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ABSTRACT

Children, Kitchen, Church: Does Ethnicity Matter?*

Gender role attitudes are well-known determinants of female labor supply. This paper examines the strength of those attitudes using time diaries on childcare, food management and religious activities provided by the British Time Use Survey. Given the low labor force participation of females from ethnic minorities, the role of ethnicity in forming those attitudes and influencing time spent for "traditional" female activities is of particular interest. The paper finds that white females in the UK have a higher probability to participate in the labor force than non-white females. Non-white females spend more time for religious activities and, to some extent, for food management than white females, while there are no ethnic differences for time spent on childcare. The ethnicity effect is also heterogenous across different socio-economic groups. Hence, cultural differences across ethnicities are significant, and do affect work behavior.

JEL Classification: J22, J15, J16

Keywords: time use, ethnic minorities, gender, UK

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1. Introduction

The labor market integration of immigrants and ethnic minorities is a major concern in the European Union. An effective integration of ethnic minority women into the labor force can be seen as an important prerequisite for reaching the Lisbon targets of full employment and sustainable growth as well as the key objectives of the European Employment Strategy. However, in stark contrast to this goal it has been documented in the literature that gender differences are often more pronounced among immigrants and ethnic minorities than among natives.[1] As ethnic diversity can be both a "burden" and a "potential", understanding the integration and acculturation processes of ethnic minorities, persistence of ethnicity and factors behind ethnic identities is important (Zimmermann, 2007).

According to the EU Labour Force Survey data, in the UK in 2005, around 10 percent of the working age population was foreign-born and more than 7 percent was born in a non-EU15 country. While white immigrants perform comparatively well or even better than the native-born whites, it is the ethnic minority immigrants who experience lower labor market outcomes than natives, such as employment probabilities, labor force participation and wages, with Pakistani and Bangladeshi (as well as Blacks) being the most disadvantaged groups (Dustmann and Fabbri, 2005a, Blackaby et al., 2002). Blackaby et al. (2002) also find that for men around half of the differential in employment can be explained by differences in characteristics between whites and ethnic minorities, while virtually nothing is explained in the case of earnings. As for females,

[1] Among the most recent studies, for example, Constant et al. (2006) analyze differences in employment probabilities among natives and ethnic minority females in Germany, Bevelander and Groeneveld (2007) examine differences in hours supplied in the Netherlands, and Adsera and Chiswick (2007) analyze labor market performance of immigrants by gender in the fifteen EU countries.

the employment rate of all ethnic minority women, in general, is much lower than for white natives. This disadvantage is particularly pronounced at the bottom of the husband's income distribution, and only a small part of this differential is explained by observed characteristics (Dustmann and Fabbri, 2005b). One of the main reasons of this relative disadvantage, as suggested but not further examined by the authors, is culture and religion. In addition, Dustmann and Theodoropoulos (2006) provide some tabulations-based evidence that Bangladeshi, Pakistani and Indian women have more "traditional" attitudes than white women in the UK.

There is a recent and growing interest in the effects of culture on labor market outcomes in economic literature that shows that culture in general and "traditional" attitudes towards gender roles in particular are important parts of the explanation of labor supply decisions. Such "traditional" attitudes presume women's primary role as taking care of children and housework, and can be formulated as the 3K model, a term that originated in 19th century Germany and includes *"Kinder, Küche, Kirche"*, that is "Children, Kitchen, Church". It is also likely that such "traditional" attitudes are more common among ethnic minorities than among natives in many Western societies.

This paper examines the strength of such "traditional" attitudes. It analyzes the relation between ethnicity, its interaction with gender and time spent for "traditional" activities, such as childcare, food preparation and religious activities, using the rich time use dataset for the UK. We hypothesize that if labor force participation of ethnic minority women is indeed lower than that of native women, they would engage more in household production and the "traditional" activities. It is important to understand how these women spend their non-market time, and this paper provides the first attempt to shed some light

on this issue. We test this hypothesis using the UK 2000 Time Use Survey, which allows to distinguish the exact amount of minutes spent per day on each of these activities. We estimate a so-called double-hurdle model that, contrary to a standard Tobit, allows differentiating between the decision to participate in a given activity and the decision of how much time to spend on it. By using this model we also deal with potential selectivity issues.

Our main findings are as follows: It is important to allow for two different processes underlying the decisions of whether to spend time for a particular activity and how much time to spend on it, since the behavioral model can be completely different for these two choices. We further find that ethnicity is a highly important determinant of the time spent on religious activities, with white females spending significantly less time than non-white females. There is also some evidence that ethnicity matters for food management. In contrast, there exists no significant correlation between ethnicity and time spent on childcare.

The paper is organized as follows: Section 2 reviews briefly the related literature. Section 3 describes the data and presents descriptive evidence. Econometric methodology is discussed in section 4. Estimation results are presented in section 5, and section 6 discusses the heterogeneity of the ethnicity effect. Section 7 concludes.

2. Related Literature

Research from two separate fields in the economic literature is relevant for our paper. The first one is on culture in economics, and the second one refers to the literature on

gender and ethnic differences in time use. In this section we briefly review some selected contributions.

There is a recent and growing interest in the effects of culture on labor market outcomes. Reimers (1985) has shown that the differences in labor force participation (LFP) between white and black women in the US are attributable to what she called "cultural effects" or the parameters of the labor supply function. However, until recently, not much attention was paid to a "cultural" explanation in the economic literature. Antecol (2000) has studied the effect of labor force participation in the country of origin on the LFP gap of male and female first and second generation immigrants in the US and found that "culture" of the country of origin matters. Fernández and Fogli (2007) have argued that it is important to separate the effects of culture from the effects of different institutional and economic environments that immigrants face in the host country. To deal with this problem, they have focused on second-generation immigrant women in the US and used past values of female LFP in the country of ancestry as cultural proxies. They find that culture *per se* matters in explaining both labor supply and fertility behavior of these females. Fernández (2007) has shown that attitudes towards women's work in their country of ancestry as another cultural proxy also explain their labor supply behavior in the US, with women from countries of ancestry with more "traditional" attitudes working less. In addition, Fortin (2005) finds that traditional attitudes reduce employment of immigrant women even more than that of native women and argues that it is likely that immigrant women come from societies with more traditional attitudes.

A related literature has found that culture and beliefs influence females' labor supply in general, and more "traditional" attitudes towards gender roles indeed contribute to the

explanation of the females' lower labor market outcomes (Vella, 1994, Fortin, 2005, Farré, 2006). Moreover, Vella (1994) finds that religious affiliation, immigration status and parental background variables are important determinants of the traditional attitudes, and females with traditional attitudes obtain significantly less education. Guiso et al. (2003) study the impact of religiosity and economic attitudes on growth and find that religious people tend to have less favorable attitudes towards working women. Heineck (2004) finds that women's regular participation in religious activities and the presence of a spouse with strong religious beliefs have a negative impact on female employment in Germany.[2]

With the increased availability of the time diaries data, there is a growing literature in economics that studies gender differences and females' allocation of time using these data, and reviewing all of it is beyond the scope of this paper.[3] For example, in a recent study for the US, Kimmel and Connelly (2007) examine the determinants of mothers' allocation of time to home production, active leisure, market work and childcare estimating a four-equation system. They find that the number of children, their age and the price of childcare are important determinants of time spent for childcare. In addition, the wage elasticity is positive for childcare time and negative for leisure and home production time. They also find important differences between ethnicities in time spent for childcare, home production and leisure. Burda et al. (2007) combine the attitudes literature and time use research to find that female *total* work, defined as the sum of time

[2] In addition, several studies have confirmed the intergenerational transmission of cultural attitudes and beliefs from mothers to their children and children in law and their effect on labor market outcomes of children (Fernández, Fogli and Olivetti, 2004, Farré and Vella, 2007).

[3] For cross-country studies see, for example, Apps and Rees (2005) who analyze women's allocation of time between market work, household work, and child-care in Australia, Germany and the UK; or Ichino and Sanz de Galdeano (2005) who study time allocated to childcare by working mothers in Italy, Germany and Sweden.

spent both in market work and household production, is relatively greater than men's in the countries with more "traditional" attitudes.

There exist several studies that use time diaries data for the UK. For example, Jenkins and O'Learly (1997) analyze trends in gender differentials in market work time, domestic work time and total work time between the mid-1970s and mid-1980s. They find that total work time differentials changed little over this period, but this was due to an increase in market work for women that was offset by a decrease in domestic work, while the opposite occurred for men. Kalenkoski et al. (2005) estimate the determinants of time spent for primary and secondary childcare and market work by single, cohabiting or married men and women in the UK estimating a three-equation system of correlated Tobits. They find that single parents spend more time on childcare and less in market work, and that the effect of family structure variables are often different in magnitudes for men and women. The authors, however, do not consider ethnicity in their regressions. Kalenkoski et al. (2006a) analyze the effect of own and partner's wages on parents' time spent on childcare and market work. They conclude that increases in partner's wages affect only women's time (childcare time is affected positively and their market work time negatively), while increases in women's own wages increase their market work. Again, ethnicity variables were not considered by the authors. Finally, Kalenkoski et al. (2006b) analyze the effect of family structure on parents' childcare time and market work time in the UK and the US estimaing a system of correlated Tobit equations and allowing for the endogeneity of both living arrangements and the number of children. They find that single mothers and fathers in both countries spend more time on childcare than married or cohabiting parents, and that single parents work more in the US, and less in

the UK, than other parents. The authors consider ethnicity variables only in the equations for the US and find that African American women spend less time on childcare than white women, African American men spend less time on market work than their white counterparts, and hispanic women spend less time on primary childcare compared to whites.

Our paper seeks to contribute to both strands of the literature. It focuses on the UK and examines the strength of the "traditional" attitudes using time diaries data. We analyze whether there exist differences by ethnicity in the time spent on such "traditional" activities as childcare, food management and religious activities. In addition, we employ a flexible econometric methodology in order to overcome the restrictions of the standard Tobit model.[4]

3. Data and descriptive evidence

Our empirical analysis employs data from the 2000 UK Time Use Survey (UKTUS), a representative survey of the population of households and individuals in the UK. This detailed household survey was conducted in 2000-2001 and measures the amount of time spent by the UK population on various activities with around 250 activity codes. Time diaries were collected for individuals older than 8, and contained information about the nature of activities, the location of each activity, and who else was present during each activity for every 10-minute interval during two days, one weekday and one weekend

[4] Daunfeldt and Hellström (2007) use a two-parts model of Craig (1971) to estimate the determinants of time allocated to different household production activities in Sweden. They find that disaggregating by separate activities is important and that Craig's model that takes into account two separate processes underlying the allocation of time is more suitable than the Tobit model. Craig's model, however, is more restrictive than the double-hurdle model used in this paper, since it assumes that the errors between the two latent proccesses are independent.

day, as well as diaries for both partners in the household. Overall, the UKTUS has 20,981 time diaries from 11,664 people in 6,414 households.

Together with a rich set of demographic and socio-economic variables, the survey contains information on respondent's ethnicity (white, black-Caribbean, black African, Indian, Pakistani, Bangladeshi, Chinese, other). However, due to the small number of observations, we are unable to analyze individual ethnic groups and consider only two major groups, whites and non-whites.[5]

For our analysis, we construct a general sample of adults with time diary information, exclude individuals who are younger than 18 and older than 65 years old, as well as pensioners, full-time students, long-term sick and disabled persons and those for whom the data on the key variables are missing.

We first present the total time respondents spend on all activities, broken down by gender and ethnicity. Figure 1 plots the amount of minutes spent per day[6] on eleven aggregate activities recorded in the time use diary. The figure shows that the greatest amount of time is spent for personal care, in which sleep accounts for the bulk majority of time, and gender and ethnicity differences are negligible. These differences, however, are large for the next most time-consuming activities – employment and household and family care. While men spend more time for employment, women devote more time for household and family. Within these activities, non-white women spend, on average, the

[5] We do acknowledge, however, that the effect may be different for different ethnic minorities in the UK, since there exist important differences in labor market outcomes between them (see, for example, Dustmann and Fabbri, 2005a). Having said that, we follow, for example, Dustmann and Fabbri (2005b) and pool non-white ethnic minorities into one group. In line with the aggregate statistics, the main ethnic minority group in our sample is Indians, followed by Pakistani and black-Caribbeans.

[6] Note that here we pool together diaries for a weekday and a weekend day because of the small sample size for ethnic minorities. In an earlier version of this study we disaggregated the analysis by these two types of diary days. However, the differences for our main activities of interest were very small. Here we pool all observations together and add an additional control for the type of diary day.

smallest amount of minutes per day for employment (114 minutes) and the largest amount of minutes on household and family care (260 minutes). Disaggregating household and family care category shows that non-white females spend the largest amount of time on food management, followed by childcare, while the white females devote most time to food management and household upkeep. Interestingly, the third most time-consuming activity for both genders and ethnicities is mass media, in which watching television (video or DVD) is the largest category.

We then turn to the descriptive analysis of the *differences* between ethnicities. Figure 2 plots the differences in time uses between whites and non-whites (whites minus non-whites). It suggests some interesting facts. Leaving aside "other activities" category because we do not know what kind of activities are there, for men the largest differences seem to be in time spent for travel and mass media activities. White men spend more time than non-white for the former, and non-white spend more time for the latter activity. As for employment, non-white men seem to spend relatively more time working than white, and the opposite holds for household and family care. For women, the largest difference is in employment, with white women spending much more time for work than non-white. The second largest difference between ethnicities for women is in household and family care activities. Non-white females also spend clearly more time on volunteer work and meetings. Thus, it seems that the smaller amount of time ethnic minority women spend for market work is compensated by the greater amount of time they spend for volunteer work and meetings and household and family care.

In order to understand better what kind of activities ethnic minority women spend their time on, we further disaggregate these two categories. Figures 3 and 4 plot

differences between ethnicities in household care and volunteer work activities, respectively, disaggregated by smaller categories. It is evident from these figures that non-white females spend the largest amount of time relative to white females on participatory activities (among which religious activities constitute by far the majority), followed by food management and childcare.

Thus, the "children, kitchen, church" story seems to hold for ethnic minority females in the UK, at least in the descriptive analysis. These differences between ethnicities and genders, however, may be due to the differences in individual characteristics, such as human capital, or household characteristics. The econometric analysis below accounts for that. Following the descriptive evidence, our main outcomes of interest are time spent for childcare, food management and religious activities. The set of regressors includes gender and ethnicity interaction dummies (main variables of interest), age and its square, marital status, education dummies, employment status, household income dummies, number of children 0-2, 3-4, 5-9, 10-15 years old, number of adults in the household, a dummy for health problems, region, season, year 2001 and weekend diary dummies.

We expect that being employed has a negative correlation with all three uses of time. We also expect that the correlation between age and the three uses of time is positive. The larger the number of small children and the smaller the number of grown up children and adults in the household the more time is expected to be spent for childcare and food management activities, in particular for women. While it is difficult to say *a priori* what the relation between household income or education and time spent on childcare should be (it is not obvious also from other studies for the UK), we expect it to be negative for

food management activities. We also expect education to be negatively correlated with time spent for religious activities. [7]

Means and standard deviations for the time use outcomes and the full set of explanatory variables are reported by gender and ethnicity in Table 1. Non-white ethnic minorities constitute 3.4% of males and almost 4% of females.[8] Note that outcome variables include zeros. The statistics for the three outcome variables is a summary of the figures above. Non-white females spend on average more time than white females and males on all three activities. Non-white males spend less time than white males on food management. The largest difference is in time spent for religious activities for women with non-white females spending the largest amount of minutes per day. Finally, there exist gender differences within each ethnicity: on average, women spend more time on each activity than men. As for explanatory variables, females are on average younger than males with non-white females being the youngest. The highest proportion of married or cohabiting individuals is among non-white men, they also have the largest proportion of small children. The proportion of those who have the smallest household income (less than 10,430 pounds) is the largest for non-white females, and it is also this group who has the smallest proportion of employed individuals. Interestingly, this group also has the highest proportion of individuals with degree level or higher education below degree level, and the highest proportion of individuals with health problems.

[7] Note that fertility, family formation, labor supply decisions and even ethnicity can be endogenous. While one could account for this endogeneity and estimate a more structural model, it is beyond the scope of this paper. Although, we hope to take into account some selectivity issues in the econometric modeling below, when speaking about the effect of ethnicity one should be careful with calling it a causal effect.

[8] These numbers are slightly lower but roughly consistent both with figures from the British LFS and other studies for the UK.

4. Econometric Framework

A distinctive feature of time use data is that for many activities a significant proportion of individuals report zero minutes. To deal with this cluster of observations at zero, different econometric methodologies can be employed.[9] A specification widely used to account for such censoring is a standard Tobit model, which is derived from an individual optimization problem and views zeros as corner solution outcomes. In this model, the latent variable y_i^* for person *i* is described by the equation:

$$y_i^* = x_i\beta + \varepsilon_i \tag{1}$$

where the observed variable is:

$$y_i = \begin{cases} y_i^* \ if \ y_i^* > 0 \\ 0 \ otherwise \end{cases} \tag{2}$$

and x_i is the vector of explanatory variables, β is the vector of coefficients and $\varepsilon_i \sim N(0,\sigma^2)$. The likelihood function of the Tobit model can be written as:

$$L_1 = \prod_{y=0}\left(1-\Phi\left(\frac{x_i\beta}{\sigma}\right)\right)\prod_{y>0}\left\{\frac{1}{\sigma}\phi\left(\frac{y_i - x_i\beta}{\sigma}\right)\right\} \tag{3}$$

Apart distributional assumptions, the Tobit model rests on the assumption that the same underlying process determines both the extensive and the intensive margins, that is, whether participation in a given activity is an acceptable option and, if yes, how much time one can afford to spend on it. This assumption, however, is very restrictive, and to separately model the outcome and the selection equations a generalized Tobit model can be used (also called Heckman's selection model). In this case a separate latent equation determines the participation decision:

[9] Flood and Gråsjö (1998) provide an extensive overview of the statistical models for the analyses of time use data.

$$d_i^* = z_i\gamma + v_i \text{ , and } d_i = \begin{cases} 1 & if \quad d_i^* > 0 \\ 0 & otherwise \end{cases} \tag{4}$$

where the error term $v_i \sim N(0,1)$.

Then the observed variable is:

$$y_i = \begin{cases} y_i^* & if \quad d_i{}^* > 0 \\ 0 & otherwise \end{cases} \tag{5}$$

The likelihood function in this case can be written as follows:

$$L_2 = \prod_{y=0} \Phi(-z_i\gamma) \prod_{y>0} \left(\Phi\left\{ \frac{z_i\gamma + \frac{\rho}{\sigma}(y_i - x_i\beta)}{\sqrt{1-\rho^2}} \right\} \frac{1}{\sigma} \phi\left(\frac{y_i - x_i\beta}{\sigma} \right) \right) \tag{6}$$

However, apart the binary participation decision, there may be an additional censoring mechanism in the data. For example, in time diary data, among individuals reporting zeros there may be two types of people: those for whom zero represents a choice (a behavioral zero) and those who report zero due to some other reasons, for example, spending zero minutes on a certain activity during the interview day. The extension of the Tobit model that allows simultaneously taking into account two stochastic processes and two types of zeros is called the double-hurdle model (sometimes it is also called a Tobit model with selectivity). It is the most unrestrictive case as it incorporates both Tobit-type censoring of *y* and a binary censoring. In this case:

$$y_i = \begin{cases} y_i{}^* & if \quad d_i{}^* > 0 \quad and \quad y_i{}^* > 0 \\ 0 & otherwise \end{cases} \tag{7}$$

Note that this model combines equations (2) and (5).

Cragg (1971) first presented a version of the double-hurdle model, in which two error terms (ε_i and v_i) were assumed to be independent. Jones (1992) derived the likelihood

function of the double-hurdle model with dependent errors. This function can be written as follows:

$$L_3 = \prod_{y=0}\left\{1-\Phi\left(z_i\gamma, \frac{x_i\beta}{\sigma}, \rho\right)\right\}\prod_{y>0}\left\{\Phi\left(\frac{z_i\gamma+\frac{\rho}{\sigma}(y_i-x_i\beta)}{\sqrt{1-\rho^2}}\right)\frac{1}{\sigma}\phi\left(\frac{y_i-x_i\beta}{\sigma}\right)\right\} \quad (8)$$

Note that the contribution of positive observations to (8) is very similar to the likelihood of the selectivity model (6). The dependent double-hurdle model is the most general case, and the above mentioned models under certain assumptions represent special cases of it. If independence between the errors is assumed ($\rho = 0$), it simplifies to the Cragg's model. Alternatively, if errors are correlated, but a so-called first-hurdle dominance is assumed (i.e. that participation decision dominates the level decision) meaning that zeros do not arise from a standard corner solution, but instead represent a separate discrete choice, the standard Tobit censoring is not appropriate and Heckman's selection model is necessary. Further, if independence is assumed, it simplifies to the so-called two-part model with a probit equation for the participation decision and OLS for the level decision estimated on a sub-sample with positive values.

The double-hurdle models have been used to investigate, for example, expenditures on consumption goods (Blundell and Meghir, 1987) and labor supply of women with unemployment as an option (Blundell, Ham and Meghir, 1987). Flood and Gråsjö (1998) estimate female labor supply using Swedish time use data, provide a comprehensive comparison of Tobit, Heckman's selection and double-hurdle models and perform Monte Carlo simulations. More recently, double-hurdle models are applied to estimate the demand for non-relative childcare (Joesch and Hiedemann, 2002), savings and remittances (Sinning, 2007), and time spent for different household production activities

(Daunfeldt and Hellström, 2007). This model is particularly suited for the analysis of time use data, where zeros may originate from different sources: for instance, occurrence of an atypical event in a diary date or from a different process determining the decision to participate in a certain activity. It is recognized in the literature (see, for example, Carlin and Flood, 1997, Daunfeldt and Hellström, 2007 and the references therein) that the method of time diaries data collection results in too many individuals reporting zero minutes of time spent on certain activities, especially if they are performed occasionally (such as religious activities in our case). On the other hand, there may be a different stochastic behavioral process determining the participation decision in a certain activity. For example, the presence of zeros for childcare is closely linked to the decision to have children (Daunfeldt and Hellström, 2007); similarly, spending time for religious activities is linked to the individual faith.[10]

In the double-hurdle model the estimated coefficients have no simple interpretation, and marginal effects have to be estimated in order to get interpretable results. The "unconditional" marginal effects for the average person in the population from the double-hurdle model can be written as follows:

[10] The majority of papers estimate the double-hurdle model without exclusion restrictions. Given the complicated form of the likelihood function and the presence of continuous observations on the dependent variable, exclusion restrictions are not required for identification (Blundell and Meghir, 1987). On the other hand, Jones (1992) advocates the use of the exclusion restrictions in the dependent double hurdle model. While it is very difficult to find credible instrumental variables for all three uses of time, in this paper we have experimented with both specifications, using diary days and season dummies as exclusion restrictions following Carlin and Flood (1997). The reason is that if an interview is conducted, for example, on Tuesday, a person who works 40 hours per week and usually spends 0 hours for childcare during the week could report positive hours for childcare if she took Tuesday off to care for a sick child. Similarly, if an interview is conducted on Saturday, a person could report 0 minutes for religious activities just because that was not a Sunday. Similar logic (or occurrence of the atypical event) applies for food management. Since the results from the models with exclusion restrictions were qualitatively identical and quantitatively similar to the one without exclusion restrictions (available upon request), we decided to report the latter.

$$E(y_i) = P(y_i > 0)E(y_i \mid y_i > 0) =$$
$$= \Phi_2\left(x_i\beta + \sigma\left\{ \phi(-\frac{x_i\beta}{\sigma})\Phi(\delta(-z_i\gamma + \rho\frac{x_i\beta}{\sigma})) + \rho\phi(-z_i\gamma)\Phi(\delta(-\frac{x_i\beta}{\sigma} + \rho z_i\gamma)) \right\} \right) \quad (9)$$

where Φ_2 is the bivariate normal probability and $\delta = -1/(1-\rho^2)^{1/2}$.

Since it is assumed that the errors are normally distributed, in practical applications the so-called inverse hyperbolic sine (IHS) transformation of the observed dependent variable is frequently used (Yen and Jones, 1997, Sinning, 2007). This transformation approximates $\log(y)$ for large values of *y* and is given by:

$$T(y_i) = \log(\eta y_i + (\eta^2 y_i^2 + 1)^{1/2}) / \eta = \sinh^{-1}(\eta y_i) / \eta \quad (10)$$

In the empirical applications the IHS transformation helps to achieve convergence of the likelihood function and it is usually assumed that $\eta = 1$.

In the following analysis, we will estimate both Tobit and the dependent IHS double-hurdle models under different assumptions and will compare the estimated results. Note also that standard errors have to be adjusted for clustering of individuals within the household.

5. Estimation Results

Before examining the relation between ethnicity and three non-market uses of time, it is useful to understand the role of ethnicity in the labor market. Therefore, we first estimate the effect of ethnicity on the probability to participate in the labor force by gender. We have generated the LFP from the economic activity variable in the UKTUS

dataset.[11] We include standard controls, such as age and its square, number of children 0-2, 3-4, 5-9, 10-15 years old, number of adults in the household, education dummies, dummies for gross household income, partner's age, its square and partner's education dummies, and region fixed effects. We also control for year 2001, season and weekend diary.[12] Probit marginal effects (reported in Table 2) indicate that white females are 21 percentage points more likely to participate in the labor force than non-white females (the effect is 22 percentage points for mothers), while the correlation is insignificant for males.[13] This effect is consistent with the existing literature (see, for example, Dustmann and Fabbri, 2005b) and indicates that ethnic minority females tend to spend more of their time outside the labor market. Thus, in what follows we study the effects of ethnicity and its interactions with gender on the non-market time use, in particular, time spent on "traditional" activities.

a) Time spent on childcare

Depending on the assumptions regarding zeros, the double-hurdle model can be applied to study the determinants of time spent for childcare in two cases: for the whole sample (Daunfeldt and Hellström, 2007) and for the sub-sample of parents with children (Joesch and Hiedemann, 2002). In the first case, it is assumed that zeros include two types of individuals: those who do not have children (selection into fertility) and those who have children, but spend zero minutes on childcare due to some other reasons (for

[11] The participation in the labor force equals to 1 if a person was employed (full-time or part-time) or unemployed, and is 0 otherwise. It is important to note that this economic activity variable is generated from the individual questionnaire on respondent's labor market activity in the last 7 days (ending last Sunday) and thus it does not represent individual's working status on a diary day.

[12] In the earlier version of this paper we have estimated the labor force participation model taking only diaries for the weekday. The results for the ethnicity dummy were identical.

[13] The results were qualitatively the same and slightly lower for females when estimating the model without partner's characteristics and controlling for marital status (12 and 17 percentage points for all females and mothers, respectively).

example, who buy childcare in the market or who report zeros because they happened to spend zero minutes on the diary day). In the second case, even within the sub-sample of parents there are also potentially two reasons for reporting zero minutes: First, there is the issue whether parents can afford to spend time on childcare (for example, because of work), and second, even if they can, whether they want to spend time on childcare. For example, for some reasons (attitudes towards gender roles or other) men may not want to spend time on childcare even if they have time to do that. In addition, parents may report zero minutes just because of the interview day. Because of this reasoning, we report the results for the two sub-samples – all individuals and parents only, by gender. We recognize, however, that self-selection into fertility is a problem and the standard Tobit model is likely to produce inconsistent estimates. In this case, one should concentrate on the estimates from the sub-sample of parents, as it is done in the majority of the literature.

Tables 3 and 4 report coefficients of the variables determining time spent for childcare for all individuals and females only, respectively. The first four columns report the results for the whole sample, while the last four are for the sub-sample of parents. Coefficients from the Tobit models (without and with IHS transformation) are presented first, and the subsequent columns show coefficients from the level and the participation equations of the dependent double-hurdle model with IHS transformation. There are several interesting results in this table.

First, there are in general no qualitative differences between the transformed Tobit and Tobit without IHS transformation, thus it is not the transformation per se that generates differences between the participation and level equations in the double-hurdle model. Second, as can be seen from Table 3, the association between ethnicities and

genders and the time spent for childcare is significant and positive for both white and non-white females, but is insignificant for non-white males, relative to white males, across all models. However, the double-hurdle model shows that for non-white females, this correlation is significant only in the participation equation, but not the level equation. Third, when estimating the models for females only, the effect of white ethnicity is insignificant across all the models.

As for other determinants, age and its square have an expected concave profile in all the models and affect only the participation decision, but not the amount of time. Being married or cohabiting again affects positively the decision to spend time on childcare, but not how much time to spend on it (for mother, although Tobit generates significant estimates, the effect of marital status is significant only at 10% in the double-hurdle participation equation). As expected, number of children 0-2 years old has a strong positive and significant effect in all equations across all specifications.[14] Number of children 3-4 years old is also positive and highly significant in all specifications, but three – the level equations for the whole sample, for females and mothers. The same holds for the number of children 5-9 years old, which is in addition also insignificant in the level equation for all parents. The effect of the number of children 10-15 years old has different implications in the whole sample and in the sub-sample of parents: while in the former it is positive in Tobits and in the participation equation, but negative in the level equation, in the latter it is negative in all models (both for all individuals and females only). As expected, the larger the number of adults in the household, the less time a person spends on childcare, however, again it affects only the participation decision and

[14] We follow Daunfeldt and Hellström (2007) and include number of children by age both into the participation and level equations in the double-hurdle model estimated for the whole sample.

not the level decision. These results are, in general, consistent with the existing literature. In addition, having a lower household income affects negatively the amount of time spent for childcare, but not the participation decision in all samples. As expected, working status is another strong determinant of the time spent on childcare with a negative correlation in all model specifications used. Education is, in general, insignificant and only Tobits produce a positive and significant association for parents, females and mothers having a higher education degree as compared to mothers with no qualifications. Finally, having health problems does not affect significantly time spent on childcare. Note also that the correlation coefficient ρ is significant in three out of four equations, implying that the dependent double hurdle model is the proper specification.

Marginal effects of the ethnicity and gender variables from all these models are presented in Table 9. The upper panels show the marginal effects estimated from the sample of all individuals and all females, while the lower panels present the effects for the sub-samples of parents and mothers only. Let us first focus on the results for all parents. The double-hurdle model implies that, overall, white females spend on average more than twice as much time on childcare as white males, and, relative to white males, they are both more likely to participate in childcare and to spend 36% more minutes per day caring for children. As for the non-white females, overall, they also spend two times more time on childcare, relative to white males. However, it is the participation decision that mainly generates this significant result, as they are more likely to participate in the childcare activities than white males. The level effect is 23%, but is significant only at 6% level. In addition, there exist no ethnic differences between males. When looking at the ethnicity effect for mothers only, there are also no significant differences between

white and non-white mothers. Thus, the significant results for the whole sample are due to the gender differences in time spent for childcare, but not to the differences between ethnicities.

b) Time spent on food management

When estimating the models for time spent on food management, we assume that in principle, there is no selection into "cooking" (especially among females)[15], and estimate the models for all individuals (Table 5) and all females (Table 6). The results suggest that there seems to exist an ethnicity effect on time spent on food management. In the whole sample, the association between both white female and non-white female dummies and time spent for food management is positive, relative to white males. While it is negative for the non-white males, but significant only in the participation equation of the double-hurdle model. When estimating the effect of ethnicity on a sub-sample of females only, white females seem to spend less time on food management, relative to non-white females, but this effect comes from the level equation in the double-hurdle model (significant at 6% level).

As for other covariates, age and its square have an expected concave profile in all models and affect only the participation decision, but not the amount of time. In contrast, being married or cohabiting affects positively the amount of time spent on food management, but not the decision (for females, it affects both). As expected, number of children 0-2 years old has, in general, a positive and significant effect in all equations across all specifications. Number of children 3-4 years old is also positive and, if anything, affects positively the participation decision of females. Number of children 5-9

[15] Even if such self-selection exists, estimating a model on a sub-sample of those who chose cooking as an acceptable option is impossible, since there is no such information in the UKTUS or any other British dataset available to the authors.

years old has a strong positive effect in all models, but one (participation equation for the whole sample, where it is insignificant). Finally, the number of older children 10-15 years old, has a positive effect on the amount of time spent for cooking, but not the decision to cook. On the other hand, as expected, the larger the number of adults in the household, the less time a person spends on food management; however, it affects only the participation decision and not the level decision. Having a lower household income, in general, affects positively the amount of time spent on food management. This effect comes from the participation decision in the whole sample, and the correlation between having average household income as compared to the high household income is insignificant in the equation for females. As expected, being employed has an unambiguous negative and highly significant association with time spent on food management in all models. In contrast, education dummies are, in general, insignificant, with the exception of higher education. In the whole sample, the higher education degree has a positive effect on the decision to spend time on food management, but once decided, it affects negatively the amount of time a person spends on cooking. In the sample of women, those with higher education degree spend, on average, less time on cooking than those with no qualifications, and the effect comes from the level equation in the double-hurdle model. Again, it is worth noting that the correlation coefficient ρ in the double-hurdle model is highly significant in both samples.

The marginal effects for the main variables of interest are presented in Table 9 and indicate that there exists some evidence that ethnicity matters. In the sample with all individuals, the double-hurdle model implies that, overall, both white and non-white females spend on average more than twice as much time on food management as white

males, while non-white males spend on average 47% less time on cooking than white males and the effect is significant only at 10%. Relative to white males, both white and non-white females are more likely to participate in food management activities and, conditional on participation, they spend 50% (61%) more time on them. The negative effect for non-white males is fully attributable to the lower probability to participate in food management activities, relative to white males. When looking at females only, the overall marginal effect of being white is negative and significant at 10% level in the double-hurdle model. However, in this case the effect comes from the level equation suggesting that among females, ethnicity matters for the decision about how much time to allocate for cooking with white females spending on average 18% less time on it than non-white females.

c) Time spent on religious activities

As in the case with childcare, for religious activities there may be two different types of individuals reporting 0 minutes spent on them: those who are not religious at all and those who are religious, but report spending 0 minutes on this activity on a diary date due to some other reason (for example, because of the interview day or infrequency of church visits). Unfortunately, UKTUS does not have a question on religiosity or religious affiliation of the respondent. Thus, willing to estimate the models for two sub-samples (for all individuals and only for those who are religious) we have to use other data. In particular, we employ the British Quarterly Labour Force Survey data, which includes information on religiosity since 2002 and estimate a model for the probability of being

religious.[16] We then predict the probability of being religious out-of-sample using the UKTUS data, and select the sub-sample of "religious" individuals.[17]

Tables 7 and 8 report the coefficients of the variables determining time spent for religious activities for all individuals and for females only, respectively. The first four columns report the results for the whole sample, while the last four – for the sub-sample of "religious" individuals. The most interesting result from these tables is that ethnicity has a strong effect. In the whole sample, there are some differences between white females and males with white females spending more time on religion than males, but this effect comes entirely from the participation decision. Indeed, when estimating on a sub-sample of religious only, there are no gender differences among whites. In contrast, there is robust evidence that both non-white females and males spend significantly more time on religion than white males. When estimating the model for females only (Table 8), the ethnicity dummy is negative and significant, the only exception being the level equation from the double-hurdle model for the sub-sample of religious females. Thus, there exists a strong negative effect of being white on time spent for religious activities, and, if anything, ethnicity particularly affects the participation decision.

As for other covariates, there are not many significant results. Contrary to our expectations, neither age nor employment are significant determinants of time spent on

[16] The dependent variable equals one if respondent answers "yes" to the question "Do you consider that you are actively practicing your religion?", and equals to 0 if he answers "No" to this question or answers having "no religion at all". In choosing independent variables for the reduced form model, we follow the existing economic and sociological literature as well as the comparability with variables from the UKTUS dataset. We use eight detailed ethnicity dummies, citizenship dummy, gender, age and its square, five marital status dummies, including whether a person is cohabiting, education, number of children in the household, labor market status, a dummy for having health problems and region fixed effects.

[17] We decided to chose only those individuals with predicted probability of being religious greater than 0.3. This constitutes 23% of the sample, which is a reasonable number. We have experimented also with higher thresholds: the signs of the main coefficients of interest did not change, but some of them became insignificant due to the small sample size.

religious activities. Marital status has a negative association with time spent on religion and affects only the participation equation in the double-hurdle model both in the whole sample and in the sub-sample for all females. However, it is insignificant when estimating the model on the sub-sample of "religious" individuals, which suggests the potential endogeneity of marital status. The same holds for the number of small children (0-2 years old), which is positive in the whole sample, but insignificant in the sub-sample of "religious" individuals. On the other hand, the number of older children (5-9 years old) and the number of adults in the household has, in general, a positive association and affects only the participation decision in all samples. Higher education dummy is positive and significant only in the whole sample. Finally, the correlation coefficient ρ between the errors in the double-hurdle model is significant.[18]

Marginal effects of ethnicity and gender are presented in Table 9. The results are similar for the whole sample of all individuals and for the sub-sample of "religious" persons only. The double-hurdle model for the whole sample suggests that, overall, white females spend on average 3% more time on religious activities than white males (but this effect is significant only at 6% and comes from the participation equation). In contrast, non-white females spend, on average, twice more minutes on religion than white males, and this effect is entirely attributable to the participation equation. In addition, non-white males spend overall 52% more time on religion than white males, and again, this positive effect is due to the higher probability to participate in the religious activities. When looking at females only, being white reduces the time spent on religion more than double, and the effect comes entirely from the participation equation.

[18] Note, however, when estimating for the sub-sample of "religious" individuals the double-hurdle model did not achieve convergence and the independent version was estimated.

To summarize the results from this section, there exists a significant and negative effect of being white (white female) on time spent for religious activities. However, the magnitude of the effect depends on the reference category used. We also find some evidence for a negative effect of being white (white female) on time spent for food management. In contrast, there seems to be no significant association between ethnicity and time spent on childcare, and the significant effect in the whole sample is entirely due to gender differences in time spent caring for children.

6. Heterogeneity of the ethnicity effect

The results above suggest that ethnicity matters for "kitchen and church" – for time spent on religious activities and, to some extent, for time spent on food management. On the other hand, there are no significant ethnic differences for "children" – time spent on childcare. But is this effect equal for all females? Or are certain groups particularly affected by ethnicity? Table 10 answers these questions. It reports the marginal effects from the double-hurdle models for different socio-economic groups of all females (upper panel) and mothers only (lower panel). There are several interesting facts apparent from this table.

First, Table 10 suggests that the ethnicity effect is heterogeneous across different groups. Regarding childcare, there is a significant and positive effect of being white in the sub-sample of working females (although it is significant only at 10% level in the sub-sample of working mothers). This suggests that white working mothers spend actually *more* time on childcare than non-white working mothers. When pooling both working and not-working females, this positive effect cancels out. Moreover, there is also

a strong positive effect of white ethnicity in the sub-sample of singles. It suggests that white single mothers spend again *more* time on childcare than non-white single mothers. These results are consistent with Kalenkoski et al. (2005, 2006b) as well as with the descriptive findings in Duncan and Edwards (1997) that black and white British single mothers have different attitudes towards work and motherhood, with white single mothers viewing motherhood and employment as more incompatible than black single mothers. This suggests that white single mothers would indeed spend more time on childcare (for example, because of lower labor force attachment) than non-white.

As for food management activities, there exists a strong negative effect of being white in the sub-samples of non-working, married or cohabiting females, or females with lower education levels. However, these effects are insignificant for mothers (apart the non-working mothers for whom the effect is significant at the 10% level). That suggests that either selection into fertility confounds the results, or small sample size for mothers account for that, or that the negative effect comes, in general, from females without children. The non-working white females spend on average 41% less time on cooking than non-working non-white females; married or cohabiting white females spend on average 21% less time on this activity than non-white married or cohabiting females; and among females with lower education levels, white spend on average 26% less on food management than non-white females, *ceteris paribus*.

Finally, regarding religious activities, the effect of being white is negative, large and both economically and statistically significant in both samples. Moreover, it is quite homogenous in magnitude, suggesting that white females (mothers) in any group spend

on average about twice as less time per day on religious activities than non-white females (mothers).

7. Conclusions

The understanding of gender roles is known to be an important determinant of female labor force participation. It is, therefore, fundamental to measure gender attitudes and their effects on economic behavior. Our approach has been to employ measured time use of factors affiliated with those attitudes. Elaborating around the famous 3K model originating in 19th century Germany ("*Kinder, Küche, Kirche"* or "Children, Kitchen, Church"), we have studied the intensity of “traditional” attitudes across ethnicities using time diaries on childcare, food preparation and religious activities provided by the 2000 UK Time Use Survey. Given the low work participation of females from ethnic minorities, the role of ethnicity in forming those attitudes and influencing time spent for “traditional” activities was of particular interest.

Our findings are as follows. First, we find that white females in the UK indeed have a higher probability of participating in the labor force than non-white females, while the effect of ethnicity is insignificant for males. Second, our results also confirm that ethnicity often matters, independently of the estimation method employed. Using the double-hurdle model provides additional interesting insights into the different nature of the processes determining separately the decision to participate or not, and how much time to devote to a certain activity. Third, we find that ethnicicty matters for “church” and, to some extent, for “kitchen”, but not, in general, for “children”. The results for childcare suggest that ethnicity *per se* is insignificant after having controlled for

demograhic and socio-economic characteristics. Instead, it is gender that matters with females spending more time on childcare than males. There is, however, some evidence that the ethnicity effect is significant among single and working mothers, with white females spending more time on it than non-white females. As for food management, ethnicity matters in some model specifications. There exists a significant negative effect for non-working females, as well as for married or cohabiting females and women with lower education. Finally, we find a strong negative and robust effect of white ethnicity on time spent on religious activities for all socio-economic groups. In general, our findings suggest that cultural differences across ethnicities matter, and may also affect work behavior.

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Table 1: Descriptive statistics: UKTUS

	Males		Females	
	White	Non-white	White	Non-white
Outcome measures (incl. zeros):				
Time for childcare	16.447	26.525	41.682	55.556
	(47.554)	(47.943)	(82.781)	(84.333)
Time for food management	29.981	23.901	68.187	89.418
	(38.763)	(38.504)	(55.858)	(75.963)
Time for religious activity	2.945	8.723	3.160	27.937
	(22.271)	(31.912)	(21.061)	(61.803)
Explanatory variables:				
Age	40.033	36.745	38.807	36.090
	(11.733)	(11.002)	(11.482)	(10.856)
Married or cohabiting	0.776	0.794	0.738	0.725
Number of children 0-2 years old	0.121	0.305	0.141	0.238
	(0.356)	(0.492)	(0.383)	(0.427)
Number of children 3-4 years old	0.080	0.248	0.095	0.201
	(0.283)	(0.495)	(0.305)	(0.475)
Number of children 5-9 years old	0.223	0.461	0.277	0.429
	(0.523)	(0.649)	(0.576)	(0.653)
Number of children 10-15 years old	0.322	0.418	0.359	0.487
	(0.568)	(0.821)	(0.679)	(0.873)
Number of children 0-15 years old	0.745	1.433	0.873	1.354
	(1.037)	(1.343)	(1.090)	(1.303)
Number of adults	2.293	2.525	2.223	2.619
	(0.877)	(1.187)	(0.893)	(1.354)
Household income less than 10,430 pounds	0.126	0.248	0.206	0.360
Household income from 10,430 to 55,000 pounds	0.761	0.667	0.699	0.556
Employed	0.931	0.893	0.789	0.524
Degree level or higher educ. below degree level	0.281	0.369	0.286	0.392
"A" level or vocat. educ., "O" level, GCSE level	0.360	0.191	0.359	0.270
Below GCSE, professional and other qualifications	0.073	0.057	0.056	0.011
Health problems	0.146	0.135	0.172	0.280
Observations	4,149	141	4,959	189

Note: Standard deviations are in parentheses.

Table 2: The effect of ethnicity on labor force participation of females and males: Marginal effects from Probit

	Females		Males	
	All	Mothers	All	Fathers
White	0.208***	0.219***	0.017*	0.008
	(0.073)	(0.092)	(0.016)	(0.009)
Pseudo R^2	0.22	0.22	0.26	0.33
Observations	2949	1619	2726	1501

Note: ***significant at 1%, **significant at 5%, *significant at 10%. Robust standard errors account for clustering and are reported in parentheses. Controls include: age and its square, number of children 0-2, 3-4, 5-9, 10-15 years old, number of adults in the household, education dummies, dummies for gross household income, partner's age, its square and partner's education dummies, region fixed effects, year 2001, season and weekend diary dummies.

Table 3: Determinants of the time spent for childcare, All: Coefficients

Panel A:	All			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White females	60.095***	1.905***	0.276***	0.604***
	(3.483)	(0.110)	(0.049)	(0.036)
Non-white females	39.865***	1.401***	0.139	0.406***
	(14.663)	(0.538)	(0.123)	(0.167)
Non-white males	-27.134*	-0.583	-0.026	-0.268
	(16.172)	(0.592)	(0.125)	(0.214)
Age	12.434***	0.487***	-0.009	0.127***
	(1.887)	(0.056)	(0.018)	(0.017)
Age^2	-0.186***	-0.007***	-0.00003	-0.002***
	(0.025)	(0.0007)	(0.0002)	(0.0002)
Married or cohabiting	51.853***	1.673***	0.085	0.386***
	(5.691)	(0.235)	(0.065)	(0.060)
Number of children 0-2 years old	157.663***	4.724***	0.486***	1.711***
	(6.101)	(0.248)	(0.052)	(0.089)
Number of children 3-4 years old	66.280***	2.719***	0.075*	1.085***
	(6.003)	(0.231)	(0.042)	(0.101)
Number of children 5-9 years old	51.721***	2.342***	-0.032	0.825***
	(4.025)	(0.133)	(0.030)	(0.047)
Number of children 10-15 years old	25.413***	1.200***	-0.165***	0.377***
	(2.871)	(0.114)	(0.027)	(0.034)
Number of adults	-20.497***	-0.712***	-0.046	-0.195***
	(3.107)	(0.107)	(0.034)	(0.036)
Household income less than 10,430 pounds	-0.695	0.163	-0.201**	0.032
	(11.267)	(0.369)	(0.090)	(0.108)
Household income from 10,430 to 55,000 pounds	-9.959	-0.263	-0.156**	-0.061
	(10.083)	(0.289)	(0.072)	(0.082)
Employed	-45.516***	-1.011***	-0.350***	-0.398***
	(6.359)	(0.216)	(0.049)	(0.063)
Degree level or higher	10.167	0.189	0.039	0.058
educ. below degree level	(6.615)	(0.201)	(0.053)	(0.064)
"A" level or vocat. educ.,	5.867	0.200	-0.044	0.061
"O" level, GCSE level	(4.818)	(0.178)	(0.045)	(0.055)
Below GCSE, professional	-9.681	-0.282	-0.123	-0.061
and other qualifications	(9.169)	(0.376)	(0.076)	(0.114)
Health problems	-6.346	-0.295	0.004	-0.105*
	(6.160)	(0.211)	(0.058)	(0.057)
Constant	-279.690***	-10.959***	5.648***	-3.248***
	(33.914)	(1.268)	(0.362)	(0.361)
ρ			-0.204***	
			(0.069)	
Pseudo R^2	0.12	0.21		
Log-likelihood	-19,294	-10,020	-18,748	
Observations	9,438			

Table 3 (continued): Determinants of the time spent for childcare, All: Coefficients

Panel B:	All parents			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White females	65.162***	1.944***	0.335***	0.770***
	(4.773)	(0.125)	(0.050)	(0.049)
Non-white females	47.002***	1.568***	0.211*	0.558***
	(13.240)	(0.354)	(0.123)	(0.163)
Non-white males	-19.093	-0.358	0.020	-0.203
	(19.076)	(0.443)	(0.133)	(0.200)
Age	4.666**	0.218***	-0.008	0.074***
	(2.215)	(0.067)	(0.020)	(0.026)
Age^2	-0.070**	-0.003***	0.000	-0.001***
	(0.030)	(0.001)	(0.0003)	(0.0004)
Married or cohabiting	34.771***	0.826***	0.114*	0.258***
	(6.601)	(0.204)	(0.069)	(0.091)
Number of children 0-2 years old	98.514***	2.262***	0.605***	0.998***
	(5.812)	(0.123)	(0.046)	(0.086)
Number of children 3-4 years old	30.676***	1.224***	0.149***	0.638***
	(6.921)	(0.121)	(0.042)	(0.089)
Number of children 5-9 years old	15.375***	0.817***	0.030	0.401***
	(3.220)	(0.080)	(0.027)	(0.045)
Number of children 10-15 years old	-17.012***	-0.512***	-0.134***	-0.115***
	(3.961)	(0.092)	(0.030)	(0.046)
Number of adults	-27.362***	-0.948***	-0.066*	-0.354***
	(3.836)	(0.115)	(0.038)	(0.039)
Household income less than 10,430 pounds	-20.231	-0.498*	-0.262***	-0.167
	(13.481)	(0.304)	(0.093)	(0.138)
Household income from 10,430 to 55,000 pounds	-18.084*	-0.459**	-0.225***	-0.124
	(9.856)	(0.238)	(0.073)	(0.107)
Employed	-41.596***	-0.754***	-0.347***	-0.347***
	(6.488)	(0.144)	(0.051)	(0.077)
Degree level or higher educ.	15.549**	0.269*	0.055	0.121
below degree level	(6.651)	(0.152)	(0.054)	(0.077)
"A" level or vocat. educ.,	2.814	0.022	-0.029	0.033
"O" level, GCSE level	(4.736)	(0.137)	(0.046)	(0.063)
Below GCSE, professional	-9.671	-0.324	-0.099	-0.105
and other qualifications	(9.789)	(0.295)	(0.080)	(0.128)
Health problems	-0.182	-0.120	0.023	-0.081
	(4.525)	(0.145)	(0.061)	(0.070)
Constant	-21.831	-1.211	5.420***	-0.984**
	(40.119)	(1.292)	(0.368)	(0.486)
ρ			-0.076	
			(0.073)	
Pseudo R^2	0.06	0.11		
Log-likelihood	-17,046	-7,965	-16,712	
Observations	4,348			

Note: ***significant at 1%, **significant at 5%, *significant at 10%. Standard errors, clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies.

Table 4: Determinants of the time spent for childcare, Females: Coefficients

Panel A:	All females			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White	23.595*	0.578	0.119	0.346*
	(13.215)	(0.483)	(0.115)	(0.186)
Age	13.840***	0.459***	-0.007	0.146***
	(1.745)	(0.053)	(0.020)	(0.021)
Age^2	-0.210***	-0.007***	-0.0001	-0.002***
	(0.023)	(0.0007)	(0.0003)	(0.0002)
Married or cohabiting	41.553***	1.184***	0.066	0.274***
	(6.989)	(0.192)	(0.066)	(0.071)
Number of children 0-2 years old	171.897***	4.417***	0.484***	2.177***
	(9.386)	(0.190)	(0.058)	(0.139)
Number of children 3-4 years old	68.155***	2.589***	0.068	1.524***
	(7.236)	(0.215)	(0.052)	(0.172)
Number of children 5-9 years old	52.051***	2.288***	-0.057*	1.024***
	(4.139)	(0.123)	(0.034)	(0.066)
Number of children 10-15 years old	26.446***	1.254***	-0.206***	0.454***
	(4.018)	(0.111)	(0.032)	(0.043)
Number of adults	-21.567***	-0.687***	-0.045	-0.206***
	(3.699)	(0.120)	(0.038)	(0.045)
Household income less than 10,430 pounds	-1.195	0.214	-0.198**	0.103
	(9.913)	(0.302)	(0.103)	(0.125)
Household income from 10,430 to 55,000 pounds	-12.527	-0.318	-0.126	-0.094
	(8.577)	(0.270)	(0.089)	(0.099)
Employed	-46.734***	-1.076***	-0.327***	-0.376***
	(7.129)	(0.190)	(0.049)	(0.080)
Degree level or higher educ.	18.439***	0.416*	0.085	0.115
below degree level	(7.441)	(0.235)	(0.061)	(0.081)
"A" level or vocat. educ.,	5.127	0.166	-0.032	0.024
"O" level, GCSE level	(6.478)	(0.199)	(0.052)	(0.074)
Below GCSE, professional	-4.456	-0.098	-0.054	-0.102
and other qualifications	(10.757)	(0.449)	(0.088)	(0.155)
Health problems	-6.813	-0.266	0.013	-0.107
	(5.445)	(0.188)	(0.059)	(0.079)
Constant	-245.455***	-8.118***	5.900***	-3.332***
	(34.775)	(1.324)	(0.388)	(0.450)
ρ			-0.334***	
			(0.073)	
Pseudo R^2	0.11	0.21		
Log-likelihood	-12,857	-6,351	-12,392	
Observations	5,148			

Table 4 (continued): Determinants of the time spent for childcare, Females: Coefficients

Panel B:	Mothers			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White	16.408	0.295	0.092	0.171
	(14.333)	(0.316)	(0.119)	(0.176)
Age	5.626**	0.146**	-0.006	0.087***
	(2.686)	(0.070)	(0.023)	(0.033)
Age^2	-0.089**	-0.002**	0.000	-0.001**
	(0.038)	(0.001)	(0.0003)	(0.0005)
Married or cohabiting	28.746***	0.674***	0.038	0.188*
	(7.447)	(0.208)	(0.072)	(0.104)
Number of children 0-2 years old	110.981***	2.046***	0.548***	1.376***
	(7.752)	(0.145	(0.063)	(0.154)
Number of children 3-4 years old	31.060***	1.144***	0.105*	1.004***
	(6.833)	(0.128	(0.058)	(0.155)
Number of children 5-9 years old	14.475***	0.814***	-0.019	0.556***
	(3.451)	(0.080	(0.036)	(0.071)
Number of children 10-15 years old	-17.966***	-0.441***	-0.131***	-0.046
	(3.837)	(0.097	(0.037)	(0.056)
Number of adults	-28.395***	-0.932***	0.009	-0.411***
	(4.192)	(0.129	(0.048)	(0.052)
Household income less than 10,430 pounds	-26.646**	-0.523*	-0.232**	-0.174
	(11.882)	(0.322)	(0.106)	(0.168)
Household income from 10,430 to 55,000 pounds	-20.112*	-0.419	-0.175**	-0.154
	(11.563)	(0.266)	(0.089)	(0.138)
Employed	-38.030***	-0.691***	-0.303***	-0.259***
	(6.963)	(0.157)	(0.052)	(0.087)
Degree level or higher educ. below degree level	21.581***	0.375***	0.085	0.126
	(7.097)	(0.181)	(0.064)	(0.100)
"A" level or vocat. educ., "O" level, GCSE level	1.497	0.026	-0.001	-0.022
	(5.699)	(0.138)	(0.054)	(0.085)
Below GCSE, professional and other qualifications	-5.530	-0.172	-0.015	-0.122
	(10.737)	(0.348)	(0.093)	(0.182)
Health problems	-2.813	-0.179	0.037	-0.153*
	(7.434)	(0.143)	(0.061)	(0.091)
Constant	27.992	2.106	5.705***	-0.687
	(44.800)	(1.333)	(0.411)	(0.647)
ρ			-0.533***	
			(0.132)	
Pseudo R^2	0.06	0.10		
Log-likelihood	-11,373	-4,896	-11,114	
Observations	2,518			

Note: ***significant at 1%, **significant at 5%, *significant at 10%. Standard errors, bootstrapped and clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies.

Table 5: Determinants of the time spent for food management, All: Coefficients

	All			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White female	45.275***	1.676***	0.293***	0.695***
	(1.203)	(0.061)	(0.037)	(0.045)
Non-white female	59.433***	1.723***	0.459***	0.656***
	(6.377)	(0.187)	(0.088)	(0.132)
Non-white male	-16.657**	-0.938***	0.207	-0.370***
	(8.285)	(0.374)	(0.131)	(0.148)
Age	3.317***	0.170***	0.007	0.078***
	(0.505)	(0.021)	(0.007)	(0.011)
Age^2	-0.027***	-0.002***	0.000	-0.001***
	(0.006)	(0.0002)	(0.0001)	(0.0001)
Married or cohabiting	8.086***	0.232***	0.059**	0.058
	(1.944)	(0.075)	(0.029)	(0.046)
Number of children 0-2 years old	10.830***	0.358***	0.076***	0.146***
	(1.653)	(0.076)	(0.021)	(0.045)
Number of children 3-4 years old	4.951**	0.203**	0.023	0.083
	(2.125)	(0.101)	(0.033)	(0.059)
Number of children 5-9 years old	4.551***	0.091**	0.061***	0.021
	(1.287)	(0.047)	(0.020)	(0.033)
Number of children 10-15 years old	2.258**	-0.004	0.051***	-0.022
	(1.068)	(0.042)	(0.016)	(0.027)
Number of adults	-2.849***	-0.216***	0.020	-0.111***
	(0.733)	(0.035)	(0.014)	(0.019)
Household income less than 10,430 pounds	10.529***	0.399***	0.059	0.164**
	(3.520)	(0.142)	(0.047)	(0.079)
Household income from 10,430 to 55,000 pounds	4.955**	0.245***	-0.008	0.115**
	(2.611)	(0.098)	(0.037)	(0.057)
Employed	-28.314***	-0.769***	-0.202***	-0.364***
	(1.884)	(0.093)	(0.032)	(0.061)
Degree level or higher	-4.373**	0.051	-0.132***	0.095**
educ. below degree level	(2.260)	(0.080)	(0.030)	(0.047)
"A" level or vocat. educ.,	-0.388	0.092	-0.053*	0.058
"O" level, GCSE level	(2.094)	(0.069)	(0.029)	(0.043)
Below GCSE, professional	-7.703**	-0.228*	-0.095*	0.070
and other qualifications	(3.478)	(0.122)	(0.052)	(0.079)
Health problems	-0.280	-0.045	0.015	-0.046
	(2.103)	(0.081)	(0.029)	(0.045)
Constant	-51.331***	-2.027***	4.393***	-1.005***
	(11.369)	(0.614)	(0.179)	(0.250)
ρ			-0.784***	
			(0.049)	
Pseudo R^2	0.03	0.05		
Log-likelihood	-41,640	-18,744	-41,200	
Observations	9438			

Note: ***significant at 1%, **significant at 5%, # significant at 6%, *significant at 10%. Standard errors, bootstrapped and clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies.

Table 6: Determinants of the time spent for food management, Females: Coefficients

	Females			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White	-13.037**	-0.029	-0.167#	-0.064
	(6.614)	(0.173)	(0.086)	(0.142)
Age	2.771***	0.150***	-0.007	0.066***
	(0.658)	(0.025)	(0.009)	(0.015)
Age^2	-0.017**	-0.001***	0.0001	-0.0006***
	(0.008)	(0.0003)	(0.0001)	(0.0002)
Married or cohabiting	15.696***	0.426***	0.119***	0.135**
	(2.716)	(0.089)	(0.037)	(0.061)
Number of children 0-2 years old	17.719***	0.552***	0.066*	0.323***
	(2.781)	(0.070)	(0.038)	(0.068)
Number of children 3-4 years old	8.874**	0.327***	0.006	0.193***
	(3.757)	(0.077)	(0.042)	(0.079)
Number of children 5-9 years old	9.289***	0.232***	0.067***	0.106***
	(1.850)	(0.052)	(0.022)	(0.042)
Number of children 10-15 years old	4.305***	0.045	0.072***	-0.038
	(1.616)	(0.044)	(0.020)	(0.035)
Number of adults	-0.635	-0.120***	0.035*	-0.091***
	(1.279)	(0.039)	(0.019)	(0.027)
Household income less than 10,430 pounds	14.149***	0.372**	0.133**	0.068
	(4.972)	(0.168)	(0.058)	(0.103)
Household income from 10,430 to 55,000 pounds	4.258	0.121	0.038	-0.032
	(3.815)	(0.126)	(0.050)	(0.083)
Employed	-24.293***	-0.496***	-0.215***	-0.136**
	(3.003)	(0.083)	(0.033)	(0.066)
Degree level or higher	-9.554***	-0.162*	-0.105***	-0.025
educ. below degree level	(2.854)	(0.087)	(0.038)	(0.066)
"A" level or vocat. educ.,	-2.169	-0.046	-0.018	-0.054
"O" level, GCSE level	(2.864)	(0.068)	(0.035)	(0.056)
Below GCSE, professional	-5.465	-0.158	-0.011	-0.130
and other qualifications	(4.145)	(0.142)	(0.062)	(0.096)
Health problems	1.785	0.034	0.027	-0.044
	(2.403)	(0.081)	(0.034)	(0.057)
Constant	-4.622	0.556	4.998***	-0.253
	(14.356)	(0.546)	(0.214)	(0.348)
ρ			-0.950***	
			(0.010)	
Pseudo R^2	0.02	0.04		
Log-likelihood	-25,431	-9,922	-25,275	
Observations	5,148			

Note: ***significant at 1%, **significant at 5%, # significant at 6%, *significant at 10%. Standard errors, bootstrapped and clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies.

Table 7: Determinants of the time spent for religious activity, All: Coefficients

Panel A:	All			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White female	18.196#	0.954**	0.035	0.099**
	(9.628)	(0.488)	(0.105)	(0.050)
Non-white female	262.024***	12.379***	0.865**	1.360***
	(34.443)	(1.250)	(0.360)	(0.160)
Non-white male	161.919***	8.171***	-0.092	0.898***
	(27.905)	(1.558)	(0.301)	(0.159)
Age	0.055	0.006	-0.040	0.004
	(3.193)	(0.166)	(0.032)	(0.017)
Age^2	0.043	0.002	0.0004	0.0002
	(0.039)	(0.002)	(0.0004)	(0.0002)
Married or cohabiting	-42.963**	-1.917**	-0.002	-0.224***
	(20.744)	(0.842)	(0.162)	(0.089)
Number of children 0-2 years old	38.344**	1.896**	-0.025	0.209**
	(17.305)	(0.813)	(0.128)	(0.090)
Number of children 3-4 years old	1.450	0.102	0.067	0.019
	(20.854)	(0.953)	(0.146)	(0.099)
Number of children 5-9 years old	38.108***	1.952***	0.064	0.203***
	(11.562)	(0.584)	(0.090)	(0.061)
Number of children 10-15 years old	23.333**	1.070**	0.206***	0.107**
	(10.357)	(0.459)	(0.075)	(0.050)
Number of adults	15.655**	0.689**	0.030	0.079**
	(6.710)	(0.316)	(0.070)	(0.036)
Household income less than 10,430 pounds	13.285	0.371	0.255	0.023
	(26.504)	(1.514)	(0.212)	(0.149)
Household income from 10,430 to 55,000 pounds	19.997	0.884	0.105	0.087
	(22.532)	(1.264)	(0.173)	(0.107)
Employed	8.562	0.361	0.119	0.033
	(15.928)	(0.738)	(0.153)	(0.083)
Degree level or higher	56.173***	2.754***	0.130	0.278***
educ. below degree level	(19.160)	(0.758)	(0.149)	(0.079)
"A" level or vocat. educ.,	5.289	0.487	-0.217*	0.045
"O" level, GCSE level	(17.841)	(0.806)	(0.123)	(0.078)
Below GCSE, professional	16.238	0.765	0.031	0.080
and other qualifications	(33.247)	(1.289)	(0.280)	(0.130)
Health problems	-3.814	-0.207	-0.105	-0.009
	(14.454)	(0.561)	(0.151)	(0.071)
Constant	-569.002***	-27.003***	3.472***	-2.852***
	(90.002)	(4.000)	(0.917)	(0.413)
ρ			0.833***	
			(0.094)	
Pseudo R^2	0.05	0.07		
Log-likelihood	-3,416	-2,309	-3,335	
Observations	9,438			

Table 7 (continued): Determinants of the time spent for religious activity, All: Coefficients

Panel B:	Religious all			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White female	-11.734	-0.395	-0.091	-0.043
	(21.584)	(1.211)	(0.226)	(0.135)
Non-white female	197.853***	10.573***	0.503	1.433***
	(37.084)	(1.979)	(0.552)	(0.232)
Non-white male	118.429***	7.080***	-0.218	0.969***
	(38.578)	(2.067)	(0.485)	(0.231)
Age	6.032	0.263	0.095	0.041
	(5.063)	(0.258)	(0.067)	(0.035)
Age^2	-0.018	-0.0002	-0.001	-0.0001
	(0.059)	(0.003)	(0.001)	(0.0004)
Married or cohabiting	-31.643	-1.469	-0.165	-0.227
	(21.606)	(1.036)	(0.247)	(0.145)
Number of children 0-2 years old	24.470	1.271	-0.053	0.192
	(25.040)	(1.340)	(0.198)	(0.166)
Number of children 3-4 years old	23.436	1.033	0.417**	0.141
	(20.263)	(1.294)	(0.195)	(0.175)
Number of children 5-9 years old	37.856***	1.986***	0.084	0.265***
	(12.611)	(0.578)	(0.127)	(0.085)
Number of children 10-15 years old	16.483	0.814	0.114	0.115
	(11.408)	(0.647)	(0.089)	(0.074)
Number of adults	19.049**	0.893**	0.037	0.132***
	(8.434)	(0.419)	(0.072)	(0.046)
Household income less than 10,430 pounds	-6.595	-0.653	0.256	-0.113
	(30.654)	(1.597)	(0.278)	(0.211)
Household income from 10,430 to 55,000 pounds	13.141	0.606	0.100	0.072
	(20.567)	(1.231)	(0.208)	(0.142)
Employed	-5.124	-0.413	-0.059	-0.052
	(17.863)	(0.994)	(0.176)	(0.118)
Degree level or higher	12.168	0.799	0.023	0.091
educ. below degree level	(20.500)	(0.919)	(0.212)	(0.134)
"A" level or vocat. educ.,	-4.509	0.191	-0.352*	0.016
"O" level, GCSE level	(23.906)	(1.196)	(0.203)	(0.145)
Below GCSE, professional	5.787	0.441	-0.236	0.031
and other qualifications	(40.216)	(1.833)	(0.296)	(0.231)
Health problems	-24.594	-1.108	-0.319	-0.125
	(16.508)	(0.796)	(0.186)	(0.113)
Constant	-560.051***	-28.886***	1.493	-3.945***
	(113.045)	(6.440)	(1.748)	(0.844)
ρ			0.720*	
			(0.243)	
Pseudo R^2	0.05	0.07		
Log-likelihood	-1,542	-1,011	-1,511	
Observations	2,205			

Note: ***significant at 1%, **significant at 5%, *significant at 10%. Standard errors, bootstrapped and clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies.

Table 8: Determinants of the time spent for religious activity, Females: Coefficients

Panel A:	All females			
	Tobit		Correlated double-hurdle with IHS transformation	
	No transform.	IHS transform.	Level	Participation
White	-237.076***	-11.358***	-1.001***	-1.325***
	(26.406)	(0.932)	(0.365)	(0.156)
Age	-2.148	0.071	-0.085*	-0.0005
	(5.638)	(0.234)	(0.047)	(0.023)
Age^2	0.073	0.003	0.001	0.0003
	(0.067)	(0.003)	(0.001)	(0.0003)
Married or cohabiting	-49.671**	-2.315***	0.066	-0.305***
	(22.070)	(0.740)	(0.203)	(0.100)
Number of children 0-2 years old	26.316	1.353	-0.087	0.165
	(23.666)	(1.103)	(0.174)	(0.103)
Number of children 3-4 years old	-14.697	-0.790	0.154	-0.079
	(18.986)	(1.030)	(0.215)	(0.111)
Number of children 5-9 years old	42.687***	2.212***	0.112	0.248
	(11.999)	(0.581)	(0.131)	(0.063)
Number of children 10-15 years old	18.801	0.842*	0.162*	0.086
	(12.158)	(0.498)	(0.094)	(0.059)
Number of adults	18.732*	0.819**	0.037	0.106***
	(10.280)	(0.356)	(0.072)	(0.040)
Household income less than 10,430 pounds	-19.119	-1.111	-0.015	-0.131
	(38.670)	(1.685)	(0.260)	(0.179)
Household income from 10,430 to 55,000 pounds	12.875	0.520	0.085	0.051
	(24.420)	(1.252)	(0.214)	(0.133)
Employed	1.466	-0.106	0.012	-0.011
	(17.322)	(0.935)	(0.165)	(0.094)
Degree level or higher	17.359	1.042	-0.001	0.088
educ. below degree level	(20.480)	(0.957)	(0.205)	(0.106)
"A" level or vocat. educ.,	-12.461	-0.305	-0.406***	-0.045
"O" level, GCSE level	(19.896)	(0.967)	(0.161)	(0.110)
Below GCSE, professional	17.820	0.801	-0.106	0.091
and other qualifications	(37.884)	(1.934)	(0.369)	(0.192)
Health problems	-21.194	-0.971	-0.262	-0.082
	(16.728)	(0.863)	(0.206)	(0.095)
Constant	-218.479*	-11.076***	4.583***	-1.229**
	(120.250)	(4.307)	(0.949)	(0.519)
ρ			0.932***	
			(0.065)	
Pseudo R^2	0.06	0.08		
Log-likelihood	-2,036	-1,365	-1,982	
Observations	5,148			

Table 8 (continued): Determinants of the time spent for religious activity, Females: Coefficients

Panel B:	Religious females			
	Tobit		Correlated double-hurdle with IHS transformation [a]	
	No transform.	IHS transform.	Level	Participation
White	-201.775***	-10.589***	0.247	-1.407***
	(29.251)	(1.385)	(0.267)	(0.199)
Age	0.549	-0.044	0.076	-0.001
	(5.792)	(0.365)	(0.069)	(0.042)
Age^2	0.044	0.003	-0.001	0.0004
	(0.064)	(0.004)	(0.001)	(0.0005)
Married or cohabiting	-37.454	-1.812	-0.105	-0.262*
	(24.946)	(1.159)	(0.246)	(0.152)
Number of children 0-2 years old	28.070	1.334	-0.131	0.185
	(34.059)	(1.247)	(0.179)	(0.178)
Number of children 3-4 years old	15.439	0.476	0.445	0.060
	(27.567)	(1.657)	(0.229)	(0.175)
Number of children 5-9 years old	42.067***	2.273***	-0.121	0.306***
	(11.842)	(0.693)	(0.096)	(0.087)
Number of children 10-15 years old	12.237	0.540	0.044	0.074
	(10.348)	(0.710)	(0.082)	(0.079)
Number of adults	18.140**	0.881	-0.065	0.132**
	(8.776)	(0.435)	(0.062)	(0.057)
Household income less than 10,430 pounds	-23.218	-1.464	0.196	-0.207
	(37.506)	(1.383)	(0.256)	(0.240)
Household income from 10,430 to 55,000 pounds	5.886	0.301	0.027	0.046
	(23.096)	(1.176)	(0.204)	(0.173)
Employed	-13.237	-0.854	-0.052	-0.117
	(21.451)	(1.301)	(0.179)	(0.127)
Degree level or higher	12.472	0.780	-0.055	0.094
	(25.249)	(1.278)	(0.216)	(0.164)
Educ. below degree level	-4.677	0.163	-0.469**	0.024
	(26.624)	(1.539)	(0.226)	(0.173)
"A" level or vocat. educ., "O" level, GCSE level	9.785	0.626	-0.183	0.055
	(36.223)	(1.988)	(0.309)	(0.278)
Below GCSE, professional and other qualifications	-19.785	-0.803	-0.313*	-0.089
	(20.407)	(1.028)	(0.193)	(0.139)
Health problems	-231.307	-11.147	3.977***	-1.571
	(160.527)	(8.533)	(1.424)	(0.989)
Constant				
ρ			-	
Pseudo R^2	0.06	0.08		
Log-likelihood	-1,152	-756	-1,125	
Observations	1,762			

Note: ***significant at 1%, **significant at 5%, *significant at 10%. Standard errors, bootstrapped and clustered by household, are reported in parentheses. Additional controls include region, season, year 2001 and weekend diary dummies. [a] IHS independent double-hurdle model was estimated, since convergence was not achieved in the dependent model.

Table 9: Gender and ethnicity effects on time spent on "traditional" activities: Marginal effects, All

	Tobit		Double-hurdle		
	No tr.	IHS tr.	Overall	Participat.	Level
	Time spent for childcare				
White female	13.080***	0.529***	0.890***	0.179***	0.358***
	(0.778)	(0.030)	(0.048)	(0.010)	(0.043)
Non-white female	10.972**	0.482**	0.695**	0.139**	0.191
	(4.902)	(0.222)	(0.303)	(0.063)	(0.122)
Non-white male	-5.035**	-0.149	-0.338	-0.072	-0.063
	(2.498)	(0.136)	(0.233)	(0.051)	(0.127)
	Time spent for food management				
White female	34.972***	1.546***	1.267***	0.196***	0.498***
	(0.895)	(0.055)	(0.065)	(0.012)	(0.037)
Non-white female	45.908***	1.589***	1.171***	0.134***	0.608***
	(4.918)	(0.172)	(0.110)	(0.018)	(0.081)
Non-white male	-12.867**	-0.865***	-0.473*	-0.119**	0.085
	(6.388)	(0.345)	(0.271)	(0.052)	(0.128)
	Time spent for religious activities				
White female	0.535**	0.028**	0.031#	0.006**	-0.046
	(0.274)	(0.015)	(0.017)	(0.003)	(0.087)
Non-white female	7.706***	0.370***	1.248***	0.257***	-0.175
	(0.965)	(0.039)	(0.254)	(0.052)	(0.233)
Non-white male	4.762***	0.244***	0.516***	0.126***	-0.798***
	(0.726)	(0.048)	(0.155)	(0.037)	(0.218)
Observations	9,438				
	Time spent for childcare: All parents				
White female	38.904***	1.473***	1.542***	0.281***	0.362***
	(2.634)	(0.085)	(0.087)	(0.018)	(0.045)
Non-white female	28.062***	1.188***	1.015***	0.176***	0.227#
	(7.816)	(0.267)	(0.236)	(0.042)	(0.122)
Non-white male	-11.399	-0.271	-0.354	-0.077	0.012
	(11.409)	(0.336)	(0.390)	(0.078)	(0.135)
Observations	4,348				
	Time spent for religious activities: All religious				
White female	-0.792	-0.027	-0.031	-0.005	-0.066
	(1.510)	(0.087)	(0.087)	(0.017)	(0.204)
Non-white female	37.020***	2.026***	1.663***	0.368***	-0.273
	(13.609)	(0.737)	(0.416)	(0.085)	(0.364)
Non-white male	15.356*	1.021**	0.833***	0.214***	-0.759**
	(8.406)	(0.530)	(0.312)	(0.073)	(0.311)
Observations	2,205				

Table 9 (continued): Gender and ethnicity effects on time spent on "traditional" activities: Marginal effects, Females

	Tobit		Double-hurdle		
	No tr.	IHS tr.	Overall	Participat.	Level
	Time spent for childcare				
White	7.148*	0.229	0.607**	0.120**	0.189*
	(3.964)	(0.192)	(0.270)	(0.058)	(0.115)
	Time spent for food management				
White	-11.609**	-0.029	-0.220*	-0.012	-0.182**
	(6.009)	(0.171)	(0.135)	(0.025)	(0.076)
	Time spent for religious activities				
White	-25.768***	-1.250***	-1.153***	-0.245***	0.345
	(5.732)	(0.219)	(0.234)	(0.049)	(0.226)
Observations	5,148				
	Time spent for childcare: Mothers				
White	11.568	0.262	0.339	0.050	0.125
	(9.692)	(0.278)	(0.281)	(0.054)	(0.116)
Observations	2,518				
	Time spent for religious activities: Religious females				
White	-34.327***	-1.802***	-1.530***	-0.334***	0.247
	(10.832)	(0.570)	(0.331)	(0.069)	(0.267)
Observations	1,762				

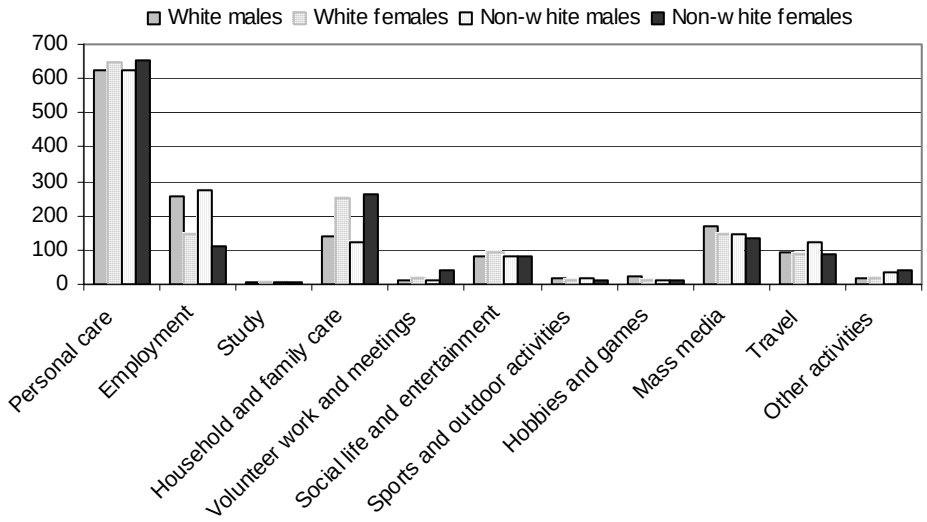
Note: ***significant at 1%, **significant at 5%, # significant at 6%, *significant at 10%. Standard errors after bootstrapping are reported in parentheses. Marginal effects are unconditional (for the average person in the population) from the respective models. Controls include age and its square, marital status, number of children 0-2, 3-4, 5-9 and 10-15 years old, number of adults in the household, household income dummies, education dummies, employment and health status, region, year 2001, season and diary weekday dummies.

Table 10: Heterogeneity of the ethnicity effect (white=1) for females: Overall marginal effects from the double-hurdle model

	Time spent for childcare	Time spent for food management	Time spent for religious activities	Observations
	All females			
Working	0.603**	-0.037	-0.917***	4013
	(0.250)	(0.240)	(0.293)[a]	
Not working	-0.146	-0.411***	-1.022***	1135
	(0.407)	(0.128)	(0.351)	
Single	0.545***	0.312	-1.351***	1353
	(0.162)	(0.476)	(0.562)	
Married or cohabiting	0.500	-0.212***	-1.030***	3795
	(0.381)	(0.087)	(0.247)[a]	
Higher education	0.731**	-0.243	-1.225***	2012
	(0.354)	(0.174)	(0.364)[a]	
Secondary or lower education	0.644*	-0.258**	-1.032***	3136
	(0.344)	(0.134)	(0.262)	
	Mothers			
Working	0.788*	0.051	-0.456#	1728
	(0.442)	(0.249)	(0.254)[a]	
Not working	-0.120	-0.291*	n.a.	790
	(0.209)	(0.168)[a]		
Single	2.010**	1.193	n.a.	495
	(0.895)	(0.952)[a]		
Married or cohabiting	0.160	-0.121	-1.148***	2023
	(0.298)	(0.189)[a]	(0.289)[a]	
Higher education	0.478	-0.278	-0.696**	895
	(0.370)	(0.252)[a]	(0.331)[a]	
Secondary or lower education	0.415	0.135	-1.380***	1623
	(0.403)	(0.241)	(0.389)[a]	

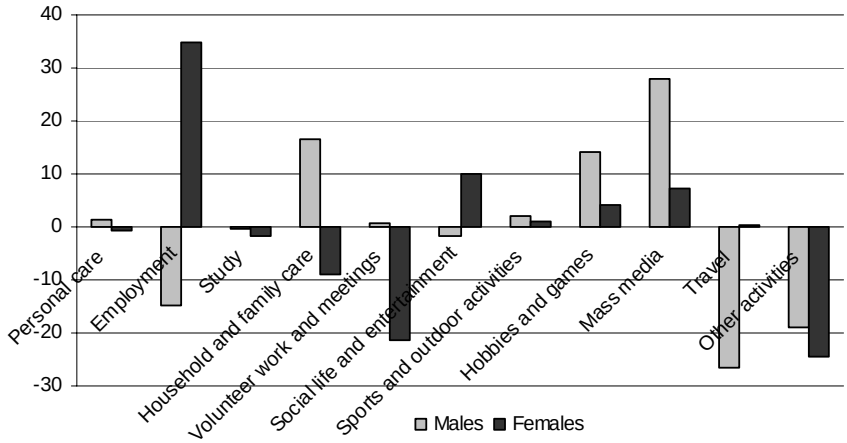
Note: ***significant at 1%, **significant at 5%, # significant at 6%, *significant at 10%. Standard errors after bootstrapping are reported in parentheses. Marginal effects are from the IHS dependent double-hurdle model if not stated otherwise. [a] IHS independent double-hurdle model was estimated, since convergence was not achieved in the dependent model. N.a. stand for "not available", since due to the small sample size the likelihood function could not achieve convergence. Controls include (where relevant) age and its square, marital status, number of children 0-2, 3-4, 5-9 and 10-15 years old, number of adults in the household, household income dummies, education dummies, employment and health status, region, year 2001, season and diary weekday dummies.

Figure 1: Minutes per day spent on different activities, by gender and ethnicity



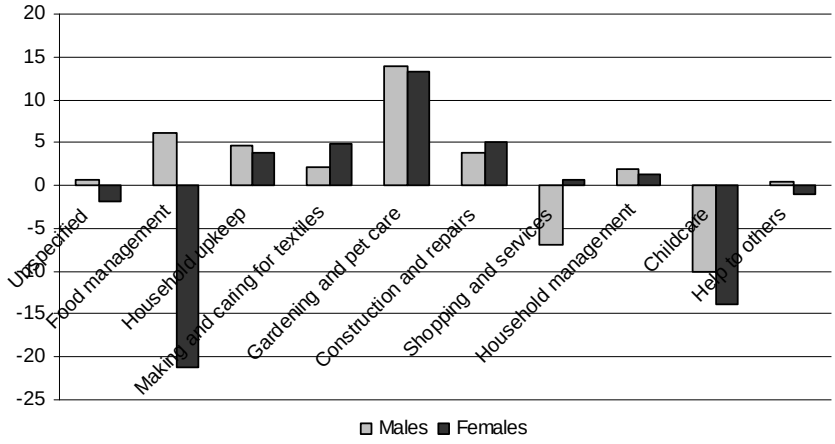
Source: Authors' calculations based on the 2000 UKTUS. Notes: Including zero minutes.

Figure 2: Differences in uses of time (whites minus non-whites) by gender



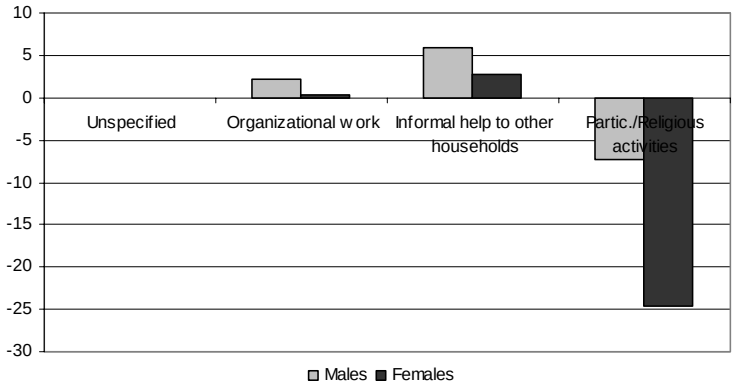
Source: Authors' calculations based on the 2000 UKTUS. Notes: Differences in minutes spent per day on each activity between whites and non-whites. Time includes zero minutes.

Figure 3: Differences in time (whites minus non-whites) spent on household and family care activities



Source: Authors' calculations based on the 2000 UKTUS. Notes: Differences in minutes spent per day on each activity between whites and non-whites. Time includes zero minutes.

Figure 4: Differences in time (whites minus non-whites) spent on volunteer work and meetings



Source: Authors' calculations based on the 2000 UKTUS. Notes: Differences in minutes spent per day on each activity between whites and non-whites. Time includes zero minutes.