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Pablo Gracia and Joan García-Román

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#### Abstract

This study uses data from the 'Spanish Time Use Survey' (2009-2010) on two-parent families with children aged $10-16(\mathrm{~N}=593)$ to analyse the links between parental work schedules and children's activities with developmental implications. Spain is a particularly interesting case as working during evening hours is highly institutionalised for parents. Results reveal that mothers' evening work hours are associated with a reduction in children's time spent on family activities and on educational activities, and with an increase in time spent watching television and doing electronic activities without their parents. However, the associations between maternal evening work hours and children's activities generally apply only to children with less-educated mothers, not to children with highlyeducated mothers. Fathers' work schedules have generally insignificant associations with children's time use. Overall, the study suggests that parental work schedules, parents' gender, and social background intersect in influencing children's activities, with key implications for their present and future wellbeing.


## Keywords

Work Schedules, Children, Work-Family Balance, Time Use.

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## Introduction

Scholars have increasingly studied how parents' work schedules are linked to child wellbeing. Children with parents working non-standard hours (i.e. outside the $9 \mathrm{am}-5 \mathrm{pm}$ shift) have been found to be disadvantaged regardingkey indicators of wellbeing, such as health, behavioural and schooling outcomes (Han, 2008; Han et al., 2010; Li et al., 2014; Strazdins et al., 2006). Children's daily activities, and whether parents supervise them, can be central mediators in the negative effect of nonstandard work hours on child wellbeing (Presser, 2003). In particular, evening work hours have been argued to restrict parents' capacities to encourage children to devote time to important activities after school hours (Presser, 2003), creating difficulties in children participating in developmental activities during the evening, including their time with parents (i.e. family socializing) and their own activities (i.e. doing homework) (Ben-Arieh \& Ofir, 2002; Lareau, 2003; Larson, 1998). Studying how parents' work schedules are linked to children's developmental activities thereby contributes to general debates on how parents' work schedules influence child wellbeing.

Previous research has so far provided little evidence on how parents' work schedules are linked with children's daily activities. Studies on children's time use have considered several important factors. Children from single-parent families have been found to spend less time on family socializing and having meals with parents than children from two-parent families (Wight et al., 2009). Parents' socioeconomic status has generally been found to be positively associated with children's time spent on reading and studying, and negatively associated with time watching television (Bianchi \& Robinson, 1997; Caparros, 2015; Lareau, 2003; Schmidt \& Anderson, 2007; Wight et al., 2009). Some studies have looked at how the characteristics of parents' paid work interfere with children's daily activities, and these studies have been restricted to the role of mothers' paid work time. Children and adolescents with mothers employed full-time have been found to spend a disproportionate amount of time watching television, while some studies have found that maternal full-time employment is negatively associated with children spending time on educational activities (Bianchi \& Robinson, 1997; Mullan, 2009; Wight et al., 2009). These studies offer relevant demographic and socioeconomic evidence on children's daily activities. Nevertheless, so far scholars have not investigated the key question of how parents' work schedules can influence children's daily activities, which has implications for children's present and future wellbeing.

In this study, we use data from the Spanish Time Use Survey (2009-2010) (STUS) using a sample of children aged 10-16 to analyse how parental work schedules are associated with children's time use. These data contain rich time-diary information on children's daily activities. The STUS, unlike related surveys, offers household-level time-use data, allowing us to connect information on children's activities with the activities of both their mothers and fathers. This fact allows us to analyse the role of the parent's gender in the links between parents' work schedules and children's time use, an under-studied question of key relevance to understanding the links between parents' work characteristics and children's daily lives.

We focus on an arguably interesting national context. The Spanish work-family context is characterized by one of the highest levels of work demands and inflexible employment conditions across Western Europe (Lewis, 2009). In particular, Spain is well known for its institutionalized -split-shift work schedules, based on a long lunch break that typically brings many employed parents to extend their employment activities until late in the evening (e.g. 8pm-9pm) (Gracia \& Kalmijn, 2016). Evening work hours in Spain have been found to be negatively associated with parental child care and time spent with children under the age of 10 (Gutierrez-Domenech, 2010; Gracia \& Kalmijn, 2016). Although older children and teenagers (e.g. children aged 10-16) are clearly more autonomous from their parents than younger children are, Spanish parents whose employment hours substantially occupy their evenings might still suffer from constraints in monitoring their children's engagement in specific activities, either supervised or unsupervised. Overall, studying the role of parental work schedules in how children engage in different daily activities in the context of Spain is relevant for
both scientific and public policy debates revolving around the issues of work-family balance and child wellbeing.

Our study adopts a multidimensional approach. We examine four activities which are key to children's human, cultural and social capital formation: (1) family interactions; (2) educational activities; (3) unsupervised television viewing; (4) unsupervised electronic activities. The time children spend on family activities (i.e. family dinners, family socializing) plays a central role in children's wellbeing and social bonding (Nock \& Kingston, 1988; Wight et al., 2008). In addition, educational activities outside school hours (e.g. reading, doing homework) are well-established to be critical to children's cognitive abilities and cultural capital, with schooling and labour market implications (Bianchi \& Robinson, 1997; Hofferth \& Sandberg, 2001). By contrast, 'too much' time spent watching television in mid-childhood and adolescence, especially without parental supervision, has been found to be detrimental to health, cognitive and academic outcomes (Hancox et al., 2005; Nathanson, 2001; Vandewater et al., 2006). As for electronic activities, while educational computer games can have positive effects on children's cognitive skills (Hofferth, 2010; Hofferth \& JeungMoon, 2012), several studies have alerted us to the risks of children spending excessive amounts of time on these activities without parental guidance, which can affect their health, socio-emotional and academic outcomes (Livingston et al., 2015; Wang et al., 2005). Altogether, our focus on these four activities contributes to global debates concerning how parental characteristics can influence child wellbeing.

We also address the important question of whether the links between parents' evening working hours and children's daily activities differ by parental education. Previous studies suggest that parents' non-standard work hours could be particularly detrimental to disadvantaged children, and much less to children from privileged social backgrounds (Li et al., 2014). This may reflect, for example, the fact that privileged parents who have paid work constraints after children's school time can use their resources to enrol children in private educational activities (e.g. music lessons, private tutors), consistent with intensive parenting norms that aim to promote children's human and cultural capital accumulation (Bianchi et al., 2004; Lareau, 2003). By analysing the conditions under which there exist educational inequalities in how parents' work schedules are linked to children's daily activities, we make a novel contribution to current discussions of a significant phenomenon in social stratification debates.

## Analytical Framework

## Theoretical Perspectives

Three factors identified in theoretical contributions are particularly useful for our analytical framework: (1) 'time availability'; (2) 'gender roles'; and (3) 'socioeconomic position.'

From the time availability perspective, the time and energy that parents devote to specific activities is limited by their total paid working hours and the times at which they engage in employment activities (Presser, 1994). Parental work schedules can influence parents' capacities to manage children's time use. In particular, evening work might impose important constraints on parents supervising children and monitoring their daily activities after school hours, as these activities typically need to be performed during evening hours (Presser, 2003).

From the gender perspective, gender norms lead mothers to be more involved than fathers in organizing children's activities, even when accounting for paid work constraints (Bianchi et al., 2006; Hays, 1996; Hochschild \& Machung, 1988; Roeters \& Gracia, 2016). Mothers with time availability in the evening and driven by norms about child-centred mothering can use this time to actively guide children's developmental activities in their everyday lives. By contrast, dominant norms on paternal involvement might lead fathers with free time during the evening to be comparatively less active in guiding and fostering children's activities, instead spending more time and energy on their private leisure.

Finally, other studies have looked at parents' socioeconomic position. Privileged parents typically have intensive parenting norms oriented to developing their children's talents in everyday
practices, and typically possess high economic resources to invest in children's extracurricular educational activities (e.g. private tutoring, music lessons, language lessons) (Bianchi et al., 2004; Lareau, 2003). This suggests that privileged children whose parents have evening work constraints, as compared to less privileged children with parents who work evening hours, might be more prone to engage in developmental activities once school hours finish

## Analytical Approach

We need to make two analytical clarifications. First, we consider two types of work schedules. One is 'standard work hours', which captures parents' total work hours between 7 am and 6 pm . The other is 'evening work hours', namely parents' total work hours between 6 pm and midnight. These two paid work measures - not mutually exclusive - allow us to capture precisely the conditions under which variations in parental work constraints at different moments of the day are linked to children's daily activities (see Rapoport \& Le Bourdais, 2008).

Second, we generally refer to associations, not to causal relations. This is due to issues of identification and reverse causality that - as in previous studies - our data unfortunately cannot resolve. Many Spanish employees face inflexibility in their work schedules (Gracia et al., 2011) and job conditions (Polavieja, 2003), limiting their capacities to adequately manage the supervision of their children's time use. Nevertheless, parents might choose certain work schedules, for example due to an intrinsic motivation to supervise their children. Hence, we generally refer to associations between parental work schedules and children's time use.

## Family Activities

Family activities like having meals and socializing with parents are important in fostering both family solidarity and children's cognitive and socio-emotional skills (Craig \& Mullan, 2012; Heckman, 2006; Nock \& Kingston, 1988). Parents are expected to be strongly motivated to promote family time for children (Bianchi et al., 2006). However, parents' capacities to include children in family activities might be restricted by their time availability (Presser, 1994). We anticipate that children's participation in family activities becomes is reduced as parents' evening work time increases, as such activities are likely to be concentrated during these hours (Lesnard, 2008). By contrast, parents' standard work hours are less likely to compete with the moments in which children can potentially have family time.

H-1: Parents' evening work hours have a significant negative association with children's engagement in daily family activities.

## Educational Activities

Children's time spent on educational activities, like reading or doing homework, is critical for their human and cultural capital formation, with academic and labour market implications (De Graaf et al., 2000; Hofferth \& Sandberg, 2001). Parents can stimulate children's daily reading habits and engagement in academic activities either 'indirectly' (e.g. by themselves reading books in ways that influence children's own intellectual habits) or 'directly' (e.g. monitoring and encouraging children to do homework and read books) (Kraaykamp, 2003; Kraaykamp \& Eijck, 2010; Gracia, 2015). However, parents' capacities to guide children's educational time are likely to be constrained by their time availability after children finish school hours, which might negatively influence the time that children spend on educational activities. Assuming that having time availability during the evening can help parents to regulate and foster children's educational activities, we hypothesize that parents' evening work hours are negatively associated with children's time spent on educational activities.

H-2: Parents' evening work hours have a significant negative association with children's time spent on educational activities.

## Unsupervised Television Watching

Watching television unsupervised, when this occurs frequently, is likely to be detrimental to child development. Some studies have found that young children achieve high cognitive skills and academic outcomes when watching certain television programs with parents (Schmidt \& Anderson, 2007). However, 'too much' television time competes with children's participation in key developmental activities, such as sports, homework and reading, while spending many hours in front of the television without parental supervision has been found to have negative effects on children's school, cognitive and health outcomes (Hancox et al., 2005; Hofferth, 2010; Nathanson, 2001; Vandewater et al., 2006). The availability of parental time seems critical for the quantity and quality of children's time watching television to be regulated and monitored (Schmidt \& Anderson, 2007). We anticipate that children's television time without parents increases as parents spend more hours on paid work during the evening. Given that children's television time is likely to be mostly during evening hours, children's possibilities of watching television at home without their parents might be particularly salient as parents' evening work constraints become more pronounced.

H-3: Parents' evening work hours are significantly associated with children's time watching television without their parents.

## Unsupervised Electronic Activities

Electronic activities are a key part of today's children's lives, providing them with essential skills to navigate in an increasingly digitalized world (DiMaggio et al., 2004; Hofferth \& Jeung-Moon, 2012). For certain demographic groups, using specific computer games has been found to be moderately associated with some academic outcomes (Hofferth, 2010; Hofferth \& Jeung-Moon, 2012). However, children's time spent on computer games, especially when not guided by their parents, can bring risks for their present and future wellbeing. Excessive electronic engagement competes with adolescents' time for other activities with key developmental aims (Mellecker \& McManus, 2008). Scholars have stressed the role of parental monitoring and supervision in guiding children's involvement in electronic activities, implying that much time spent using electrronic equipment without parental supervision can damage children's development (Livingstone et al., 2015; Wang et al., 2005). As children have time to engage in electronic activities especially after school hours, more parental evening work hours might provide children with the autonomy and opportunity to spend larger amounts of time on electronic activities without their parents.

H-4: Parents' evening work hours are significantly associated with children's time spent on electronic activities without parental supervision.

## Differences on Parents' Gender

Parents' gender captures key differences in norms and attitudes regarding domestic labour and child supervision (Bianchi et al., 2006). Women tend to spend a greater share of their leisure time on activities with children, while men are more prone to protect their private leisure, which contributes to reproducing gender inequalities in the division of labour and family life (Mattingly \& Bianchi, 2003; Gracia \& Kalmijn, 2016). The disproportionate tendency of mothers to supervise and monitor children's activities after school hours (Hays, 1996) suggests that an increase in their paid work constraints during these hours will limit their capacities to ensure, for example, that children do their homework or do not watch too much unrestricted television. Instead, fathers may disproportionally engage in activities without children in their free time, making their time availability during the evening (related to paid work constraints) less relevant to children's time use than mothers' time availability in the evening.

H-5: Mothers' evening work hours are more significantly associated with variations in children's time spent on daily activities than fathers' evening work hours.

## Differences on Parental Education

Parental education reflects intensive parenting norms and practices, and also resources to monitor children's developmental time (Bianchi et al., 2004; Lareau, 2003). Highly educated parents working during the evening may schedule children's extracurricular educational activities (e.g. music classes, private tutors, language lessons), or use their available free time to foster children's participation in educational and family activities with wellbeing implications. By contrast, less-educated parents working substantial amounts of time during evening hours who have scarcer material and cultural capital resources may be less prone to schedule children's extracurricular activities or to foster their involvement in interactive family activities, giving their children greater chances of participating in unstructured leisure activities without their parents, such as unsupervised television watching and electronic activities.

H-6: The association of parents' evening work with children's time use is only significant for children with less-educated parents, but not for children with highly-educated parents.

## Methodology

## Data

The STUS contains detailed diaries on daily activities for 10-minute intervals throughout the 24 hours of a random day, which are complemented with a range of sociodemographic variables at both the individual and household levels. Time-diary data are well established as the most reliable statistical sources to investigate how individuals spend their time in their everyday lives (Bianchi et al., 2006; Gershuny, 2000). The STUS provides data on whom the child was with, including information on whether or not a parent was present at an activity. The STUS, unlike previous related surveys, offers time-use information not only on children's activities but also on the activities reported by the mother and the father for the same day of observation, constituting excellent data for our empirical purposes.

The original STUS sample comprises a total of 9,541 households, with a response rate of $58 \%$ for household participation and a diary response rate of $83 \%$. Respondents aged 10 or above reported one diary of activities representing one day of the week. We restricted our sample to two-parent households with children aged 10-16, covering children who were students when the interview took place ( $\mathrm{N}=1535$ ). We then selected those households with full relevant sociodemographic information for which the children and their mother and father reported a diary of activities on the same day $(\mathrm{N}=$ 913). Finally, we restricted the sample to families with diaries completed between Monday and Friday, when school and paid work activities typically take place $(\mathrm{N}=593)$.

## Dependent Variables

We use four continuous dependent variables for children's daily activities: (1) Family activities: daily hours reported as family socializing and eating meals with at least one parent; (2) Educational activities: daily hours of educational activities outside school time, including reading, doing homework and extracurricular educational activities; (3) Unsupervised television watching: daily hours spent watching television without the presence of parents; (4) Unsupervised electronic activities: daily hours spent on electronic activities (e.g. video games, texting, navigating the internet, phone messages) without the presence of parents.

## Independent Variables

We use two continuous variables for parents' work schedules for both the mother and the father. Standard work hours count the total hours that the parent engaged in paid work between $7 \mathrm{a} . \mathrm{m}$. and 6 p.m. during the day of observation. Evening work hours captures the number of hours that the respondent's parents spent on paid work activities between $6 \mathrm{p} . \mathrm{m}$. and midnight. Paid work time is a continuous variable by nature, and is captured with high accuracy by time diaries. By using these two continuous variables, which are not mutually exclusive, we can investigate whether an increase in parents' evening paid work time, after accounting for their standard work time, is associated with
children's time use on the same day of observation. Our measures of parents' work schedules resemble the ones used, for example, by Rapoport and Le Bourdais (2008).

Parental education is measured as a dummy variable differentiating between mothers and fathers with a college degree and those without a college degree. We do not include more educational categories due to sample size limitations, an especially problematic issue in running robust interaction effects with parental education. Still, college education is widely established as a key measure of social status, earnings, and parental strategies, as argued in studies on the role of parental education in parenting practices (Dotti-Sani \& Treas, 2016).

## Controls

We use several control variables. We control for parents' total paid work time, a key factor in parents' time availability to supervise children's daily activities (Presser, 1994). For mothers, we include four categories of total paid work time for the same day of observation: (1) did not work; (2) worked less than 6 hours; (3) worked from 6 to 9 hours; (4) worked more than 9 hours. For fathers, as there were very few part-time workers, we use three paid work categories: (1) did not work; (2) worked up to 9 hours; (3) worked more than 9 hours. Analyses of the 'Correlation Matrix of Parameter Estimates' and the 'Variance Inflator Factor' (VIF) between parents' total paid work time and our measures of parents' work schedules revealed that parents' total paid work as a categorical variable is preferable to a continuous variable, as the latter yields very high levels of multicollinearity in our empirical analyses.

We use several sociodemographic variables as control variables. We control for the child's gender, which affects time use allocation (Hofferth, 2010). Age is also a critical variable for children's time use and autonomy (Mullan, 2009), and so we differentiate between teenagers (aged 13-16) and younger children. The number of young children in the home is also frequently considered (Wight et al., 2009), and so we separate between zero siblings, one sibling, and at least two siblings under 18 years old. We also consider if there were other adults at home (e.g. older siblings, grandparents), a particularly important demographic group for the supervision of children in Southern Europe (Chiuri \& Del Boca, 2010). Finally, we control for the trimester and day of the week in which the diary was reported, as there can be specific daily patterns in both parents' and children's time use in certain periods of the year (summer) and days of the week (Friday) (Bianchi \& Robinson, 1997).

## Analytical Strategy

We follow three analytical steps. First, we present descriptive analyses, summarizing our variables of study and offering descriptive evidence on what children do and with whom they spend time throughout the day. Second, we present the full multivariate statistical models on children's time use by running Ordinary Least Squares (OLS) regressions. OLS regressions are considered the most robust estimators to analyse time-use data, as has been demonstrated in several recent methodological studies (Stewart, 2013). Third, we run the full OLS models with interaction effects between parents' evening work hours and the level of education for mothers and fathers separately. The empirical analyses use a weight from the STUS that corrects for the general selection in responses from two-parent couples with children.

## Results

## Descriptive Analyses

Table 1 presents the means and standard deviations of our variables of analysis. Children spent 1.2 hours on family activities, with the same figure for educational activities. Unsupervised television time and unsupervised electronic activities represented 0.5 hours and 0.6 hours respectively. On average, mothers worked 3.3 hours in the standard schedule and 0.6 hours in the evening schedule, while fathers' standard paid work hours averaged 5.7 and their evening work time 1.3 hours. About a quarter of the parents have a college degree, but the proportion of college graduates is slightly larger among
mothers ( $25 \%$ ) than among fathers $(21 \%)$. Table 1 also presents descriptive statistics for our control variables.
[Table 1, around here]
Figure 1 shows a timegraph of children's activities during the 24 hours of a random weekday of observation. We observe that most children started school activities between 8 am and 9 am , and $70 \%$ of them were at school by 10 am . Lunch (which can be either at school or outside school) was typically eaten between 2 pm and 3 pm . Participation in school activities became less frequent by 3 pm , but was generally stable at around $20 \%$ participation until 5 pm . This participation is relevant if we consider that a quarter of the diaries were recorded in the summer, when children typically do not engage in school activities. Children's educational activities after school (i.e. reading, homework) and social leisure (i.e. family socializing, playing with friends) mostly took place between 5 pm and 8 pm . Their time allocated to watching television and electronic activities was generally synchronized with meals, especially during dinner time (before 9 pm ). Finally, the majority of children were already in bed by 11 pm . Overall, Figure 1 shows the typical daily schedule of Spanish children, with meals and sleeping occurring (arguably) later than in other Western countries.
[Figure $1 \&$ Figure 2, around here]
Figure 2 shows a time-graph for who children were with during the 24 hours of a random weekday. Children were basically with non-household members during the morning, as is logical assuming that most of them were at school during these hours. Between 3 pm and 8 pm the children's time was spread between (1) parents; (2) non-household members; (3) being alone. Between 8 pm and 10 pm is when children particularly spent time with at least one parent, with a clear peak around 9 pm , when almost $60 \%$ of children were with their parents. The presence of parents at 2 pm and 3 pm was also quite considerable, involving more than $30 \%$ of children, capturing the time that parents are with children during lunch time outside school, including summer holidays. Time alone mainly happened at 4 pm and 5 pm , but there was also another peak between 8 pm and 9 pm , affecting close to $30 \%$ of children. Between 4 pm and 8 pm about $35 \%$ of the children were together with non-household members (e.g. grandparents, educators, and friends), and during the same hours we observe the highest proportion of time with non-parent household members (e.g. siblings, other relatives at home), accounting for about $10 \%$ of the children. Altogether, Figure 2 provides relevant information to contextualize the potential supervision that children receive at different hours of the day.

## Multivariate Analyses

Table 2 presents the OLS models for the four activities studied, including all the independent and control variables. For family activities, we observe that the mother's evening work hours are negatively associated with children's time spent on family activities, with 0.15 hours less for each extra hour of maternal evening work ( $p<0.05$ ). However, the father's evening work hours, and the standard paid work hours of both the father and the mother, are not significantly associated with children's time spent on family activities. For educational activities, the mother's paid work hours during standard hours is associated with 0.16 hours less ( $p<0.05$ ) and the mother's evening work hours with 0.18 hours less ( $p<0.01$ ). The father's paid work time during different work schedules is not significantly associated with children's time spent on educational activities. For unsupervised television watching, each additional hour of maternal paid work in the evening is associated with a reduction of 0.16 hours in the time children spent ( $\mathrm{p}<0.01$ ), but both the mother's standard paid work hours and the father's work schedule are insignificantly associated with children's unsupervised television time. As for unsupervised electronic activities, again we only find significant associations for the mothers' evening work hours, with a coefficient of 0.13 ( $p<0.05$ ), but not for the measures of the mother's standard work hours or the father's two measures of paid work schedules.
[Table 2, around here]
Table 3 presents the results of the interaction terms between parents' evening work hours and their level of education, with full models run separately including interactions for both the mothers and fathers. For mothers, evening work hours are negatively associated with children's family activities for less-educated mothers ( $\mathrm{p}<0.01$ ), with similar negative associations for highly educated mothers. However, for educational activities, the mother's evening work hours have a significantly negative association for less-educated mothers ( $p<0.01$ ), and the interaction effect with education is significantly positive ( $\mathrm{p}<0.01$ ). The association between maternal evening work hours and children's unsupervised television time is significantly positive for less-educated mothers ( $\mathrm{p}<0.001$ ), and again a significant interaction effect (here negative) is observed with respect to education ( $\mathrm{p}<0.001$ ). Similarly, positive associations between the mother doing evening work and children doing unsupervised electronic activities are significant for less-educated mothers ( $p<0.01$ ), with negative interaction terms with the level of education ( $\mathrm{p}<0.01$ ). For fathers, we generally find non-significant differences for the interaction terms between evening work hours and education. The only exception for fathers is unsupervised television time, which shows mixed results. Children with college-educated fathers not working during the evening spent more television time without their parents than those with lower educated fathers not working during evening hours. t ( $\mathrm{p}<0.05$ ). Yet,, we find a moderate negative interaction term between fathers' education and evening work for children's television time without parents ( $\mathrm{p}<0.05$ ). Overall, educational differences with respect to fathers' evening work hours are generally insignificant.

> [Table 3, around here]

Figure 3 illustrates the interaction effects for maternal education and evening work hours presented in Table 3 by using predicted values (for fathers, for whom we find insignificant differences, , we do not present these graphs). We clearly observe no educational differences for children's family activities. However, a clear positive gradient on the association between the mother's evening work hours and children's educational activities can be observed. Finally, we observe a clear negative gradient for the interaction term between mothers' evening work hours and children's unsupervised television time and electronic activities.
[Figure 3, around here]

## Additional Analyses

We run additional analyses as robustness checks (these analyses are not shown, but are available upon request from the authors). First, we run empirical models to analyse whether parents with different levels of education diverge in their paid work time during standard and evening hours. We did not find significant differences in this regard. Second, we conducted analyses restricted to dual-earner couples with children to investigate whether our results for parents' evening work hours, particularly for mothers' evening work hours, are driven by selection into non-employment. These analyses, including the interaction effects by levels of education, were generally consistent with the results observed for the whole sample, even when using small sample sizes. Overall, these additional analyses suggest that socioeconomic selection into evening work, or selection into non-employment, do not drive our main empirical results.

## Discussion

This study has used Spanish time-diary data to investigate how parents' work schedules are associated with children's daily activities, a relevant and under-studied question in the work-family and child wellbeing literatures. Spain offers a highly interesting case of study. In Spain, a large group of employed parents substantially extend their paid work time during the evening, raising the key question of whether Spanish children disproportionally engage in unsuitable developmental activities
when their parents are not available after school hours. We have had access to high-quality time-diary data from children, as well as from both their mothers and fathers. This allows us to critically contribute to scholarly debates by allowing us to compare the roles of mothers' and fathers' work schedules in children's time use.

We developed six hypotheses motivated by previous theoretical and empirical studies. We expected an increase in parental evening work hours to be associated with less time spent by children on family activities (H-1) and educational activities (H-2). By contrast, we expected that as parental evening work hours increase children would spend more time watching television without their parents (H-3) and on unsupervised electronic activities (H-4). In addition, we hypothesized that the mother's evening work hours would be more strongly associated with children's time use, compared to the father's evening work hours (H-5). Finally, we anticipated the association between evening work hours and children's time use to be significant only for the children of less-educated parents, and not for children with highly-educated parents (H-6).

The results are generally consistent with our expectations. Parents' evening work hours are negatively associated with children's family time and educational activities, and positively with children's unsupervised time watching television and doing electronic activities, consistent with $\mathrm{H}-1$, $\mathrm{H}-2, \mathrm{H}-3$ and H-4. But the parent's gender was clearly a determinant of the links between parental evening work hours and children's activities, as hypothesized in H-5. The mother's evening work hours are significantly associated with variations in children's daily activities, and to a much larger extent than the mother's standard work hours. By contrast, the father's paid work time schedules are non-significantly associated with children's time use. Finally, as expected in H-6, we find remarkable educational differences in the associations between the mother's evening work hours and children's time use, even though this is not the case for the father's evening work hours. Although the negative association between maternal evening work hours and children's time use for family activities applies to all educational groups, the observed associations for evening work and the other three activities are only visible for children with less-educated mothers, but not for those with highly educated mothers.

Our study has important scientific and public policy implications. First, this study is relevant to the literature on child wellbeing. Children's time spent on family activities and educational activities with intellectual aims (e.g. reading, doing homework, private music lessons) has been established as positive for their accumulation of cognitive and socio-emotional skills (De Graaf et al., 2000; Lareau, 2003). By contrast, spending more than the average time watching television and on electronic activities without parental guidance can be detrimental for children's and adolescents' present and future wellbeing (Hancox et al., 2005; Livingstone et al., 2015; Wang et al., 2005; Schmidt \& Anderson, 2007). These results imply that (maternal) evening work hours in Spain, to our knowledge the only case analysed so far, can lead to children spending insufficient time on specific activities with positive wellbeing implications, and excessive time on other activities linked with poorer wellbeing outcomes.

Second, our study suggests that the parent's gender plays a key role in the association between evening work hours and children's time use. The mother's evening work hours, but not those of the father, are closely linked with children's time use. Gender roles can bring mothers to actively monitor children's time use during their free time, while fathers might be more prone to using their nonworking time for child-free leisure activities, even with similar paid work constraints and schedules (Craig \& Powell, 2011; Gracia \& Kalmijn, 2016; Mattingly \& Bianchi, 2003; Hays, 1996). This is clearly relevant to debates on gender inequalities. As Craig and Mullan (2010) argue, mothers’ uneven engagement in children's daily supervision can conflicts with their labour market opportunities (Craig \& Mullan, 2010), a salient problem in the light of the strong gender inequalities that Spain displays regarding the division of labour (Esping-Andersen et al., 2013; Garcia-Roman \& Cortina, 2015; Sevilla-Sanz et al., 2010).

Third, our findings contribute to social stratification debates by generally showing that mothers' evening work hours are linked with children's activities only for less-educated mothers, but not for highly-educated mothers. Highly-educated parents typically possess privileged monetary resources allowing them to organize children's extracurricular activities with educational aims (e.g.
private tutors, music lessons). This might allow privileged parents to compensate for their work constraints during the evening to promote children's educational activities. In less-educated families, with fewer economic resources, parents working during the evening have more difficulties in enrolling children in educational activities and so their children instead spend more time on cheaper forms of unstructured leisure (e.g. watching television, digital activities, social media). Drawing on Lareau's (2003) study, well-educated parents tend to disproportionally conform to child-oriented intensive parenting norms, which might also partly influence the heterogeneous role of mothers' evening work across educational groups. Future studies should provide more precise evidence on the mechanisms leading to educational differences in the links between maternal evening work hours and children's time use.

Fourth, our study focuses on a relevant context for the work-family literature: the Spanish case. The Spanish case is well known for having limited family-friendly policies (Lewis, 2009). Additionally, Spain is a particularly interesting case because of the strong presence of evening work hours, with more than $40 \%$ of employed parents engaging in paid work activities after 6 pm (GutierrezDomenech, 2010). This has led to scientific and public policy debates about child wellbeing, as the fact that many Spanish parents to extend their paid work time until late in the evening, s (e.g. 8pm9 pm ) conflicts with their time availability to supervise children ) (Gracia \& Kalmijn, 2016). The fact that maternal evening work hours are linked to children's activities with detrimental wellbeing implications, particularly among disadvantaged families, is relevant for human capital policies in Spain. In addition, the tendency of Spanish companies to establish evening work in their regular schedules can discourage mothers from participating in employment, a factor that is relevant to the literature on how regulatory policies influence the gender gap in employment (Landivar, 2015), and particularly so when considering the high levels of gender inequality in the division of labour in Spain (Esping-Andersen, 2013; Garcia-Roman \& Cortina, 2015).

This study has at least three shortcomings that should be mentioned. First, we unfortunately cannot identify causality in our analyses. Even if it is arguably the case that many parents work during evening hours against their own will, especially in Spain, we cannot claim that our observed associations between parents' evening work hours and children's time use capture per se causal effects. Future studies might benefit from adopting quasi-experimental data, as in studies investigating changes in workplace schedules (e.g. Kelly et al., 2014), or longitudinal data, as in recent scholarship studying the role of flexible working arrangements in family life (Wheatley, 2016) Second, our focus on socioeconomic factors considered only parental education. Unfortunately, we have not been able to include measures of parents' income and social class, as this would have entailed losing nearly $50 \%$ of our sample, limiting very much our capacity to perform robust and reliable estimates. Even though the distinction between college-educated and non-college-educated parents already captures key differences in parents' resources and attitudes towards child supervision (Dotti-Sani \& Treas, 2016), future studies should include additional socioeconomic variables. Third, we have not had access to information on actors from outside the household with whom children can spend time (e.g. educators, grandparents and friends). Multi-actor time-use data is likely to make an important contribution in the field, especially for Southern Europe, where informal family care arrangements are very widespread (Chiuri \& Del Boca, 2010).

Overall, this study - despite some shortcomings - arguably offers new relevant evidence on how parental work schedules are linked with children's daily activities. Future studies should, we believe, complement this work by adopting a cross-national perspective that accounts for work-family policies and variations in parents' work constraints. This approach might contribute to answering important questions with scientific and public policy implications. We believe that our analytical approach and findings for the Spanish case will be useful for future studies addressing the role of parental work characteristics in children's daily activities, with important implications for their present and future wellbeing.

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## Tables and Figures

Table 1. Summary Statistics. Means and Standard Deviations

|  | Means | S.D. |
| :--- | :---: | :---: |
| Family Activities | 1.17 | 1.15 |
| Educational Activities | 1.18 | 1.21 |
| Unsupervised Television Time | 0.51 | 0.91 |
| Unsupervised Electronic Activities | 0.60 | 1.02 |
| Mother's Standard Work Hours | 3.37 | 3.54 |
| Mother's Evening Work Hours | 0.58 | 1.31 |
| Mother Did Not Work | 0.47 |  |
| Mother Worked < 6 hours | 0.12 |  |
| Mother Worked 6 to 9 hours | 0.31 |  |
| Mother Worked $>9$ hours | 0.10 |  |
| Father's Standard Work Hours | 5.72 | 3.74 |
| Father's Evening Work Hours | 1.30 | 1.69 |
| Father Did Not Work | 0.24 |  |
| Father Worked < = 9 hours | 0.36 |  |
| Father Worked > 9 hours | 0.40 |  |
| Mother with College Education | 0.25 |  |
| Father with College Education | 0.21 |  |
| Teenager (Aged 13-16) | 0.52 |  |
| Boy | 0.54 |  |
| 0 Siblings < 18 Years Old | 0.33 |  |
| 1 Sibling < 18 Years Old | 0.53 |  |
| 2 or more Siblings < 18 Years Old | 0.14 |  |
| Non-Parent Adult at Home | 0.32 |  |
| 1st Trimester (January-March) | 0.25 |  |
| 2 ${ }^{\text {nd }}$ Trimester (April-June) | 0.25 |  |
| 3 Trimester (July-September) | 0.25 |  |
| 4 ${ }^{\text {th }}$ Trimester (October-December) | 0.25 |  |
| Monday | 0.20 |  |
| Tuesday | 0.20 |  |
| Wednesday | 0.19 |  |
| Thursday | 0.20 |  |
| Friday | 0.21 | 593 |
| N |  |  |
|  |  |  |



Source: 'Spanish Time Use Survey 2009-2010'

Figure 2. Proportion of children by who they are with at different times of day


Source: 'Spanish Time Use Survey 2009-2010'

Table 2. OLS Models. Children's Daily Hours Allocated to Four Activities

|  | Family Activities | Educational Activities | Unsupervised Television | Unsupervised Electronics |
| :---: | :---: | :---: | :---: | :---: |
| Mother's Standard Work Hours (7am - 6pm) | Coefficient | Coefficient | Coefficient | Coefficient |
|  | -0.04 | -0.16* | 0.06 | 0.04 |
|  | 0.05 | 0.06 | 0.04 | 0.05 |
| Mother's Evening Work Hours (6pm - 12am) | -0.13* | $-0.18{ }^{* *}$ | $0.16{ }^{* *}$ | 0.13 * |
|  | 0.05 | 0.07 | 0.06 | 0.06 |
| Father's Standard Work Hours (7am - 6pm) | -0.02 | 0.01 | -0.03 | 0.04 |
|  | 0.03 | 0.04 | 0.03 | 0.02 |
| Father's Evening Work Hours (6pm - 12am) | -0.01 | 0.06 | 0.01 | 0.03 |
|  | 0.03 | 0.04 | 0.03 | 0.04 |
| Mother With a College Degree | -0.06 | 0.03 | -0.01 | -0.09 |
|  | 0.12 | 0.16 | 0.08 | 0.10 |
| Father With a College Degree | -0.02 | 0.08 | 0.13 | 0.04 |
|  | 0.11 | 0.15 | 0.09 | 0.10 |
| Mother Did Not Work | -0.32 | $-1.32^{* *}$ | 0.48 | 0.50 |
|  | 0.39 | 0.47 | 0.34 | 0.36 |
| Mother Worked $<6$ hours | -0.17 | -0.55* | -0.04 | 0.16 |
|  | 0.16 | 0.25 | 0.22 | 0.20 |
| Mother Worked 6 to 9 hours | [Ref] | [Ref] | [Ref] | [Ref] |
| Mother Worked $>9$ hours | 0.07 | 0.55* | -0.42* | -0.17 |
|  | 0.22 | 0.26 | 0.16 | 0.15 |
| Father Did Not Work | 0.10 | -0.26 | -0.20 | 0.03 |
|  | 0.19 | 0.27 | 0.20 | 0.18 |
| Father Worked <= 9 hours (Ref.) | [Ref] | [Ref] | [Ref] | [Ref] |
| Father Worked $>9$ hours | -0.04 | -0.25 | 0.04 | -0.17 |
|  | 0.12 | 0.17 | 0.12 | 0.14 |
| Teenager (Aged 13-16) | -0.29 ** | 0.12 | 0.20 * | $0.36{ }^{* * *}$ |
|  | 0.09 | 0.11 | 0.08 | 0.09 |
| Boy | 0.02 | 0.00 | 0.01 | 0.12 |
|  | 0.08 | 0.10 | 0.07 | 0.08 |
| 0 Siblings < 18 Years Old | [Ref] | [Ref] | [Ref] | [Ref] |
| 1 Sibling < 18 Years Old | -0.05 | -0.04 | 0.18 | -0.07 |
|  | 0.11 | 0.14 | 0.09 | 0.11 |
| 2 or More Siblings $<18$ Years Old | -0.10 | -0.25 | 0.23 | -0.07 |
|  | 0.13 | 0.17 | 0.13 | 0.14 |
| Non-Parent Adult at Home | $-0.27 * *$ | -0.22 | $0.31{ }^{* *}$ | $0.26{ }^{*}$ |
|  | 0.10 | 0.13 | 0.10 | 0.11 |
| $4^{\text {th }}$ Trimester (October-December) | [Ref] | [Ref] | [Ref] | [Ref] |
| $1^{\text {st }}$ Trimester (January-March) | 0.17 | 0.04 | -0.11 | -0.13 |
|  | 0.12 | 0.15 | 0.12 | 0.11 |
| $2^{\text {nd }}$ Trimester (April-June) | 0.12 | 0.13 | -0.27* | -0.03 |
|  | 0.11 | 0.14 | 0.11 | 0.12 |
| $3^{\text {rd }}$ Trimester (July-September) | -0.20 | -0.36* | -0.10 | 0.06 |
|  | 0.12 | 0.16 ** | 0.13 | 0.15 |
| Intercept | $1.29{ }^{* *}$ | $1.36 * * *$ | 0.55 | 0.57 |
|  | 0.41 | 0.24 | 0.32 | 0.37 |
| Adj. $\mathrm{R}^{2}$ | 0.10 | 0.11 | 0.10 | 0.10 |
| N | 593 | 593 | 593 | 593 |

${ }^{*} p<0.05,{ }^{* *} p<0.01,{ }^{* * *} p<0.001$
Note: Standard errors in second column. Analyses include dummy controls for day of the week.

Table 3. OLS. Interaction Effects by Parental Education and Evening Work Hours

|  | Family Activities | Educational Activities | Unsupervised Television | Unsupervised Electronics |
| :---: | :---: | :---: | :---: | :---: |
| Mothers |  |  |  |  |
| Mother College Education | Coefficient | Coefficient | Coefficient | Coefficient |
|  | -0.05 | -0.09 | 0.13 | 0.06 |
|  | 0.06 | 0.08 | 0.07 | 0.07 |
| Mother's Evening Work Hours ( 6 pm - 12am) | -0.14** | -0.19** | 0.20 *** | $0.14{ }^{* *}$ |
|  | 0.04 | 0.04 | 0.03 | 0.04 |
| Mother's College $x$ Evening Work Hours (6pm - 12am) | 0.04 | $0.16{ }^{* *}$ | $-0.19^{* * *}$ | $-0.11{ }^{* *}$ |
|  | 0.04 | 0.05 | 0.03 | 0.04 |
| Intercept | $1.33{ }^{* *}$ | $1.37{ }^{* * *}$ | 0.57 | 0.59 |
|  | 0.43 | 0.33 | 0.32 | 0.38 |
| N | 593 | 593 | 593 | 593 |
| Fathers |  |  |  |  |
| Father College Education | Coefficient | Coefficient | Coefficient | Coefficient |
|  | 0.03 | -0.12 | 0.22 * | 0.06 |
|  | 0.07 | 0.09 | 0.10 | 0.08 |
| Father's Evening Work Hours (6pm - 12am) | 0.00 | 0.04 | 0.03 | 0.03 |
|  | 0.02 | 0.03 | 0.02 | 0.02 |
| Father College $x$ Evening Work Hours (6pm - 12am) | -0.03 | 0.04 | -0.09* | -0.01 |
|  | 0.03 | 0.04 | 0.04 | 0.03 |
| Intercept | $1.31{ }^{* *}$ | $1.35 * * *$ | 0.55 | 0.56 |
|  | 0.43 | 0.33 | 0.32 | 0.38 |
| N | 593 | 593 | 593 | 593 |

Note: Standard errors are in the second column. The results are based on two separate OLS regression models. The interaction effects are calculated using onetailed significance tests. All the models include the following control variables: the other parent's evening work hours, both parent's standard work hours, the other parent's education, both parents' paid work hours, child's sex, child's age, siblings under age 18, presence of non-parent adults at home, trimester of the diary, and day of the week.

Figure 3. Linear Prediction Models. Interaction Effects by Mothers' Evening Work Hours and Maternal Education


Note: Graphic representation of interaction effects of linear models in Table 3.

