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# Autonomy in Paid Work and Employee Subjective Well-being

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## Abstract

This paper explores the relationship between different forms of autonomy, categorized into ‘job control’ and ‘schedule control’, and measures of subjective well-being, using UK panel data from *Understanding Society*. Levels of autonomy differ considerably among UK employees. Managers report the greatest autonomy. Professionals, especially women, and less-skilled occupations report substantially less. Panel probit, ANCOVA and change-score analysis evidence the positive impact of autonomy, but also the differentiated and gendered relationship between autonomy and subjective well-being measures. Job control, including over tasks and pace of work, increases job and leisure satisfaction. Autonomy over work manner increases leisure and life satisfaction, but only among women. Informal schedule control has positive impacts on job (men and women) and life (men only) satisfaction.

**Keywords:** autonomy, job and schedule control, job quality, job satisfaction, subjective well-being.

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The quality of work has come to the policy forefront in recent years prompting debates surrounding methods of improving job quality, and its relationship with well-being (see Findlay, 2017, 4-5). This paper explores the relationship between an important constituent of the quality of work, autonomy – alternatively referred to as ‘control’ or ‘discretion’– and measures of subjective well-being. Autonomy can be defined as the control workers have over decisions within their job (Fielding, 1990). It can be present in different aspects of work, and can be broadly categorized into ‘job control’ and ‘schedule control’. Job control refers to autonomy over tasks and work conduct (Karasek, 1979, 289). Schedule control reflects control over the timing and location of paid work, and may be especially relevant in providing flexibility associated with work-life balance (Glavin and Schieman, 2012, 75; Jang et al, 2011, 136). Autonomy is important as it has implications for both the employee, reflected in employee-reported well-being, and the ‘health’ of their employer e.g. through

influencing productivity (Choi et al, 2008, 422). Subjective well-being refers to an individual's self-assessment of overall well-being (Diener et al, 1999). It is a measure of well-being often derived from responses to survey questions focusing on satisfaction with job and other aspects of life. Subjective well-being is increasingly topical given the growing awareness of the limitations of existing measures of well-being (see Stiglitz et al, 2009). Measuring quality of life has been identified as fundamental in assessing the relative progress of societies and as having relevance for both monitoring and policy-making purposes (Smith and Exton, 2013). A stated preference measure, subjective well-being captures how individuals feel about their life on 'aggregate' or 'overall' using measures of life satisfaction or happiness with life, shown empirically to generate largely consistent responses (Dolan et al, 2008; Smith and Exton, 2013), and in regard to satisfaction with specific domains of life termed 'domain satisfaction' (van Praag et al, 2003, 30) e.g. job and leisure satisfaction.

Greater job and schedule control could offer considerable benefits for both employer and employee. Control over the completion of tasks and the timing of work, and implementation of formal or informal flexible working arrangements, have been identified as potential routes to improving employee satisfaction and working conditions (Batt and Valcour, 2003, 212; Doyle and Reeves, 2001; Kalleberg et al, 2009). The relative presence of autonomy in paid work has long been associated with occupational ranking and skill level, although it does vary between organizations and within trades and professions (Knudsen et al, 2011, 385; Choi et al, 2008). Managers exhibit considerable control over the discretion available to employees and working conditions (Findlay et al, 2017; McCarthy et al, 2010). Because of the central supervisory function of managers, their role requires presence to ensure the company or organization interests. In recent decades developments in ICTs and changes in the structure of paid work have increased the potential for flexibility over the timing and location of paid work, providing opportunities to work at all times and in a range of locations, including home, client sites, and on the move (Wheatley, 2012). During the same period there has been an intensification of paid work, in part as a result of increasing requirements from employers for flexibility among their workforce (Green, 2004). However, the majority of employees (around 80%) continue to report working at employer premises (Wheatley, 2012a, 228), while hours of work follow norms in work-time at least among the full-time employed (Wight and Raley, 2009).

Visibility remains central to management in many organizations, limiting opportunities for schedule control. Locating workers within fixed environments has historically been advantageous to employers who are able to monitor employees and enforce ‘normal’ working practices, not least in relation to the working day (Marglin, 1974). Rigidity in work-time continues to limit the working day, for many employees, to the ‘9 to 5’ (Wight and Raley, 2009). Employers impose rigid temporal and spatial structures, and monitor employees, as they are concerned about misuse of company time (Felstead et al, 2005). Managers have considerable influence over the use and success of work-life balance practices (McCarthy et al, 2010), while adoption of Taylorist ‘low discretion’ work organization continues to reflect attempts to limit job and schedule control (Houlihan, 2002, 69; Choi, 2008). Career stagnation often results for those who ‘choose’ to work in alternative ways, for example using flexible working arrangements, due to the association between commitment and long hours and physical presence in the workplace (White et al, 2003, 191; Wheatley et al, 2011). Where flexibility is found there is a tendency for an employer-friendly focus driven by ‘business need’ e.g. zero-hour contracts, on-call systems, and shift-work, creating difficulties for workers in achieving work-life balance (Gregory and Milner, 2009, 123). This paper contributes to our understanding of the relative impacts of job and schedule control through an empirical analysis of the relationship between these different forms of autonomy and measures of employee subjective well-being using UK panel data extracted from wave 2 (2010-11) and 4 (2012-13) of *Understanding Society*. Specifically the paper seeks to answer the following research questions:

1. Do levels of job and schedule control differ among UK employees?
2. How does autonomy affect employee subjective well-being, and do job and schedule control have differentiated impacts on satisfaction with job, leisure and life?
3. Do job and schedule control have distinct impacts on the reported well-being of men and women employees?

### **Job quality and autonomy in paid work**

The UK economy continues to be characterised by a liberal stance on employment policy (Lewis and Campbell, 2008, 535-6). Evidence is indicative of employer-driven flexibility being prevalent, as employers apply both numerical (fixed-term, agency, mandated part-time work) and functional (shift-work, overtime, varying work weeks using balancing-time accounts) flexibility to their workforce (Raess and Burgoon, 2015, 95-6). There has been a degree of polarization of ‘good’ and ‘bad’ jobs, although even ‘good’ jobs e.g. high paid,

high autonomy, increasingly exhibit a number of ‘bad’ characteristics e.g. intense work routines, work-family conflict (Kalleberg, 2012, 433). Evidence focusing on the period prior to the financial crisis (1998-2004) identified some improvement in job quality attributed particularly to a strong macroeconomic environment and rising employment rates, rather than through specific attempts by government and/or employers to improve the quality of jobs (Brown et al, 2007). Brannen (2005) identified an increasing trend within both professional, and less skilled occupations, of employers offering feelings of control including over the management of time/tasks, while also subdividing employee time into tightly defined modules. This enables employers to retain control and limit the power of employees, while also increasing working hours: “*the more autonomy employees are given over organizing their time in work seems to mean that they are spending longer and longer at work or working*” (Brannen, 2005, 115). Work intensity may have increased within many occupations, and while changes in the occupational structure of the labour market have increased opportunities for job and schedule control, this varies considerably between occupations and sectors. Employers can improve the quality of work where their strategies focus on quality and innovation and they give consideration to the wider benefits of good job quality in respect of corporate social responsibility and reputation. However, too often the focus remains centred on cost minimization resulting in low quality jobs (Findlay et al, 2017, 11). Control over the timing and nature of tasks has actually declined for many employees (Eustace, 2012; Green, 2006). Lengthy hours of work, meanwhile, remain evident in many advanced economies, especially among salaried employees (Messenger, 2011, 302), in part as long hours remain equated with commitment in the eyes of many senior managers (White et al, 2003).

The primary responsibility of managers is in assigning tasks and extracting effort from employees (Wheatley et al, 2011). Managers are often rewarded for the performance of their workers (den Dulk and de Ruijter, 2008). As supervisors, managers have a key role in determining hours of work and ‘job quality’ at the organization level (Findlay et al, 2017, 11). This is not to suggest that employees do not make choices. Individuals make decisions about careers, promotion, etc., but these decisions are often constrained by personal and household circumstances, especially among women (Hardill, 2002), and as a result of the presence of institutional rigidity which maintains norms in paid work routines. Work can be a source of achievement and fulfilment (Spencer, 2009, 105; Gallie, 2007), but it has been argued that autonomy and control are central to employees ‘enjoying’ work (Spencer, 2009,

66). Discretion over paid work has been shown to have some mitigating effects on the impact of lengthy working hours and employer-driven flexibility, which have particularly negative impacts on the well-being and work-life balance of employees (Fagan et al, 2012, 40).

### *Job quality*

Job quality refers to the degree to which a job exhibits characteristics which generate benefits for the employee, including to physical and mental well-being (Green, 2006). The quality of jobs can be categorized broadly into (see Holman, 2013, 477-78): (1) low-quality ‘low-commitment’, and; (2) high-quality ‘high-commitment’. Jobs fitting the prior category are likely to exhibit characteristics of Taylorist work organization including low levels of autonomy, skill, pay, training and security, and employer-driven flexibility. Meanwhile, jobs fitting the latter category exhibit autonomy, variety, skill, better pay and security, and opportunities for training/development and flexible working. Bartling et al (2012) identify ‘good jobs’ as those that exhibit high levels of discretion, pay and rent-sharing. They argue that offering discretion to employees can produce optimal outcomes for employers as long as this autonomy increases productivity, employers pay high wages which are reciprocated through higher levels of work effort among employees, and employees are screened on the basis of past performance. Past research by Karasek and Theorell (1990) identified four types of job quality by relative task discretion and demand: (1) active jobs (high autonomy-high demand); (2) high-strain jobs (low autonomy-high demand); (3) passive jobs (low autonomy-low demand), and; (4) low-strain jobs (high autonomy-low demand). Active jobs deliver well-being benefits for employees, due to greater control even in the presence of demanding work routines. Meanwhile, low autonomy in demanding jobs (high-strain jobs) generates incidence of work-stress. Employees in job type 3 and 4 are likely to exhibit low to moderate levels of well-being derived from paid work. More recent research using cluster analysis has extended this taxonomy identifying six types of job (see Holman, 2013): (1) active (high autonomy, social support, high complexity, high security, moderate pay, moderate workloads); (2) saturated (high demands, long hours, high pay); (3) team-based (high autonomy, high demand, frequent team-working, high security); (4) passive-independent (low demand, low autonomy, infrequent team-working); (5) insecure (temporary employment, low demand, low pay), and (6); high-strain (low autonomy-high demand). Notably, relatively large proportions of both active and saturated job types are found in senior managerial and professional occupations. Vidal, alternatively, categorizes 18 job types into three job quality groups: ‘good jobs’, ‘bad jobs’ and ‘decent jobs’, where good jobs offer some autonomy with

relatively high wages and security, or have low autonomy but offer relatively high wages, security and opportunities for training and promotion (Vidal, 2013, 600).

What is clear in each of the categorizations of job quality is that autonomy, in the form of both job and schedule control, has a fundamental role in the relative quality of jobs. Moreover, it has been suggested that the quality of work has an important role in determining relative job satisfaction (Brown et al, 2012). Evidence from the extant literature is consistent with this assertion. Forms of work organization centring on managerial control, developed from Fordist and Taylorist methods require little, if any, initiative on the part of the worker (or output producer), and facilitate the continued control of labour (Figart, 2001, 408). Employees who are more highly skilled are likely to enjoy greater levels of job and schedule control, while union representation can reduce the ability of employers to limit autonomy (Choi et al, 2008, 436; Findlay et al, 2017, 15). However, the efforts of management to reduce employee autonomy have resulted in low discretion work becoming the norm (Houlihan, 2002, 69). Within Taylorist work organization managers may perceive employee autonomy as a threat to productivity (Choi, 2008, 423). Past studies have identified a Taylorisation of employment in the service sector through standardisation, prescription and routinisation, and limited autonomy as a result of strict managerial controls (Bain and Taylor, 2000). These methods of work organization, though, have been widely criticised as they remove the factor of *aspiration* from work and have potentially negative consequences for employee morale (Kelly, 2000, 8). Among other things, the assumption of homogenous labour extracted through hierarchical relationships with management neglects the impact of work on human welfare (Spencer, 2009, 95). Research has shown that even in service employment such as call centres, often associated with more standardised labour processes, the uncertain nature of customer interactions and requirement for workers to undertake not just physical tasks but ‘emotional’ or ‘interactive’ labour, limits managerialism and affords a level of job control (Jenkins et al, 2010, 561; Sallaz, 2002, 396). Centrally, it is also asserted that this comes at a low cost to the employer, but is often embedded within an intense and highly routinised working environment (Sallaz, 2002, 399). High-performance and high-commitment managerial practices, applied to increase employee work effort, can form barriers to work-life balance (White et al, 2003).

*Hypothesis 1: Levels of job and schedule control differ between occupations, and are greater in highly skilled occupations.*

### *Job control and schedule control*

The presence of job control may generate positive outcomes for employee and employer, although evidence is inconsistent. Sallaz (2015), employing an ethnographic approach in an outsourced call centre, found that use of indirect control, in principle, provides new-hire employees with high levels of job control in certain respects, however employees are subject to rigid targets (e.g. average call handling times) and a steep learning curve, with few real incentives. Consistent with Brannen (2005) this results in intense work routines which effectively erode any realised autonomy. Intensification of work, and associated reductions in job control, increase work strain (Green, 2004, 622) and may reduce job satisfaction among workers. Reductions in autonomy, limited flexibility, and the presence of intensive labour extraction, are evident in many occupations, including the professions. Ogbonna and Harris (2004, 1198), exploring work intensification within UK Higher Education – a sector historically associated with job control – found increased levels of stress, and reduced interaction between colleagues as a result of the intensification of work. This is led by time constraints and increased competition between workers, driven by performance-related remuneration systems.

Schedule control, meanwhile, is associated with a range of impacts including reduced work-family conflict. Glavin and Schieman (2012, 86), using the US *Work, Stress and Health Survey*, find that the presence of significant schedule control is associated with lower work-family conflict. However, the relationship is more nuanced in that greater flexibility offered by schedule control is often associated with occupations which themselves are subject to higher levels of role blurring e.g. professions. The presence of greater levels of autonomy in these occupations may thus represent a necessary outcome due to the demands and fluid nature of these occupations. Kelly et al (2011, 267), using data from a US organization captured prior to and after the introduction of schedule control initiatives, also find that these initiatives reduced work-family conflict. They suggest that schedule control is particularly important as a mechanism for delivering employee benefits through flexibility, and moreover, that it is distinct from job control as it has the potential to positively impact both work and family spheres. Women, in particular may benefit from greater control over both the timing and location of work (Dijkers et al, 2010). Using the 1997 *Work Orientations II Survey*, Lyness et al (2012, 19-20) find schedule control is positively related to both job satisfaction and organizational commitment. Moreover, the mediating effect of schedule control over



work-family conflict is found to be statistically significant for women, but not men, suggesting specific benefits of schedule control in this regard for women. Women more often tend to use schedule flexibility, although access to it may be more common among men (Lyness et al, 2012).

### *Autonomy and employee well-being*

The relationship between subjective well-being and the level of autonomy present in various aspects of paid work – job control and schedule control – is of central interest in this paper. Control over work is important in determining the quality of working life, enabling employees to use their creativity and develop their skills (Gallie, 2007, 212). Autonomy has been found to reduce levels of work-related stress and ‘work-family conflict’ (Grönlund, 2007; Kalleberg et al, 2009). Flexible schedules, job control, and social support are all identified as reducing the level of stress generated by paid work. Indeed, research using the *US National Study of the Changing Workforce* found perceived job control to be associated with greater job, family and life satisfaction (Thompson and Prottas, 2006, 107). Analysing responses from a sample of 557 white-collar employees in the US, Batt and Valcour (2003, 212) reported that job design which provides greater job control increases perceptions of employee control and ability to manage work-family conflict. Humphrey et al (2007) reported greater levels of perceived job control may have positive impacts for employees on job performance, job satisfaction, organizational commitment, and intrinsic motivation. Consistent with these findings, using the *US National Employee Survey*, Ducharme and Martin (2000, 234) found lower levels of job control to be the strongest predictor of lower job satisfaction. More recent research by Boxall and Macky (2014, 9), using 2009 survey data from New Zealand, found high-involvement work practices (enabling workers to exercise greater job control) to be associated with lower work-related stress, fatigue and negative work-non-work spill-over, and greater job satisfaction. Benefits are not confined to the individual. Miero et al (2006, 295), reporting on the results of a survey of health care teams, indicate that increased job control among teams may improve task design at the level of the individual, benefitting team members by increasing well-being. Mutual benefits are also realisable, as Galletta et al (2011, 13) explored the links between job control (and motivation) and commitment to the organization. They found, using a sample of over 400 medical professionals, that autonomy generates positive feelings and attitudes among employees at work, while also providing significant benefits for employers in employee retention.

Schedule control has been shown to offer specific benefits through reducing work-life conflict and enhancing job satisfaction (Costa et al, 2006). Past research conducted in the UK, using the 2000 *Working in Britain* survey, suggested schedule control to be strongly correlated with greater job satisfaction (Doyle and Reeves, 2001, 22-23). Meanwhile, more recent research by Jang et al (2011), using data drawn from a sample of employees in South Korea, provides further support to the suggested benefits of schedule control to job satisfaction. Osnowitz and Henson (2016, 348) also identify benefits for non-standard workers. Workers in fixed-term contract employment may be able to retain greater control over schedule flexibility in comparison to workers on standard contracts, including avoiding incidence of unpaid overtime and long hours.

Work-life balance practices have been linked to the relative autonomy in paid work. Galinsky et al (2011, 151) find a positive relationship between flexibility and employee engagement, job satisfaction, and retention. Schedule control has been found to have a stronger effect on job satisfaction where it is combined with flexible working arrangements (Jang et al, 2011, 140). Home-based teleworkers, for example, can benefit from greater control over the timing and location of paid work, moulding work-time to their own preferences. Clear and Dickson (2005, 226) found that schedule control is a central aspect in the successful implementation of flexible working arrangements including telework. However, with the exception of those with significant household responsibilities, often these forms of work are only made available to those who already exhibit greater autonomy, suggesting that employers may be more accepting of flexible working where little change is required to 'normal' working routines. In some cases organizations will offer employees informal flexibility, suggested as being highly valued by employees even above formal mechanisms due to the greater control this provides over paid work (Hall and Atkinson, 2006, 383). However, informal flexibility is only common among managerial and professional workers (Golden, 2009, 46-7).

Although many benefits are reported, greater control and autonomy can have negative consequences. For example, it may increase the intensity of paid work potentially off-setting well-being benefits (Boxall and Macky, 2014, 4). Meanwhile research reporting on a sample of internet-based workers, although considering the self-employed who are not the focus of this paper, suggested that even where job and schedule control is high workers may still report low job satisfaction. This is found where routines of work conflict with social norms, reflecting the influence of social expectations regarding patterns of work and non-work (Lee

and Lin, 2011, 464). Where specific efforts are made by employers to reduce levels of autonomy among groups of employees this has been shown to have negative impacts. For example, Eustace (2012) considered the impact of attempts to appropriate the speech of call centre employees in Scotland. Findings indicated that ‘low-discretion’ measures had little positive effect on interactions with customers, and resulted in indirect discrimination against some employees who are left with feelings of insecurity and subordination due to their accent and dialect. Meanwhile, research using US panel data has shown that job insecurity and, at least perceived, loss of control over work acts as a chronic work stressor, especially among older workers (Glavin 2013, 136).

*Hypothesis 2a: Job control has positive impacts on satisfaction with job, but to a lesser extent leisure and life overall.*

*Hypothesis 2b: Schedule control has positive impacts on satisfaction with job, leisure and life overall.*

#### *Control, autonomy and gender*

Control and autonomy in work, usually correlated with higher quality jobs, has been identified as aiding reductions in work-life conflict for both men and women. Greater job and schedule control, through autonomy over decision-making and use of flexible technologies, have been shown to have positive relationships with management of work and family (Batt and Valcour, 2003, 215). As already noted schedule control may also generate specific benefits for women, offering the ability to better manage their dual responsibilities of work and home (Lyness et al, 2012). Nevertheless, using 2005 ISSP data, Stier and Yaish (2014, 12) find women report lower job quality overall and less fulfilling content within their roles. In contrast, men report significantly greater time autonomy in their jobs. It is posited that this is driven, in part, by the nature of the occupations in which men and women are employed. Gender divisions present in autonomy may reflect the impact of horizontal and vertical segregation between industries and occupations (Teasdale, 2013, 400). Men continue to dominate at the highest levels of many industries, particularly in government, management, and professional occupations. This, however, limits women’s access to autonomy which could facilitate work-family integration (Padavic and Reskin, 2002). In the UK context, data from the 2014 *Annual Population Survey* shows that 12.7% of men report employment as managers, directors or senior officials, whereas only around 7.3% of women report these occupations (Annual Population Survey, 2015). Horizontal segregation also remains evident

as women are employed mainly in service activities, while men undertake managerial, manual, and technical jobs. Greater proportions of women (31.9%) than men (14.6%) do, however, work in the public sector (Annual Population Survey, 2015), which has been shown in the past to offer greater access to schedule flexibility (Wheatley, 2012). The segregation present in the labour market may, therefore, have implications with regard to levels of job and schedule control available to working men and women. Evidence is conflicting, though, as Galinsky et al (2011, 145), reporting on US data, found that similar proportions of men and women, and parents and non-parents, reported having ‘complete’ or ‘a lot’ of schedule control. Other research has argued that even after controlling for occupational variations a gender gap is present in relative job quality (Stier and Yaish, 2014, 16-18). These patterns may represent women being offered lower quality and less rewarding labour market positions by employers due to their inferior power position in society (Findlay et al, 2009). Moreover, as a result of their greater household contribution, women (especially mothers) more often require schedule flexibility, reflected in their use of flexible working arrangements. However, these arrangements may disadvantage them in their careers (Fagan et al, 2012, 23-4), limiting opportunities and impairing wage growth, especially among working mothers (Glass, 2004, 387).

*Hypothesis 3: Job control and schedule control have differing impacts on the well-being of men and women employees, with schedule control offering greater benefits for women.*

## **Data and method**

The empirical analysis in this paper uses panel data from wave 2 (2010-11) and 4 (2012-13) of *Understanding Society*, alternatively titled the *United Kingdom Household Longitudinal Study* (UKHLS).<sup>1</sup> *Understanding Society* subsumed the *British Household Panel Survey* in 2009. The aim of *Understanding Society* is to improve understanding of social and economic change in Britain at household and individual levels (Understanding Society, 2012). It is a multi-topic longitudinal sample survey of 40,000 households, comprising face-to-face and telephone interviews capturing data from adult members of households each year. The focus of this paper is on employed individuals. Initial descriptive analysis is used to test hypothesis 1, exploring relative levels of job and schedule control reported by UK employees. The descriptive analysis is complemented by ordered probit, ANCOVA and change-score analysis. Ordered probit models provide the most robust method of analysis of discrete dependent variables. The probit models are used to test hypothesis 2 as they provide insight

into the relationship between autonomy and well-being, and whether job and schedule control have differentiated impacts on well-being. The analysis comprises a pooled model, which also includes gender interactions with each of the measures of job and schedule control. Separate analysis is also performed for men and women in order to test hypothesis 3 providing some insight into the gendered nature of employment. A specific advantage of panel data is that it enables observation of changes in responses. The analysis, therefore, uses ANCOVA and change-score models, following the approach of Lim and Putnam (2010), providing robust evidence on the impacts of autonomy on reported well-being to test hypotheses 2 and 3. ANCOVA models incorporate the measure of satisfaction for the previous period (wave 2 in this case) to adjust for initial differences in satisfaction, while the change-score models consider the differences in satisfaction between waves measuring outcomes at wave 4 (i.e. changes in reported satisfaction) relative to job and schedule control measured at wave 2.<sup>2</sup>

The dependent variables comprise both overall and domain satisfaction measures: a measure of overall life satisfaction is included, as are measures of satisfaction with individual domains of job and amount of leisure time. These variables are derived from responses to Likert scale questions, where 1 = completely unsatisfied, 4 = neither satisfied or unsatisfied, and 7 = completely satisfied. They are regressed against relevant time-use, demographic, and occupation variables (using *UK Standard Occupational Classification (SOC) Major Groups*). The analysis includes a number of control variables which the extant literature has shown as relevant to satisfaction: age (Blanchflower and Oswald, 2008), education (Dolan et al, 2008), dependent children (Garcia et al, 2007), disability (Lucas, 2007), and income (Jorgensen et al, 2010). Commuting time is not included due to the alternative inclusion of ‘work location’, which is categorized into: (1) employer premises; (2) home; (3) driving/travelling, and; (4) working at multiple locations. The specific effects of autonomy are considered through the inclusion of a number of job and schedule control measures. While much previous research has utilized job control scales e.g. Karasek and Theorell, 1990, or clustered autonomy with other dimensions of job quality e.g. Holman, 2013, this paper disaggregates autonomy into a number of forms which can broadly be categorized into ‘job control and ‘schedule control’ (Glavin and Schieman, 2012; Jang et al, 2011, 136). Job control is captured through measures of autonomy over: (1) job tasks; (2) the pace of work; (3) manner of (or way of completing) work, and; (4) task order. Schedule control is considered through measures of autonomy over working hours – referring to control over the timing/schedule of working hours as opposed to

total number of hours worked – and whether individuals report informal flexibility in their job. Work location also provides some insight into schedule control through considering the effects of working away from employer premises, either on the move or at home. Questions pertaining to autonomy follow the form, *'In your current job how much influence do you have over ...'*, with responses in each case comprising 'none', 'a little', 'some', and 'a lot'.<sup>3</sup> Informal flexibility is reported in *Understanding Society* through the question, *'Aside from any formal arrangements for flexible working you have, are you able to vary your working hours on an informal basis, for example by re-arranging your start or finish times if you need to?'* with responses comprising 'no', 'sometimes', and 'yes' (*Understanding Society*, 2012). Descriptive statistics of the autonomy measures (means and ANOVA tests for changes between survey waves) evidence some change in the measures of autonomy from wave 2 to 4, however the overall patterns observed remain consistent (including deviation from the mean). Correlation coefficients and Cronbach's Alpha (0.828) evidence a level of internal consistency between the variables (complete results available upon request). Disaggregating by form of autonomy, nevertheless, provides important insight into relative differences in job and schedule control encountered by men and women employees, and the impact of different forms of autonomy on subjective well-being.

### **Empirical analysis**

The extant literature is indicative of autonomy generating positive effects for employees (Batt and Valcour, 2003, 212; Kalleberg et al, 2009). One question this raises is in regard to which employees enjoy the highest levels of autonomy in paid work? Evidence from *Understanding Society* demonstrates that job control is greatest among managers, providing partial support for hypothesis 1.<sup>4</sup> This is especially the case in regards to the manner of work (78.8% overall report 'a lot' of autonomy) and the order of tasks (80.1% report 'a lot'). In fact, around 90% of all managers report having 'some' or 'a lot' of autonomy of all aspects of job control. Professionals report relatively high levels of job control, but notably less so than managers. In particular, women professionals report lesser job control (only 38.2% of women professionals report 'a lot' of autonomy over job tasks, and 38.6% report 'a lot' of autonomy over work pace). This evidence is indicative of the influence of high intensity, low discretion work organization becoming more prominent in these occupations (Wheatley et al, 2011, 412; Ogbonna and Harris, 2004). Those in skilled trade occupations are split: some report high levels of job and schedule control and others report relatively little, particularly autonomy over working hours. This is likely to reflect variations within this broad occupation group, for

example those who are contractors who have relatively more autonomy and those working for large construction firms where less discretion is found. Lower skilled occupations, including sales and customer service, process, plant and machine operatives and those in elementary occupations report the lowest levels of job control, especially over job tasks (23.0%, 28.6% and 27.9% report no autonomy respectively). This is consistent with the evidence of Taylorist work organization in these occupations (Eustace, 2012; Ducharme and Martin, 2000; Sallaz, 2015).

Schedule control similarly varies by occupation and gender, although notably lower levels of schedule control are reported among managers (just under 50% report ‘a lot’ of autonomy over working hours) compared to job control. Schedule control is also lesser among women professionals (just 22.3% report ‘a lot’ of control over working hours) perhaps driven by the gendered horizontal segregation prominent within professional occupations (Teasdale, 2013, 400). Consistent with patterns of job control, lower skilled occupations report the lowest levels of schedule control (working hours and informal flexibility), especially elementary occupations (53.1% report no autonomy). The presence of informal flexibility is reported among the majority of managers (74.0%), associate professionals (59.6%) and administrative (63.2%) workers. Fewer professionals report informal flexibility (50.5%). Moreover, there is a stark gendered split as 60.7% of men working in professional occupations report the presence of informal flexibility, while it is only reported by 41.7% of women professionals. These patterns are evident of the demands of certain professional occupations, for example medicine or law, and further evidence the gendered horizontal segregation present within this broad occupation group. The lower levels of informal flexibility and relative levels of autonomy reported could have potentially important implications for women as they manage paid work alongside household responsibilities. Overall, the descriptive analysis offers important insight into the relative presence of job and schedule control, identifying a general correlation between level of autonomy and skill-level/seniority of occupation, but with important variations by gender which, in part, reflect the continued segregation observed in some industries and occupations. Also evident is the significant amount of both job and schedule control enjoyed by managers relative to other occupations. These patterns are important given the impacts that autonomy and informal flexibility may have on employee well-being.

TABLE 1 HERE

In order to explore the relationship between autonomy and subjective well-being, Table 1 summarizes the results of the panel probit models.<sup>5</sup> Controls included in the analysis provide results consistent with the extant literature. Lengthier hours of work are associated with lower satisfaction. Hours of overtime and care (ill/elderly) are associated with lower leisure and life satisfaction, evidencing the impact of extensive hours of unpaid work on work-life balance. Housework also has negative effects on leisure and life satisfaction among women, but this is not evident among men, likely reflecting the contrasting effects of the smaller impact housework has on men's time (Wheatley and Wu, 2014), but the significant impact of the greater household contribution made by many women which limits available leisure time (Garcia et al, 2007). Age is found to have a non-linear relationship: satisfaction diminishes with age but this effect is reversed as individuals become older (see Blanchflower and Oswald, 2008). Married individuals are, on average, likely to report greater satisfaction, while those with dependent children are less likely to be satisfied with their leisure time and life overall. Presence of a long-term illness or disability is negatively associated with satisfaction (Lucas, 2007), while income is positively associated with all measures of satisfaction considered (Jorgensen et al, 2010) with the exception of leisure among women.

The probit models provide support for hypothesis 2a and 2b. Within the pooled models a number of forms of autonomy have a statistically significant positive association with job, leisure and life satisfaction, especially where 'a lot' of autonomy is reported. Considering aspects of job control, autonomy over the nature of job tasks is particularly relevant to job satisfaction. The models separated by gender confirm this finding among both men and women, as even 'a little' or 'some' autonomy in this aspect of work has a statistically significant positive association with higher levels of satisfaction. The probit models suggest that the effects of alternative forms of autonomy do appear differentiated. Statistically significant positive coefficients are only present between life satisfaction and one form of job control, work manner. Meanwhile, task order is the only form of autonomy found not to have any significant positive association with the measures of subjective well-being. Both aspects of schedule control, working hours and informal flexibility, are positively associated with job, leisure and overall life satisfaction, although for men the positive association with working hours is only statistically significant for leisure satisfaction. While differentiated by type of autonomy, the results of the probit models are indicative, overall, of the benefits for employees from having a greater level of discretion over the tasks they complete.



## TABLE 2 HERE

Extending the probit models, the ANCOVA and change-score models summarized in Table 2 provide important causal evidence on the impacts of autonomy on well-being. The models suggest a number of statistically significant positive impacts on reported satisfaction from the presence of autonomy in paid work extending the extant literature (Costa et al, 2006; Humphrey et al, 2007). A number of aspects of job control have positive impacts on well-being, although the findings, again, suggest differentiated effects. Autonomy over job tasks is found to increase both job and leisure satisfaction. Meanwhile, the pace of work has statistically significant positive effects on changes in job satisfaction among both men and women, further extending the probit analysis and emphasising the relevance of autonomy over the intensity of work to job satisfaction. Task order does not appear relevant in the ANCOVA or change-score analysis for either gender, casting some doubt over the impact of this aspect of autonomy on reported satisfaction. The benefits of schedule control, through informal flexibility, are evident in the ANCOVA and change-score analysis, as positive impacts on job and life satisfaction are found. However, control over working hours, although generally positive in the probit models, is statistically insignificant in the ANCOVA and change-score analyses.

Turning to hypothesis 3, the interaction variables in the pooled probit models considering gender and autonomy are indicative of work pace having a greater relevance to men (statistically significant positive coefficients), but work manner and working hours having greater relevance to women (statistically significant negative coefficients). The models disaggregated by gender offer more nuanced insight into the specific relationships between gender, job and schedule control, and well-being providing evidence in support of hypothesis 3. As noted above control over the nature of job tasks is particularly relevant to job satisfaction among both men and women. However, a number of gender distinctions are present in other forms of autonomy. Autonomy over the pace of work is highly relevant to men: it is associated with greater satisfaction with job, leisure and life. This is perhaps evidence of the benefits of maintaining control over the relative intensity of work. Consistent with the patterns observed in the pooled models, work pace appears to have less relevance to life satisfaction among women, and is only relevant to leisure when ‘a lot’ of autonomy over work pace is reported. In contrast, autonomy over the manner of work appears more relevant

to women, reflected in positive associations with all measures of well-being, although the effects are only present where ‘a lot’ of autonomy is reported. Meanwhile, greater autonomy over task order is negatively associated with job satisfaction among men. Task order has no statistically significant association for women. This result is somewhat of an anomaly, but could be driven by the greater presence of this form of autonomy in certain sectors or among managers, as outlined earlier, and/or the highly skilled (those reporting degree level education), who are associated with lower satisfaction levels in some of the measures considered in the models. Managerial occupations, for example, are associated with lower leisure satisfaction, which is likely to be a product of the lengthy hours worked in these occupations which reduce available leisure time (Wheatley et al, 2011).

Autonomy over working hours has a statistically significant positive association with all measures of satisfaction among women – although only where ‘a lot’ of autonomy is reported – while it is only relevant to job satisfaction for men. This is likely to reflect the particular benefits among some women, mothers and those with other caring responsibilities, of being able to mould work-time to manage their household contribution (Fagan et al, 2012). Other variables offering some insight into schedule control highlight further gender divisions driven by the household division of labour. Working at home is associated with greater satisfaction with both job and leisure time among women. These results are consistent with the benefits for women of flexibility in both the timing and location of paid work (Wheatley, 2012a). A further gender division is present among those driving/travelling in their job. Among women they report lower leisure and life satisfaction, while men in these occupations, and those working at multiple locations, report greater job satisfaction. It is likely that these types of employment create particular challenges for women, in managing work and home.

The ANCOVA and change-score models provide further findings in support of hypothesis 3. While the ANCOVA models suggest positive impacts from autonomy over job tasks among men and women, the change-score analysis only evidences that control over job tasks has positive impacts among women, potentially suggesting a stronger effect for women. Work manner is not significant for men, but does have positive impacts for women on both leisure and life satisfaction, consistent with the findings of the probit analysis. These results suggest that autonomy over the manner of work may have particular positive spillover effects for women, perhaps providing increased leisure time, or at least enabling better use of this time which is often limited by their greater household contribution. Informal flexibility has

positive impacts on job satisfaction for both men and women. Life satisfaction benefits of informal flexibility are only present among men in the ANCOVA models. However, the change-score analysis suggests no statistically significant effects of job or schedule control on leisure or life satisfaction among men. This could reflect that autonomy is less relevant to non-work aspects of life, including leisure, among men. Indeed, men may consider their relative satisfaction with work separately from other aspects of their lives.

## **Discussion**

A number of key findings have been generated from the empirical analysis which support the hypotheses developed. Hypothesis 1 is partially supported. Autonomy levels differ considerably between occupations and by gender, in part reflecting the continued horizontal and vertical segregation present in the labour market. It is supported for managers who report the greatest levels of autonomy. However, it is not fully supported for professional occupations as some professional employees, especially women, report lower levels of schedule control (working hours and informal flexibility). This finding is important as this paper provides evidence that autonomy has positive effects on employee well-being, and that different forms of autonomy – broadly categorized into job control (tasks performed, work pace, work manner, task order) and schedule control (working hours and informal flexibility) – are differentially associated with measures of subjective well-being. Hypothesis 2a and 2b are therefore accepted. Forms of autonomy have differentiated impacts on measures of well-being, and these are also gendered. Certain forms of job control have stronger relationships with job satisfaction e.g. control over job tasks. Meanwhile, aspects of schedule control e.g. informal flexibility, and work manner (women only), are the only measures of autonomy which appear to have an impact on life satisfaction. The results of the ANCOVA and change-score analysis provide specific insight into the causal impacts of types of autonomy on reported well-being. A number of forms of autonomy - job tasks, pace of work, manner of work, and informal flexibility - are found to have statistically significant positive impacts on reported satisfaction levels between waves of *Understanding Society*, further supporting hypothesis 2. Findings are also indicative of autonomy over different aspects of paid work having differing relevance to men and women workers' satisfaction with job, leisure and life overall. Hypothesis 3 is supported. The findings of the probit, ANCOVA and change-score models are highly gendered. Types of job control appear important to men, including job tasks, pace of work and task order. Meanwhile, the manner of work and schedule control are

more relevant to the well-being of women employees. Considered alongside flexibility in work location, specifically homeworking, this suggests particular benefits to women, especially mothers and those with other caring responsibilities, from increased control enabling better management of paid work alongside the household.

## **Conclusion**

This paper has empirically explored the relationship between autonomy in paid work and subjective well-being, using large, nationally representative panel data from the UK extracted from wave 2 (2010-11) and 4 (2012-13) of *Understanding Society*. Within the findings, an overall pattern is clear, in that greater levels of both job control and schedule control have the potential to generate significant benefits for the employee, evident in reported well-being. Moreover, the positive effects associated with informal flexibility, and working at home, offer further support to the suggestion that schedule control is highly valued, and important to employees 'enjoying' work. Although reporting high levels of both job and schedule control themselves, it would appear that managers, in many cases, remain unwilling to offer autonomy and its associated benefits to their employees as their primary role remains one of control and effort extraction. Managers, further, have considerable influence over the level of flexibility experienced by employees. Given the evident links between autonomy and the quality of work, low levels of autonomy reported in many occupations, e.g. sales and customer service, elementary occupations, associated with the adoption of Taylorist work organization could have detrimental effects on employee well-being. This is also highly relevant in professional occupations as the extant literature and empirical analysis suggests significantly lower levels of job and schedule control than is reported among managers in at least some aspects of paid work, and intense work routines. Managers may be concerned that workers will shirk if greater autonomy is offered and instead continue to favour 'high-strain' (low-discretion, high demand) work organization. However, ignoring the benefits of autonomy, and the differentiated benefits which may be derived by men and women from access to alternative forms of autonomy, represents a significant missed opportunity for employers. Methods including screening of employees, as advocated by Bartling et al (2012), could offer a manager-friendly solution to some of these concerns. Without manager buy-in little change is likely to occur, and these benefits will remain unrealised.

This research is subject to certain limitations, including the use of panel data from *Understanding Society* which only captures two of data. Further research could extend the

findings presented by exploring autonomy in paid work over an extended period once further data are released or by using alternative panel data. Mixed methods could also facilitate the capture of more detailed perspectives from both employees and managers. In particular, further research should explore the interaction between autonomy and work intensity in more detail. The analysis presented suggests autonomy over work pace has statistically significant positive impacts on job satisfaction. Any reduction in autonomy associated with intense work routines and work overload could, therefore, have significant negative impacts. Additionally, further research could further explore the gender dimension offering deeper insight into the impacts of job and schedule control for parents and non-parents. Nevertheless, the findings contribute to our understanding by demonstrating the well-being benefits of a number of forms of autonomy. Moreover, the disaggregated analysis supports the distinction between job control and schedule control through empirically evidencing the positive, but differentiated, impacts of job and schedule control for men and women employees on subjective well-being.

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<sup>1</sup> Waves 2 and 4 of Understanding Society are used as these were the only full waves of the survey available at the time the research was conducted which contain relevant modules on autonomy at work and informal flexibility.

<sup>2</sup> Although a longitudinal data-set, some variation is present in respondents included each year: approximately 19,000 employed individuals were surveyed in both waves 2 and 4. Actual sample sizes in the models are lower due to incomplete responses to certain questions in the survey (e.g. informal flexibility).

<sup>3</sup> Note that in the ANCOVA and change-score models autonomy variables were input as continuous due to concerns over model stability when using the expanded categorical responses. Results using the categorical responses are available upon request.

<sup>4</sup> Figures are averages of responses from wave 2 and 4 of *Understanding Society*.

<sup>5</sup> The pseudo  $R^2$  values reported in Table 1 are low, however this is not uncommon in probit analyses. These values are less reliable than standard  $R^2$  values and should be interpreted with some caution. Moreover, lower  $R^2$  values are common in models which consider aspects of human behaviour as there is commonly much greater variation present in the data.

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Table 1: Panel probit models: satisfaction and autonomy in work

Parameter Estimates	Ordered Choice Panel Probit Models								
	Pooled models			Men			Women		
	Satisfaction with job	Satisfaction with amount of leisure	Satisfaction with life	Satisfaction with job	Satisfaction with amount of leisure	Satisfaction with life	Satisfaction with job	Satisfaction with amount of leisure	Satisfaction with life
Age	-0.048***	-0.035***	-0.065***	-0.067***	-0.039***	-0.077***	-0.033***	-0.030***	-0.057***
Age <sup>2</sup> /100	0.058***	0.044***	0.073***	0.080***	0.050***	0.085***	0.042***	0.038***	0.064***
Gender (male)	-0.046	0.058	-0.032	—	—	—	—	—	—
Working hours	-0.004***	-0.014***	-0.004***	-0.002**	-0.014***	-0.003***	-0.005***	-0.014***	-0.004***
Overtime hours	-0.001	-0.018***	-0.004***	0.001	-0.016***	-0.002*	-0.002	-0.019***	-0.007***
Housework hours	0.002***	-0.005***	-0.002**	0.000	-0.001	0.000	0.001	-0.007***	-0.003***
Caring hours	-0.003	-0.029***	-0.024***	-0.005	-0.019**	-0.021***	-0.002	-0.035***	-0.025***
<i>Marital status: reference is 'single/never married or in civil partnership'</i>									
Married	0.095***	0.050***	0.242***	0.064***	-0.010	0.203***	0.112***	0.093***	0.270***
Separated/divorced	0.068***	-0.037*	-0.007	0.065**	-0.063*	-0.037	0.071***	-0.010	0.012
Widowed	0.267***	0.154***	0.092*	0.366***	0.323***	0.222**	0.241***	0.115**	0.059
No. of children	0.016**	-0.114***	-0.021***	0.013	-0.089***	-0.016*	0.021**	-0.135***	-0.022**
Long term illness/disability	-0.130***	-0.182***	-0.270***	-0.126***	-0.149***	-0.236***	-0.128***	-0.206***	-0.293***
<i>Highest educational qualifications: reference is 'no qualifications'</i>									
Degree or equivalent	-0.053***	-0.007	0.004	-0.036***	-0.017	-0.016	-0.054***	-0.001	0.022*
A level	0.024***	0.012	-0.008	0.018	0.010	-0.019	0.027**	0.014	0.000
GCSE	0.074***	0.007	0.013	0.067***	0.021	0.034**	0.068***	-0.001	-0.004
<i>Major Occupation Group (SOC2000): Reference is 'elementary occupations'</i>									
Managers and senior officials	-0.048**	-0.043*	0.002	0.028	-0.086***	-0.029	-0.122***	0.014	0.041
Professionals	0.051**	0.041	0.088***	0.133***	0.039	0.053	-0.020	0.057	0.133***
Associate professional and technical	-0.015	0.032	0.034	0.066**	0.018	0.015	-0.085***	0.053*	0.062*
Administrative and secretarial	-0.034	0.003	-0.007	-0.035	0.003	-0.053	-0.082***	0.020	0.028
Skilled trades	0.085***	0.049*	0.067**	0.126***	0.021	0.034	0.051	0.078	0.059
Personal service occupations	0.157***	0.006	-0.013	0.193***	0.016	-0.035	0.108***	0.026	0.025

Sales & customer service occupations	-0.076***	-0.009	-0.061**	-0.055	-0.028	-0.097**	-0.112***	0.020	-0.020
Process, plant and machine operatives	0.072***	0.059**	0.014	0.131***	0.007	-0.038	-0.039	0.187***	0.110*
Private sector	-0.073***	-0.077***	-0.067***	-0.077***	-0.033*	-0.035*	-0.077***	-0.106***	-0.083***
Monthly income (£,000s)	0.003***	0.001***	0.003***	0.004***	0.001***	0.004***	0.001**	0.000	0.003***
<i>Work Location: Reference is 'employer premises'</i>									
Home	0.125***	0.088**	0.049	0.029	0.074	0.029	0.200***	0.100**	0.061
Driving/travelling	0.009	-0.065***	-0.022	0.044*	-0.041	0.007	-0.045	-0.109***	-0.082**
Multiple Locations	0.034	0.036*	0.030	0.081***	0.033	0.035	-0.031	0.037	0.015
<i>Job control variables</i>									
<i>Autonomy over job tasks: reference is 'none'</i>									
A lot	0.341***	-0.000	0.035	0.348***	0.029	0.022	0.345***	-0.002	0.035
Some	0.228***	0.022	0.029	0.174***	-0.013	-0.037	0.229***	0.018	0.025
A little	0.102***	-0.015	-0.006	0.048	-0.022	-0.062*	0.102***	-0.019	-0.008
<i>Autonomy over work pace: reference is 'none'</i>									
A lot	0.162***	0.078***	0.042	0.186***	0.240***	0.139***	0.152***	0.075***	0.040
Some	0.099***	0.030	0.009	0.132***	0.160***	0.082**	0.095***	0.028	0.008
A little	0.051**	-0.014	-0.037	0.107***	0.118***	0.031	0.050*	-0.018	-0.038
<i>Autonomy over work manner: reference is 'none'</i>									
A lot	0.113***	0.072**	0.079**	0.031	-0.066	0.015	0.115***	0.069**	0.070*
Some	0.003	0.018	0.022	-0.056	-0.062	-0.050	0.004	0.015	0.015
A little	-0.014	0.055	0.000	-0.083**	-0.058	-0.052	-0.012	0.052	-0.006
<i>Autonomy over task order: reference is 'none'</i>									
A lot	-0.056*	0.012	-0.008	-0.066*	0.053	0.069*	-0.049	0.013	-0.007
Some	-0.044	0.009	-0.020	-0.085**	0.029	0.018	-0.041	0.010	-0.019
A little	0.006	-0.012	-0.020	-0.077**	0.014	-0.040	-0.006	-0.011	-0.021
<i>Schedule control variables</i>									
<i>Autonomy over work hours: reference is 'none'</i>									
A lot	0.091***	0.049**	0.060**	0.021	0.050***	-0.003	0.095***	0.047**	0.054**
Some	-0.025	-0.015	-0.006	-0.003	-0.006	-0.024	-0.015	-0.017	-0.008
A little	-0.001	0.003	-0.011	-0.026	-0.026	-0.052**	0.005	0.003	-0.011
<i>Informal flexibility present in job: reference is 'no'</i>									

Yes	0.079***	0.048***	0.043*	0.123***	0.044**	0.051**	0.077***	0.049***	0.045**
Sometimes	0.016	-0.002	0.016	0.023	-0.004	-0.006	0.014	-0.001	0.018
<i>Interaction effects</i>									
<i>Autonomy over job tasks*gender (male): reference is 'none'</i>									
A lot	0.008	0.021	-0.018	—	—	—	—	—	—
Some	-0.054	-0.041	-0.071*	—	—	—	—	—	—
A little	-0.051	-0.010	-0.056	—	—	—	—	—	—
<i>Autonomy over work pace*gender (male): reference is 'none'</i>									
A lot	0.016	0.158***	0.097**	—	—	—	—	—	—
Some	0.029	0.124***	0.070	—	—	—	—	—	—
A little	0.054	0.128***	0.065	—	—	—	—	—	—
<i>Autonomy over work manner*gender (male): reference is 'none'</i>									
A lot	-0.075	-0.134**	-0.065	—	—	—	—	—	—
Some	-0.055	-0.078	-0.072	—	—	—	—	—	—
A little	-0.088	-0.110*	-0.050	—	—	—	—	—	—
<i>Autonomy over task order*gender (male): reference is 'none'</i>									
A lot	-0.003	0.038	0.070	—	—	—	—	—	—
Some	-0.037	0.017	0.032	—	—	—	—	—	—
A little	-0.067	0.025	-0.021	—	—	—	—	—	—
<i>Autonomy over work hours*gender (male): reference is 'none'</i>									
A lot	-0.059*	-0.006	-0.074**	—	—	—	—	—	—
Some	0.034	0.004	-0.026	—	—	—	—	—	—
A little	-0.015	-0.032	-0.041	—	—	—	—	—	—
<i>Informal flexibility present in job*gender (male): reference is 'no'</i>									
Yes	0.043*	-0.002	0.009	—	—	—	—	—	—
Sometimes	0.007	0.000	-0.018	—	—	—	—	—	—
<i>Model diagnostics</i>									
Pseudo R-Squared	0.021	0.020	0.016	0.023	0.021	0.018	0.019	0.019	0.016
LR Statistic	2903.598	2790.365	1965.577	1449.536	1344.177	948.228	1487.410	1525.195	1091.962
Prob(LR Statistic)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Log likelihood	-68700.680	-69414.790	-59554.850	-30970.600	-30786.650	-26164.990	-37636.500	-38580.150	-33332.470
Restr. log likelihood	-70152.480	-70809.970	-60537.640	-31695.370	-31458.730	-26639.110	-38380.200	-39342.740	-33878.450
Avg. log likelihood	-1.566	-1.744	-1.497	-1.576	-1.742	-1.481	-1.554	-1.744	-1.508
Panel observations	43,865	39,797	39,774	19,646	17,678	17,667	24,219	22,119	22,107

Source: Understanding Society, wave 2 (2010-11) and wave 4 (2012-2013).

Notes: significance levels of 1%, 5% and 10% are denoted by \*\*\*, \*\* and \* respectively.

Table 2: Panel change models: satisfaction and autonomy in work

Variable	Panel data change models											
	Men						Women					
	ANCOVA: Satisfaction with job (wave 4) <sup>a</sup>	Change in satisfaction with job (wave 2 – wave 4) <sup>b</sup>	ANCOVA: Satisfaction with amount of leisure time (wave 4) <sup>a</sup>	Change in satisfaction with leisure (wave 2 – wave 4) <sup>b</sup>	ANCOVA: Satisfaction with life (wave 4) <sup>a</sup>	Change in satisfaction with life (wave 2 – wave 4) <sup>b</sup>	ANCOVA: Satisfaction with job (wave 4) <sup>a</sup>	Change in satisfaction with job (wave 2 – wave 4) <sup>b</sup>	ANCOVA: Satisfaction with amount of leisure time (wave 4) <sup>a</sup>	Change in satisfaction with leisure (wave 2 – wave 4) <sup>b</sup>	ANCOVA: Satisfaction with life (wave 4) <sup>a</sup>	Change in satisfaction with life (wave 2 – wave 4) <sup>b</sup>
Satisfaction (wave 2)	0.284***		0.261***		0.277***		0.274***		0.247***		0.290***	
<i>Job control variables</i>												
Autonomy over job tasks	0.058***	0.007	0.031*	0.018	-0.003	-0.016	0.046***	0.036*	0.001	0.041*	0.019	0.019
Autonomy over work pace	0.004	0.051**	0.017	0.001	0.007	0.001	0.010	0.038*	0.024	-0.009	-0.006	-0.013
Autonomy over work manner	-0.004	0.043	-0.028	0.014	0.007	0.035	0.009	0.030	0.035**	0.038	0.031*	0.048*
Autonomy over task order	-0.003	-0.040	0.013	0.013	0.010	-0.016	-0.007	0.011	-0.013	-0.021	-0.014	-0.028
<i>Schedule control variables</i>												
Autonomy over work hours	-0.007	-0.009	0.001	0.023	0.001	-0.015	-0.018	0.012	0.013	-0.013	0.013	0.007
<i>Informal flexibility present in job: reference is 'no'</i>												
Yes	0.222***	0.172***	0.034	-0.002	0.062*	0.058	0.155***	0.061	0.023	0.046	0.026	0.001
Sometimes	0.099**	0.088	0.012	-0.017	0.084*	0.109	0.121***	0.074	0.029	0.092	0.037	0.046
Constant	(omitted)	-0.330***	(omitted)	-0.280***	(omitted)	-0.176**	(omitted)	-0.537***	(omitted)	-0.344***	(omitted)	-0.304***
(Pseudo) R-squared	0.057	0.005	0.054	0.001	0.046	0.001	0.049	0.005	0.052	0.001	0.053	0.001
Panel observations	7,015	7,253	6,011	6,699	6,007	6,692	8,767	9,095	7,594	8,673	7,588	8,670

Source: Understanding Society, wave 2 (2010-11) and wave 4 (2012-2013).

Notes: significance levels of 1%, 5% and 10% are denoted by \*\*\*, \*\* and \* respectively.

<sup>a</sup> Estimated with ordinal logit regression with all control variables.

<sup>b</sup> Estimated with OLS.