

**Title: Class, gender, and time poverty: A time-use analysis of
British workers' free time resources¹**

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Abstract

Free time, that is, the time that remains at one's own discretion after conducting daily work and personal care activities, has been previously recognized as a 'primary good' and an important welfare resource that provides opportunities for participation in social life and leisure. However, recent years have witnessed an increasing preoccupation with the phenomenon of time poverty, drawing attention to the distribution of free time and its relationship to structural and family circumstances. In this article we propose a novel approach to the measurement of time poverty and document its occurrence amongst British workers. In line with previous literature, a conceptualization of time poverty as a relative lack of free time resources vis-à-vis other members of the community is adopted. However, unlike previous empirical studies, we investigate the differential configuration of time poverty on weekdays and weekend days, alongside indicators of the quality of free time, taking into account insights from theoretical and empirical work within the field of the sociology of time. Our analysis of the 2000 UK Time Use Survey highlights class and gender inequalities that have been missed by previous measurement approaches and demonstrates that, overall, working women experience multiple and more severe free time constraints, which may constitute an additional barrier for their leisure and social participation.

Keywords

Time poverty; free time; gender; social class; time-use research; UK

Introduction

Free time, that is, the time that remains at one's own discretion after work and other necessary daily activities are conducted, is an important non-monetary welfare resource, providing an opportunity for rest, social interaction, leisure participation, and self-realization. A series of classical and contemporary theorists have previously conceptualized free time as an indicator of societal progress and freedom, a 'primary good', and a key element for the functioning of civil society and individual well-being (Hemingway 1988; Marx and Engels 1968; Rawls 1999; Fraser 1997; Putnam 2000), while the Universal Declaration of Human Rights recognizes everyone's right to rest and leisure (UN 1948: para. 24). Additionally, a considerable amount of empirical research has documented the numerous benefits that free time activities bring to people's health, and to subjective and family well-being (for example see Iso-Ahola and Mannell 2004; Coleman and Iso-Ahola 1993; Aaker, Rudd, and Mogilner 2011). However, despite earlier predictions of the advent of post-industrial 'leisure' societies (Dumazedier 1967), recent years have seen the topic of free time becoming a key social policy concern, following numerous claims regarding a 'time famine' affecting an increasing number of people in Western societies (Hochschild 1997; Schor 1991).

The 'time famine' thesis attracted the interest of social researchers that have examined historical trends in objective measures of free time, demonstrating that average weekly free time in the majority of Western societies has actually increased over time (Gershuny 2000; Robinson and Godbey 1999; Aguiar and Hurst 2006). Less attention has been paid to the distribution of free time, despite sociological accounts that propose an understanding of time poverty as an emerging social inequality resulting from the interplay of work and family circumstances (Epstein and Kalleberg 2004). The vast majority of research has thus far

focused on work-family balance and the reconciliation of paid and unpaid work in working couples (i.e. Jacobs and Gerson 2001; Warren 2003), while explicit examinations of inequalities in free time remain less common (Mattingly and Bianchi 2003; Bittman and Wajcman 2000; Sayer 2005). Likewise, even fewer attempts have been made to formally operationalise the concept of time poverty in order to construct an insightful indicator to be used in sociological analysis and policy making (Bardasi and Wodon 2006).

This article builds upon previous studies that have conceptualized and measured time poverty as a *relative* deprivation of free time resources. We propose a more theoretically informed measurement which we apply to British time use data, providing a richer description of the multifaceted aspects of the phenomenon of time deprivation. Britain provides a pertinent case study for the topic of time poverty: Renowned for its 'long hours culture' and the lack of a strictly enforced upper limit in weekly working hours, the country has until recently presented the highest average in usual worked hours of full-time employees in the European Union (Fagan 2003; also see Kodz et al. 1998). Additionally, working time deregulation and individualization of schedules that have taken place since the 1980s have contributed to an acute diversity in the timing of paid work among British workers, and to a corresponding erosion of the 'standard' Monday–Friday, 9–5 working week: There has been an increase of non-standard schedules like shift work and evening/weekend work (Harkness 1999), and of 'flexible' working time arrangements that provide increased options about when to conduct paid work (Kersley et al. 2006), both of which may significantly affect workers' command of free time resources. Lengthy schedules and 'adverse' working time arrangements are most likely to affect men. This is due to the difficulty of reconciliation of domestic and caring responsibilities with the requirements of full-time working careers in the British context which often leads British women to 'flexible' part-time employment (Kodz et al. 1998). However, the unequal division of domestic labour that persists in the majority of British

households (Gershuny 2000) implies that domestic roles are likely to exert an important influence on working women's free time resources. By measuring time poverty within this particular context, our study profiles the segments of the British working population that are more likely to be relatively deprived of free time resources, and contributes to a better understanding of the influence of occupational circumstances and gender roles on the distribution of free time and its quality.

Time-use research and time poverty measurement

The empirical study of free time owes a great deal to the development of the time-diary methodology, which constitutes the most accurate and reliable method for the measurement of time allocation at a population level (Robinson and Godbey 1999). By making use of self-completed 24-hour time diaries that are divided into 10-minute blocks, time-use surveys gather information on the main and secondary activities of respondents on 'typical' weekdays and weekend days, thereby producing a complete account of the sequence and context of daily activity patterns. The calculation of the residual free time that remains after conducting paid work, unpaid work and personal care activities is thus made possible, as well as the specification of the timing and length of each episode of free time in a person's usual day.

Bardasi and Wodon (2006) note that, while the idea of 'time poverty' is not new and many time-use analyses have hinted at the concept, there have been few attempts to formally profile society's 'time-poor'. Indeed, previous analyses of time-use data have employed rather loose definitions of the term, with some researchers equating time poverty with long hours at the workplace, others examining total paid and unpaid work, and few directly examining free time (for example see Bittman and Wajcman 2000; Gershuny 2009). By identifying the work week as the ideal reference period to understand time allocation, these studies have revealed

that free time inequalities are gendered (Bittman and Wajcman 2000; Mattingly and Bianchi 2003; Sayer 2005), and that it is the educated and high-income workers in dual-earner families that are most likely to be 'leisure stricken' in today's post-industrial societies (Robinson and Godbey 1999).

More recently, economists and sociologists have employed more formal approaches to the measurement of time poverty (Bardasi and Wodon 2006; Bittman 1998; Merz and Rathjen 2009). Rather than making normative value judgements about minimum needs in free time existing independently of the current social setting, such approaches conceptualize time poverty contextually and in comparison with the experience of others in society. This relative understanding of time poverty draws on Townsend's classic definition of relative income poverty (1979), and focuses on the members of society whose command of free time resources is so low compared to the average, thus constituting a considerable disadvantage for their participation in customary social and leisure activities (Bittman 1998). As time is one of the few non-monetary resources for which the analytical methods of income-based measures of poverty are feasible to apply (Bardasi and Wodon 2006), these approaches have utilized the relative threshold approach for the identification of the 'time-poor', who have been defined as those falling below 50 or 60 per cent of the median free time of the working population.

However, although these approaches constitute an important step in the measurement of time poverty, they suffer from a degree of analytical simplicity that obscures properties of free time that are essential for a comprehensive understanding of time deprivation. First, previous authors have calculated weekly 'synthetic' time estimates of free time, i.e. when diaries are collected on one weekday and one weekend day a weekly estimate is calculated by multiplying the weekday diary free time estimate by five and adding the weekend diary free time estimate multiplied by two. However, when relying on these 7-day weekly estimates, authors assume

that the value of free time does not vary according to the day of its occurrence. This should be contested, since several sociologists have argued that an important aspect of time wealth is its timing, which pertains to the importance of having free time at the *right* time of the day or the week (Adam 1990; Reisch 2001). Free time is more valuable when it provides an opportunity for synchronization with one's wider social environment (i.e. friends, family and social institutions). Indeed, empirical time use research has shown that a lack of free time on weekends has more detrimental effects on social and leisure participation (Bittman 2005), a result of weekends' traditional leisure function and the opportunities weekends provide to synchronize with significant others (Zerubavel 1985). We may thus assume that being situated in the bottom of the free time weekend distribution is more detrimental than not having abundant free time on weekdays after paid work. Work-life border theory provides further support to this assumption by postulating that clear borders between paid work and other life domains achieved through shorter (i.e. 5-day or even more compressed) work-weeks may be preferable for rest and leisure, thus pointing to the significance of work-free weekend days (see Brown et al. 2011; Clark 2000). Previous findings concerning the benefits of perceived control on one's choice of daily activities (Marmot 2004; Pulkkinen, Kokkonen, and Mäkiäho 1998) may also be interpreted as indirectly suggesting that longer periods of free time during work-free weekend days are more likely to generate greater health and psychological advantages.

Additionally, the analysis of weekly estimates increases the probability of people with a very different command of free time resources being identified as 'time-poor'. Sociological research on time has previously discussed that several slots of free time are less valuable than one uninterrupted longer period of free time (Bryson 1997; Garhammer 1998; Zuzanek 2004). This critique points to the need to research free time stratification for shorter yet meaningful time periods, and suggests that focusing on single days separately rather than on the

'synthetic' weekly estimates can reduce the likelihood of many short free time episodes added altogether and yielding a misleading high estimate of free time availability.

Overall, it is important to move beyond the singular focus on free time duration that has characterized the majority of previous research (Warren 2003). Indeed, studies by Sullivan (1997) and Bittman and Wajcman (2000) have demonstrated that focusing on the contextual characteristics and the nature of one's free time may unravel additional patterns of structural disadvantage of certain social groups that are overlooked in studies solely focusing on the dimension of duration. By exploiting the rich information provided by time diaries, these studies have constructed indicators of free time quality, measuring the degree of fragmentation of an individual's free time and the domestic/parent role spillover that may compromise the freedom of choice experienced during free time. For example, a high rate of fragmentation of one's daily free time by domestic and childcare chores indicates lower quality free time, which is not evident in measurement approaches that solely examine free time quantity. Joint examinations of both the quality and quantity of free time have been previously conducted with US and Australian data (Bittman and Wajcman 2000; Mattingly and Bianchi 2003), revealing the strong gender dimensions of time deprivation. However, these studies relied on weekly estimates and did not distinguish between weekdays and weekends.

An additional omission of previous research relates to the identification of the characteristics of the 'time-poor' rather than measurement per se: Very generic employment variables have been analysed with less attention paid to occupational characteristics such as shift work and work during 'unsocial' hours' (i.e. outside 'traditional' hours and/or on weekends) that are distributed unequally between social classes (Fagan 2001) and are likely to particularly influence British workers' command of free time resources. We suggest that a

focus on these occupational circumstances combined with a more refined measurement approach could enrich sociology's knowledge of the consequences of different working time arrangements for free time, unravelling new areas of labour market disadvantage.

Taking into account these omissions of previous research on the measurement of time poverty, this article examines different measures of time deprivation in order to provide a richer description of the occurrence of time poverty among British workers. By distinguishing between weekdays and weekends and by also considering the quality of free time, this analysis aims to unravel aspects of time deprivation that have been obscured by previous approaches, and provide a better understanding of the gender and class stratification of free time in British society.

Data

We analyse data from the 2000 UK Time Use Survey, which is the most recent large-scale household time use survey that has been conducted in the UK (ONS 2003). All adult members of selected households recorded how they spent their time across a 24-hour period in one weekday and one weekend day diary (each consisting of 144 ten-minute slots), and completed an individual interview. We focus on workers aged 20–60 years old that returned both diaries, and reported at least one episode of paid work in either diary day. Cases with socio-demographic data such age and social class missing are omitted, as well as those who returned diaries that were classified as unsuitable for analysis by the ONS because of a high number of missing time periods (ONS 2003). This resulted in a subsample of 3,867 workers. All results have been weighted by the ONS-derived weights that were provided in the survey files in order to counter for potential non-response biases.

Variables and measures

1) Relative time poverty

Free time is defined as the residual category of daily time that is not occupied by work or personal care activities. Paid work refers to the time spent in the workplace and job-related activities like commuting, unpaid work comprises domestic work tasks like gardening and tidying as well as childcare activities, while personal care includes physiologically necessary activities such as sleeping, eating, and grooming. In accordance with previous research on relative time poverty, the 'time-poor' are defined as those economically active individuals whose free time falls below 60 per cent of the median free time of the working population. However, instead of specifying this threshold for weekly free time availability (which would entail the calculation of a 'synthetic' weekly estimate), we examine the weekend and weekday 'time-poor' separately, which is in line with theoretical suggestions and empirical evidence regarding the differences in the intrinsic value of free time according to the day of the week.

2) Quality of free time indicators

This research utilizes three different indicators of free time quality: First, we examine *pure* free time, that is, free time at an individual's disposal when no distracting secondary activities of a different nature are taking place (unpaid work or personal care). Second, we examine the amount of *contaminated* free time, which is free time that is combined with activities of childcare or household chores (e.g. recorded as secondary activities). Contaminated free time indicates a role spillover and the presence of constraints and is thus understood as being of lower 'quality' than pure free time. The construction of these two indicators (first proposed by Bittman and Wajcman (2000)) was done as follows: Each ten-minute block consisting of two

simultaneous leisure activities or one single leisure activity (i.e. reading a book as a primary activity and listening to music as a secondary activity, or reading a book as a primary activity with no secondary activity reported) was counted as *pure free time*. Similarly, diary blocks where housework or childcare activities were taking place alongside leisure activities (e.g. watching television as a primary activity and ironing as a secondary activity, reading a book as a primary activity and minding the children as a secondary activity) were classified as *contaminated free time*.

Finally, we measure *fragmentation* of free time. Previous research on the quality of free time has measured fragmentation by focusing on the sheer number of leisure episodes and their length (Bittman and Wajcman 2000). However, number of leisure episodes may simply imply a preference for leisure variety rather than real fragmentation. For this reason, we focus on the sequencing of activities: The number of times an individual's leisure is interrupted by an activity of unpaid work (recorded as a primary activity) during the diary day was calculated. The ratio of the number of such fragmented free time episodes to all free time episodes within the diary day is the measure of *fragmentation* employed. Overall, these three indicators may be considered gender-sensitive, capable of capturing the intersection of domestic work with leisure, and the disparate ways women's free time may be compromised by their relatively higher domestic and childcare responsibilities.

3) Independent variables

Our models control for a range of occupational and family circumstances, as well as sex, age and ethnicity. The original ethnicity variable was collapsed into two categories of white and non-white, because of the small numbers in some non-white categories.

Social class was measured by the 3-class National Statistics Socio-Economic Classification (NS-SEC), which measures employment relations and occupational conditions. We also examined the relationship of time poverty with individuals' weekly net earnings. Respondents with missing data for earnings were retained as a separate category, which has been recommended as the most appropriate method for handling missing income data in population-based surveys (Kim et al. 2007).

The working time variable refers to the hours respondents reported spending in paid employment on the actual surveyed weekday and weekend day. A dichotomous variable of whether the person identified themselves as regularly working shifts during the individual interview was also analysed. An additional variable regarding the timing of paid work was constructed from the diary: conducting remunerated activities outside the period of 8am-8pm on the examined diary day was defined as working unsocial hours. Employment status (whether full-time, part-time, or self-employed) was self-assessed.

Family circumstance variables included marital status, with three categories of married/cohabiting, single and divorced/separated/widowed, and age of the youngest person in the household was used as a proxy for the presence of children.

Analytical technique

To profile 'time-poor' workers, we use multivariate logistic regression, which is the most widely employed method for modelling binary variables. We present separate additive models for men and women in order to examine the differential effects of occupational and family circumstances within each gender. Results from a joint-sex model are also reported, in order to assess the significance of gender as a predictor of time poverty. We present the most

parsimonious models, which have been tested for multicollinearity by examination of variation inflation factors and condition indices diagnostics. Following identification of the characteristics of the 'time-poor', we consider differences in the quality of free time within the 'time-poor' and non 'time-poor' groups, by reporting t-tests of differences between means for the three previously discussed measures of free time quality.

Results

1) Time poverty rates

[Table I about here]

Table I presents the percentages of 'time-poor' workers by day of the week and gender. The median free time on weekdays is 190 minutes, and the 'time poverty' threshold is thus specified at 110 minutes. Twenty per cent of working men and women are classified as 'time-poor'. The gender gap is negligible, with 20.4 per cent of women as opposed to 19.6 per cent of men falling below the 60 per cent time poverty threshold. As would be expected the median free time of the working population is much higher on weekend days (at 360 minutes), given that fewer workers engage in paid work activities (34 per cent of men and 28 per cent of women). With the weekend poverty threshold set at 220 minutes (less than 60 per cent of the median), 22 per cent of workers are classified as 'time-poor'. What is characteristic about weekend time poverty rates is the substantial gender imbalance (25.2 per cent of women; 19.4 per cent of men), which directs attention to a potential influence of women's family circumstances and domestic roles on their free time during weekends. It should also be noted that approximately 60 per cent of both the weekday and weekend 'time-poor' are not 'time-

poor' on the other surveyed day, which provides evidence for the dynamic nature of time poverty, and further justification for the separate examination of weekdays and weekends.

2) Occupational and family predictors of weekday time poverty

[Table II about here]

Table II presents results of multivariate logistic regression models predicting weekday time poverty for men and women separately. Model 1 controls for age, ethnicity and social class. Model 2 adds weekly earnings, actual hours worked, whether the person is a shift worker, and whether he/she worked during unsocial hours on the diary day. Model 3 adjusts for marital status and age of youngest person in the household, to investigate the influence of domestic responsibilities on the probability of a worker being 'time-poor'.

As may be seen in Model 1, men aged 26–35 and 36–45 have a higher risk of being 'time-poor' on weekdays (OR = 1.57, $p < 0.05$; OR = 1.69, $p < 0.01$ respectively) compared to those aged 20–25 (the reference category). Age shows a different pattern for working women; only older women aged above 55 years are significantly less likely to be 'time-poor' than women aged 20–25. Ethnicity has a strong effect for both men and women, with non-white workers facing a higher risk for weekday time poverty than white workers (OR = 2.43, $p < 0.001$; OR = 2.23, $p < 0.01$ respectively). Model 1 does not show significant differences in the probability of weekday time poverty between men of different occupational classes. However, women in both intermediate and routine occupations face a lower risk of being 'time-poor' compared to those in managerial and professional occupations.

Controlling for hours of work in Model 2 causes the social class effect for women to

disappear, showing that women managers' relative disadvantage in terms of weekday free time resources is a result of their longer work days. A different model that controlled for employment status (full-time, part-time, or self-employed) instead of actual working time provided further confirmation of this by showing that professional women's higher probability of time poverty is due to their full-time status, whereas women in intermediate and in routine/manual occupations are more often employed part-time and thus have shorter paid work days. Overall, paid work time is strongly related to the likelihood of a worker being relatively time deprived. Both men and women working very long hours (i.e. over 10 hours) have very high odd ratios and are significantly more likely to be 'time-poor' compared to those whose time at work does not exceed 9 hours. Earnings have a less significant effect than working hours: Men who are positioned at the top of the weekly earnings distribution (earning over £500 per week) face a higher risk of being 'time-poor' than men with £250–349 net earnings per week, while, in contrast, it is poorly paid women earning under £150 per week that are most likely to be 'time-poor'.

Working shifts and during unsocial hours both make an important contribution to men's time poverty. A man working unsocial hours is at a higher risk of being 'time-poor' on a regular working weekday than one who does not work outside the more 'traditional' working times of 8am–8pm (OR = 1.41, $p < 0.05$). The same holds for those working shifts, who present a higher risk compared with men who do not undertake work in interrupted patterns (OR = 1.42, $p < 0.05$). The effect of working unsocial hours is stronger for women (OR = 1.73, $p < 0.001$), but no significant shift work effect is found. Controlling for occupational circumstances causes the age effect for men to disappear (Model 2), indicating that the higher risk of time poverty previously found for men aged 26–35 and 36–45 is a life-stage effect relating to increased occupational responsibilities rather than an age effect per se.

Marriage does not increase men's likelihood of experiencing time poverty on weekdays (Model 3). However, married women face a significantly higher risk of being relatively time deprived (OR = 1.74, $p < 0.01$) than single women, a result of the increased domestic work marriage entails and the disproportionate burden it puts on the majority of British working women. Furthermore, the risk of being relatively time deprived strongly increases for women with very young children: Economically active women with a child under 3 years old have an odds ratio of 3.22 ($p < 0.05$) of being 'time-poor' on a typical weekday compared to women living in adult-only households. The effect of children on women's free time is near linear, and is only non-significant for women with teenage children aged 16–17 years old. A more modest effect is found for men with younger children (OR = 1.84, $p < 0.01$). Overall, the inclusion of household characteristics significantly reduces the log-likelihood statistic for both men and women but the increase in the Nagelkerke R square is much greater in the model for women, providing evidence for the importance of family responsibilities in determining women's weekday free time resources.

It is also important to note that the effect of ethnicity only becomes non-significant after controlling for household circumstances (Model 3), which may indicate the inability of non-white women to afford childcare provision and/or a more unequal division of labour in their household. The same explanations could be extended to the category of low paid women workers. In contrast, the risk of time poverty for non-white men remains significant in the fully-adjusted model, and further analyses did not identify any social factors that could explain this group's temporal disadvantage.

In an additional model which included gender and the variables in Model 3, gender was found to be a significant predictor of weekday time poverty with women presenting a higher risk of being time deprived (OR = 2.22, $p < 0.01$) than men. This means that, even for women

and men sharing similar socio-economic and family characteristics, women still face a much higher risk of experiencing time poverty on weekdays.

3) Occupational and family predictors of weekend time poverty

[Table III about here]

We now consider the predictors of time poverty on weekend days (Table III). Age is a very significant predictor of time poverty during weekends for both men and women, with the groups aged between 36–55 facing the highest risk of being at the bottom of the free time distribution (Model 1). Clear-cut class differences in the probability of being 'time-poor' are apparent for both men and women: Men in intermediate and in routine/manual occupations face a higher risk of being relatively time deprived compared to those in managerial/professional occupations (OR = 1.54, $p < 0.01$, OR = 1.39, $p < 0.01$ respectively). We thus find that despite the lack of free time that characterizes men in highly paid occupations on 'traditional' working days (i.e. Monday–Friday), there seems to be a compensation occurring during weekends, when men in managerial occupations are better off than other workers in terms of free time. Only women in routine/manual occupations face a higher risk of time poverty on weekends (OR = 1.37, $p < 0.05$), while the odds of being 'time-poor' are identical for women in managerial and in intermediate occupations. Ethnicity remains an important predictor of men's weekend time poverty.

As expected, working more than 4 hours on a weekend day (which may be considered 'long' given that the majority of the population do not engage in paid work on weekends) places both sexes at a very high risk of time deprivation. Controlling for employment status rather than working hours in an alternative model (not presented here) showed that part-time

women were more likely than full-timers to be time deprived on weekends (OR = 2.10, $p < 0.01$). After controlling for working time variables (working time, shift work and unsocial hours), social class and ethnicity were no longer significant predictors of men's time poverty (Model 2), which demonstrates the 'adverse' working time arrangements specific for men in these social groups.

Model 3 indicates that married men face a higher risk of being 'time-poor' compared to single men on weekends (OR = 1.94, $p < 0.01$), which is likely to reflect their taking over more domestic work during weekends. However, having young children continues to exert a minor influence on working men's weekend free time, while the effect of living with a child for women is much more pronounced during weekends compared with weekdays: Women with children under age 5 have a four-fold higher odds of weekend time poverty compared with women without children. Adjusting for marital status and children causes the previously strong age effect to disappear for men, indicating the family-stage nature of the phenomenon of men's weekend time poverty. However, the effect for working women aged 46–55 remains strong (OR = 1.92, $p < 0.01$). This may potentially relate to eldercare responsibilities that may additionally constrain the time allocation of women in this age group during the weekend, which are not directly controlled for in our models and could constitute the topic of further research. Finally, it should be noted that the inclusion of family circumstances in the alternative logistic regression model which adjusted for employment status caused the significant odds-ratio for part-time women to disappear, indicating the increased burden of family responsibilities for part-timers and its influence on their weekend free time resources. The effect of family circumstances remains stronger for women than men on weekend days, and a joint-sex model showed that working women continue to face a higher risk for time poverty than men (OR = 2.46, $p < 0.001$), even after adjusting for occupational and family circumstances

4) *Quality of British workers' free time*

This section focuses on the quality of workers' free time in order to examine whether the sole focus on free time duration that characterizes time poverty research obscures other aspects of free time disadvantage. We examine differences in the means of the three previously discussed indicators of quality of free time by social class and gender. Because results did not reveal significant social class differences, Table IV focuses only on gender.

[Table IV about here]

Table IVa examines gender differences in the quality of free time for the weekday 'time-poor' and 'non time-poor' workers separately. Significant gender differences are found but only for the 'non time-poor': More precisely, women's free time is significantly more *contaminated* than men's, as they spend almost half an hour more doing housework chores or minding children during their free time (Table IVa). The corollary is that 'non-time poor' women also have significantly less *pure* free time than non-time poor men. Considering that 'time-poor' women on weekdays were previously found to be primarily in full-time employment (analysis section 2), this raises the possibility that the 'non time-poor' group consists of women on part-time work contracts, who are likely to have greater domestic and motherhood responsibilities than full-timers, and thus experience increased contamination and less *pure* free time during weekdays. In contrast, no gender difference in free time contamination is found for the weekday 'time-poor', which is nevertheless somewhat expected given their very limited free time (i.e. less than 110 minutes, which corresponds to the 60 per cent time poverty thresholds for weekdays).

Results for weekend days in Table IVb provide further evidence in support of arguments regarding the specificity of working mother's time experiences during non-traditional working days. A gender difference in *pure* free time availability is found for 'non time-poor' workers, but results for the indicator of contamination reveal that this difference is not due to a role spillover. Rather, it may be attributed to the overall higher duration of work and personal care activities (particularly sleep duration) of 'non time-poor' working women compared to men during weekend days that were found in descriptive analyses not presented here. On the other hand, 'time-poor' women appear to spend almost one third of their free time in 'dual nature' activities on weekends (1hr 10minutes compared with 35 minutes for men, $p < 0.001$). This can be interpreted by consideration of the profile of weekend 'time-poor' women (analysis section 3), who are more likely to be in part-time employment. The result thus infers that women part-timers experience additional free time constraints stemming from their increased domestic roles and childcare responsibilities, while this is not true for low-skilled male 'time-poor' workers whose quality of weekend free time remains intact from their increased occupational responsibilities.

It is also important to note that the incidence of *fragmentation* of free time is consistently higher for women than men in all time poverty groups (Table IV), providing strong evidence that the less structured and more intrusive nature of unpaid work (as opposed to most forms of paid work) has additional temporal repercussions other than the reduction of women's free time availability demonstrated in sections 2 and 3. This finding is particularly important, as it essentially confirms that a considerable amount of working women's free time is fragmented and spent within the household, which may potentially account for women's consistently lower out-of-home leisure and social participation (Bryson 1997).

These gender differences in the three indicators of the quality of free time become

slightly more pronounced when comparisons are restricted to married workers, while further analyses did not reveal any differentiation according to the age and number of children in the household. Overall, our analysis demonstrates that focusing solely on time poverty as duration provides a limited picture of the experience of free time, underlining a series of additional issues with regards to temporal constraints that are of particular relevance for women.

Discussion and conclusions

Taking into account the previous omissions in the field of time poverty, this article made steps towards a more theoretically informed measurement approach within the study of relative time deprivation. Instead of focusing on 'synthetic' weekly indicators of free time, our research examined how a range of occupational and family characteristics influence the occurrence of weekday time poverty compared with weekend time poverty.

Overall, results indicate that there is a strong patterning of free time availability according to workers' occupational and family circumstances, and that the profile of 'time-poor' workers varies substantially between weekdays and weekend days. In terms of occupational circumstances, logistic models demonstrate that both workers in high-level occupations (i.e. men high earners and women in managerial occupations) and those working shifts/unsocial hours are likely to be time deprived on weekdays. However, the situation is different for weekends, when men and women following full-time professional careers are likely to compensate for their busy workweeks, and enjoy a better command of free time resources than routine and intermediate workers. This finding draws attention to a central issue for the understanding of time poverty, that of time autonomy (Fagan 2001): Low-skilled workers in Britain are more likely to be shift workers and work at non-standard times and/or on weekends as part of their contract and in order to raise extra income through 'unsocial'

hours wage premia (Fagan 2001; ONS 2004). On the other hand, higher occupational groups are more likely to have the opportunity to choose when to work, and to benefit from flexible work-life balance entitlements in their workplace (Dex 2003). Our research suggests that this autonomy enables higher occupational groups to keep their weekends work-free and to impose more clear-cut work-life boundaries, which are beneficial for rest and leisure. Previous research has shown that it is men in professional and manual occupations in Britain that have the longest weekly working hours (Warren 2003), but how these groups' free time is spread over the week has not been considered: By noting the higher value of weekend free time and analysing it separately, this analysis unravels the different temporal repercussions of the long hours of these groups, and the existence of a labour market disadvantage that would have been potentially masked in an analysis of over-the-week 'synthetic' free time estimates.

Consistent gender differences are found, with women at a much higher risk of being positioned at the bottom of free time distribution on both weekday and weekend days, even after adjusting for socio-economic circumstances. Although occupational circumstances and particularly working time duration are very strong predictors of daily time poverty, consideration of family circumstances provides important information regarding working mother's additional free time disadvantage from the 'second shift' (Hochschild and Machung 1989). Our research documents a cleavage between parents and non-parents in accordance with previous research (Bittman 1998), which is disproportionately stronger for women.

Warren (2004) has previously discussed the need to research additional domains of part-time women's work-life balance besides the reconciliation of paid and unpaid work. Our research provides evidence regarding part-time women's relative disadvantage in weekend leisure and social participation, which constitutes an important quality of life dimension. Findings are in accordance with previous qualitative accounts regarding part-time women's

daily experiences of free time (Webber and Williams 2008), and should be considered alongside arguments regarding the negative effect of women's part-time employment on the division of domestic labour and childcare in the household (Stier and Lewin-Epstein 2000), which leads to a particularly pronounced free time disadvantage during weekend days.

The examination of measures relating to the *quality* of free time is showed that time poverty measures based only on duration obscure consistent gender differences in free time resources. We find that women's disadvantaged position is worsened by the quality of their free time, which is lower than men's due to their ongoing domestic and parental responsibilities. Consistent evidence regarding women's higher rates of fragmented and contaminated leisure are provided, which can be understood as a spillover of domestic and caring commitments that are less structured and have less clear boundaries than paid work. Quality of free time is found to be gendered and not significantly associated with any other explanatory variable, providing strong support to feminist claims regarding the specificity of women's free time (Bryson 2007). Overall, this analysis indicates that it is working mothers that are more likely to experience multiple and more severe free time constraints compared with other social groups, providing additional support to US research concerning emerging gender inequalities in free time (Mattingly and Bianchi 2003; Sayer 2005), and to previous research documenting the spillover of childcare responsibilities on other non-work daily domains and activities (see Venn et al. 2008 on sleep). It should however be acknowledged that the 2000 UK Time Use Survey data is now somewhat dated; a new large-scale time use survey is needed to document changes that may have arisen in working time circumstances of different occupational groups and within the domestic division of labour of British households over the last decade, and provide a more updated identification of the characteristics of the 'time-poor' in Britain.

Our final remarks return to the issue of time poverty measurement. Although the threshold approach seems to provide a relatively simple way of characterizing the social circumstances that lead to a (relatively defined) free time disadvantage, the sociology of time suggests that the assumption of neutrality of free time units is highly problematic (Adam 1990), and that the construction of meaningful time poverty measures may be a more complex endeavour than that of income poverty measurement. In this article, we addressed this problem by examining indicators of free time quality and treating weekdays and weekends separately, assuming that having less free time than others on weekends constitutes a more important disadvantage, as suggested by previous theoretical and empirical literature (Bittman 2005; Brown et al. 2011; Clark 2000).

We suggest that future research should move away from the study of the socio-economic correlates of different types of time poverty and instead focus on different outcomes that coincide with different types of time deprivation (or, with the absence of free time constraints which can be termed 'time wealth') in order to substantiate such claims. This new focus will allow an assessment of different time poverty measures' importance and interactions with different sources of socio-economic disadvantage, and also provide evidence regarding their predictive validity, which is an important step for their inclusion in multidimensional indices of deprivation. Another fruitful area of investigation not covered by our article is the intersection of time poverty with income poverty: The integration of the time dimension in the measurement of income poverty will provide an opportunity to redefine poverty standards and identify those who escape income poverty by working long hours and becoming 'time-poor' (for example see Harvey and Mukhopadhyay 2007; Merz and Rathjen 2009).

One additional difference between time poverty and income poverty is that the former is almost exclusively experienced during the 'busy' years of adulthood. For this reason, it is also

essential for future time-use research to adopt a life-course perspective and investigate whether the experience of time deprivation has a lasting effect on a person's leisure behaviour time allocation and health after the decrease or the relinquishment of work and family responsibilities, which could be understood as an additional source of cumulative disadvantage in later life, particularly for women. It is only by such empirical investigations that sociology will be able to assess the social relevance of time poverty, and its standing amongst other social inequalities.

Notes

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Tables and Figures

Table I: *Time poverty rates by gender and day of the week*

	Weekday		Weekend	
	%	n	%	n
Men	19.6	401	19.4	397
Women	20.4	335	25.2	415
Total	20.0	736	22	812

Source: UK 2000 Time Use Survey.

Notes: 1) Relative time poverty threshold set at 60 per cent of median free time:
Weekday threshold 110 minutes; weekend threshold 220 minutes.
2) Free time is defined as the residual uncommitted time remaining after subtracting time spent in paid work, unpaid work (housework and childcare), and personal care activities (sleeping, grooming etc.).

Table II: Logistic regressions predicting time poverty on weekdays

	Model 1		Model 2		Model 3	
	Men	Women	Men	Women	Men	Women
Age group	p=0.06	*	p=0.38	**	p=0.87	p=0.15
20–25	1	1	1	1	1	1
26–35	1.57*	1.33	1.33	1.62*	1.07	1.04
36–45	1.69**	1.20	1.40	1.43	1.16	0.84
46–55	1.38	0.99	1.18	1.07	1.07	0.85
56–60	0.94	0.41*	0.93	0.38*	0.85	0.36*
Ethnicity	***	**	***	*	***	p=.07
White	1	1	1	1	1	1
Non-white	2.43***	2.23**	2.60***	2.01*	2.44***	1.87
Social class	p=0.62	*	P=0.82	p=0.33	p=0.83	p=0.07
Managerial and professional	1	1	1	1	1	1
Intermediate	1.14	0.64**	1.10	0.84	1.11	0.88
Routine and manual	1.17	0.74*	1.00	0.77	1.02	0.86
Hours spent in paid work			***	***	***	***
< 4			0.40**	0.29***	0.39**	0.22***
4 < 7			0.50**	0.54***	0.52**	0.55**
7 < 8			0.70	0.62*	0.71	0.60*
8 < 9			1	1	1	1
9 < 10			1.28	1.41	1.29	1.54
> 10			3.55***	4.83***	3.60***	5.06***
Weekly earnings (£)			*	p=0.23	*	p=0.60
Less than 149			1.03	1.72*	0.99	1.41
150–249			1.01	1.24	1.01	1.19
250–349			1	1	1	1
350–499			0.77	1.38	0.77	1.54
> 500			1.83**	1.51	1.83*	1.28
Missing			1.57*	1.62	1.57*	1.47
Unsocial hours			*	***	*	***
Yes			1.41*	1.73***	1.41*	1.70***
No			1	1	1	1
Working shifts			*	p=0.08	*	p=0.08
Yes			1.42*	1.36	1.38*	1.38
No			1	1	1	1
Age of youngest person in hhd					p=.07	***
0–2					1.84**	3.22*
3–4					1.24	1.57
5–9					1.11	2.82***
10–15					1.10	1.85***
16–17					0.91	1.23
Over 18/No children					1	1
Marital status					p=.59	***
Married/Cohabiting					1.22	1.74***
Single					1	1
Divorced/Widowed/Separated					1.36	1.39
<i>Nagelkerke R square</i>	0.02	0.02	0.19	0.18	0.20	0.22
<i>-2Log likelihood</i>	1997.1	1636.3	1761.6	1461.0	1747.6	1409.9
Δ -2Log likelihood			234.5***	175.0***	14.0*	51.1***

Source: 2000 UK Time Use Survey.

- Notes: 1) * Significance of difference from reference category $p < 0.05$.
 2) ** Significance of difference from reference category $p < 0.01$.
 3) *** Significance of difference from reference category $p < 0.001$.

Table III : Logistic regressions predicting time poverty on weekend days

	Model 1		Model 2		Model 3	
	Men	Women	Men	Women	Men	Women
Age group	***	*	***	*	p=0.06	*
20–25	1	1	1	1	1	1
26–35	1.23	1.56*	1.63	1.78*	1.16	1.08
36–45	1.85***	1.63*	2.30**	1.74*	1.65	1.15
46–55	1.81**	1.70*	2.11***	1.90**	1.67	1.94*
56–60	1.15	1.30	1.19	1.49	0.96	1.78
Ethnicity	***	p=0.16	p=0.08	p=0.31	p=0.20	p=0.46
White	1	1	1	1	1	1
Non-white	2.07***	1.54	1.56	1.40	1.39	1.29
Social class	**	*	p=0.84	p=0.94	p=0.94	p=0.57
Managerial and professional	1	1	1	1	1	1
Intermediate	1.54**	1.00	1.03	0.97	1.03	0.99
Routine and manual	1.38**	1.37*	0.93	1.02	0.96	1.17
Hours spent in paid work			***	***	***	***
No work			1	1	1	1
Up to 4 hours			1.54	2.07***	1.54	1.95**
More than 4 hours			6.34***	5.92***	6.51***	6.71***
Weekly earnings (£)			p=0.11	p=0.69	p=0.14	p=0.65
Less than 149			1.11	1.12	1.17	0.78
150–249			0.87	1.09	0.89	1.00
250–349			1	1	1	1
350–499			0.95	0.69	0.92	0.74
> 500			1.25	1.30	1.24	1.01
Missing			1.47*	0.98	1.46*	0.79
Unsocial hours			**	p=0.22	**	p=0.33
Yes			1.76**	1.30	1.76**	1.22
No			1	1	1	1
Working shifts			*	p=0.42	***	p=0.34
Yes			1.35*	1.28	1.37*	1.18
No			1	1	1	1
Age of youngest person in hhd					*	***
0–2					1.94*	4.13***
3–4					1.08	4.50***
5–9					1.25	2.80**
10–15					1.23	1.63
16–17					1.43	1.03
Over 18/No children					1	1
Marital status					**	p=0.07
Married/Cohabiting					1.94**	1.55
Single					1	1
Divorced/Widowed/Separated					0.66	1.12
<i>Nagelkerke R square</i>	0.03	0.02	0.26	0.18	0.28	0.24
<i>-2Log likelihood</i>	1976.3	1836.3	1648.4	1658.6	1609.5	1565.8
Δ -2Log likelihood			327.6***	198.0***	39***	72.7***

Source: 2000 UK Time Use Survey.

- Notes: 1) * Significance of difference from reference category $p < 0.05$.
2) ** Significance of difference from reference category $p < 0.01$.
3) *** Significance of difference from reference category $p < 0.001$.

Table IV: *Free time quality by time poverty status, gender and day of the week*

	NON TIME-POOR			TIME-POOR		
	Men	Women	Sig.	Men	Women	Sig.
(a) Weekdays						
Pure free time	4hrs 3mins	3hrs 46mins	***	52mins	52mins	NS
Contaminated free time (with unpaid work)	46mins	72mins	*	19mins	24mins	NS
Fragmented free time episodes (%)	15.4	21.7	***	25.6	41.3	***
(b) Weekend days						
Pure free time	7hrs 37mins	6hrs 34mins	***	2hrs 3mins	2hrs 6mins	NS
Contaminated free time (with unpaid work)	2hrs 9mins	1hr 58mins	NS	35mins	1hr 10mins	***
Fragmented free time episodes (%)	23.2	31.5	***	59.3	80.7	***

Source: 2000 UK Time Use Survey.

Notes: 1) Time poverty threshold at 60 per cent of the median of free time.

Weekday threshold 110 minutes. Weekend threshold 220 minutes.

2) *** $p < 0.001$, * $p < 0.05$ (t-tests in the differences in means).