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SPLIT OR STRAIGHT? SOME EVIDENCE ON THE EFFECT OF THE WORK SHIFT ON SPANISH WORKERS' WELL-BEING AND TIME USE

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Abstract

The split work shift has been argued as one of the reasons behind the different Spanish time schedule, characterized by reduced sleep and a more difficult work-family balance. This paper presents direct evidence on the effect that being on a split shift has on Spanish workers' well-being and time use. The split shift is found associated to more time spent working in the market, sleeping, and eating, and less time spent doing housework, caring for children, and at leisure. An increased feeling of being overwhelmed by tasks and having little time to do them is also found among female split-shifters.

JEL codes: J22, I32.

Keywords: work shift; role overload; time use; Spanish Time Use Survey.

1. INTRODUCTION

One prominent feature of the Spanish labor market is that a significant share of workers are on a (daytime) split shift, consisting typically of 5 hours of work in the morning, a 2 hour break in the middle of the day, and another 3 hours of work in the afternoon/evening.[1] As a result, and in comparison with most other European countries, the distribution of the timing of work in Spain is more spread and presents a sharper dip in the middle of the day (e.g., see Amuedo-Dorantes and de la Rica, 2009). It has been argued that the split shift is one of the main causes of the different Spanish time schedule (e.g., see ARHOE, 2013), characterized, among other things, by reduced sleep and a more difficult work-family balance. The purpose of this paper is to present some direct evidence on the effect that being on a split shift has on Spanish workers' well-being and time use, conducting separate analyses for men and women to allow for gender-specific results. The data and methods used are described in Section 2, the results are presented in Section 3, and the main conclusions are given in Section 4.

2. DATA AND METHODS

The data for this study come from the Spanish Time Use Survey (STUS) 2002-2003, a full-scale survey collecting time-use information by the time diary method. Specifically, every surveyed person aged 10 years or older was asked to list her main activity in each 10-minute interval of the previous 24 hours anchored by 6:00 AM, which is known as the diary day. The activities reported were then classified into standardized Eurostat activity codes

[1] According to the Spanish Survey of Working Conditions, 52.2 percent of workers were on a split shift in 2003, and 40.2 percent in 2011. By contrast, the share of workers on a (morning) straight shift increased from 21.9 to 28.6 percent in the same period.

(listed in Annex VI of Eurostat, 2004) by the survey agency.[2] Also asked for in the STUS is an important range of labor market and socio-demographic measures, including the information needed to construct an indicator of role overload (RO). This is a self-determined measure of well-being defined as having too much to do and not enough time to do it (Williams, 2008). Worrying about not spending enough time with family is considered an indicator of role overload, but this specific information was not collected by the STUS.[3]

The study sample is made up of full-time wage earners aged 18-64 who did not work between 10:00 PM and 6:00 AM in any of the days included in the weekly work schedule of the STUS (namely the diary day and the previous six days). I discarded the self-employed because *a priori* they seem more likely than wage earners to be able to self-select into the preferred type of shift, which raises endogeneity concerns. To be considered as working full time, a worker must spend at least 30 hours per week in the main job. The information on usual weekly hours worked is obtained from a direct question for those answering *Yes* to *Do you have the number of weekly hours of work set?* For those answering *No*, it is obtained from the weekly work schedule, provided that that week is

[2] To avoid seasonal distortion in the use of time, the survey was conducted over the course of one year, distributing the whole survey size evenly between October 2002 and September 2003. The mean number of activity episodes per diary (21.5), the very low prevalence of diaries with fewer than seven activity episodes (0.1 percent), and the low presence of diaries missing two or more basic activities (0.5 percent) indicate diary data of good quality (Juster, 1985; Robinson, 1985; Fisher et al. 2012).

[3] The more recent STUS 2009-2010 did not collect the information needed to construct the RO indicator plus the worker's sector of employment (private or public).

reported to be usual. The limitation to daytime workers is intended to reduce heterogeneity. I also discarded individuals reporting fewer than seven activity episodes on the diary day, missing two or more of the four basic activities defined in Fisher et al. (2012), or presenting missing or inconsistent data in some variable used in the study. All this leaves us with 11,159 individuals (and as many other time diaries), of whom 4,289 are women. However, and in order to isolate more precisely the effects on the allocation of time of being on a split shift, for the primary time-use analyses the sample is further restricted to individuals whose diary day is reported to be a regular working day. Thus, diaries pertaining to public holidays, vacations, or days missed through own illness or other reason, are excluded. Yet, diaries pertaining to weekend days are included if the diarist reports she worked regularly on that day. This yields a sample size of 6,800 individuals, of whom 2,596 are women. As the date of the diary day was randomly assigned by the survey agency, demographic differences between both samples tend to be small.

Table 1 presents sample descriptive statistics on the dependent variables by gender. I use two questions from the individual questionnaire, *How often do you feel overwhelmed by tasks: Very often*, *Sometimes*, *or Almost never?* and *Do you have little time to do what you have to do?,* to construct two measures of RO. I explore two different measures because the empirical definition of RO, which is somewhat subjective, influences the results. Respondents who answer, respectively, *Very often* and *Yes*, are considered to suffer from RO according to our first measure (referred hereafter as ROM1). In our second measure (ROM2), the RO condition is assigned to those who answer *Very often*/*Sometimes* and *Yes*. Irrespective of the measure used, women are significantly more likely than men to be affected by role overload (13.5 vs. 5.8 percent according to ROM1; 39.4 vs. 22.9

according to ROM2). A probit model will be used to examine the relationship between RO and shift type controlling for several other job characteristics and demographics.

The five time activities analyzed here (sleep, eating and drinking, housework, child care, and leisure) appear often in discussions about work schedules in Spain (e.g., see ARHOE, 2013). Their definitions, given in Table 1, are standard. As to the proportion of regular working days presenting zero minutes in some of these activities, it is negligible in the case of sleep and eating and drinking, very small in the case of leisure, and much larger in the case of housework (9.6 percent of women and 40.6 percent of men) and, especially, child care (43.2 percent of mothers and 61.4 percent of fathers). Presumably, zeros pertain to two kind of individuals: those who never do the activity in question (non-doers), and doers who, on the diary day, spent no time on it (called reference-period-mismatch zeros by Stewart, 2013). The latter type introduces measurement error on the dependent variable, what renders inconsistent the conventional Tobit estimator (Stapleton and Young, 1984). While the ordinary least squares (OLS) estimator is also inconsistent in the context of the standard Tobit model, Stoker (1986) has found that if the explanatory variables are multivariate normally distributed, OLS consistently estimates Tobit's marginal effects. A similar conclusion was reached by Greene (1981), whose Monte Carlo study further suggests that that result is surprisingly robust in the presence of uniformly distributed and binary variables, but is consistently distorted by the presence of skewed variables such as chi-squared. Recently, Stewart (2013) has simulated the behavior of the OLS estimator with time-diary data. In line with Greene (1981) and Stoker (1986), he finds that in the presence of both doers and non-doers, the OLS beta coefficients are downward biased, but after dividing them by one minus the fraction of non-doers, the resulting estimates are close to

the true parameter values.[4] Therefore, the existing literature suggests that the combination of a linear specification with a simple OLS estimator may be a reasonable compromise for specifying and estimating a time-use regression in the presence of observations with zeros. The reason behind this apparent robustness of OLS may be that the presence of (random) measurement error on the dependent variable is inconsequential when the estimating model is linear in parameters.

Table 2 presents sample descriptive statistics on the explanatory variables by gender. The binary variable with the type of shift (split or straight) is constructed from the question *What kind of work shift do you have: Straight or split?* 49.6 percent of sample workers report being on a split shift. (The corresponding population percentage is 51.3.) As can be seen in Figure 1, which depicts the fraction of sample members who are at work at each hour of a regular working day, the straight shift takes place primarily in the morning. The other regressors included in the probit model for RO follow those in Williams (2008), with the exception of measures of job satisfaction, level of stress, and seeing oneself a workaholic, which are not available in the STUS. On the other hand, I have included a sector of employment dummy for reasons given in the next paragraph. The set of explanatory variables in the time-use regressions does not differ much: I have added controls for season of the year and day of week, and replaced the measure of usual weekly hours worked with a measure of minutes worked on the diary day. Moreover, in a couple of

[4] The regressors in Stewart's data-generating process are a dummy and two uniformly distributed variables.

instances I have excluded education for reasons given when discussing the results.[5] All the explanatory variables included in the time-use regressions adopt the shapes recommended by Greene (1981) and Stoker (1986).

Before proceeding with the results, an issue requires some discussion. A worker's type of shift might not be completely the result of "random assignment". For example, an individual with a strong preference for having free time in the afternoon could select herself into a sector of employment, occupation, or even company with widespread (morning) straight-shift jobs. Without controlling for the circumstances underlying the "assignment" of shift type, the estimated coefficient on the split-shift dummy could be biased.[6] Fortunately, we do have information available on the worker's sector of employment as well as on her industry and occupation, so that we can hold these characteristics fixed in the

[5] This exclusion restriction, coupled with a system homoskedasticity assumption, would make the feasible generalized least squares (FGLS) estimator to be generally more efficient than system ordinary least squares (SOLS). However, the efficiency of FGLS comes at the price of assuming that the regressors of a time-use equation are uncorrelated with the error terms of all the equations (e.g., see Wooldridge, 2010, Ch.7). SOLS is more robust because its consistency hinges on the regressors of an equation to be uncorrelated with the error term of that same equation only. In the absence of cross-equation restrictions on the beta parameters, SOLS is equivalent to OLS performed equation by equation, which is the estimation method eventually used.

[6] The bias would be in the negative direction if a strong preference for having free time in the afternoon made the individual more sensitive to feeling role overloaded. The same would occur in the regression for leisure if that preference increased the demand for leisure.

analyses. Yet, we do not know the degree to which the worker's company allowed her to choose shift type. (For example, in Spain the prevalence of split-shift jobs is larger in smaller companies; INSHT, 2011). Amuedo-Dorantes and de la Rica (2009) have used the partner's type of shift to instrument the employee's type of shift in a model for wages, as there is evidence that couples time their market work to provide themselves the opportunity to be together when they are not working (Hamermesh, 2002). However, and continuing with our example, if this were so, both partners would probably have a preference to be together in the afternoon, what would invalidate the proposed instrument to be used in our context. Ideally, the preferred data to this investigation would be generated in a controlled environment, with an experimenter randomly assigning the type of shift to a set of workers of known characteristics, then comparing RO and time use outcomes across experimental groups. These data are still to be generated.

3. RESULTS

3.1 Role overload

For the RO condition, Table 3 presents probit marginal effects plus associated standard errors calculated with the delta method. All marginal effects are obtained as $\Phi\left(x'\beta \middle| x_j = 1\right) - \Phi\left(x'\beta \middle| x_j = 0\right)$, where Φ is the standard normal cdf, and are estimated by plugging in the probit estimate $\hat{\beta}$ and then averaging across observations. The first two columns present the results for women, whereas men's results are in Columns (3) and (4). Results for ROM1 (our narrower definition of RO) are in odd columns, while those for ROM2 appear in even columns.

The type of shift is not associated with the incidence of RO according to ROM1: For both women and men, the estimated marginal effect on the split-shift dummy is small

and statistically not different from zero at 0.05 level. Factors associated with ROM1 for both women and men are age, presence of a spouse/partner in the household, presence of children aged 6-17, and disability status. For women, the likelihood of suffering from RO increases with age up until the 41-45 age interval, decreasing from that moment on. In the case of men, the only statistically significant result is that a male aged 51+ is 0.028 less likely to suffer from RO than a comparable male aged 30 or younger. On average, women are 0.050 more likely to experience RO when a spouse/partner is present in the household, whereas the corresponding effect for men is 0.028. Since the average incidence of ROM1 is, respectively, 0.135 and 0.058, the presence of a spouse/partner increases that probability by around 37 percent for women and 48 percent for men. The presence of children aged 6-17 increases the probability of feeling role overloaded by 0.036 in the case of women, but decreases that probability by 0.015 in the case of men. Having a physical or mental disability has a strong influence on experiencing RO, whose incidence increases on average by approximately 81 percent in the case of women and 110 percent in the case of men. The only factor associated with ROM1 for women but not for men is having a managerial job, which, on average, increases the likelihood of suffering from RO by around 107 percent. (This managerial job effect is with respect to a comparable female clerical worker.) Factors associated with ROM1 for men but not for women are the presence of children of pre-school age,[7] the presence of other adults, and having a technical/professional job, which change the incidence of RO by approximately +33, -47, and +86 percent, respectively.

[7] The effect associated to the presence of children of pre-school age is indeed larger for women than for men, but it is measured more imprecisely for the former.

Considering the broader definition of RO (ROM2) has a pronounced effect on the impact of being on a split shift for women, whose estimated marginal effect becomes much larger and statistically different from zero. Holding other factors fixed, female full-time wage earners are on average 0.062 more likely to experience RO when being on a split shift, which represents a 16 percent increase in the average incidence of ROM2 (0.394). On the other hand, the estimated marginal effect of having a managerial job is now somewhat smaller and statistically not different from zero. By contrast, the type of shift is again unrelated to the incidence of RO for men, but having a managerial job becomes significant: On average, the incidence of ROM2 is 34 percent larger for a male manager than for a comparable male clerical worker. Jobs in the agriculture, hospitality, public administration, education, health, and personal services industries now offer some protection to women with respect to RO. In the case of men, it is working in the agriculture what is now associated to a lower likelihood of RO.

The sector of employment is unrelated to suffering from RO except in the case of women when using ROM2. In that instance, female full-time wage earners working in the private sector are 0.073 less likely to experience RO than comparable women working in the public sector. A Wald test for the joint exclusion of the usual weekly hours of work dummies does not reject the null of no significance in all instances, and the same occurs with the dummies for household income. The estimated marginal effect associated to having a flexible work schedule presents the expected negative sign in three out of the four estimations, but it is small and does not attain statistical significance.

The journey to work, which exposes us to environmental and psychological stressors such as noise, crowds, and time pressure, is generally considered a daily hassle. Therefore, intuition would seem to indicate that characteristics of the commute such as its

duration or daily frequency could have a bearing on the incidence of RO.[8] A potential problem is that these characteristics can be, to some extent, chosen by the worker in order to deal with RO. If the circumstances underlying those choices were unknown or unobserved to the econometrician, commuting would be endogenous, whereby establishing the relationship between commuting and RO (or other measure of well-being) would require a more elaborate analysis than that conducted here. I have just re-estimated the model for RO on sample members whose diary day was reported to be a regular working day, adding either the duration of the (one-way) commute or the number of commuting episodes on that day to the set of explanatory variables.[9] Moreover, and in an attempt to reduce endogeneity concerns, the model including the former regressor was run on home owners only, as these may be less inclined than tenants to move and thus to adjusting their commute duration by changing residential location. (This selection criterion reduced the sample an additional 14 percent.) The estimated coefficient associated to the commute duration is positive and relatively large, being statistically different from zero at or around 0.05 level in three out of the four cases considered. For women, residing at 10 minutes more from the job increases the likelihood of suffering from RO by around 10 percent in the case of ROM1 and 4 percent in the case of ROM2. For men the corresponding increases are 7 and 4 percent. Therefore, the commute duration has a larger bearing on those who feel

[8] Koslowsky et al. (1995) survey the physical and psychological consequences of commuting, and discuss coping techniques.

[9] The average duration of the commute is not much different for split-shift and straight-shift workers (24.8 vs. 26.3 minutes, respectively), but the mean number of daily commuting episodes is larger for the former group (3.1 vs. 2.1).

overwhelmed by tasks very often than on those who feel overwhelmed just sometimes. As to the number of daily commuting episodes, its estimated coefficient is generally positive but small, not attaining statistical significance in any estimation. Neither the different samples nor the inclusion of commuting characteristics alter the main findings regarding the type of shift.

3.2 Time allocation

Discussions about the possible impact on the allocation of time of the straight shift implicitly assume that time worked is the same for straight- and split-shifters. As a matter of fact, this is not so. A tabulation of working time in the main job by type of shift reveals that sample full-time wage earners being on a split shift work, on average, 60 minutes more each regular working day than straight-shifters, i.e. 5.0 hours more per week if working 5 days a week. This difference, obtained from time diary estimates, excludes coffee and other breaks as well as on-the-job training. The gap derived from the weekly work schedule measure, which includes paid breaks, training, and time in secondary jobs, is similar: 4.9 hours more per week. Even among workers having the number of weekly hours of work set there is a gap, in this case of 1.5 hours more per week. The same pattern is observed by gender. In an attempt to better isolate the impact of being on a split shift on time worked, a linear regression for minutes spent working on regular working days was estimated separately for women and men.[10] Results are presented in Table 4. After the effects of the

[10] With respect to the baseline specification for the allocation of time, I have excluded education plus replaced household income (which is endogenous in a model for working time) with measures of the hourly wage rate and non-labor income. The hours of work measure used to construct the hourly wage refers to usual weekly hours worked, which

other regressors are netted out, full-time wage earners having a split shift still spend some 37 minutes more on the job than straight-shifters. This is the reason why time spent on the job is included among the explanatory variables for the allocation of time equations. By contrast, commuting time is not included, for this time saved by being on a straight shift (implicit in the figures given in note 9) could be devoted to alternative, less committed activities.

Tables 5 and 6 present OLS estimates for the allocation of time separately for women and men. In both tables, the estimations in columns (1), (2), (3), and (5), pertaining, respectively, to time spent sleeping, eating and drinking, doing housework, and at leisure, are obtained on all individuals whose diary day is reported to be a regular working day. However, the estimation for child care (column (4)) is obtained on the subsample of parents only, which relaxes the assumption that child care time falls continuously to zero in response to variations in the explanatory variables. Since the latter group might not be a random sample from the former, a standard sample selection correction was implemented. First, I estimated a probit model for the decision to have children over the entire sample of individuals whose diary day is a regular working day, relating the probability of having

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reduces concerns about division bias (Borjas, 1980). Of course, other sort of biases might be affecting the hours-wage relationship, as the negative wage coefficients presented in Table 4 seem to suggest. Instrumenting the wage rate with the worker's educational attainment makes its estimated coefficient to be positive (although not statistically different from zero) in the male subsample, leaving almost unchanged the estimated coefficient on the split shift dummy. This result is in line with the lack of association between wages and shift type found by Amuedo-Dorantes and de la Rica (2009).

children to the whole set of time-use regressors. Then, I obtained the estimated inverse Mills ratio for each individual, which was included in the OLS regression for child care run on parents only. Given the frequently observed negative correlation between parents' education and completed fertility (e.g., see Michael, 1973), the second-stage OLS regression excludes education from the explanatory variables, which was thus used to further identify the parameters of the sample selection model. The evidence presented in Gimenez-Nadal and Molina (2013) suggests that this exclusion restriction suits particularly men's behavior. The standard errors in Tables 5 and 6 are robust to hereroskedasticity, but those in column (4) are additionally corrected for the presence of generated regressors using the procedure in Arellano and Meghir (1992, Appendix B.4).

Having a split shift is associated with more time spent sleeping: 14 minutes more per regular working day in the case of women and 10 minutes more in the case of men. Estimates are precise and attain statistical significance. Thus, for concreteness, an average female wage earner working full time on a split shift is predicted to sleep 463 minutes (7.7 hours) on a regular working day, but if that woman went to a straight shift her time spent sleeping would fall to 449 minutes (7.5 hours). To investigate the immediate reason behind this difference, I have re-estimated the regression for minutes of sleep on observations for each hour of the day (i.e., time spent sleeping between 6 AM and 7 AM, between 7 AM and 8 AM, and so on and so forth). Figure 2 depicts the sign and size of the statistically significant effects associated to having a split shift, by time of day and sex. On average, workers having a straight shift wake up earlier in the morning than comparable split-shifters, but are not asleep generally at earlier times at night. Although straight-shifters take a (longer) nap after returning home in the late afternoon, its duration does not compensate for the lost sleep in the morning. Hamermesh et al. (2008) have found that television

schedules affect the timing of market work and sleep: Americans residing in the central and mountain time zones of the US (where television shows from late afternoon onward appear 1 nominal hour earlier than in the eastern and pacific zones), are less likely to be watching television between 11:00 PM and 11:15 PM, and more likely to be working between 8:00 AM and 8:15 AM, than comparable Americans living in other parts of the country. This result suggests that advancing the time of television shows in Spain could make straight-shifters to sleep more (although it would not reduce the sleeping gap with split-shifters if these responded in the same manner). In any case, the difference in mean sleep times associated to the type of shift seems of little importance, as studies of accumulated sleep loss suggest that gradual performance impairment (i.e., reduced attention, cognitive functioning, and psychomotor performance) starts when sleep duration falls below 7 hours (Akerstedt et al., 2009).

The split shift is also associated with more time spent eating and drinking on regular working days: some 7 minutes more for women and 6 minutes more for men. Estimates are precise and attain statistical significance. Figure 3, which is constructed analogously to Figure 2, shows that this difference derives essentially from the duration of the lunch. (On average, split-shifters spend more time having breakfast, but the gap, of about 2 minutes, is then compensated by straight-shifters taken a (longer) lunch break between 12:00 PM and 1:00 PM.) I have re-estimated the regression for minutes spent eating and drinking but just for the interval 1:00 PM to 5:00 PM, distinguishing among having the lunch at home, on the job, or in a restaurant. On average, being on a split shift increases the duration of the lunch at home by about 6 minutes in the case of women and 3 minutes in the case of men. Its effect on lunches in restaurants is also positive but smaller (just 1 minute more, although it achieves statistical significance). For those having lunch on the job, the type of shift is

unrelated to the duration of the lunch. The split shift is also associated with an increase in the proportions of female full-time wage earners who have the meal at home and in a restaurant,[11] which, given the longer duration of the lunch in those places, seems to partly account for its effect on time spent eating and drinking. For male counterparts the conclusion is less clear cut, as being on a split shift is associated with an increase in the proportion of those having lunch in a restaurant, but also with a significant decrease in the share of those who eat at home.

The other three activities are negatively associated with having a split shift. Female full-time wage earners being on a split shift spend approximately 11 minutes less on domestic activities on a regular working day than comparable straight-shifters. Male counterparts spend about 10 minutes less. Although not shown in the tables, the main contributor to these reductions is time spent shopping for consumer goods and services,[12] which shrinks 4.5 minutes for women and 3.5 minutes for men. All these effects are precisely measured and achieve statistical significance. The lower quantity of time spent shopping on regular working days could be made up by shopping more intensively on days

[11] Among full-time wage earners who consider the diary day to be a regular working day, the percentages of split-shift (respectively, straight-shift) women who have the meal at home, on the job, and in a restaurant between 1:00 PM and 5:00 PM are 78.0 (75.2), 10.0 (10.5), and 6.2 (2.5), respectively. (Estimates do not add up to 100 because some workers report other places for having the lunch.) For men, the corresponding percentages are 64.0 (72.0), 14.2 (10.5), and 7.4 (4.9).

[12] Included here are errands presuming visits to shops, offices, institutions, etc., such as buying clothes, fuelling a motor vehicle, visiting banks, or visiting a doctor.

off. To investigate this possibility, I have estimated regressions for shopping time on the full sample of diaries, including among the regressors a binary variable equal to one for days off and an interaction term between this and the dummy for being on a split shift. This interaction allows the effect of being on a split shift to depend on the type of day. For female full-time wage earners on a split shift, the estimated *reduction* in shopping time on regular working days is again 4.5 minutes (*S.E.* = 1.7), whereas the estimate on the interaction term is 4.1, *S.E.* = 3.4. Adding up both estimates we conclude that female split-shifters do not spend more time shopping on days off than comparable straight-shifters. For male counterparts the conclusion is the same, because the corresponding estimates are -3.1, *S.E.* = 0.9, and 1.9, *S.E.* = 2.0. There is evidence that by shopping more intensively, households lower the price paid for a given basket of goods (e.g., see Aguiar and Hurst, 2007). But the presumed higher price paid by split-shifters does not necessarily imply a reduction in their welfare, as the shopping time saved could be devoted to other, preferable activities (sleep, eating and drinking, etc.; notice that time worked in the market is being kept constant.)

Mothers being on a split shift spend 5 minutes less per regular working day on child care activities than comparable mothers having a straight shift, but the effect is not precisely measured and does not attain statistical significance. For fathers, being on a split shift is also associated to a reduction in child care time, this time of approximately 9 minutes and measured precisely. Thus, for concreteness, an average full-time wage earner father being on a straight shift is predicted to devote some 42 minutes to child care on a regular working day, but if that father went to a split shift his corresponding child care time would fall to 33 minutes. I followed the procedure described in the previous paragraph to investigate whether that lower amount of child care is made up on days off. In the full

sample, the estimated reduction in child care by mothers on a split shift is approximately 7 minutes (*S.E.* = 4.5) per regular working day, whereas the estimate on the interaction between having a split shift and being a day off is essentially zero. For fathers, the corresponding estimates are -9.5, *S.E.* = 2.8, and 13.7, *S.E.* = 5.2, which indicate that fathers on a split shift spend 4 minutes more caring for their children on days off than comparable fathers having a straight shift. Thus, a father working 5 days a week under a split shift devotes some 39 minutes less to child care over the course of the week than a comparable father being on a straight shift.

Also affected by the type of shift is the time spent at leisure on regular working days. Being on a split shift reduces that time by approximately 9 minutes for both women and men. Both effects attain statistical significance. For women, the main contributor to that reduction is the domain of social life and entertainment (e.g., visiting and receiving visitors or watching movies in cinema), which shrinks 4.5 minutes. For men, the reduction is mainly due to sports and outdoor activities, which, as a group, are 10 minutes smaller having a split shift. The evidence suggests that, in comparison with males being on a straight shift, male split-shifters do not devote more time to sports and outdoor activities on days off to make up for the time lost on regular working days. However, female split-shifters do devote some 7 minutes more to social life and entertainment on days off than comparable women having a straight shift: In the full sample, and for a dependent variable measuring minutes spent on social life and entertainment only, the estimated coefficient on the split shift dummy is -7.9 (*S.E.* = 3.3), whereas the estimate on the interaction between having a split shift and being a day off is 15.2 (*S.E.* = 7.2). Thus, a female wage earner working full-time 5 days a week under a split shift spends, on average, about 25 minutes

less on social life and entertainment over the course of the week than a comparable woman having a straight shift.

The effects on the allocation of time of being on a split shift do not seem much different across sexes. To test formally the equality of effects for men and women, I have re-estimated each time-use regression on the combined sample of men and women, allowing the intercept and all slope coefficients to depend on gender. (If we just allowed the intercept and the split shift dummy to depend on gender, we would be assuming that the remaining regressors exert the same effect for men and women. A cursory inspection to Tables 5 and 6 strongly suggests that this assumption is not correct, and, indeed, it is soundly rejected by a formal test in all instances except the equation for eating and drinking.) Then, I have tested whether the interaction term between having a split shift and the dummy for gender is statistically significant using a robust *t*-statistic. As some of the sample men and women are married together, the standard errors are not only robust to heteroskedasticity, but also to arbitrary within-household correlation. In all five instances, the claim that the effect on the allocation of time of having a split shift is the same for men and women is well within confidence bounds. But then, why is being on a split shift a significant predictor of ROM2 for women only? One possible explanation is that the common absolute time variations represent different relative time changes by gender. For example, female straight-shifters spent, on average, 157 minutes at leisure on regular working days, whereas male counterparts spend 200 minutes. Hence, the common reduction of about 9 minutes per day brought about by the split shift is relatively more important for women. However, the marginal effect of being on a split shift suffers little change when a quadratic function on leisure is introduced in the regression for ROM2,

suggesting that the reduction in leisure associated to the split shift is not the reason behind the increased incidence of ROM2.

4. CONCLUSION

We have found evidence that the type of daytime work shift (split or straight) has a bearing on the allocation of time on regular working days among Spanish full-time wage earners. Other things equal, being on a split shift is associated with more time spent working in the market, sleeping, and eating and drinking, and less time spent doing housework, caring for children, and at leisure. The lower quantity of leisure is partly made up on days off in the case of women, but not in the case of men. By contrast, split-shifters' lower quantity of time spent caring for children is partly made up on days off by fathers, but not by mothers. Split-shifters' lower quantity of domestic work on regular working days derives mainly from a reduction in time spent shopping for consumer goods and services. This reduction is not compensated by shopping more intensively on days off, which suggests that split-shifters may be paying more for the same basket of goods than comparable straight-shifters. Straight-shifters do sleep less on regular working days because they wake up earlier in the morning, are not asleep generally at earlier times at night, and the duration of their nap does not compensate for the lost sleep in the morning. This finding is in stark contrast to the prediction that the straight shift will increase night's rest on regular working days (ARHOE, 2013, p. 88-89). The sleep loss (between 10-15 minutes) does not seem large enough so as to impair performance.

Although the effects on the allocation of time associated to the type of shift are similar across sexes, this is not so for the incidence of role overload. Among male full-time wage earners the type of shift is unrelated to the role overload condition, but being on a split shift increases the feeling of being at least sometimes overwhelmed by tasks (and

having little time to do them) among female counterparts. However, when the definition of role overload is narrowed to feeling very often overwhelmed by tasks, the type of shift appears as irrelevant among women too. The evidence suggests that the reduction in the quantity of daily leisure associated to the split shift is not the reason behind the higher incidence of role overload broadly considered among female split-shifters.

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TABLE 1—SAMPLE DESCRIPTIVE STATISTICS: DEPENDENT VARIABLES

	Women					Men				
Variable (minutes per working day)	Obs	Mean	Std dev	Min	Max	Obs	Mean	Std dev	Min	Max
Market work[a]	2,596	436	88	70	720	4,204	489	96	30	720
Sleeping	2,596	453	77	50	840	4,204	454	76	50	1250
Eating and drinking[b]	2,596	85	36	0	280	4,204	93	36	10	330
Housework (excl. child care)[c]	2,596	131	98	0	570	4,204	44	63	0	700
Child care[d]	1,065	50	70	0	470	1,933	27	51	0	360
Leisure[e]	2,596	149	98	0	720	4,204	183	104	0	800
Variable (percentage)										
Role overload Measure 1	4,289	13.5				6,870	5.8			
Role overload Measure 2	4,289	39.4				6,870	22.9			

Notes: [a]: Excludes coffee and other breaks and on-the-job training, but includes time in secondary jobs. [b]: Includes lunch break at work. [c]: Gathers time spent on food management, household upkeep, making and care for textiles, gardening and pet care, construction and repairs, shopping for consumer goods and services, household management, and help to adult family members. [d]: Parents only. [e]: Gathers time spent on social life and entertainment, sports and outdoor activities, hobbies and games, and mass media.

TABLE 2—SAMPLE DESCRIPTIVE STATISTICS: EXPLANATORY VARIABLES

	Women (Obs = 4,289)				Men (Obs = 6,870)			
Variable	Mean	Std dev	Min	Max	Mean	Std dev	Min	Max
Average hourly earnings	6.1	3.0	1.4	21.6	6.8	3.3	1.3	21.6
Monthly non-labor income (1000)	1.3	1.0	0.0	5.3	1.0	0.8	0.0	5.3
Commuting (minutes, one-way)[a]	24.8	15.1	0	90	26.0	15.9	0	90
Variable (percentage)								
Split shift	42.6				53.9			
Private sector	66.9				78.3			
Flexible work schedule	20.3				20.5			
Age <=30	29.6				23.6			
31 – 35	13.8				13.3			
36 – 40	15.7				14.7			
41 – 45	15.5				14.9			
46 – 50	11.6				13.0			
>=51	13.8				20.6			
Spouse/partner present	58.7				69.9			
Presence of children [0-5]	15.9				18.8			
Presence of children [6-17]	33.0				36.0			
Household with 1 adult	7.3				4.2			
2 adults	45.0				44.4			
3 adults	21.6				24.0			
4+ adults	26.1				27.4			
Less than high school graduate	33.8				50.2			
High school graduate[b]	34.2				30.8			
University degree	32.0				19.1			
Disabled	9.8				11.2			
Manager	1.2				2.9			
Technician/professional	19.5				12.0			
Supporting technician/prof.	18.6				13.2			
Clerical worker	14.8				7.0			
Service worker[c]	11.5				5.1			
Sales worker	9.3				3.5			
Craftsman or related worker	6.1				31.2			
Operator	4.2				12.5			
Unskilled worker	14.8				12.6			
Agriculture[d]	1.9				4.5			
Manufacturing	14.5				25.7			
Construction	1.8				19.8			
Trade	16.4				12.3			
Hospitality	5.4				1.8			
Transport	3.4				5.7			
Financial intermediation	3.0				3.8			
Real state	9.6				5.3			
Public administration	12.1				10.2			
Education	11.6				4.6			
Health service	13.1				3.4			
Other services	7.3				2.9			
Usual weekly hours worked < 40	38.5				21.4			
= 40	51.8				62.9			

> 40	9.7	15.7
Owner	86.2	84.7
Adult care	3.7	2.1
Household net monthly income < 500	0.8	0.7
500 – 999.99	7.8	10.7
1,000 – 1,499.99	18.2	24.9
1,500 – 1,999.99	21.1	22.2
2,000 – 2,499.99	19.7	16.6
2,500 – 2,999.99	12.5	10.3
3,000 – 4,999.99	17.0	12.6
≥ 5,000	2.9	2.0
Winter	27.1	26.8
Spring	26.6	26.7
Summer	23.2	23.6
Autumn	23.1	22.9
Monday	12.9	12.6
Tuesday	13.0	13.0
Wednesday	12.5	12.3
Thursday	12.9	12.5
Friday	16.4	16.6
Saturday	16.1	16.1
Sunday	16.2	16.9
Regular working day	62.0	62.4

Notes: Money variables are in euros of 2002/2003. Labor market measures pertain to the main job. [a]: Regular working days. [b]: Includes those with vocational training. [c]: Includes the military. [d]: Includes extractive industries.

TABLE 3—PROBIT EQUATIONS FOR SUFFERING FROM ROLE OVERLOAD (MARGINAL EFFECTS)

	Women				Men			
	(1) ROM1		(2) ROM2		(3) ROM1		(4) ROM2	
Independent variables	M.E.	S.E.	M.E.	S.E.	M.E.	S.E.	M.E.	S.E.
Split shift	0.008	0.012	0.062*	0.017	-0.006	0.006	-0.005	0.011
Age 31 - 35	0.016	0.020	0.032	0.026	-0.007	0.010	-0.018	0.018
Age 36 - 40	0.045*	0.021	0.048	0.026	0.003	0.011	-0.024	0.018
Age 41 - 45	0.050*	0.022	0.036	0.027	0.015	0.013	-0.030	0.019
Age 46 - 50	0.048*	0.024	0.018	0.029	-0.006	0.011	-0.073*	0.018
Age >=51	0.028	0.022	-0.038	0.027	-0.028*	0.009	-0.103*	0.017
Spouse/partner present	0.050*	0.014	0.139*	0.020	0.028*	0.009	0.083*	0.016
Presence of children [0-5]	0.030	0.016	0.071*	0.023	0.019*	0.009	0.040*	0.015
Presence of children [6-17]	0.036*	0.013	0.056*	0.017	-0.015*	0.006	0.007	0.012
Household with 2 adults	0.008	0.026	-0.040	0.035	-0.027	0.017	-0.054	0.029
Household with 3 adults	0.005	0.027	-0.053	0.035	-0.028*	0.013	-0.073*	0.026
Household with 4+ adults	-0.011	0.027	-0.065	0.037	-0.027*	0.014	-0.088*	0.026
Disabled	0.109*	0.021	0.166*	0.025	0.064*	0.012	0.110*	0.018
High school graduate	0.024	0.015	0.027	0.021	0.007	0.008	0.029*	0.013
University degree	-0.026	0.019	-0.005	0.027	0.021	0.012	0.052*	0.021
Agriculture	-0.036	0.034	-0.112*	0.052	-0.023	0.013	-0.065*	0.024
Construction	0.063	0.048	-0.014	0.057	-0.007	0.009	-0.029	0.015
Trade	0.004	0.023	-0.039	0.032	0.007	0.011	0.012	0.019
Hospitality	-0.039	0.026	-0.102*	0.040	-0.014	0.019	-0.038	0.038
Transport	-0.004	0.032	-0.015	0.046	0.002	0.013	0.007	0.024
Financial intermediation	-0.043	0.029	0.021	0.050	0.018	0.017	-0.015	0.027
Real state	-0.017	0.022	-0.039	0.033	-0.004	0.013	0.015	0.024
Public administration	-0.009	0.027	-0.125*	0.035	-0.015	0.013	-0.040	0.025
Education	-0.020	0.026	-0.155*	0.034	-0.015	0.014	-0.053	0.028
Health service	0.003	0.027	-0.111*	0.034	-0.017	0.014	-0.000	0.032
Other services	-0.024	0.025	-0.114*	0.035	0.009	0.018	-0.044	0.029
Manager	0.145*	0.065	0.125	0.071	0.024	0.024	0.078*	0.039
Technician/professional	0.012	0.024	0.077*	0.033	0.050*	0.022	0.038	0.029
Supporting technician/prof.	-0.001	0.018	0.031	0.026	0.028	0.016	0.040	0.024
Service worker	-0.017	0.022	0.019	0.034	0.014	0.021	-0.051	0.028
Sales worker	-0.024	0.023	-0.038	0.036	0.010	0.022	-0.026	0.032
Craftsman or related worker	-0.004	0.027	0.018	0.040	-0.002	0.013	-0.035	0.022
Operator	-0.009	0.030	-0.057	0.044	-0.002	0.014	-0.054*	0.022
Unskilled worker	-0.015	0.021	-0.012	0.032	-0.009	0.014	-0.082*	0.022
Private sector	-0.000	0.018	-0.073*	0.026	0.004	0.011	-0.003	0.021
Flexible work schedule	-0.019	0.013	-0.019	0.018	-0.003	0.007	0.022	0.013
Weekly hours <40	-0.014	0.013	0.008	0.019	-0.012	0.008	0.000	0.015
Weekly hours >40	0.019	0.019	0.035	0.026	0.004	0.008	0.026	0.015
Adult care	0.019	0.029	0.037	0.039	0.008	0.020	0.071	0.038
Income <500	0.165	0.099	0.154	0.094	0.020	0.046	0.061	0.077
Income 500 - 999.99	0.051	0.048	-0.008	0.054	-0.014	0.018	-0.001	0.040
Income 1,000 – 1,499.99	0.034	0.040	0.001	0.048	-0.014	0.018	-0.013	0.037
Income 1,500 – 1,999.99	0.036	0.039	0.030	0.047	-0.012	0.017	0.008	0.037
Income 2,000 – 2,499.99	0.012	0.036	-0.013	0.046	-0.014	0.017	-0.002	0.037
Income 2,500 – 2,999.99	0.047	0.041	-0.004	0.047	-0.006	0.018	0.014	0.038
Income 3,000 – 4,999.99	0.024	0.037	0.051	0.047	-0.006	0.018	0.041	0.039

Log-likelihood	-1,615	-2,713	-1,427	-3,490
R-squared	0.050	0.057	0.060	0.057
Observations	4,289	4,289	6,870	6,870

Notes: All estimations include an intercept. Standard errors are calculated with the delta method. *R*-squared equals one minus the ratio of the log likelihood of the fitted function to the log likelihood of a function with only an intercept. Unreported categories: Age <=30, 1-adult household, less than high school graduate, manufacturing, clerical worker, weekly hours =40, household income >=5,000. *: Significant at 5 percent.

TABLE 4—MINUTES OF WORK ON REGULAR WORKING DAYS. OLS ESTIMATES

	Women		Men	
	(1)		(2)	
Independent variables	Coefficient	S.E.	Coefficient	S.E.
Split shift	37.5*	3.9	36.4*	3.0
Age 31 - 35	4.4	5.7	6.9	5.0
Age 36 - 40	-0.8	5.5	3.4	4.9
Age 41 - 45	2.8	5.9	13.6*	5.3
Age 46 - 50	-0.2	6.4	12.8*	5.6
Age >=51	-3.0	6.1	8.8	5.3
Spouse/partner present	-11.7*	4.4	5.4	4.4
Presence of children [0-5]	-19.2*	5.2	6.7	4.0
Presence of children [6-17]	-3.2	3.8	0.5	3.2
Household with 2 adults	-8.2	7.3	7.9	8.4
Household with 3 adults	-9.0	7.4	10.1	8.2
Household with 4+ adults	-12.7	8.2	12.1	8.5
Disabled	4.6	5.8	-12.0*	4.6
Agriculture	-22.6	13.8	-3.7	7.1
Construction	-9.6	13.4	11.7*	4.1
Trade	-15.7*	7.4	-8.0	4.9
Hospitality	4.2	9.5	-5.5	11.7
Transport	-8.5	9.3	4.2	7.1
Financial intermediation	-11.8	9.4	-26.9*	7.7
Real state	-20.2*	7.6	-20.6*	6.7
Public administration	-32.5*	8.4	-33.9*	7.6
Education	-65.3*	9.3	-51.6*	10.4
Health service	-23.5*	7.9	-27.3*	10.2
Other services	-24.6*	8.9	-33.0*	9.3
Manager	31.9*	14.0	40.8*	10.8
Technician/professional	6.9	6.8	6.7	7.4
Supporting technician/prof.	8.3	5.4	8.5	6.0
Service worker	-1.1	7.5	9.0	8.0
Sales worker	2.1	7.7	10.4	9.1
Craftsman or related worker	18.2*	8.4	21.5*	5.7
Operator	25.0*	9.6	16.8*	6.4
Unskilled worker	-9.9	6.6	12.3	6.3
Private sector	15.5*	5.6	18.7*	5.8
Flexible work schedule	-12.1*	4.4	1.7	3.7
Adult care	-10.9	9.6	-34.7*	12.9
Winter	-0.1	4.4	2.0	3.9
Spring	-3.6	4.6	-0.6	3.9
Autumn	-0.7	4.7	-0.0	4.1
Tuesday	-7.3	5.3	2.7	4.2
Wednesday	-7.4	5.3	2.9	4.3
Thursday	2.5	5.3	-2.4	4.2
Friday	-7.0	5.1	-12.3*	4.2
Saturday	-38.8*	9.5	-94.1*	8.3
Sunday	-11.9	14.7	-50.7*	15.9
ln non-labor income	2.6	2.6	1.4	1.9
ln average hourly earnings	-9.1	6.2	-9.8*	4.4

Intercept	470.5*	16.4	454.5*	14.8
R-squared	0.183		0.215	
Observations	2,596		4,204	

Notes: Standard errors are robust to heteroskedasticity. Unreported categories: Age <=30, 1-adult household, manufacturing, clerical worker, summer, and Monday. *: Significant at 5 percent.

TABLE 5—TIME USE ESTIMATIONS (MINUTES). FEMALE FULL-TIME WAGE EARNERS. OLS ESTIMATES

	(1)		(2)		(3)		(4)		(5)	
Independent variables	Sleep	S.E.	Eating & drinking	S.E.	Housework	S.E.	Child care	S.E.	Leisure	S.E.
Split shift	14.0*	3.6	6.7*	1.7	-10.8*	3.7	-4.9	4.4	-9.0*	4.1
Age 31 - 35	-12.8*	5.6	-0.9	2.7	21.0*	5.1	16.6	9.4	-3.3	6.4
Age 36 - 40	-11.0*	5.3	-2.0	2.4	31.0*	5.2	31.9*	12.5	-20.7*	6.0
Age 41 - 45	-3.3	5.1	-2.7	2.4	48.0*	5.6	6.0	10.3	-22.4*	6.1
Age 46 - 50	-13.8*	5.7	-0.3	2.7	63.1*	6.5	-17.7*	7.5	-20.6*	6.8
Age >=51	-11.8*	5.5	-2.4	2.6	66.4*	6.2	-51.1*	19.4	-18.9*	6.9
Spouse/partner present	-10.0*	4.0	-0.2	1.8	53.4*	4.5	34.0*	12.3	-34.5*	4.8
Presence of children [0-5]	8.1	4.3	-5.1*	2.1	-15.7*	4.9	54.1*	6.4	-51.9*	4.8
Presence of children [6-17]	-6.8	3.6	-1.1	1.6	9.7*	3.8	-10.2	8.2	-6.6	4.1
Household with 2 adults	13.1	7.7	1.6	3.6	-19.9*	7.3	-1.2	9.1	2.9	9.4
Household with 3 adults	17.6*	7.8	3.5	3.6	-29.1*	7.3	-17.2	10.1	7.5	9.6
Household with 4+ adults	16.7*	8.1	4.4	3.8	-20.0*	7.6	-28.7*	11.6	8.3	9.8
Disabled	-9.9	5.5	-2.5	2.5	12.8*	5.8	1.5	8.1	-1.1	6.1
High school graduate	-8.8*	4.4	-0.6	2.0	-3.3	4.2			3.7	4.9
University degree	-3.7	5.6	1.0	2.5	-13.9*	5.3			7.0	6.2
Agriculture	21.6	11.8	2.5	4.8	-18.0	13.5	-8.8	12.6	15.8	13.6
Construction	-4.6	9.9	-4.6	5.7	-3.2	12.5	1.6	13.9	-15.5	10.0
Trade	10.4	7.4	-4.2	3.1	-4.0	6.6	-6.3	8.4	1.8	7.4
Hospitality	11.4	9.7	-2.9	4.1	-18.5*	9.0	13.4	11.8	19.3	10.2
Transport	7.3	9.5	-2.9	4.1	-5.8	9.2	-0.3	11.4	5.2	9.8
Financial intermediation	-8.3	8.7	0.3	4.5	-13.9	9.8	20.0	14.3	18.9	10.0
Real state	-3.0	7.1	-3.3	3.8	-15.2*	6.9	-0.8	10.4	19.0*	8.0
Public administration	-5.6	8.1	-1.0	4.0	-12.9	8.5	17.9	12.0	23.7*	9.5
Education	0.3	8.4	0.9	4.2	-9.4	8.7	9.8	11.6	9.7	9.8
Health service	-3.3	8.1	-3.1	3.7	-6.9	7.8	0.2	10.5	21.0*	9.0
Other services	14.8	8.1	-4.2	3.6	-20.7*	8.2	-10.3	10.8	22.7*	8.5
Manager	-6.0	16.0	17.1	8.8	-10.3	13.1	-12.3	14.8	8.2	16.8
Technician/professional	3.9	6.2	1.7	3.1	-14.3*	6.4	4.7	10.7	-0.7	7.2
Supporting technician/prof.	-4.7	4.9	2.9	2.4	-8.1	4.9	-6.7	8.7	1.4	5.6
Service worker	8.4	7.3	0.1	3.4	-0.8	6.9	-8.3	8.6	-0.5	8.6
Sales worker	-1.1	7.9	-1.4	3.3	-4.9	6.8	-0.8	7.9	9.6	8.1
Craftsman or related worker	-6.3	8.6	-1.6	4.0	-2.8	8.6	6.8	10.5	18.2	9.7
Operator	0.2	10.0	-4.7	4.2	17.0	10.0	4.5	10.6	-2.8	11.0
Unskilled worker	-2.1	6.6	-0.1	3.0	11.3	6.6	1.3	8.2	-4.7	7.4
Private sector	3.4	5.4	3.9	2.6	-2.6	5.4	7.1	6.9	1.9	6.1
Flexible work schedule	1.3	3.8	-1.9	1.9	0.1	3.8	2.6	4.8	2.1	4.4
Adult care	-23.9*	7.5	-8.5*	3.8	67.4*	10.3	-10.4	8.5	-38.9*	8.8
Winter	9.3*	4.3	-5.3*	2.0	-7.0	4.5	9.9	5.5	-11.4*	5.1
Spring	3.4	4.3	-2.6	2.1	-6.0	4.5	4.0	5.9	-6.8	5.2
Autumn	12.8*	4.6	-2.6	2.2	-5.7	4.7	4.4	6.1	-16.6*	5.4
Tuesday	-3.1	4.4	1.2	2.2	11.1*	5.1	-12.9	7.0	-3.2	5.4
Wednesday	-5.3	4.5	0.2	2.3	4.6	5.3	-4.6	6.7	-3.3	5.5
Thursday	-13.0*	4.4	-0.4	2.3	2.3	5.0	-10.6	6.3	6.6	5.4
Friday	-25.3*	4.9	6.5*	2.5	6.1	4.9	-4.5	6.8	14.8*	5.4
Saturday	-36.6*	8.7	4.4	3.3	-18.6*	6.9	-20.4*	9.2	72.2*	9.9
Sunday	19.2	11.6	9.1	5.2	-23.7*	11.5	-19.5	16.8	6.4	11.5
Market work (minutes)	-0.1*	0.0	-0.0*	0.0	-0.3*	0.0	-0.2*	0.0	-0.3*	0.0

Income <500	18.6	17.5	-2.9	9.7	23.1	21.6	-18.1	22.2	-26.9	21.0
Income 500 - 999.99	-5.0	10.6	-14.0*	5.9	23.3*	11.0	-8.2	14.4	6.0	11.6
Income 1000 - 1499.99	2.8	9.3	-6.9	5.6	15.5	10.0	-10.7	14.1	-0.2	9.9
Income 1500 - 1999.99	2.0	8.9	-10.4	5.4	26.9*	9.6	-9.3	13.7	-9.6	9.3
Income 2000 - 2499.99	5.5	8.9	-11.1*	5.3	18.8	9.7	1.5	13.3	-6.2	9.2
Income 2500 - 2999.99	-4.2	8.8	-9.9	5.5	14.5	9.9	-7.3	12.9	6.8	9.6
Income 3000 - 4999.99	-5.4	8.7	-9.9	5.3	11.7	9.6	8.4	11.9	9.2	9.1
Inverse Mills ratio							42.3	22.6		
Intercept	499.0*	18.5	107.4*	8.9	244.8*	18.2	51.9	28.7	298.8*	20.4
R-squared	0.091		0.045		0.409		0.408		0.234	
Observations	2,596		2,596		2,596		1,065		2,596	

Notes: Standard errors are robust to heteroskedasticity, but those pertaining to estimation (4) have been additionally corrected for the presence of generated regressors. Unreported categories: Age <=30, 1-adult household, less than high school graduate, manufacturing, clerical worker, summer, Monday, and household income >=5,000. *: Significant at 5 percent.

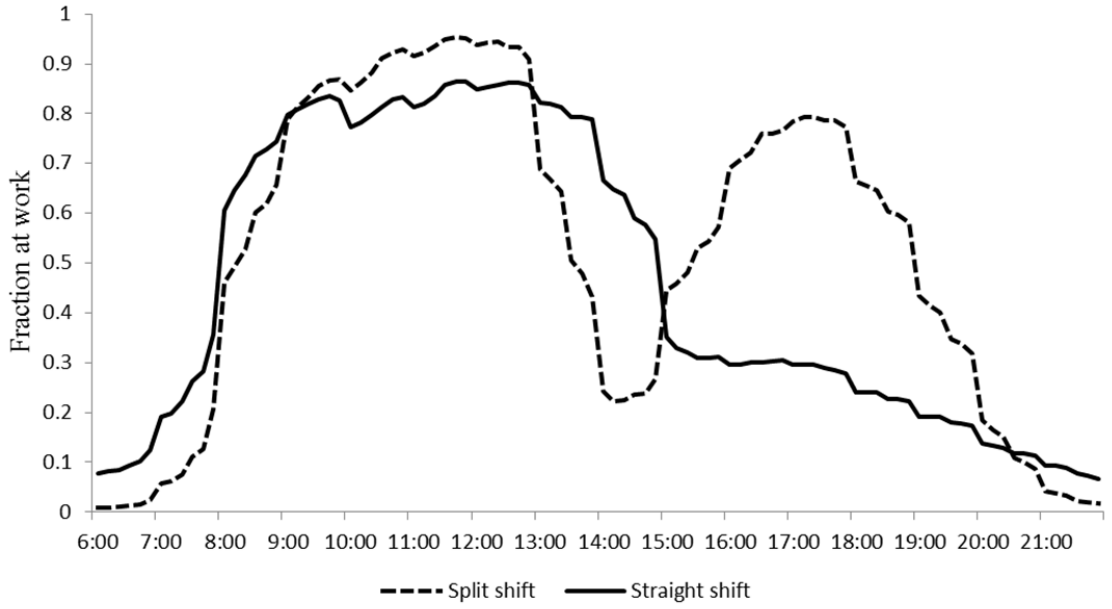
TABLE 6—TIME USE ESTIMATIONS (MINUTES). MALE FULL-TIME WAGE EARNERS. OLS ESTIMATES

	(1)		(2)		(3)		(4)		(5)	
Independent variables	Sleep	S.E.	Eating & drinking	S.E.	Housework	S.E.	Child care	S.E.	Leisure	S.E.
Split shift	10.2*	2.8	5.9*	1.3	-9.6*	2.0	-8.7*	2.7	-9.1*	3.2
Age 31 - 35	13.0*	4.5	2.7	2.1	4.8	3.0	0.1	5.5	-10.1*	5.1
Age 36 - 40	-2.9	4.6	0.9	2.2	4.2	3.2	15.2	8.4	-3.6	5.6
Age 41 - 45	-1.1	4.6	0.1	2.3	7.6*	3.5	5.3	8.6	0.7	5.5
Age 46 - 50	12.0*	4.5	3.3	2.4	14.0*	3.9	-9.5	5.7	-6.9	5.7
Age >=51	9.1*	4.3	1.1	2.1	1.7	3.6	-49.9*	17.6	13.9*	5.4
Spouse/partner present	-0.9	3.7	2.3	1.9	15.7*	3.0	62.4*	22.0	-28.5*	4.6
Presence of children [0-5]	-3.2	3.3	-4.7*	1.7	-4.2	2.8	21.5*	3.2	-24.7*	4.1
Presence of children [6-17]	1.1	2.6	0.1	1.3	-5.9*	2.1	-15.8*	4.3	-1.5	3.3
Household with 2 adults	18.8*	9.0	-5.4	4.3	-30.3*	5.7	54.0	28.4	31.0*	9.4
Household with 3 adults	22.5*	8.9	-3.1	4.3	-41.1*	5.5	41.0	27.2	33.3*	9.3
Household with 4+ adults	28.6*	9.0	-5.4	4.4	-49.0*	5.5	32.5	24.1	40.5*	9.4
Disabled	-0.3	3.9	-2.1	1.8	6.5*	3.2	-4.5	4.2	-5.7	4.9
High school graduate	-3.5	3.0	-3.7*	1.4	5.8*	2.1			2.6	3.5
University degree	-10.1*	4.4	-5.8*	2.2	4.9	3.7			-3.4	5.6
Agriculture	12.9*	6.5	3.5	3.0	-11.8*	4.0	-12.4*	5.5	-0.5	7.2
Construction	-7.2*	3.5	8.0*	1.8	-9.7*	2.4	-2.7	3.4	-8.9*	4.1
Trade	-1.0	4.3	-2.7	2.1	-8.6*	3.0	-4.6	4.4	14.2*	5.3
Hospitality	13.4	9.5	-6.2	4.5	-11.9	7.4	-1.7	9.0	-3.0	10.2
Transport	-1.4	4.8	4.6	3.0	-10.2*	4.0	-1.9	5.5	3.8	6.8
Financial intermediation	-9.1	6.4	1.5	3.6	-19.1*	5.2	-5.2	6.9	19.2*	8.6
Real state	0.2	6.0	0.3	2.8	-2.9	4.6	-6.9	7.9	6.1	7.5
Public administration	8.5	6.5	-0.3	3.0	-0.5	5.5	-5.6	7.3	8.2	8.4
Education	15.3*	7.3	0.6	3.7	-4.2	6.2	-6.8	10.0	-7.2	9.9
Health service	20.7*	9.9	-1.9	3.8	0.1	7.4	-0.4	10.4	-12.6	10.3
Other services	10.8	8.5	-0.2	3.5	-12.0	6.2	-16.7*	7.1	7.0	10.7
Manager	5.2	7.8	5.4	4.2	-13.5*	6.7	-15.8	8.2	4.2	10.1
Technician/professional	1.7	6.3	2.2	3.2	-10.7	6.1	-2.0	7.9	8.6	8.4
Supporting technician/prof.	-1.9	5.5	-2.5	2.7	-3.8	5.0	-6.2	7.0	9.6	7.2
Service worker	-0.2	7.6	-3.9	3.4	-1.6	6.9	-11.8	8.1	11.9	9.4
Sales worker	12.8	8.5	-0.1	4.1	10.1	6.6	-12.4	8.8	-9.0	9.9
Craftsman or related worker	11.6*	5.4	-3.7	2.6	-5.6	4.6	-13.9*	6.5	8.3	6.8
Operator	12.5	6.5	-1.3	2.9	-6.4	5.0	-18.9*	6.8	6.7	7.6
Unskilled worker	9.3	6.1	-1.3	2.9	-1.8	5.0	-10.0	7.3	0.4	7.7
Private sector	4.9	4.7	0.8	2.3	0.2	3.7	-7.4	5.2	1.3	6.1
Flexible work schedule	7.8*	2.8	1.1	1.5	-3.7	2.3	-2.0	3.3	1.1	3.5
Adult care	-24.4*	7.5	-10.5*	4.0	80.3*	13.5	-38.3*	11.5	-24.3*	9.7
Winter	4.1	3.3	-1.5	1.6	-5.1*	2.5	4.0	3.6	-10.0*	4.0
Spring	-0.9	3.3	-2.3	1.6	-0.1	2.6	1.1	3.4	-2.2	4.1
Autumn	1.0	3.4	-2.9	1.7	-1.1	2.7	8.0*	3.6	-8.1	4.4
Tuesday	-6.0	3.4	-1.0	1.7	-4.9	2.9	-4.1	3.8	0.8	4.3
Wednesday	-3.6	3.5	0.8	1.8	0.9	3.0	-3.8	4.2	-2.5	4.4
Thursday	-7.7*	3.6	-2.1	1.8	-2.2	3.0	0.9	4.2	6.1	4.7
Friday	-26.6*	3.7	4.8*	1.8	1.7	2.9	0.7	3.8	16.6*	4.4
Saturday	-34.3*	8.0	4.4	3.2	-3.6	4.9	-3.3	5.9	50.2*	8.9
Sunday	27.6*	10.7	5.8	5.2	-19.7*	6.8	-9.2	10.3	6.1	12.5
Market work (minutes)	-0.1*	0.0	-0.0*	0.0	-0.2*	0.0	-0.1*	0.0	-0.4*	0.0

Income <500	46.6	27.7	-4.6	6.5	-27.6*	12.4	-16.2	17.1	-39.1*	18.5
Income 500 - 999.99	-3.4	8.0	-1.5	4.6	-22.1*	7.7	-7.1	8.0	3.6	10.8
Income 1000 - 1499.99	-1.6	7.4	-1.0	4.3	-18.9*	7.4	-8.1	8.0	0.2	10.0
Income 1500 - 1999.99	-5.7	7.2	0.1	4.3	-7.6	7.3	-3.2	7.9	-5.9	9.9
Income 2000 - 2499.99	-6.5	7.3	1.7	4.3	-8.4	7.4	1.7	7.7	-7.2	10.0
Income 2500 - 2999.99	-4.9	7.4	-2.8	4.4	-1.3	7.5	0.0	9.2	-12.4	10.1
Income 3000 - 4999.99	-13.4	7.4	1.9	4.4	-4.6	7.2	3.0	8.0	-3.3	10.0
Inverse Mills ratio							51.8*	25.1		
Intercept	483.0*	16.2	106.4*	7.8	178.9*	13.3	-44.5	62.7	378.0*	18.6
R-squared	0.075		0.039		0.207		0.268		0.250	
Observations	4,204		4,204		4,204		1,933		4,204	

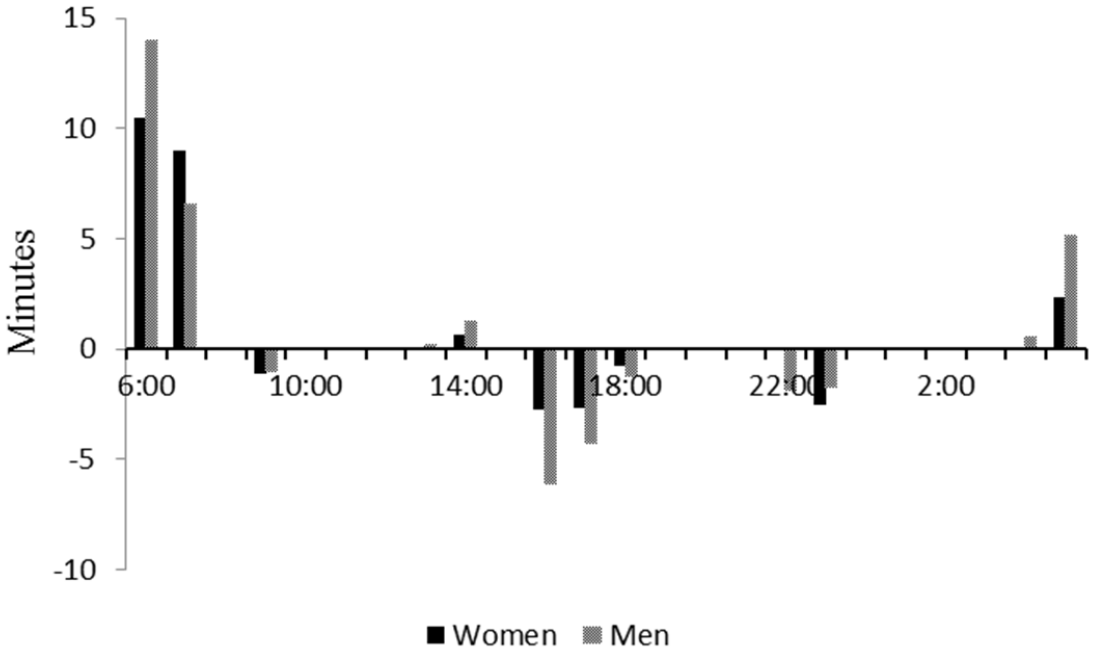
Notes: Standard errors are robust to heteroskedasticity, but those pertaining to estimation (4) have been additionally corrected for the presence of generated regressors. Unreported categories: Age <=30, 1-adult household, less than high school graduate, manufacturing, clerical worker, summer, Monday, and household income >=5,000. *: Significant at 5 percent.

FIGURE 1. FRACTION AT WORK ON A REGULAR WORKING DAY. MALE AND FEMALE FULL-TIME WAGE EARNERS.



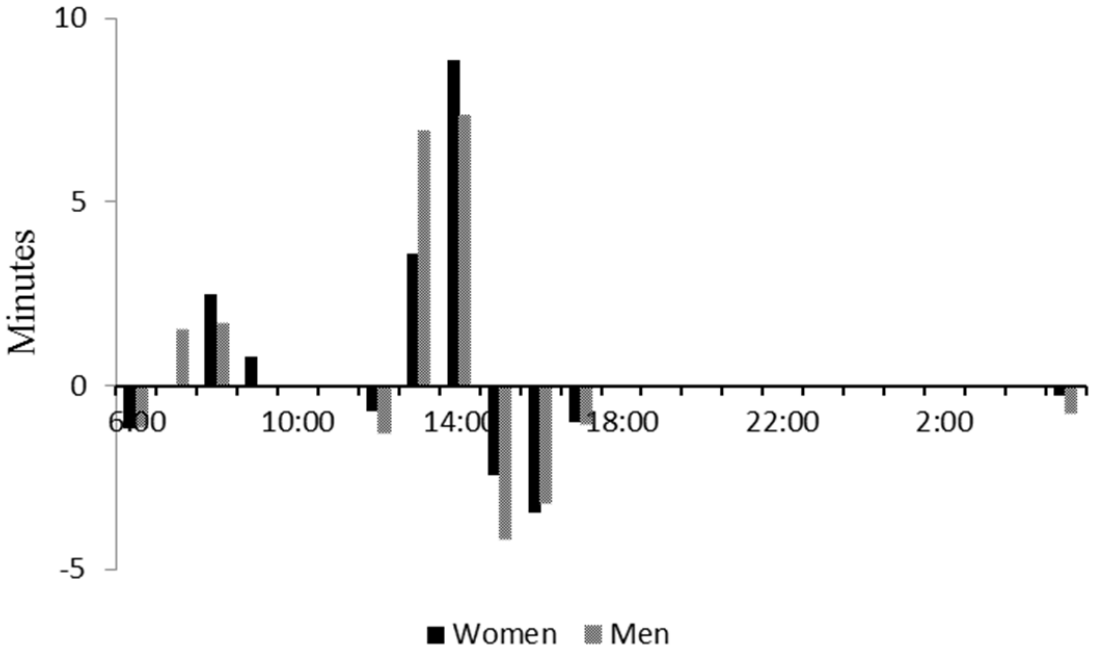
Notes: Author's calculations with data taken from the Spanish Time Use Survey 2002-2003.

FIGURE 2. EFFECT OF BEING ON A SPLIT SHIFT ON TIME SPENT SLEEPING ON REGULAR WORKING DAYS, BY TIME OF DAY AND SEX.



Notes: Author's calculations with data on full-time wage earners taken from the Spanish Time Use Survey 2002-2003. The effects represented are those achieving statistical significance at 0.05 level.

FIGURE 3. EFFECT OF BEING ON A SPLIT SHIFT ON TIME SPENT EATING ON REGULAR WORKING DAYS, BY TIME OF DAY AND SEX.



Notes: Author's calculations with data on full-time wage earners taken from the Spanish Time Use Survey 2002-2003. The effects represented are those achieving statistical significance at 0.05 level.