

# Gender Gaps in Child and Adolescent Daily Activities: A Cross-National Comparison

Pablo Gracia<sup>1</sup>  
*Trinity College Dublin*

Joan Garcia-Roman<sup>2</sup>  
*Centre for Demographic Studies, UAB*

Tomi Oinas<sup>3</sup>  
*University of Jyväskylä*

Timo Anttila<sup>4</sup>  
*University of Jyväskylä*

## ABSTRACT

The study of how national contexts influence boys' and girls' daily activities has been largely omitted from previous research. This study uses 2009-2015 time-diary data to examine gender gaps in child and adolescent time use across three countries capturing distinct policy and gender regimes: Finland, Spain and the UK (N = 3,491). Results show that boys spend more time in screen-based activities and exercising, while girls are more active in domestic work, personal care and educational activities. Yet, gender gaps in child time use are strongest in the UK, followed by Finland, and are –interestingly– less salient in Spain. Additional analyses show that family structure and age influence gender variations in child time use in different ways across national contexts. The study implications are considered by discussing the relative importance of the national contexts in shaping gendered time-use patterns from childhood to later stages of the life course.

**Keywords:** Time Use, Gender, Childhood, Adolescence, Cross-National Research

<sup>1</sup>Department of Sociology, School of Social Sciences and Philosophy, Trinity College Dublin, College Green 1, Dublin, Dublin 2, Ireland ([graciap@tcd.ie](mailto:graciap@tcd.ie); corresponding author); <sup>2</sup>Centre for Demographic Studies, UAB, Bellaterra, Cerdanyola del Valles, Barcelona, Spain ([jgarcia@ced.uab.es](mailto:jgarcia@ced.uab.es)); <sup>3</sup> University of Jyväskylä, PL 35, Jyväskylä 40014, Finland ([tomi.s.oinas@jyu.fi](mailto:tomi.s.oinas@jyu.fi)); <sup>4</sup>University of Jyväskylä, PL 35, Jyväskylä 40014, Finland ([timo.e.e.anttila@jyu.fi](mailto:timo.e.e.anttila@jyu.fi)).

## INTRODUCTION

Despite growing levels of gender equality in contemporary society, the way men and women spend their time in daily activities remains gendered (England, 2010; Goldscheider et al., 2015). Scholars have analysed gender inequalities in time use from a life-course approach, showing that gendered time-use patterns in activities like (un)paid work and leisure become more pronounced in the transition to parenthood, remaining quite stable for many years afterward (Dotti-Sani, 2018; Grunow et al., 2017; Kühirt, 2011). Gender gaps in time use have been found to differ across societies. Countries with more gender egalitarian policies and norms typically exhibit higher gender symmetry in adults' time on activities like (un)paid work and leisure (Anxo et al., 2011; Craig and Mullan, 2010; Esping-Andersen et al., 2013; Kan et al., 2011). While gender differences in adults' time use across countries are well documented, much less is known on whether gendered time-use patterns during childhood and adolescence differ across countries. Our study contributes to fill this gap.

In this study, we examine how boys and girls spend time in multiple activities by using a cross-national approach. Research shows that gendered patterns in time-use start early in childhood (Solaz & Wolff, 2015). Studies with US data found that female teenagers, compared to their male counterparts, are more active in doing domestic chores, reading or academic activities, and less active in screen-based activities (Wight et al., 2009). Research using Italian data found that girls spend less time than boys on active leisure and sports and more time in domestic chores, while gendered patterns in time use were found to increase markedly from childhood to youth (Dotti-Sani, 2018; Mencarini et al., 2019). A study with Canadian data has reached similar conclusions: boys and girls have gendered leisure patterns (Hilbrecht et al., 2008). While we know that boys and girls have different time-use patterns, little is known on whether these gender processes differ across national contexts.

We argue that *national contexts* need to be considered when studying gender differences in children's daily activities. Societies differ greatly with respect to their gender norms, sociocultural

contexts or gender policies, which could potentially affect how boys and girls spend time in specific activities (e.g., whether the gap between boys and girls in activities like sports or domestic work is higher or lower). In gender egalitarian countries, boys and girls might be socialized under family, community and media contexts that foster gender equality. These contexts of gender equality might be translated into children internalizing more gender-neutral attitudes and time-use patterns, compared to more gender traditional countries, where children could engage in more gender stereotypical time-use patterns. Yet, previous studies show that countries with high levels of female economic autonomy (e.g., Finland, Sweden, UK, US), despite showing high levels of gender equality in important areas, also present more gender-typed outcomes in indicators like types of occupations, fields of study or even certain psychological traits, which are more related to gender essentialism combined with attitudes of self-realization (e.g., Charles, 2011). But how large is the gap between boys and girls in time-use patterns across national contexts remains largely unknown.

To our knowledge, only one study has partly examined gender differences in children's time use across national contexts (see Rees, 2017). This study found some interesting patterns of convergences (i.e., girls tended to do more domestic chores than boys everywhere), but also some interesting cross-national variations that were not clearly attributes to gender equality indicators (i.e., some gender unequal countries were more gender symmetrical in children's time use compared to more gender equal countries). Yet, an important problem of this study is that data came from stylized time-use questionnaires (Rees, 2017). Stylized questions collect the information by means of concrete questions where respondents report time spent or frequency for specific activities. By contrast, time diaries are much reliable, as these surveys gather information by means of a 24-hours diary of activities where respondents provide all their activities along a 24-hours framework, being considered the most valid data source for the study of individuals' daily activities (Gershuny, 2000; Robinson, 1999; Sevilla-Sanz, 2014). This calls for new research using detailed time-diary data.

Our analyses use time-diary data focusing on three Western European countries capturing distinct policy, sociocultural and gender regimes: Finland, Spain and UK. Finland represents the Scandinavian model, with a strong policy framework supporting dual-earner couples, having high levels of gender equality in domestic labor activities and high levels of individualization in personal lifestyles (Inglehart et al., 2014; Anttila et al. 2015). The UK, like Finland, presents high levels in individualization regarding individuals' attitudes, yet it is less egalitarian than Finland in terms of gender symmetry in adults' time use allocation and female employment participation (Lewis 2009; Triandis, 2018). Spain has been labelled as family-oriented in terms of gender relations, while is the country with the highest levels of gender inequality in adults (un)paid work within these three cases (Esping-Andersen et al., 2013; Garcia-Roman et al., 2017).

Unlike in previous studies using stylized time-use measures, our study benefits from rich time-diary data covering the 24 hours (1440 minutes) of children's activities on a random day by using the most recent time-diary data on children and adolescents from Finland, Spain and the United Kingdom (2009-2014). By looking at children and adolescents aged 10-17, our study addressed the study of gender differences in time use by looking at an age group that is younger to the one interviewed in many other time-diary with data on children under 15, such as the cases of Canada or the US. This sampling strategy is particularly relevant in that it allows us to address developmental differences in gendered time use patterns from childhood to late adolescence, while addressing whether such differences apply similarly to countries with different gender contexts.

## **ANALYTICAL FRAMEWORK**

### **Background**

Our study contributes to the gender and time use literatures by analysing variations in boys' and girls' daily activities in cross-national perspective. Research examining gender differences in children's and adolescents' time use has paid attention to multiple psycho-sociological processes that lead to gender-

typed socialization patterns. In the social sciences, theories have emphasized the role of *gender role socialization* in shaping gender differences in children's daily activities daily. As children are socialized in a world where families, schools, communities or the media are driven by gender-typed norms, children display gendered actions that are consistent norms and behaviors surrounding them, as a result of an interaction of the child with parents, peers, teachers or in social media (Hoffman, 1977; West & Zimmerman, 1987). In the natural sciences, researchers have stressed how gender differences during puberty interact with sociocultural contexts by leading boys and girls to diverging patterns in their daily activities such as sports and drug consumption (Becker et al., 2016).

Previous studies have consistently found that, already since late childhood, there are consistent differences in how boys and girls spend time in daily activities. Studies found that girls disproportionately engage in female-typed activities like domestic work and personal care, but also in activities like doing homework and reading, while boys spend more time in screen-based activities and exercising, with gender gaps growing from childhood to late adolescence (e.g., Dotti-Sani, 2018; Farook et al., 2018; Gracia, 2019; Hilbrecht et al., 2008; Mencarini et al., 2019; Solaz & Wolff, 2015; Wight et al., 2009). To date, the majority of studies addressing gender differences in time use have focused on single country cases. Hence, the role of societal contexts has been largely omitted from the literature on gender differences in child and adolescent time use.

Studying gender differences in children's time across *national contexts* can allow us to better understand the degree to which gender differences in child and adolescent time use can be, at least partly, shaped by societal contexts. Although there is ample cross-national research on gender differences on adults' time use at different stages of the life course (Anxo et al., 2011; Esping-Andersen et al., 2013; Hook, 2006; Leopold & Skopek, 2014), cross-country evidence on gender differences in child and adolescent time use is scarce. Gender equality, norms and attitudes, for examples how similar or different are the attitudes of men and women regarding daily activities or how "traditional" gender

norms are at the national level, could influence the socialization patterns of boys and girls, which in turn might reflect cross-country variations in how gender-typed are the activities of children.

To date, to our knowledge, only one study (Rees, 2017) has analyzed gender differences in children's time use by adopting a cross-national perspective. Rees (2017) conducted analyses on gender differences in children's time use from a cross-national perspective, using data on children of age 12 coming from the Children's Worlds Survey (2013-2015) on 16 countries with different income levels. In nine of the countries included in the study, girls were significantly more likely to declare that they frequently help out with housework than boys (Rees, 2017). Girls were found to be significantly more likely than boys to frequently do homework (in 11 countries) and to reading (in nine countries), while boys more frequently did sports or exercise compared to girls (in 14 countries) (Rees, 2017). Yet, the study found also cross-national variations in the degree of gender differences in children's time use, without establishing a clear link between gender equality indexes at the national level and more gender symmetry in children's time use patterns (Rees, 2017). As mentioned above, while this study provides relevant findings, it is limited by the low levels of accuracy of the stylized time-use measures used, compared to time-diary surveys, which higher levels of accuracy. Our cross-national comparison on boys' and girls' fills this gap in the literature.

### **The Cases of Finland, Spain and UK**

Our study focuses on three Western European countries that capture distinct policy, gender and sociocultural regimes. In Table 1 we summarize some of these variations across the three countries, including indicators such as the gender division of labor, maternal employment, gender equality indexes, societal values and gender norms.

[Table 1, around here]

Finland represents the Scandinavian model in our study. The country has among the highest levels of dual-earner couples and female employment rates in the world (Eurostat, 2017). Finland

presents high levels of equality in the gender division of labor, with high rates of gender equality in multiple global indicators referring to women's economic autonomy, opportunities or presence in governmental institutions, being regarded as more gender equal than the UK and Spain across multiple indicators (Antilla et al., 2015). Furthermore, the individualization literature shows that Finland has high levels of individual autonomy and 'self-expression' values (Inglehart et al., 2014; Triandis, 2018). This strong individualization and self-realization attitude in Scandinavian countries has been argued to explain the paradox that Scandinavian countries, including Finland, combine the highest levels in women's socioeconomic autonomy and power, but relatively high levels of gender stereotypical patterns in youth fields of study or gender-typed occupations (Charles, 2011).

The UK represents the Anglo-Saxon model in our study. While the UK has relatively high levels of female employment at international levels, a very high proportion of British mothers are employed part-time workers (Lewis, 2009). Research shows that, in terms of gender equality in the division of labor, the UK is less egalitarian than countries like Denmark or Finland, but also more egalitarian than Southern European countries like Italy or Spain (Esping-Andersen et al., 2013; Kan et al., 2011). Liberal attitudes of individualism are consistently high in the UK, showing among the highest levels of autonomy and self-expression values within our three countries of study (Inglehart et al., 2014). Similar to the case of Scandinavian countries, research has found that British men and women are comparatively very gendered in indicators that might be more associated with individuals' choices, but in ways that can capture a certain degree of gender essentialism, including gender differences in field of study, or gendered occupational structures or individual preferences, which has been quoted as a gender paradox, just like in countries like Finland (Charles, 2011).

Spain captures the Southern European regime. Having a higher proportion of male-breadwinner couples than the UK, and especially compared to Finland, Spain is the country of our study where women are less involved in paid work, despite the increase of female employment in the country over

recent decades (Jurado Guerrero & Naldini, 2018). In terms of gender equality in the division of labor, Spain is less egalitarian than the UK, and especially compared to Finland, being also the least egalitarian country of the three in various global indicators of women's autonomy and opportunities (Esping-Andersen et al., 2013; Garcia-Roman et al., 2017). At the socio-cultural level, Spain is regarded as a family-oriented country in which relatives play a stronger role in social relations and community solidarity, compared to both Finland and the UK, being also a country that displays lower indices of individualistic ideals promoting self-realization and autonomy (Jurado Guerrero & Naldini, 2018; Inglehart et al., 2014).

[Figure 1, around here]

Figure 1 serves as to illustrate the raw gender differences in time-use patterns across Finland, Spain and the UK, including paid work, domestic work and leisure time for adults aged 25-65. Figure 1 refers to a ratio of the time (e.g., hours) spent by women on each of the three activities, compared to men, in everyday life. The gender ratio in domestic work is positive in all three countries (women do more than men in these activities) and negative in paid work and leisure time (men do more than women in these activities). And yet, we find also clear cross-national differences. For every hour that men do of unpaid domestic work in Spain, women do 2.7 hours, with clearly lower gaps in the UK (1.8) and even lower in Finland (1.5). By contrast, Finland is the most gender egalitarian country in paid work time; Finnish women do 78 hours of paid work for every 100 hours that men spend in the same activities, while gaps are clearly larger in the UK (where women do 64 hours for every 100 hours per men) and in Spain (where women spend 60 hours in employment activities for every 100 hours that men spend). For leisure time, the male advantage is largest in Spain (0.80) than in Finland and UK, with exactly the same gender ratio in leisure (0.89). Overall, as for adult time-use patterns, Finland is the most gender egalitarian country, followed by the UK, being Spain the least gender egalitarian country of the three. We develop our hypotheses by considering all these national differences.



## **Hypotheses**

### ***Gender Variations in Child Time Use***

We assume that boys and girls will differ in their time-use patterns. Following previous studies, summarized above, boys and girls grow up interacting with socialization agents that conform with (pre)existing gender norms on boys' and girls' attitudes, behaviors or skills (i.e., good girl should help more in domestic tasks at home; boys are expected to be good at videogames and computers). These gendered processes, interacting with sex-typed developmental changes experienced during puberty and late adolescence, would lead to variations in how boys and girls spend time in specific activities. We expect that girls will be more likely than boys to engage in activities that are more female typed, including domestic work and personal care, but also in educational activities like doing homework and studying, which in the aforementioned literature have been found to be disproportionately performed by girls. Meanwhile, we anticipate that boys will engage in rather male-typed activities, including physical activities and sports and screen-based activities. Finally, we do not expect to find differences in the total amount of time in socializing activities.

**Hypothesis 1 – Total Gender Differences:** Boys spend more time exercising and in screen-based activities and girls spend more time in educational activities, domestic work and personal care.

### ***Cross-Country Variations: Two Plausible Scenarios***

We assume that, to a higher or lesser extent, the anticipated gender differences in children's time use will apply to all our three countries included in our study. While the three countries included in this study differ in their gender patterns, all of them show gendered patterns in adults' time use and different lifestyles between males and females. Therefore, it is logical to expect a certain level of convergence in the gender gaps of how children spend time in daily activities across Finland, Spain and the UK.

Yet, we also anticipate cross-national variations in the degree of gender differences in children's time use by contending that gender roles at the societal level shape the norms and lifestyles

of children and adolescents in their daily lives. We expect two opposite scenarios could apply by following different theoretical assumptions on how societal context can influence the way boys and girls spend time in daily activities. One plausible scenario relates to the level of *gender traditionalism* in society. From this perspective, the degree of inequalities between males and females at the societal level and how ‘traditional’ is the gender division of activities within couples at the country level –e.g., the division of (un)paid work– leads to differences in how boys and girls engage in daily activities. From this perspective boys and girls would interiorize the level of inequality that they perceive at home or in the public sphere. If this holds, it is plausible that Spain would be the country of our study with the largest time-use gap between boys and girls, as this country is the least gender egalitarian. On the other extreme, boys and girls in Finland should engage in more symmetrical time-use patterns, as they would be socialized in a cultural environment that promotes gender equality to a higher extent in various contexts, and it presents higher levels of gender equity than Spain. In the UK, which is more gender egalitarian than Spain in several indicators, but less gender egalitarian than Finland, the child time-use gender gap would be generally in between the Mediterranean and Scandinavian model.

**Hypothesis 2a – Cross-Country Gender Traditionalism:** Gender gaps in child time use allocation are strongest among children in Spain and weakest in Finland, with the UK lying in between Finland and Spain.

A second alternative scenario stresses the role of *individualization* in shaping gendered choices and attitudes that do not correspond with levels of gender equality at the societal level. Previous studies have suggested that in countries with higher levels of post-materialism, self-realization attitudes and individualization, social groups might commonly exhort young people, and perhaps girls in particular, to “follow their passions” and to pursue their dreams to find their “true selves” (Charles, 2011). This has been referred as a *gender paradox* expressing certain doses of gender essentialism. The latter is visible for example in the fact that Scandinavian or Anglo-Saxon countries have high levels of gender equality in a number of indicators, but these countries are also significantly gender-typed with regards

to field of study, occupations and preferences (Charles, 2011; Stoet & Gary, 2018). While our three countries of study are all high-income post-industrial societies, the UK rates highest in levels of individualism and self-realization, closely followed by Finland, while Spain is comparatively more family oriented (Inglehart, 2014; Triadnis, 2018). If more individualistic oriented countries are indeed promoting young people to pursue their goals and dreams (including their lifestyles), in the UK, followed by Finland, girls and boys might end up being more gender-typed in their daily activities, while the less anchored post-materialist values in Spain would –paradoxically– lead children and adolescent to differ less in their daily activities on the basis of gender.

**Hypothesis 2b – Cross-Country Gender Paradox:** Gender gaps in child time use allocation are stronger among children in UK and weakest in Spain, while the Finland lies somewhere in between the two poles.

## **DATA AND METHODS**

### **Data**

We analyse data from the most recent time-use surveys from Finland (2009-10), Spain (2009-10) and United Kingdom (2014-15), which are included in the Harmonized European Time Use Survey (HETUS). These data combine individual and household level measures with detailed diaries of activities, regarded as highly precise and robust statistical sources, compared to stylized questions asking respondents their average time on specific activities (Bianchi et al., 2006; Robinson & Godbey, 1997). Respondents reported detailed diaries of activities along the 1,440 minutes (24 hours) of a random day of the year. In the diaries, children filled their activities they were doing at different moments of the day along 10-min time slots.

Our sample includes individual diaries reported by boys and girls aged 10-17 who were students, did not engage in employment and were living in a single-mother or a two-parent household at the moment of the interview. Time-diary surveys tend to have low response rates. Our surveys have

an average response rate of 60%, which is similar to related time-diary surveys. Population weights were applied to provide robust nationally representative estimates for each country. We excluded cases with missing data, most of them referring to parental work variables (N=8 in Spain; N=97 in Finland; N=241 in UK). Single-mother and working mothers were slightly more likely to report missing data across the three countries of study. The final number of diary observations was 804 in Finland, 1324 in Spain, and 1363 in the UK for a total of 3,491 diaries.

The surveys from Finland and the UK had two diaries filled by children (one on a weekday and another on a weekend), while respondents in the Spanish survey reported one diary (either on a weekday or weekend). Analyses fully account for the clustered nature of the samples at the household level and the existence of two individual diary observations in Finland and UK. Surveys from all countries contain household samples, which means there could be multiple children in some households of observation (i.e., siblings). All models were estimated using the clustered sandwich estimator with Stata 15. This estimator specifies that the standard errors are allowed to correlate at the individual and household level in ways that relax the usual requirement that observations need to be independent. This specification could moderately inflate the standard errors, but not the regression coefficients, which is the main estimate we use to interpret our analyses. By using weighted analyses our statistical models ensure an equal diary distribution by day (weekdays/weekdays) and time of the year (season) for each diary of observation.

### **Dependent Variables**

Our *dependent variables* include six daily activities, measured as minutes allocated to the activity on a random day of the year, being relevant in capturing differences in children's lifestyles, personal development and gendered attitudes: (1) 'screen-based time' (e.g., TV, videos, electronic activities, using iPads, mobile phone use, video gaming); (2) 'educational time' (e.g., homework, reading, library time, cultural spectacles, doing arts, music); (3) 'socializing time' (e.g., informal social relations,

playing with others, social games, volunteering activities); (4) ‘active time’ (e.g., exercising, active sports); (5) ‘personal care time’ (e.g., putting on make-up, dressing up, combing/brushing hair, taking a showering); (6) ‘unpaid domestic work’ (e.g., housework, child care). We refer only to the main activity, as secondary activities (synchronized with the primary activity) can differ across surveys and might produce estimation bias (Kitterod, 2001). Table A1 presents our exact activity coding.

### **Independent and Control Variables**

Regarding our main *independent variables*, ‘gender’ is our main individual-level measure, which differentiates between girls (= 1) and boys (= 0). We further use a dummy measure of ‘country’ within a cross-country pooled sample. We cannot run additional multilevel models to complement our detailed small-N comparison (see Bryan & Jenkins, 2016).

We used several *control variables*. We further considered ‘age’, measured as a dummy variable by separating between younger children aged ‘10-13’ and older children aged ‘14-17’. ‘Family structure’ is a variable that differentiates between 0 = “two-parent family” and 1 = “single-mother family”. We measure ‘maternal employment’ as a dummy measure that differentiates between 1 = “mother works” and 0 = “mother does not work”. We further used four categories of maternal working time in some model specifications and robustness checks, based on the mothers’ average weekly work hours (0 = “no work”; 1 = “working from 1 to 30 hours”; 2 = “working from 31 to 37 hours”; 3 = “working more than 37 hours”). ‘Maternal education’ is a dummy measure that differentiates between children with a college-educated mother (= 1) and children with a mother not having a college degree (= 0). ‘Number of children’ includes to the number of children aged 0-17 at home; ‘number of adults’ measures the number of adults at home aged 18 or older (ordinal variable). ‘Day of the week’ is a dummy variable that differentiates between 0 = “weekday” (Monday-Friday) and 1 = “weekend” (Saturday-Sunday). Finally, ‘yearly Quarter’ refers to the four annual seasons: 0 = “1<sup>st</sup> Quarter”; 1 = “2<sup>nd</sup> Quarter”; 2 = “3<sup>rd</sup> Quarter”; 3 = “4<sup>th</sup> Quarter”.

## **Empirical Strategy**

Our empirical strategy treats the six activities of study as continuous variables by applying various modelling strategies. First, we provide detailed descriptive evidence on how boys and girls use their time in our activities of analysis on a random average day, without adjusting our analyses. Second, our main statistical analyses consist of *Linear Prediction Models*, where we plot the predicted values for each activity after controlling for basic demographic and socioeconomic covariates, on random day of the year for each individual. We start by applying an interaction term between gender and country. We finally examine the moderating role of age by using a three-way interaction with gender, age and country. We conclude our analyses with a set of robustness checks.

## **RESULTS**

### **Descriptive Analyses**

Table 2 presents the summary statistics of the study variables by country and gender and testing whether gender differences are significant at the 95% level. In general, household's characteristics for boys and girls are the same. Estimates reflect the higher fertility rates in the UK and Finland (number of children at home under 18 is higher than 2) than in Spain (number of children around 1.8). Family composition shows a higher prevalence of single-mother families in the UK where around one third of boys and girls live only with their mother. This percentage drops to approximately 20% in Finland and especially for boys in Spain. Only 12% of the Spanish boys in our sample live with their mother while among girls the percentage is 8 points higher. Perhaps because a higher proportion of sons stay with single fathers, compared to daughters, which is a demographic group that is excluded from our sample.

Regarding mothers' characteristics, participation of mothers in labour market is higher in Finland. More than 50% of mothers in Finland work 37 or more hours per week. The proportion decreases to one out of three in Spain and it represents much less in the UK where the proportion is between 14% for mothers of boys and 12% for mothers of girls. It also reflects the higher

unemployment rates in Spain where not employed mothers represent more than one third. Finnish mothers are also more likely to have college education (around 55%). They represent less than the half in the UK and they are much less in Spain where only approximately one out of three mothers have a college university degree.

Table 2 also shows the means and standard deviations for our time-use measures by country and gender. In that case, there are more differences between boys and girls. We observe that in the three countries of our study boys spent more time in screen-based activities, and sports while girls spent more time in educational activities, domestic work and personal care. Girls also spent more time in socializing activities in Finland and United Kingdom, but not in Spain where the means are very close. The gender gap in screen-based activities is higher in the UK and Finland, mainly because boys spend the highest amount of time in this type of activities (230 and 222, respectively). It is more relevant in UK where girls only spend 166 minutes and it supposes a gender gap of more than one hour. In Spain, both girls and boys spend the least time in screen-based activities and the gender gap is also the lowest, about 23 minutes. As for educational activities, the gender gap is very similar in the three countries and it is between 19 minutes in Spain and 25 in the UK. These gender gaps are similar to the estimates for personal care with a maximum of 23 minutes in the UK and a minimum of 10 minutes in Spain. Although with opposite sign, gender gap in sports activities also stays between 15 minutes in Finland and Spain and 19 in the UK. Time spent in domestic work reflects that the gender division of housework persists in the new generations and differences appear in the early ages. In the three countries the gender gap in domestic work is about half an hour. Children in the UK spend the most time (67 minutes for girls and 37 minutes for boys) and children in Spain spend the least (52 and 32 minutes respectively).

Overall, there are clear gender differences in time use, mirroring previous studies in this area, but raw gender differences in child time use do not seem to vary meaningfully across the three national

contexts of study. These differences are also graphically illustrated by Figure 1. The multivariate analyses below allow us to account for different distributions and potential moderators in the gender differences in child time use across the three countries of study.

[Table 2, about here]

### **Gender and Country Interactions: Multivariate Analyses**

Figure 2 shows the predicted linear models of cross-national differences in child time use, with gender and country interactions. Results show that There are significant differences between children's activities in each country, as well as significant differences by gender that are observed in all countries and some that only applies, to some of the countries analysed.

[Figure 2, about here]

Figure 2 also shows, more precisely, that boys in the UK and Finland spend more time in screen-based activities than in Spain. In the UK we also observe that boys spend more time in personal care than in the other two countries. On the other hand, Spanish boys spend more time in educational activities. For girls, the most significant differences are also observed for educational activities where Spanish girls also spend more time and for personal care where British girls spend a greater amount of time. Finnish girls also spend more time in screen-based activities and social time than the Spanish ones, but in these case differences between Spain and the UK are not significant. In the UK, girls spend a significant lower amount of time in active time and more time in domestic work than in the other two countries. By gender, differences in domestic work are significant in the three countries. For screen-based activities gender differences are significant for the UK and Finland, but not for Spain. Differences in personal time, active time and education are only significant for the UK.

Finally, if we analyse gender gaps, only differences in domestic work are significant in the three countries of our study ( $p=0.05$ ). Differences in screen-based activities are significant in the UK



and in Finland. For the UK, socializing activities is the only gender gap where the gender gap is not significant. By contrast, gender gap in domestic work is the only significant in Spain.

### **Additional Analyses: The Moderating Effects of Age and Family Structure**

We conducted further additional analyses by addressing the moderating roles of both age and family structure (two variables that can strongly shape gender differences in children's daily lives and attitudes) by conducting three-way interactions, including, firstly, 'Age x Gender x Country' and, secondly, 'Family Structure x Gender x Country'.

Figure 3 shows the moderation in the gender and country interactions by age. In that case, predictions confirm that gender differences are significant in the three countries in domestic work for all ages. According to these models, gender gap in domestic work is the only significant in Spain and Finland. For the UK differences in screen-based time and personal care are only significant for both groups of age, while differences in active time are significant for the group 14-17. In Figure 3 we also observe that the moderation in the gender and country interactions by family structure. It shows again that gender differences in children time use remain significant in domestic activities for the three countries in both family types. Actually, for single mothers only differences in domestic work are significant, probably because of the smaller sample size in this group. For two-parent families, differences between boys and girls are significant for all activities in the UK, while in Finland gender gaps are significant in personal care and screen-based activities.

[Figure 3, about here]

## **DISCUSSION**

To our knowledge, the present study is the first exhaustive time-diary analysis addressing how boys and girls differ in their time use patterns across societies with different gender relations and gendered structures. Children's time use patterns are important indicators for understanding social change. Behaviour is influenced by gendered ideologies and practices internalized via socialization beginning

early in life. It is therefore highly important for family and gender scholars to study both structural and cultural forces that can reinforce gendered behaviours starting early in life. The rich and representative time-diary data that we analyse is a clear strength in our study. Departing from many earlier studies, our study includes complete and accurate estimates on various children's time-use activities. Our study also links large set of contextual factors, such as family structure, family size, maternal employment, maternal education and children's time use. Using rich harmonized time-diary data for a pooled sample of children aged 10-17 from Finland, Spain and UK (2009-2015), our study reveals that gender differences are clear in how children/adolescents aged 10-17 spend time to a range of daily activities. Our research is framed by a comparative design on three national cases emphasizing differences in gender relations, ideological traditions and welfare regime clusters, which allows us to ideally assess children's time use in cross-national perspective.

Our study shows relevant differences, not only in the way boys and girls spend time in multiple daily activities, but also in the degree to which societies differ regarding gender differences in child and adolescent time-use patterns. First, our results show clear *gender differences* in child time use. After controlling for multiple demographic and socioeconomic factors, boys are more active in screen-based activities and exercising, while girls are more active in domestic work, personal care and educational activities. These results for the general sample of analyses, after accounting for both country, sociodemographic and socioeconomic factors, resemble previous research focusing on various specific national contexts (e.g., Dotti-Sani, 2018; Farook et al., 2018; Gracia, 2019; Hilbrecht et al., 2008; Mencarini et al., 2019; Solaz & Wolff, 2015; Wight et al., 2009). Differences are especially relevant in domestic work, a symbolic field where gender stereotypes are displayed implying that the new generations might potentially reproduce gender-typed traditional behaviours.

Second, while gender gaps in children's time use pattern apply to all three countries in our study, the intensity of such gender gaps in time use shows relevant *cross-national variations*. We find

that gender gaps in child time use are strongest in the UK, followed by Finland, and are –interestingly– less salient in Spain. Additional analyses show that family structure and age influence gender variations in child time use in different ways across national contexts. These findings are interesting in showing that the gendered processes that operate during adulthood, including the transition into parenthood, where Spain shows stronger gender variations in adult time use patterns than Britain and especially Finland (Esping-Andersen et al., 2011; Kan et al., 2011), are not in play for younger children. We read our results in line with what we call the cross-country gender paradox. Drawing on previous research (Charles, 2011), we argue that more individualistic oriented countries are indeed promoting young people to pursue their goals and dreams (including their lifestyles), in the UK, followed by Finland, where girls and boys might end up being more gender-typed in their daily activities, compared to countries with less anchored post-materialist values, like Spain. This paradox is relevant, as we know that, during adulthood, these gendered time-use patterns reverse, especially when young children enter into the lives of men and women. These findings illustrate better our Hypothesis 2b (*Cross-Country Gender Paradox*), while our Hypothesis 2a (*Cross-Country Gender Traditionalism*) seems to apply to adult men and women, but not so much to adolescents and children, at least regarding time-use patterns.

Third, while differences in children’s time use remains significant for all ages and family structure considered there are some relevant differences that our additional analyses suggest in relation to these two variables.

Our study has global implications for debates on families, gender and children by showing quite clear and stable patterns in how girls and boys structure their daily lives. The gender segregation among these various time use categories highlights the significance of gender ideologies and how gender is embedded at the individual and institutional dimensions of our society. It is important to notice that regarding housework the gender differences are evident already in the childhood. Yet

patterns in this regard might change by age and country. If time use patterns of children and adolescents are rather stable and follow into adulthood, we may expect that gendered divisions in the paid employment. But this is not the case when looking at the results of our study. Earlier research has raised some concerns about the accuracy of children's self-reports on their time-use. Ben-Arieh & Ofir (2002) have conducted a rigorous review of the literature on children's time use. Their methodological conclusion is that children are reliable sources of information regarding their time-use and daily activities. Our study contributes significantly by uncovering a black box in previous literature: are gender differences in adulthood across national contexts in time-use patterns equivalent to those observed for adults? Findings have clear policy implications in this regard.

Our study has some limitations that we need to stress. First, this study employs only objective, minute-level, measures to indicate gendered behaviour. It is evident that the lack of information on subjective attitudes and preferences is a deficiency in our research. We, however, assume that the information gained from this study is useful to be completed with further surveys and indicators. Second, our study focuses on only three countries; we need further comparison in the future. At present there are very few surveys with accurate information on children's time use, and the available surveys for a large sample of countries are limited by the time-use measures that are subject to measurement error (Rees, 2017). Still, we argue that the selection of cases and high-quality nature of our study contributes to a better understanding of gendered processes across national context.

To conclude, our study has persuasively suggested that gender differences in time use start early in the life course, as early as late childhood and adolescence, and yet these differences do not vary across national contexts with different gender and policy regimes. Future studies should further examine a larger N of countries by using rich time-diary data. Unfortunately, at present, multi-level research using time-diary data on child and adolescent time use is scarce. Drawing on earlier studies showing that gender segregation between the different categories of domestic work (Kan et al., 2011)

appears quite persistent, we propose longitudinal (and comparative) research on children's time use. The longitudinal research set-up could shed light on converging or diverging trends and processes of gendered time use. We hope our study will inspire new theoretical and empirical advancements around the key question of how boys and girls differ in their daily activities and how family process and national contexts can shape the degree to which these differences happen.

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**Table 1. Three Contexts of Gender Regimes: Finland, Spain and UK**

	<b>Finland</b>	<b>Spain</b>	<b>UK</b>
<i>Dual-Earner Couples among parents</i> <sup>1</sup>	63.1%	46.8%	62.7%
<i>Maternal Employment Rates</i> <sup>2</sup>	77%	59%	73%
<i>Men's Share of Household Work</i> <sup>3</sup>	40%	34%	36%
<i>Agreement with Gender Equity at Work</i> <sup>4</sup>	91.8%	87.3%	86.2%
<i>Global Gender Equality Index</i> <sup>5</sup>	0.85	0.74	0.76
<i>Self-Expression Values</i> <sup>6</sup>	1.3	0.4	1.6

Source: Conceptual table (elaborated by the authors).

<sup>1</sup> Patterns of employment in couples with children, 2014. <http://www.oecd.org/social/family/database.htm>

<sup>2</sup> Maternal employment rates: Finland = 77%; UK = 73%; Spain = 59%; (Eurostat, 2017). While Spain has experienced a very sharp increase in maternal employment over the last decades, the breadwinner model is much more dominant in this country, compared to the UK and, especially, Finland; Maternal part-time employment (percentage of working-age mothers with children aged 0-14 who work usually less than 30 hours per week in the main job); UK (35%), Spain (19%), and Finland (8%). (OECD, 2016; OECD Family Database; [www.oecd.org/els/family/database.htm](http://www.oecd.org/els/family/database.htm)).

<sup>3</sup> Gender Division of Labour: Data obtained from the OECD.

<sup>4</sup> European Social Survey, wave 8. Men should have more right to job than women when jobs are scarce. Sum of disagree+disagree strongly.

<sup>5</sup> Global Gender Equality Index: See references.

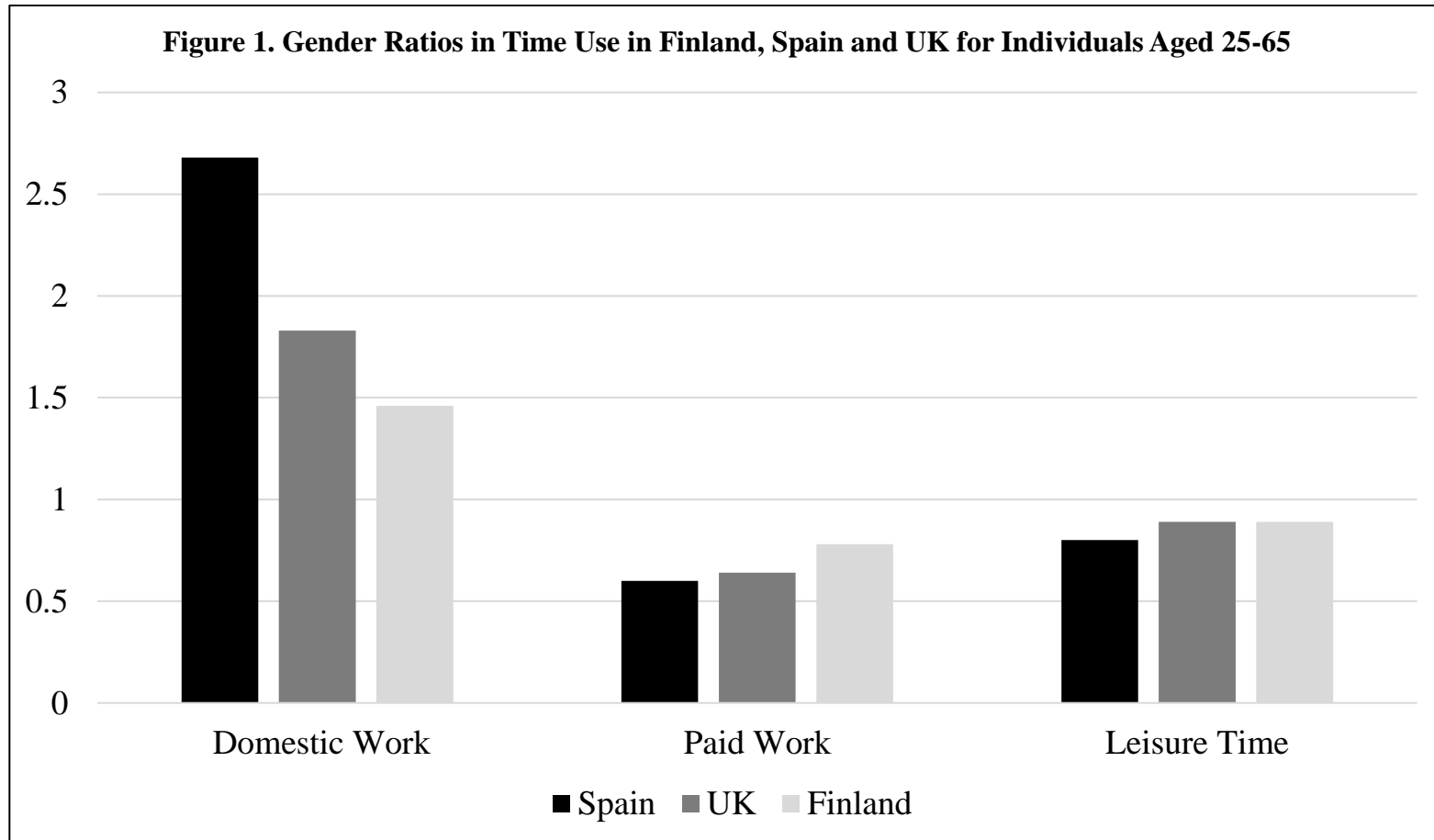
<sup>6</sup> Self-expression values: UK (1.6); Finland (1.3); Spain (0.4). Self-expression values indicate the degree to which individuals in a society give higher or lower priority to autonomy and individual-oriented values (including scales with positive and negative values). The first group of items included in this scale relate to the theme of sexual freedom. The second group of items addresses the equal opportunity component of self-expression values in the area of gender equality. The third group of items indicates an emphasis on personal autonomy in educating citizens or children in society (World Values Survey, 2011-2014; Inglehart et al., 2014). While the three countries of our study report positive average values in self-expressionism, numbers are higher in UK and Finland, compared to Spain. See also Pfau-Effinger (2005) and Saraceno and Kalmijn (2007) for a discussion of categories and typologies considering family support and domestic ideologies and family solidarity across European countries.



Table 2. Summary Statistics of Variables. Means and Standard Deviations

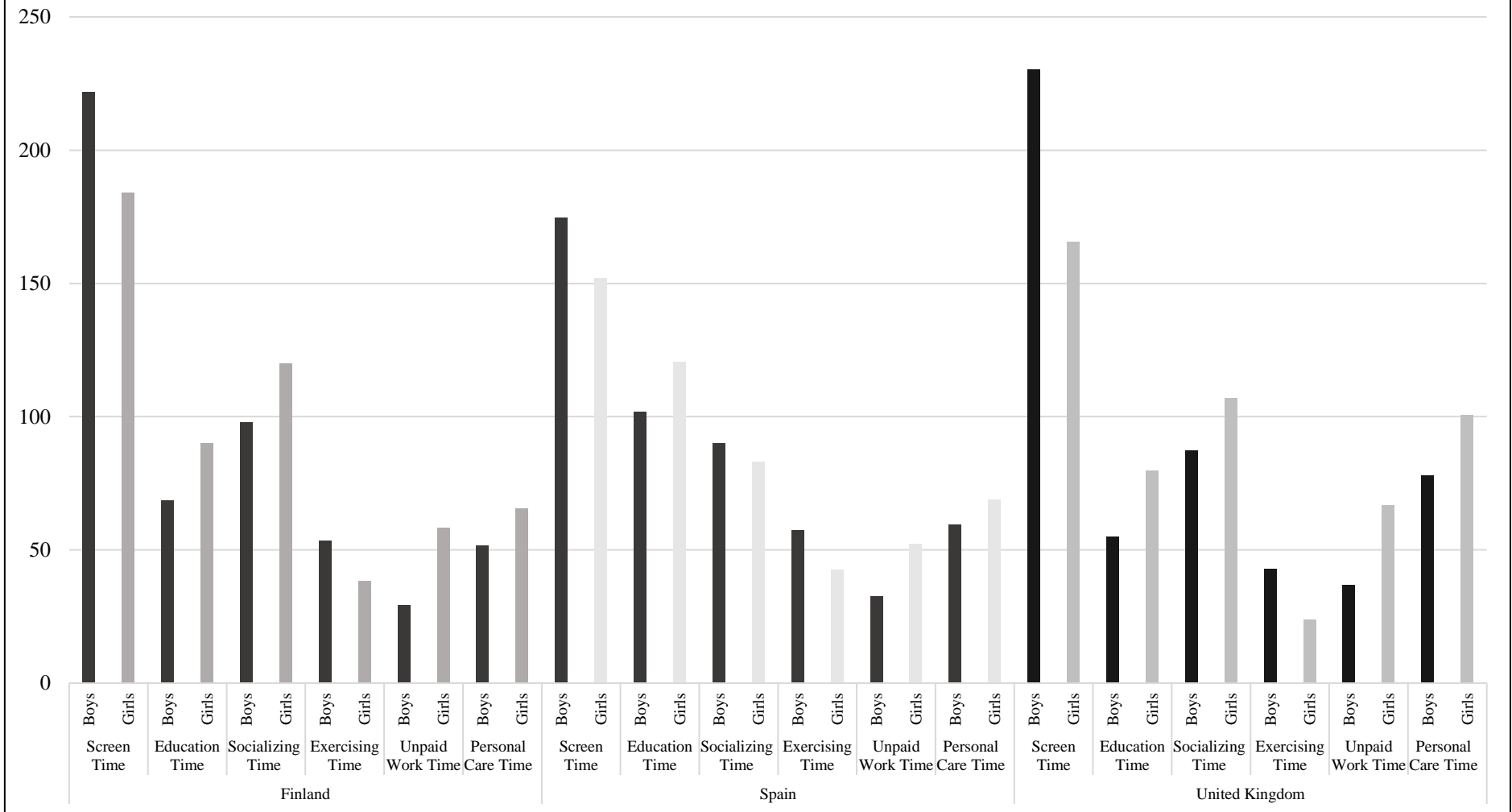
	FINLAND				SPAIN				UNITED KINGDOM			
	Boys		Girls		Boys		Girls		Boys		Girls	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Daily Minutes in Screen-Based Activities	221.75	158.28	184.11	129.07	174.52	135.95	151.84	117.81	230.12	168.44	165.54	136.49
Daily Minutes in Educational Activities	68.50	97.54	90.06	96.42	101.81	99.23	120.64	109.57	54.85	82.72	79.78	109.04
Daily Minutes in Socializing Activities	97.80	134.38	119.91	144.27	89.88	116.72	82.86	115.06	87.30	112.90	106.77	126.85
Daily Minutes of Sports and Active Leisure	53.39	92.31	38.34	63.23	57.31	88.31	42.56	75.59	42.85	78.02	23.72	53.68
Daily Minutes of Domestic Work Activities	29.08	43.52	58.21	71.00	32.50	50.50	52.06	70.24	36.78	60.23	66.80	87.81
Daily Minutes on Personal Care	51.70	63.74	65.55	49.93	59.38	52.63	68.71	51.81	77.82	74.25	100.69	73.90
Single Mother Family	20%		23%		12%		20%		30%		32%	
Two-Parent Family	80%		77%		88%		80%		70%		68%	
Mother without College Education	45%		46%		75%		76%		61%		54%	
Mother's College Education	55%		54%		25%		24%		39%		46%	
Mother Not Employed	14%		23%		37%		38%		29%		32%	
Mother Working 1-30 Hours per Week	15%		10%		20%		16%		39%		40%	
Mother Working 31-37 Hours per Week	13%		13%		10%		13%		18%		15%	
Mother Working > 37 Hours per Week	58%		54%		34%		33%		14%		12%	
Age: 10-13 years old	47%		53%		50%		49%		50%		50%	
Age: 14-17 years old	53%		47%		50%		51%		50%		50%	
Weekday	72%		71%		71%		72%		71%		72%	
Weekend	28%		29%		29%		28%		29%		28%	
1 <sup>st</sup> Quarter Day (January - March)	32%		24%		26%		26%		27%		27%	
2 <sup>nd</sup> Quarter Day (April - June)	21%		21%		25%		23%		23%		28%	
3 <sup>rd</sup> Quarter Day (July-September)	20%		28%		22%		23%		28%		25%	
4 <sup>rd</sup> Quarter Day (October-March)	26%		28%		28%		28%		22%		20%	
Number of Adults at Home > 17 years old	2.04	0.56	2.05	0.62	2.34	0.81	2.32	0.83	2.15	0.68	2.09	0.78
Number of Children at Home < 18 years old	2.10	0.73	2.14	0.80	1.81	0.77	1.78	0.78	2.11	0.95	2.17	1.02
N	426		378		702		622n		682n		681n	

*Note:* Analyses are weighted by day of the week; that is, time-use averages can be read as the average minutes on a random day of a random week of the year.



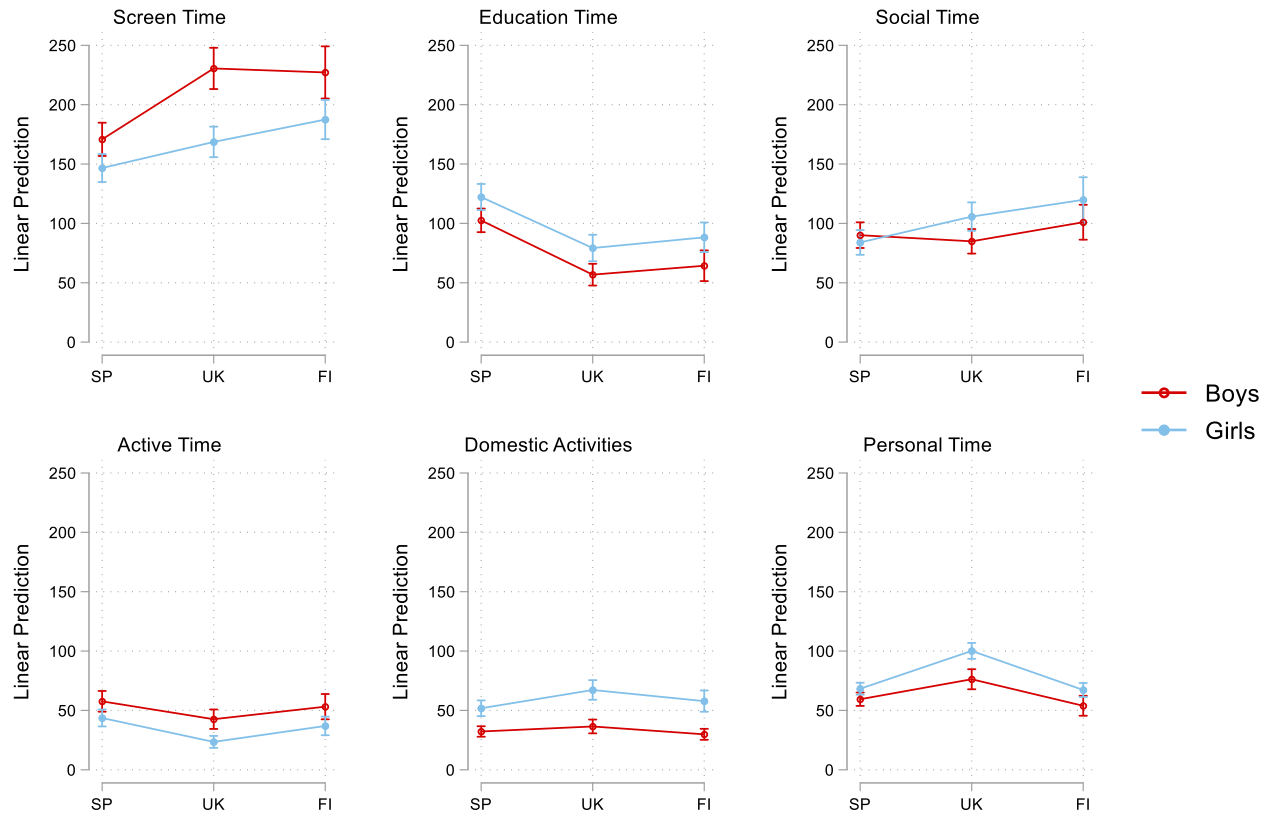
*Note:* Authors' calculations based on the OECD data available from the HETUS statistics for Finland (2009/10), Spain (2009/10) and the UK (2014/15) (Oecd.org). The ratio is based on the average time that men and women spend on a random day in each of the three activities. The ratio is based on the following formula for each activity:  $F / M$ . Where F is the female's time and M the male's time in each activity. The outcome of the gender ration tells you the number of hours that females spend in each activity for each hour spent by males in the same activity.

**Figure 2. Average Minutes in Daily Activities by Child Gender and Across Countries**



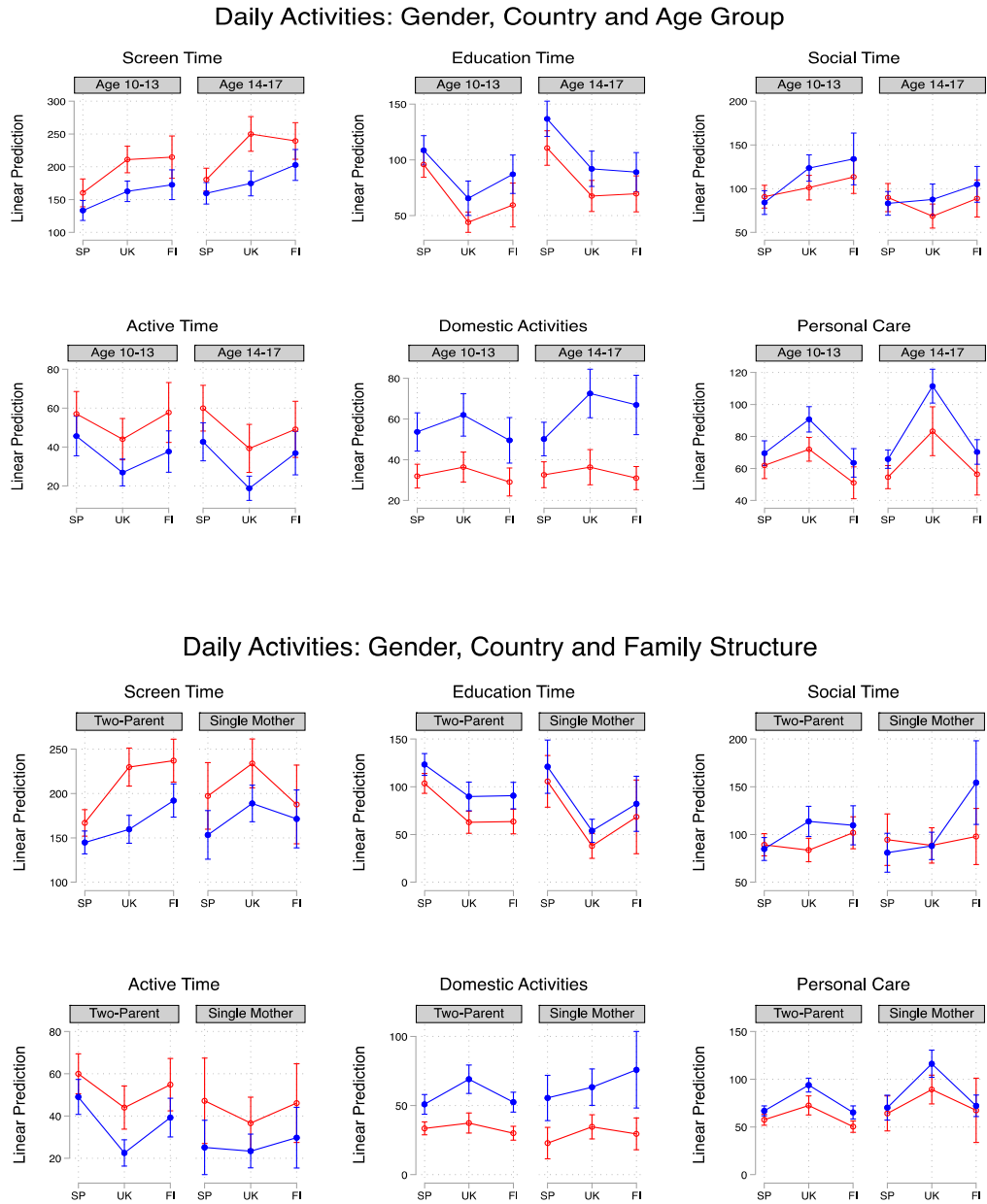
**Figure 2. Linear Prediction Models.**

**Child Time Use with Country x Gender Interactions.**



*Note:* Results are based on Linear Predictions, showing predicted values by country with gender interactions (CI at the 95% level are included). All models control for: maternal employment, maternal education, family structure, number of adults at home, number of children at home, day of the week, quarter of the year. Analyses represent an average day (weekdays are counted as 1/5 and weekends as 1/2 for an average full week of the year (SP=Spain; UK=United Kingdom; FI=Finland) (N = 3,491).

**Figure 3. Linear Prediction Models. Three-Way Interactions. Children’s Time Use with Country x Family Structure Interactions Across Child Gender**



*Note:* Results based on Linear Predictions with values measuring three-way interactions with gender interactions, separately for boys and girls ‘Country x Age’ (panel above) and ‘Country x Family Structure’ (panel below) (CI at the 95% level are included). All models control for maternal education, age, number of adults at home, number of children at home, day of the week, quarter of the year. The interaction with age adds a control for family structure and the interaction for family structure includes age as a control variable. Analyses represent an average day (weekdays are weighted as 1/5 and weekends as 1/2) for an average full week of the year (SP=Spain; UK=United Kingdom; FI=Finland) (N = 3,491).

**Table A1. Child Time-Use Activity Coding**

<b><i>Specific Activities</i></b>	<b>Activities Included</b>	<b>Location</b>
Screen Time	Computing programming, internet use, computer games, watching TV, video watching	Any place outside school
Educational Time	Reading, study, going to theatre, opera, concerts or cinema, library time, doing music, dance, theatre, artistic activities	Any place outside school
Socializing Activities	Socializing with family, celebrations, sports events, cultural visits, religious activities, volunteering	Any place outside school
Exercising and Active Time	Physical activities and practicing sports	Any place outside school
Domestic Work Activities	Food preparation, washing and cleaning house, ironing, shopping, gardening, repairs of dwelling, shopping, caring for children and adults,	Any place outside school
Personal Care Time	Washing the hands, taking a shower, putting on making up, drying the hair	Any place outside school

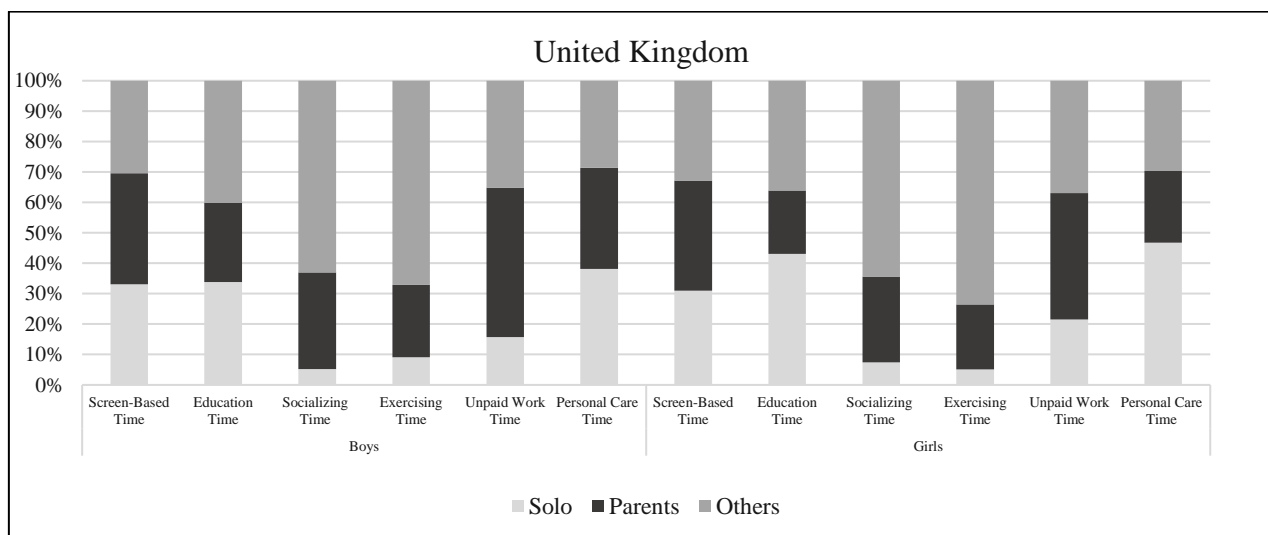
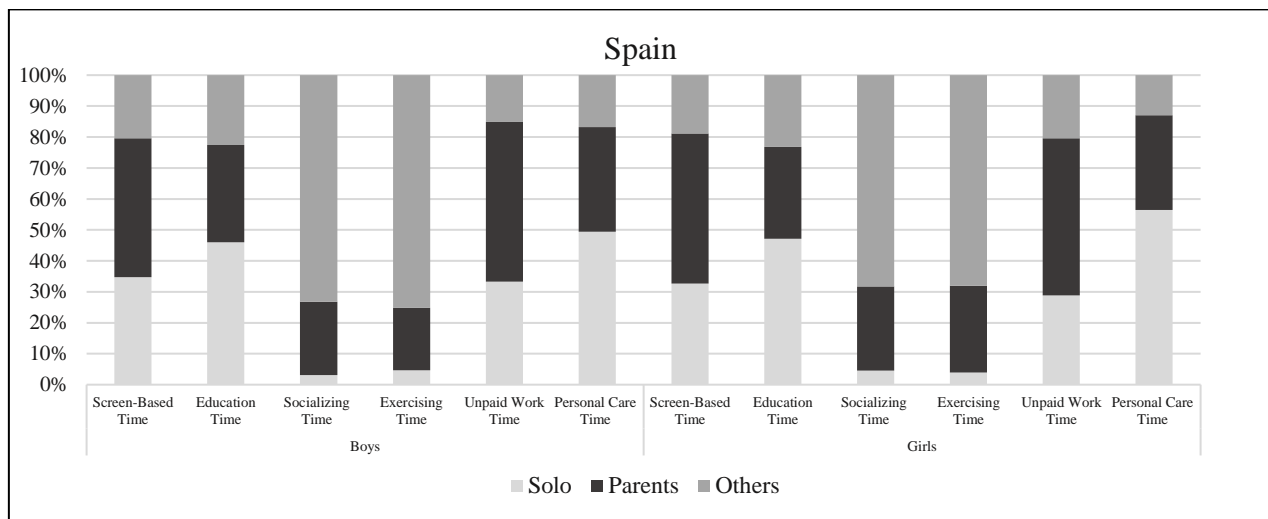
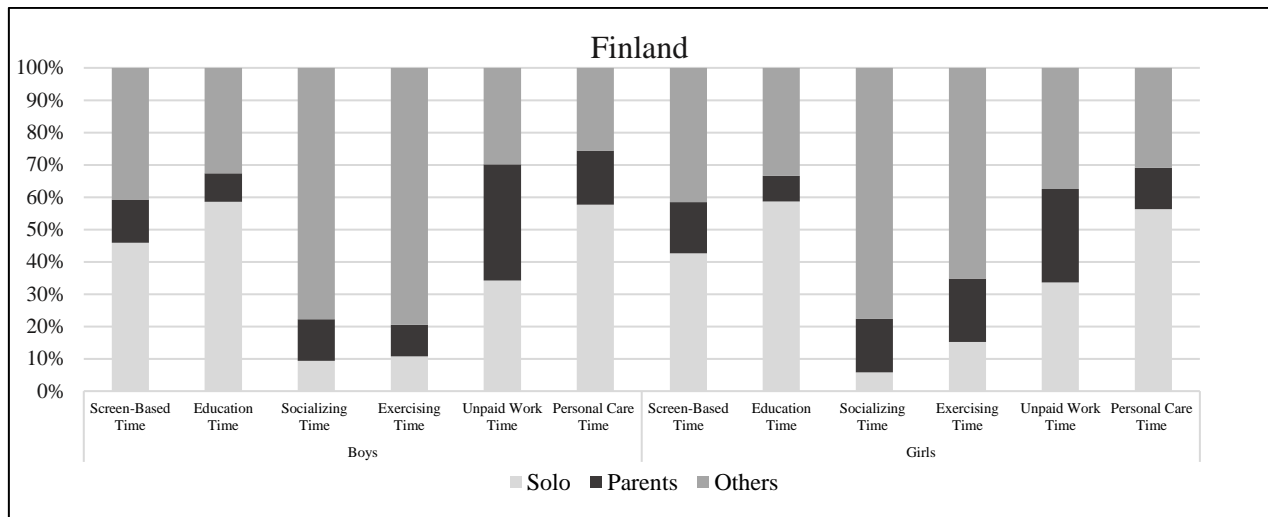
**Table A2. OLS. Child Time Use. Country and Gender Interactions**

	Screen Time	Educational Time	Socializing Time	Active Time	Domestic Work Time	Personal Care Time
United Kingdom	59.73*** (11.63)	-45.74*** (6.98)	-5.16 (7.72)	-15.05* (6.20)	4.26 (3.77)	16.83** (5.41)
Finland	56.39*** (13.39)	-38.24*** (8.31)	10.90 (9.39)	-4.49 (7.22)	-2.37 (3.30)	-5.50 (5.16)
Girl	-23.35** (8.85)	19.85** (7.14)	-6.56 (7.36)	-13.85* (5.35)	19.62*** (3.90)	8.07* (3.60)
Girl x United Kingdom	-37.77** (13.61)	2.79 (9.91)	26.94* (10.85)	-5.09 (7.14)	11.16+ (6.30)	15.07* (6.33)
Girl x Finland	-15.57 (15.96)	4.29 (10.98)	24.99+ (14.29)	-2.23 (8.49)	8.40 (6.42)	4.47 (6.04)
Observations	3491	3491	3491	3491	3491	3491
Adjusted $R^2$	0.097	0.085	0.076	0.054	0.077	0.080

Clustered standard errors are included in parentheses. These analyses show the interaction effects between gender and country, presented in Figure 2 (upper part), where the omitted reference category is the interaction of Spain with gender. All models control for maternal employment, family structure, age, number of adults at home, number of children at home, day of the week, quarter of the year. Analyses represent an average day, using weights so that all days of the week are equally represented

+  $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Figure A1. Share of Time Alone, with Parents and Others by Activity, Gender and Country**



*Note:* The numbers present average differences, without control variables, for an average random day. The figure indicates the share of time allocated to each activity that took place (i) alone, (ii) with parents or (iii) with other and not parents. The total 100% of the time (the sum of these three types of time) represents the total time allocated to each activity.