06)	-40.90 (25.32)	23.35 (22.00)
Age	-0.720 (1.493)	-1.929 (1.233)	3.945*** (1.095)	1.596 (1.471)	-3.551* (1.548)	5.793*** (1.345)
Age (partner)	2.634 (1.471)	1.302 (1.214)	-1.263 (1.079)	-1.035 (1.445)	0.237 (1.520)	0.828 (1.321)
Age ²	-0.00236 (0.0149)	0.0264* (0.0123)	-0.0398*** (0.0109)	-0.00909 (0.0146)	0.0325* (0.0154)	-0.0573*** (0.0134)
Age ² (partner)	-0.0260 (0.0151)	-0.0125 (0.0124)	0.0187 (0.0111)	0.00258 (0.0147)	0.00612 (0.0155)	-0.00620 (0.0135)
Any HH Child	-1.270 (5.729)	-13.83** (4.729)	11.01** (4.201)	1.383 (5.680)	-2.090 (5.975)	9.752 (5.192)
Child under 5	-1.451 (5.815)	-11.55* (4.800)	32.01*** (4.264)	-3.086 (5.598)	-24.19*** (5.889)	43.01*** (5.117)
Child under 10	-5.611 (6.452)	-16.37** (5.325)	29.44*** (4.731)	-10.87 (6.280)	-24.14*** (6.607)	35.23*** (5.741)
HH Income \$30k-\$50k	5.401 (5.898)	-1.637 (4.868)	9.632* (4.325)	-11.22 (5.867)	-1.328 (6.172)	16.60** (5.363)
HH Income \$50k-\$75k	8.586 (6.203)	-8.360 (5.120)	15.33*** (4.549)	-16.12** (6.130)	1.220 (6.449)	19.70*** (5.604)
HH Income \$75k-\$100k	20.03** (6.816)	-15.59** (5.626)	10.54* (4.998)	-22.51*** (6.730)	-4.811 (7.080)	32.49*** (6.152)
HH Income \$100k+	25.86*** (7.390)	-10.88 (6.100)	7.446 (5.419)	-37.17*** (7.325)	-3.875 (7.706)	34.34*** (6.696)
Observations	12526	12526	12526	12641	12641	12641

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: Cragg Estimates of the Effect of Employment Status on Time Use for Females

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	385.3*** (15.9)	-131.3*** (2.83)	-207.7*** (3.54)	126.5*** (6.82)	-55.43*** (4.07)	-17.90 *** (3.348)
FT employment (partner)	4.477 (5.000)	-13.81** (4.507)	31.67*** (5.474)	3.123 (4.340)	-22.52*** (5.595)	25.84*** (5.950)
PT employment	258.9*** (17.64)	-64.51*** (3.26)	-86.25*** (3.50)	116.8*** (7.53)	-35.74*** (4.52)	-28.93 *** (4.12)
PT employment (partner)	16.04* (6.46)	-20.62*** (5.11)	24.44*** (6.55)	13.72* (5.94)	-13.70* (6.07)	6.472 (6.61)
Unemployed	38.81 (21.79)	-1.324 (5.976)	34.50*** (6.97)	11.86 (16.62)	-9.704 (8.18)	10.33 (8.27)
Unemployed (partner)	16.74* (6.96)	-11.21 (7.135)	16.12 (8.57)	17.34** (5.76)	-13.72 (8.156)	3.252 (9.495)
Male Partner	-57.58** (20.61)	-1.550 (23.416)	109.6*** (26.107)	-22.99 (13.385)	17.00 (30.90)	30.68 (37.95)
Age	4.442** (1.303)	-1.647 (1.109)	6.485*** (1.139)	-0.951 (0.946)	-2.883** (1.048)	8.192*** (1.311)
Age (partner)	-1.404 (1.186)	-0.400 (1.119)	0.578 (1.146)	0.655 (1.016)	-2.033 (1.197)	2.069 (1.403)
Age ²	-0.0574*** (.01225)	0.0275** (0.00865)	-0.0590*** (0.01296)	0.00589 (0.01169)	0.0422** (0.01217)	-0.0830*** (0.01225)
Age ² (partner)	0.0168 (0.01188)	-0.00107 (0.00914)	-0.000994 (0.01156)	-0.00442 (0.01086)	0.0112 (0.01300)	-0.0120 (0.01408)
Any HH Child	-8.459* (3.820)	-19.22*** (3.640)	55.89*** (4.785)	-0.445 (3.967)	-24.21*** (4.377)	34.76*** (4.476)
Child under 5	-13.48** (3.874)	-31.43*** (3.416)	59.33*** (3.727)	2.486 (3.553)	-41.51*** (4.666)	59.86*** (4.250)
Child under 10	-5.906 (4.300)	-23.50*** (4.858)	39.68 *** (4.555)	-3.110 (4.089)	-19.54*** (5.303)	35.73*** (5.113)
<i>N</i>	15758	15758	15758	15963	15963	15963

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: **Cragg Estimates of the Effect of Employment Status on Time Use for Females with income controls**

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	386.8*** (16.10)	-128.6*** (3.74)	-206.8*** (3.13)	124.8*** (8.65)	-53.34*** (3.46)	-20.95*** (3.86)
FT employment (partner)	-0.642 (5.64)	-12.21** (5.33)	33.50*** (4.52)	7.158 (4.70)	-19.35** (6.91)	22.42*** (6.75)
PT employment	259.8*** (18.11)	-62.55*** (3.31)	-84.87*** (3.55)	114.2*** (6.67)	-33.39*** (3.83)	-30.82*** (4.47)
PT employment (partner)	12.93 (7.28)	-20.37*** (5.85)	26.76** (8.72)	15.78* (6.21)	-10.72 (6.15)	6.425 (8.42)
Unemployed	46.88 (21.43)	-4.618 (5.50)	30.69*** (8.56)	-0.703 (19.44)	-9.178 (7.62)	11.02 (9.33)
Unemployed (partner)	14.29 (8.60)	-12.88 (6.79)	18.45* (9.25)	21.90*** (5.47)	-14.12* (7.00)	0.581 (9.64)
Male Partner	-52.81** (19.48)	-0.238 (16.57)	105.2*** (25.13)	-23.67 (13.30)	33.77 (38.43)	14.57 (28.36)
Age	4.100*** (1.1805)	-1.528** (0.9943)	6.407*** (1.1052)	-0.151 (1.0679)	-3.205* (1.3247)	8.294*** (1.3431)
Age (partner)	-2.130 (1.1228)	0.431 (0.9945)	0.683 (1.3398)	0.557 (1.1004)	-1.376 (1.2724)	1.411 (1.5140)
Age ²	-0.0544*** (0.0141)	0.0265 (0.0099)	-0.0568*** (0.0131)	-0.00344 (0.0124)	0.0473*** (0.0133)	-0.0849*** (0.0149)
Age ² (partner)	0.0242 (0.0139)	-0.00973 (0.0115)	-0.00216 (0.0151)	-0.00274 (0.0106)	0.00314 (0.0114)	-0.00491 (0.0131)
Any HH Child	-6.961 (3.94)	-19.99*** (4.84)	57.65*** (5.06)	-0.0691 (3.21)	-23.59*** (4.98)	34.87*** (6.03)
Child under 5	-14.27*** (4.23)	-33.63*** (3.66)	59.71*** (4.49)	2.119 (3.91)	-43.65*** (4.56)	61.17*** (5.54)
Child under 10	-8.362 (4.45)	-22.88*** (4.39)	42.72*** (4.80)	-1.789 (4.05)	-19.74*** (4.66)	35.84*** (4.51)
HH Income \$30k-\$50k	7.163 (5.69)	-3.150 (3.97)	-2.737 (5.30)	-5.659 (3.47)	-4.021 (5.43)	3.884 (4.49)
HH Income \$50k-\$75k	18.33*** (4.60)	-5.265 (4.86)	-11.17* (4.90)	-15.52*** (3.42)	-5.195 (5.41)	14.46** (5.24)
HH Income \$75k-\$100k	15.93*** (5.39)	-14.78*** (4.55)	-6.042 (4.57)	-22.49*** (4.32)	-11.26 (6.28)	23.78*** (5.17)
HH Income \$100k+	27.01*** (6.32)	-19.86*** (4.74)	-13.36* (6.33)	-18.71*** (4.64)	-16.07** (5.68)	29.26*** (6.39)
<i>N</i>	13841	13841	13841	14177	14177	14177

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: Cragg Estimates of the Effect of Employment Status on Time Use for Males

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	450.7*** (26.45)	-184.1*** (4.40)	-119.0*** (4.23)	219.2*** (27.29)	-114.0*** (5.51)	8.857 (5.695)
FT employment (partner)	-9.539* (4.256)	-3.791 (3.442)	23.38*** (3.08)	-3.760 (3.73)	-8.653 (4.56)	19.15 (3.87)
PT employment	288.5*** (28.27)	-102.9*** (6.48)	-52.78*** (5.34)	196.7*** (22.70)	-85.31*** (9.635)	6.500 (7.47)
PT employment (partner)	-4.366 (5.183)	-0.429 (3.928)	13.16*** (3.734)	0.519 (4.435)	-10.75* (5.150)	13.45 (4.672)
Unemployed	62.21* (30.96)	-49.76*** (7.19)	16.28** (5.70)	42.12 (34.23)	-45.19** (14.222)	51.75 (10.03)
Unemployed (partner)	0.772 (7.435)	-3.965 (6.077)	0.760 (5.603)	4.423 (7.335)	-2.480 (7.180)	7.266 (6.665)
Male Partner	-34.91 (31.51)	12.13 (33.37)	1.420 (21.62)	16.43 (27.61)	-29.97 (33.68)	19.71 (18.63)
Age	2.379 (1.614)	-1.704 (1.234)	3.005 (1.223)	1.323* (1.479)	-3.504* (1.513)	6.987 (1.501)
Age (partner)	3.672* (1.584)	0.719 (1.129)	0.0322 (0.870)	-1.017 (1.381)	0.552 (1.441)	1.169 (1.386)
Age ²	-0.0360* (0.016)	0.0229* (0.011)	-0.0296* (0.0117)	-0.00716 (0.0147)	0.0319* (0.0138)	-0.0713 (0.0139)
Age ² (partner)	-0.0398* (0.0163)	-0.00738 (0.0095)	0.00687 (0.00894)	0.00113 (0.01692)	0.00193 (0.0133)	-0.00795 (0.0167)
Any HH Child	-2.278 (5.405)	-15.09** (4.464)	11.83* (4.461)	1.036 (4.908)	-4.286 (5.762)	11.96 (5.273)
Child under 5	-1.389 (4.224)	-13.54* (5.283)	32.42*** (4.387)	-3.797 (5.392)	-23.07*** (6.260)	40.06 (4.370)
Child under 10	-7.260 (6.526)	-18.60** (5.389)	33.63*** (4.346)	-9.680 (6.080)	-24.80*** (7.082)	32.68 (4.997)
<i>N</i>	14246	14246	14246	14250	14250	14250

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 15: **Cragg Estimates of the Effect of Employment Status on Time Use for Males with income controls**

(Minutes per day change in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment	458.5*** (29.10)	-180.6*** (5.04)	-116.8*** (3.46)	218.7*** (23.31)	-112.4*** (5.94)	5.747 (7.10)
FT employment (partner)	-12.69** (4.91)	-1.883 (4.00)	22.02*** (3.59)	0.833 (3.81)	-8.933 (5.18)	14.20*** (3.81)
PT employment	301.1*** (34.41)	-105.5*** (7.09)	-52.54*** (6.18)	195.4*** (25.97)	-84.96*** (10.44)	7.403 (8.77)
PT employment (partner)	-5.716 (5.83)	0.294 (4.65)	14.24*** (3.80)	4.070 (4.56)	-11.83 (6.21)	9.878* (4.04)
Unemployed	63.40 (44.05)	-48.00*** (7.31)	13.75* (6.73)	42.51 (35.79)	-49.50*** (13.26)	55.40*** (10.38)
Unemployed (partner)	4.266 (7.63)	-3.810 (6.14)	-2.416 (6.00)	6.013 (5.80)	-3.332 (9.76)	8.583 (8.83)
Male Partner	-36.65 (29.10)	11.14 (44.93)	1.436 (21.54)	22.15 (23.70)	-40.77 (33.54)	25.65 (18.93)
Age	2.230 (1.4500)	-1.352 (1.2540)	3.045 (1.1841)	1.356 (1.6855)	-3.436 (1.8491)	6.442*** (1.4657)
Age (partner)	3.315* (1.4832)	1.047 (1.0826)	-0.560 (1.1492)	0.383 (1.3107)	0.232 (1.6891)	1.107 (1.4606)
Age ²	-0.0370** (0.0141)	0.0201 (0.0105)	-0.0295** (0.0113)	-0.00670 (0.0172)	0.0305* (0.0151)	-0.0648*** (0.0141)
Age ² (partner)	-0.0351 (0.0182)	-0.0109 (0.0112)	0.0125 (0.0108)	-0.0132 (0.0176)	0.00623 (0.0166)	-0.00983 (0.0147)
Any HH Child	-4.896 (5.72)	-12.43** (4.77)	12.35*** (3.74)	-0.572 (5.83)	-1.764 (5.95)	11.36 (5.93)
Child under 5	-1.094 (6.49)	-14.32* (6.06)	31.69*** (4.50)	-3.153 (5.83)	-25.24 (6.51)	39.82*** (4.30)
Child under 10	-6.443 (5.02)	-20.21*** (5.76)	33.70 (5.34)	-8.082 (5.45)	-25.11*** (6.64)	33.78*** (5.68)
HH Income \$30k-\$50k	5.525 (6.81)	0.0230*** (4.89)	7.287 (4.35)	-13.63* (5.68)	-0.575 (5.73)	18.31*** (5.64)
HH Income \$50k-\$75k	8.386** (5.94)	-6.594 (4.80)	12.93 (4.88)	-17.82** (6.35)	1.926 (4.97)	21.31*** (5.94)
HH Income \$75k-\$100k	18.50*** (5.79)	-14.94* (6.74)	9.173 (4.73)	-24.60*** (6.03)	-4.172 (6.30)	32.90*** (6.61)
HH Income \$100k+	24.82** (8.09)	-10.20 (6.59)	5.332 (5.54)	-39.60*** (8.31)	-3.228 (7.28)	34.89*** (6.96)
N	12526	12526	12526	12641	12641	12641

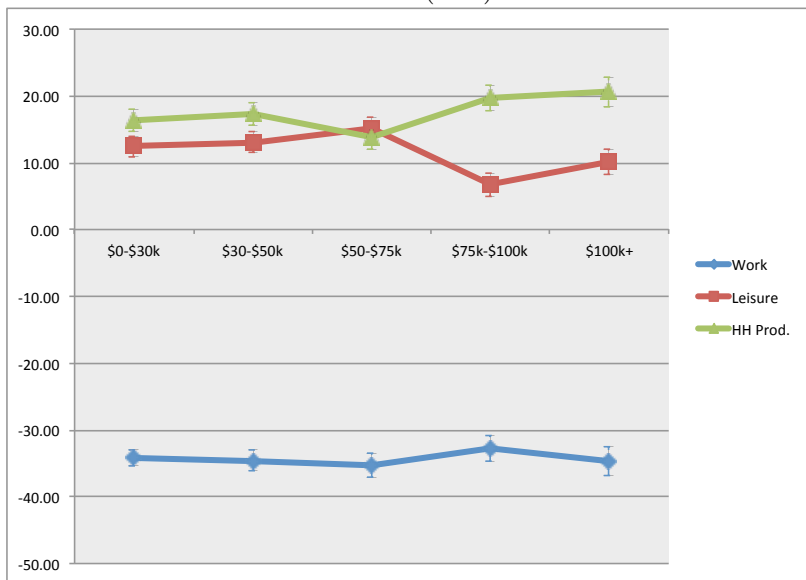
Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported.

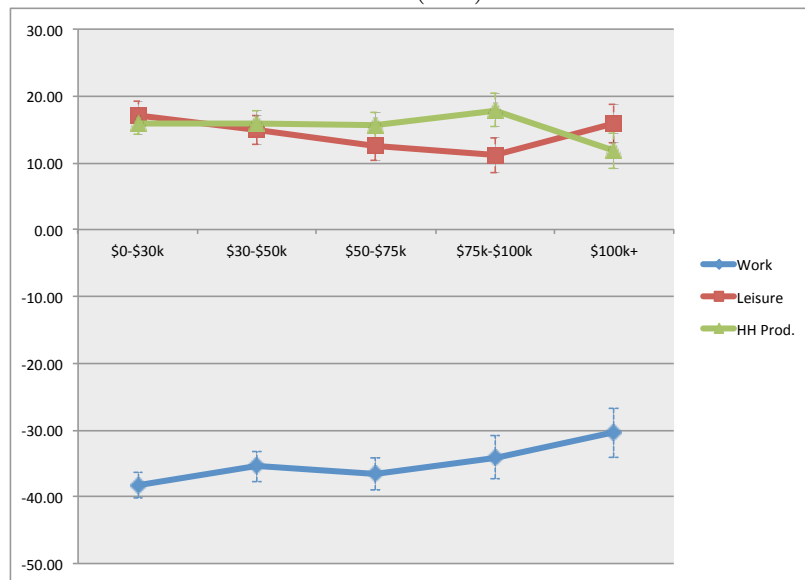
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1: Time Use Effects of Full Employment to Unemployment

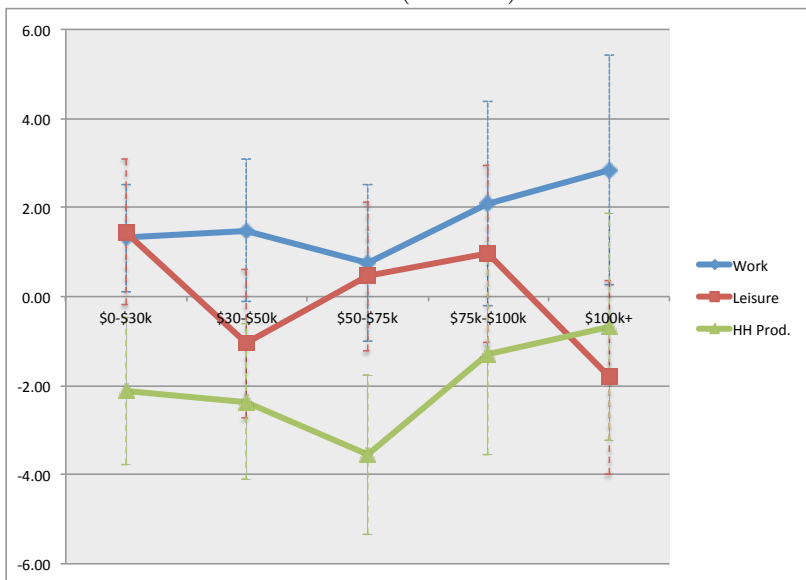
Female (Self)



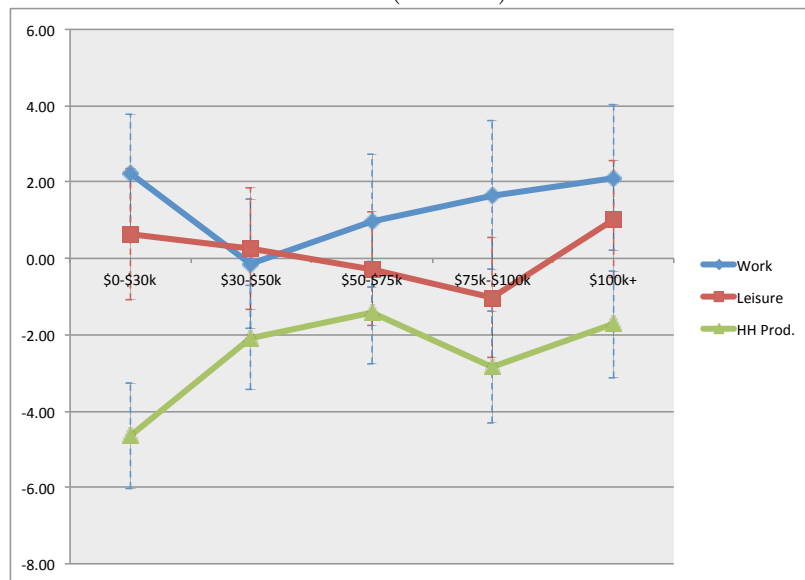
Male (Self)



Female (Partner)



Male (Partner)



Hours per week change in each activity

Table 16: Marginal Effects of Partner's Time Use on Female Time Use

	Work		Leisure		HH Prod.	
	OLS	CRAGG	OLS	CRAGG	OLS	CRAGG
WEEKDAY						
Partner Work	4.86 (2.05)	-1.29 (3.13)	-2.86 (1.85)	-4.25 (1.94)	1.22 (2.07)	0.74 (2.12)
Partner Leisure	3.91 (3.46)	-6.77 (5.96)	2.63 (3.13)	-3.55 (3.11)	-3.76 (3.50)	-2.10 (2.12)
Partner HH Production	9.24 (3.68)	6.18 (4.58)	-6.72 (3.32)	-3.47 (4.22)	-2.86 (3.71)	-5.50 (4.03)
WEEKEND						
Partner Work	-5.18 (5.02)	-12.70 (3.75)	7.56 (5.02)	4.06 (4.80)	1.06 (5.11)	-6.58 (5.85)
Partner Leisure	-4.59 (4.69)	-14.04 (4.97)	19.74 (5.97)	14.99 (4.91)	-12.00 (6.06)	-20.33 (6.09)
Partner HH Production	11.70 (5.35)	4.14 (5.44)	10.92 (6.78)	5.19 (6.47)	-16.62 (6.90)	-28.30 (7.34)

Estimates report the effect (in minutes per day) of a one hour per day increase of partner time use on own time use.

OLS and bootstrapped Cragg standard errors reported.

Bolded estimates are significant at the 95% level.

Table 17: Marginal Effects of Partner's Time Use on Male Time Use

	Work		Leisure		HH Prod.	
	OLS	CRAGG	OLS	CRAGG	OLS	CRAGG
WEEKDAY						
Partner Work	11.10 (2.95)	0.75 (3.79)	-0.62 (2.47)	-3.94 (2.33)	-7.26 (2.20)	-5.15 (2.08)
Partner Leisure	12.42 (6.30)	-7.71 (7.61)	0.67 (5.28)	-10.35 (6.42)	-12.06 (4.69)	-4.59 (4.30)
Partner HH Production	16.14 (4.22)	8.64 (4.62)	-0.37 (3.53)	-0.25 (4.07)	-13.44 (3.14)	-13.30 (2.74)
WEEKEND						
Partner Work	22.08 (6.78)	13.23 (7.21)	0.64 (7.200)	-2.91 (7.23)	-8.70 (6.24)	-19.64 (5.37)
Partner Leisure	25.86 (10.26)	19.24 (10.48)	11.34 (10.80)	6.77 (11.77)	-26.34 (9.36)	-37.39 (9.91)
Partner HH Production	21.06 (10.20)	10.66 (10.41)	6.18 (10.80)	1.16 (10.42)	-16.92 (9.36)	-34.07 (8.51)

Estimates report the effect (in minutes per day) of a one hour per day increase of partner time use on own time use.

OLS and bootstrapped Cragg standard errors reported.

Bolded estimates are significant at the 95% level.

Table 18: **OLS Estimates on Activity Time of Females with Predicted Partner Time Use**

(Minutes per day spent in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.n	Work	Leisure	HH Prod.
FT employment (self)	400.6*** (3.735)	-129.1*** (3.378)	-213.9*** (3.775)	78.01*** (3.424)	-55.68*** (4.361)	-14.80*** (4.434)
PT employment (self)	200.7*** (4.015)	-72.11*** (3.631)	-105.7*** (4.059)	67.38*** (3.635)	-35.39*** (4.630)	-28.80*** (4.708)
Unemployed (self)	19.11* (7.574)	-2.910 (6.851)	-13.74 (7.657)	4.388 (6.308)	-11.06 (8.036)	9.606 (8.170)
Pred. Partner Work Time	0.0810* (0.0341)	-0.0477 (0.0309)	0.0203 (0.0345)	-0.0864 (0.0657)	0.126 (0.0837)	0.0176 (0.0851)
Pred. Partner Leisure Time	0.0651 (0.0577)	0.0438 (0.0522)	-0.0626 (0.0583)	-0.0765 (0.0781)	0.329*** (0.0995)	-0.200* (0.101)
Pred. Partner HH Prod. Time	0.154* (0.0613)	-0.112* (0.0554)	-0.0477 (0.0619)	0.195* (0.0891)	0.182 (0.113)	-0.277* (0.115)
Male Partner	-72.42*** (19.96)	-0.774 (18.05)	64.78** (20.18)	-19.11 (17.23)	-2.877 (21.95)	31.49 (22.32)
Age	1.662 (1.140)	-2.737** (1.031)	7.375*** (1.152)	-1.688 (0.954)	-3.283** (1.215)	7.837*** (1.235)
Age (partner)	-1.457 (1.189)	0.0972 (1.076)	0.539 (1.203)	-1.037 (1.144)	-2.177 (1.457)	3.433* (1.482)
Age ²	-0.0255* (0.0115)	0.0436*** (0.0104)	-0.0734*** (0.0116)	0.0118 (0.00967)	0.0452*** (0.0123)	-0.0752*** (0.0125)
Age ² (partner)	0.0165 (0.0118)	-0.00654 (0.0107)	-0.00144 (0.0120)	0.0128 (0.0114)	0.0131 (0.0145)	-0.0270 (0.0147)
Any HH children	-8.323 (4.473)	-16.27*** (4.046)	44.84*** (4.522)	-1.544 (3.805)	-25.68*** (4.847)	35.56*** (4.928)
Child age 5 or under	-19.50*** (4.819)	-24.76*** (4.359)	65.64*** (4.872)	-8.605 (5.315)	-39.30*** (6.771)	70.99*** (6.884)
Child age10 or under	-9.373 (5.193)	-16.87*** (4.697)	36.47*** (5.250)	-14.96** (5.273)	-15.56* (6.717)	41.34*** (6.830)
Observations	15758	15758	15758	15963	15963	15963

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 19: **OLS Estimates for Activity Time of Males with Predicted Partner Time Use**

(Minutes per day spent in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment (self)	436.6*** (6.576)	-230.4*** (5.507)	-130.6*** (4.891)	124.5*** (8.346)	-118.6*** (8.800)	4.242 (7.640)
PT employment (self)	232.8*** (8.418)	-150.0*** (7.049)	-68.23*** (6.261)	97.86*** (8.296)	-90.56*** (8.746)	0.446 (7.593)
Unemployed (self)	46.73*** (10.53)	-83.04*** (8.815)	42.63*** (7.829)	12.81 (10.57)	-50.17*** (11.14)	49.59*** (9.675)
Pred. Partner Work Time	0.185*** (0.0492)	-0.0103 (0.0412)	-0.121*** (0.0366)	0.368** (0.113)	0.0106 (0.120)	-0.145 (0.104)
Pred. Partner Leisure Time	0.207* (0.105)	0.0111 (0.0880)	-0.201* (0.0782)	0.431* (0.171)	0.189 (0.180)	-0.439** (0.156)
Predicted Partner HH Prod. Time	0.269*** (0.0704)	-0.00610 (0.0589)	-0.224*** (0.0523)	0.351* (0.170)	0.103 (0.180)	-0.282 (0.156)
Male Partner	-35.53 (27.74)	11.81 (23.23)	1.989 (20.63)	-5.637 (25.83)	-32.99 (27.24)	27.44 (23.64)
Age	-0.114 (1.384)	-2.365* (1.159)	3.994*** (1.030)	1.229 (1.451)	-3.442* (1.529)	6.031*** (1.328)
Age (partner)	1.082 (1.488)	1.047 (1.246)	0.521 (1.107)	-2.981 (1.985)	0.379 (2.093)	1.707 (1.817)
Age ²	-0.00737 (0.0136)	0.0304** (0.0114)	-0.0406*** (0.0101)	-0.00540 (0.0138)	0.0329* (0.0145)	-0.0618*** (0.0126)
Age ² (partner)	-0.0127 (0.0155)	-0.0101 (0.0129)	0.00342 (0.0115)	0.0163 (0.0211)	0.000724 (0.0222)	-0.00710 (0.0193)
Any HH children	-5.226 (6.519)	-15.45** (5.459)	16.42*** (4.848)	2.370 (8.738)	-3.678 (9.213)	8.608 (7.998)
Child age 5 or under	-11.06 (7.804)	-10.67 (6.535)	39.63*** (5.804)	-10.69 (13.99)	-21.46 (14.75)	44.48*** (12.81)
Child age10 or under	-10.66 (6.973)	-14.05* (5.839)	32.53*** (5.186)	-15.68 (9.280)	-24.09* (9.784)	35.84*** (8.494)
Observations	14246	14246	14246	14250	14250	14250

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 20: **Cragg Estimates on Activity Time of Females with Predicted Partner Time Use**

(Minutes per day spent in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment (self)	381.6*** (15.9)	-131.1 *** (3.61)	-205.1*** (3.74)	123.0 *** (6.99)	-54.77*** (4.22)	-11.60 * (4.93)
PT employment (self)	257.3*** (15.14)	-64.69*** (3.50)	-84.48*** (3.20)	114.7*** (8.80)	-34.25 *** (4.47)	-26.30*** (4.29)
Unemployed (self)	37.88 (21.22)	-2.30 (6.55)	36.73 *** (7.17)	13.00 (15.76)	-9.86 (8.26)	12.65 (7.60)
Pred. Partner Work Time	-0.0215 (0.0522)	-0.0708* (0.0324)	0.0123 (0.0353)	-0.212** (0.0624)	0.0677 (0.0800)	-0.110 (0.0975)
Pred. Partner Leisure Time	-0.113 (0.0994)	-0.0592 (0.0518)	-0.0349 (0.0353)	-0.234 * (0.083)	0.250** (0.082)	-0.339** (0.101)
Pred. Partner HH Prod. Time	0.103 (0.076)	-0.0579 (0.0703)	-0.0917 (0.0671)	0.0690 (0.0907)	0.0865 (0.108)	-0.472*** (0.122)
Male Partner	-55.29** (20.97)	-0.638 (24.20)	110.9 ** (31.99)	-1.458 (15.43)	0.529 (31.98)	38.34 (31.46)
Age	4.597 *** (1.31)	-1.445 (1.030)	6.510*** (1.041)	-1.343 (1.175)	-2.906** (1.106)	8.530*** (1.296)
Partner's Age	-1.985 (1.175)	-0.484 (0.995)	1.027 (0.985)	-0.300 (0.984)	-1.824 (1.642)	4.242* (1.503)
Age ²	-0.0596 *** (0.0138)	0.0259 (0.0100)	-0.0588 *** (0.0138)	0.00953 (0.01066)	0.0406*** (0.01388)	-0.0825*** (0.0094)
Partner Age ²	0.0230 (0.0131)	0.0000894 (0.0114)	-0.00588 (0.0096)	0.00597 (0.0133)	0.00953 (0.0132)	-0.0343 (0.0185)
[.5em]Any HH Child	-11.54 ** (4.062)	-18.91*** (3.996)	56.47*** (5.184)	-1.894 (3.294)	-24.29 *** (4.799)	39.30*** (5.090)
Child aged 5 or less	-18.41*** (4.680)	-30.46*** (5.306)	62.25*** (4.717)	-6.468 (4.573)	-39.26*** (7.02)	72.41 *** (7.98)
Child aged 10 or less	-10.96 * (5.18)	-23.15 *** (4.39)	41.83*** (4.32)	-13.88** (4.71)	-15.61* (6.60)	42.48 *** (7.66)
<i>N</i>	15758	15758	15758	15963	15963	15963

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 21: Cragg Estimates on Activity Time of Males with Predicted Partner Time Use

(Minutes per day spent in each activity)

	Weekday			Weekend		
	Work	Leisure	HH Prod.	Work	Leisure	HH Prod.
FT employment (self)	443.4*** (26.73)	-186.9*** (5.025)	-112.0*** (3.74)	222.2 *** (28.05)	-111.7*** (7.15)	8.73 (7.58)
PT employment (self)	281.6 *** (28.21)	-106.4*** (7.10)	-47.49*** (5.70)	198.4*** (26.86)	-83.33*** (10.32)	3.45 (7.51)
Unemployed (self)	58.08 (34.02)	-51.66*** (8.97)	20.23 *** (5.27)	43.24 (28.08)	-42.52 (21.97)	49.43*** (9.59)
Pred. Partner Work Time	0.0125 (0.063)	-0.0656 (0.0388)	-0.0858* (0.0347)	0.221 (0.1202)	-0.0484 (0.1204)	-0.327*** (0.090)
Pred. Partner Leisure Time	-0.129 (0.127)	-0.173 (0.107)	-0.0765 (0.0717)	0.321 (0.1746)	0.113 (0.196)	-0.623*** (0.1652)
Pred. Partner HH Prod. Time	0.144 (0.077)	-0.00412 (0.0679)	-0.222 *** (0.0457)	0.178 (0.1734)	0.0193 (0.1736)	-0.568*** (0.1418)
Male Partner	-20.98 (33.60)	20.47 (31.02)	-4.471 (22.312)	3.892 (26.22)	-30.99 (40.18916)	31.93 (23.2702)
Age	2.255 (1.380)	-1.752 (1.432)	3.148 ** (1.432)	1.457 (1.074)	-3.271 * (1.559)	7.228*** (1.2013)
Age (Partner)	2.259 (1.581)	0.228 (1.173)	1.507 (1.024)	-1.341* (1.669)	0.725 (1.987)	3.250 (1.945)
Age ²	-0.0361* (0.0155)	0.0225 (0.0119)	-0.0303** (0.0099)	-0.00782 (0.0150)	0.0305 (0.0122)	-0.0736 *** (0.0136)
Partner Age ²	-0.0237 (0.0195)	-0.000024 (0.01142)	-0.00700 (0.0103)	0.00119 (0.02308)	-0.00178 (0.0204)	-0.0212 (0.017)
Any HH Child	-10.90 (6.984)	-18.32 ** (5.834)	20.61*** (4.60)	3.558 (8.7486)	-2.451 (9.196)	14.92 * (7.201)
Child aged 5 or less	-14.35 (7.978)	-19.26 ** (6.22)	43.46*** (6.234)	-3.594 (12.810)	-19.88 (13.226)	53.36 *** (13.58)
Child aged 10 or less	-15.21* (6.10)	-22.50** (6.628)	39.59*** (4.74)	-9.082 (7.943)	-23.64* (9.627)	40.76 *** (7.376)
<i>N</i>	14246	14246	14246	14250	14250	14250

Unreported regressors include education, black and hispanic indicators for both partners, as well as controls for day of week, month, year and state.

Bootstrapped standard errors reported in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$