Long work-hours and job satisfaction: do over-workers get trapped in bad jobs?

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ABSTRACT

We investigate the relationship between overwork, job satisfaction and job change. We find that while over-workers might be dissatisfied with their hours they are otherwise pleased with their jobs. We use panel data to follow over-workers who are dissatisfied with both their hours and their jobs overall. The few over-workers who get trapped in unsatisfying jobs are typically low-educated and work in jobs characterised by rigid hour requirements. Such workers may require experience to command high wages, which may increase their opportunity cost of job change and limit their outside option and job mobility.

Key Words: Labour supply; Long work hours; Job Satisfaction; Overwork; Panel data

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Introduction and Background

Long work hours have become an increasingly ubiquitous feature of the academic and popular discourse since the publication of Juliet Schor's *The Overworked American* in 1992. Much of the early literature in this area was concerned with mapping trends in work hours over the course of the 20th century (Bond et al. 1997; Green 2001; Mishal et al. 1999; Jacobs and Gerson, 1998; Robinson & Godbey 1997; Rones et al. 1997). More recently, the focus has diverted to work-hour mismatches, where workers desire more or less hours than they currently work on average, and their deleterious effect on life satisfaction, work-life balance and psychological health (Callister 2007; Iwazaki et al. 2006; Renolds & Aletraris 2006, Strazdins et al. 2006). Throughout this literature there is typically an implicit assumption that overworked individuals must dislike their jobs. Indeed, in the popular literature, there is often the suggestion that individuals are 'trapped' in jobs that they don't like, presumably by an overly rigid labour market or the social conventions of capitalistic competition and materialism. This paper will attempt to investigate these assumptions by answering two questions. First, are overworked individuals dissatisfied with their jobs? And second, who becomes trapped overworking in jobs they don't like, and why? If job satisfaction and undesired long work hours are found to be positively correlated then we can reasonably say that individuals are compensated for those long hours in some way. The most obvious form of compensation is money, which is observable. But there may also be some largely unobservable forms of compensation, such as agency, responsibility or enjoyment of the type of tasks performed, for example, in management roles.

In *The Overworked American*, Schor argued that the average hours worked per week by American households had been climbing for several decades leading into the nineties and showed no signs of abating. Part of this phenomenon could be explained by the increasing workforce participation of women, with only a relatively small commensurate reduction in the labour force participation of men. As a consequence, more and more couples were experiencing what Hochschild latter called a 'time bind' where dual, full-time income-earner status meant little time left over for anything but chores (Hochschild 1997). This phenomenon lies behind the 'care deficit' observed by several scholars who note the declining amount of time spent with elderly relatives and children in contemporary, developed, Anglophone and East Asian economies (Bunting 2004; Nock & Kingston 1988; ; O'Brien & Schemilt 2003; Pitt-Catsouphes & Googins 1999).

Schor's thesis contradicted the predictions of some early 20th century economists, notably Keynes, who hypothesised that increases in productivity would mean that by the close of the last century everyone would only be working 15 hours or so per week (Keynes 1930). In subsequent work, notably *The Overspent American*, Schor argued that alongside feminism and its impact on female labour force participation, the rise of materialism over the course of the 20th century and the consequent explosion in wants made a substantial contribution to the rise in work hours (Schor 2010, 1999). As materialism and consumerism replaced traditional religious and communitarian sources of meaning and self-esteem, more and more people opted for increased income over large allocations of leisure. That increased income was readily available for the most part as increases in productivity led to higher wages. Schor describes this phenomenon as a 'work and spend cycle', where individuals work long hours to earn wages to spend in brief but intense bursts of consumption. This thesis is in line with literature in psychology, sociology and philosophy which has noted the rise of 'status anxiety' and materialistic values in recent decades (De Botton 2004; Ishiyama 1994; Kasser 2002; Layte 2012). It also matches up with research investigating the decline of community (Putnam 2000; Leigh 2011)

In a related line of inquiry, Warren and Warren-Tyagi (2003) have argued that the culture of competition that materialism and consumerism encourage has led to large numbers of individuals, predominantly in the middle class, opting for long work hours to avoid falling behind the peloton, as it were (Kanai 2009). The popularity of free market policies and the rolling back of the government's redistributive functions in the later part of the 20th century under the Reagan, Thatcher and Hawke/Keating governments in the Anglosphere intensified this effect. In recent years, a third driver has come into play—globalisation has accelerated the bifurcation of labour markets between low-skilled/low-paid workers and high-skilled/high-paid ones (Fernandez 2001; Goldin & Katz 2008; Lindert & Williamson 2003; Ukpere & Slabbert 2009). Scholars suggest that as the combined weight of these forces drives an increasing polarisation of the income distribution, households increasingly opt to work longer to ensure they remain above the median. Such behaviour would be unsurprising given the wealth of evidence suggesting that subjective reports of life satisfaction depend significantly on the individual's reference group (Boyce et al. 2010; Kahneman et al. 2006). Another relevant dimension of trends in work time is the distribution of hours across the American population (Jacobs & Green 1998). While average hours per week remained stable over the 20th century, both long and short weeks became increasingly common.

One explanation for why households are increasingly dissatisfied with hours *even when they aren't long by historic standards* is the fact that when both adults in a household work there is very little time left over for leisure after chores (Parcel & Cornfield 2000). As Jacobs and Gerson (1998) explain, in traditional and neo-traditional households, while the father may have been at the office working long hours, he had a full time housewife who took care of household tasks and the children.[i] As a result, when he got home from work he and his wife, who had completed her tasks, could engage in pure leisure. Nowadays, with both parties employed full time, there is nobody clearly responsible for household and caring tasks, though women continue to shoulder most of the burden (Bittman et al. 2003). As such, when both parents return home in the evenings they are required to undertake chores such as cooking, cleaning and assisting the kids with their homework, rather than being able to engage in leisure. Without any opportunity to relax and recharge the batteries, a feeling of overwork is almost inevitable, even if both parties merely engage in regular full time hours of 35–40 per week and thus are not, by definition, working 'long hours'.

The emergence of this time squeeze has led to a raft of popular and academic literature concerned with such themes as work-life balance, downshifting and time management (Bunting 2004; de Graaf 2003; Skidelsky & Skidelsky 2012; Schor 2010). On the policy front, there have recently been calls to introduce a four day working week or six hour working day, compulsory flexitime and mandated flexible work hours to improve people's ability to manage their workplace, home and life responsibilities (Coote & Franklin 2013; Golden 2009). Often these policies are marketed using arguments about the improvements to productivity such reforms would bring about, but more frequently the key argument is a call for a more family and leisure friendly approach to work.

There is also an increasing discussion of the social, psychological and ecological unsustainability of long work hours. The time squeeze has promulgated the aforementioned 'care deficit' in developed countries and the decline of leisure (Guest 2002; Fleetwood 2007; Lewis 2003; Weston et. al. 2004). Long work hours are a risk factor for a range of psychological and psycho-somatic conditions, including stress, anxiety, depression and hypertension. Long work hours have also been found to reduce productivity and workplace competence, notably among medical professionals (Caruso 2006; Rogers et al. 2004). There is a vast literature in Japan on how to treat patients presenting with overwork symptoms, and the legal system recognises 'death by overwork' (Karojisatsu) as legitimate grounds for compensation claims (Amagasa et. al. 2005). Finally, Schor and colleagues have recently

turned to investigating the environmental impacts of overwork and have completed preliminary studies suggesting that work hours increase economic throughput and thus exacerbate environmental strain. Moreover, overworked, time-poor individuals tend to make use of services like childcare and take-away food that increase the amount of transit in an economy, a major contributor to greenhouse gas emissions (Anders & Shandra 2009; Knight et al. 2005; Rosnick 2013; Schor 2005, 2010)

Motivation

One question that emerges naturally from this research is why the overworked don't simply change jobs or reduce their hours. In economics we typically assume people are rational actors who will move to satisfy their preferences. Barring a large degree of mismatch between jobs available and worker preferences, rational behaviour should ensure that phenomena like overwork, where people work long hours but *would prefer to work less*, do not emerge. Given that Australia has a flexible labour market with a high degree of churn, it is unclear why dissatisfied workers could not change jobs (Breunig et al. 2014). Firms should be competing to attract talent by offering contracts that align with work-hour preferences. The most immediate explanation is that while these workers are dissatisfied with their hours they are compensated with higher wages and so their overall job satisfaction remains high. There is some circumstantial evidence that such dynamics are playing out, with working hours declining in recent decades for low income earners (Williams & Boushey 2010).

In a 2009 study using the Household Income and Labour Dynamics of Australia (HILDA) data set, Drago et al. investigate these issues. The question they focus on in HILDA is the following:

> 'If you could choose the number of hours you work each week, and taking into account how that would affect your income, would you prefer to work…fewer hours than you do now?...About the same hours as you do now?...or more hours than you do now.'

Taking as a sub-sample individuals who work 50 or more hours per week, the authors use the question above to differentiate between long work hour *conscripts*, who would rather work fewer hours, and *volunteers*, who are happy as they are. HILDA is a longitudinal panel data set, and the authors report findings from investigations upon two waves: 2002 and 2004. They find that 23 per cent of all employees worked long hours (50+) in 2002, with 12 per

cent identifying as volunteers and 10.6 per cent as conscripts. They note the implications for the basic labour market model:

> "the existence of these 'long hour conscripts' is consistent with the notion of overwork, and challenges the traditional economic theories of labour markets, where employees are either freely choosing their work hours or at least achieve their preferred hours over time". (pg. 1)

Using the 2004 data, Drago et al. are able to track the dynamic labour market decisions of individuals over time and they find that only around 40 per cent of those who were initially long hour volunteers or conscripts were in the same state in 2004. Of the remaining 60 per cent, the main transition between waves was to shorter working weeks. Only a fifth or so of conscripts became 'trapped' in that state. This fifth however, is odd, as the authors note:

> "A final puzzle concerns the question of why ideal workers tend to become trapped as long hours conscripts, both at a point in time and over time...we cannot argue that the potential loss of immediate income is involved. Nor is the cost of job loss particularly high among ideal workers." Pg. 589

One suggestion posed by the authors is wage increases. They speculate that perhaps long work hour employees are making 'heavy work investments' now in order to benefit from higher wages in the future. They say 'it seems likely that career advancement opportunities linked to labour market mobility are driving long hours for many [conscripts]'. Such behaviour has been noted by other studies (Burke & Cooper, 2008). The authors find some evidence to support this hypothesis, with an increase in average wages over time for such 'ideal workers' of $2.80 and $2.94 within two years for volunteers and conscripts, respectively. They also find that conscripts who do not change jobs tend to switch to volunteer status over time for unobserved reasons. Furthermore, the authors speculate that 'they might hold relatively senior positions where they are at least partially responsible for enforcing long hours' (Drago et al. 2009. Pg. 591).

This paper extends the analysis of Drago et al. in two ways in an attempt to further explain the behaviour of over-workers. First, it explores in greater detail the relationship between overwork and job satisfaction. It does this by examining the relationship between the propensity to overwork and job satisfaction, and by using the detailed questions about job satisfaction available in the HILDA questionnaire to analyse the different components of job

satisfaction for over-workers. Second, it identifies the job satisfaction indicators and demographic characteristics of conscripts and trapped conscripts over time to see if they provide any clues as to why some conscripts become trapped while others do not.

Data and modelling

As with Drago et al. (2009) and Wooden et al. (2009), this paper uses the HILDA data set. HILDA is an annual longitudinal panel study that began in 2001 (Weston and Wooden 2002). After a top up in in wave 11, the panel now holds 36138 unique observations (Watson and Wooden 2010).

The first part of our study is to compare the propensity of individuals to overwork against their job satisfaction. For this, we estimate a probit model for the propensity of individuals to overwork. To this end, we first define over-workers as individuals who report working 50 or more hours per week and who say they would be willing to forgo income in order to work less. This definition is identical to that of Drago et al.'s definition of conscripts. Overworker thus that takes the value 1 if an individual is an over-worker and 0 otherwise.

50 hours a week is an appropriate cut-off because psychologists and sociologists have identified such workloads as contributing to mental health problems (Ishiyama & Kitayama 1994) and difficulties work-life balancing, respectively (Jacobs & Gerson 2001, Hout & Hanley 2002). In addition, including individuals working less than 50 hours per week but reporting wanting to work less would remove us somewhat from the 'overwork' literature and focus the study instead on the 'time bind' stream of research. While related, these issues are different and should be investigated separately. Notably, the time bind research revolves considerably around household dynamics whereas overwork can be investigated at the individual level.

We further define individuals who are over-workers and reporting less than or equal to 5/10 job satisfaction as 'dissatisfied over-workers'. This is done on the basis of the wording of the HILDA question pertaining to job satisfaction, which reads as follows:

> *I am going to read out a list of different aspects of your job and, using the scale*
> *on SHOWCARD E36, I want you to pick a number between 0 and 10 to indicate*
> *how satisfied or dissatisfied you are with the following aspects of your job. The*

more satisfied you are, the higher the number you should pick. The less satisfied you are, the lower the number.

Respondents are presented with a show card with a depiction of a scale that reads '0: totally dissatisfied' at one end and '10: totally satisfied' at the other. This would seem to imply that the tipping point between satisfied and dissatisfied is at 5/10. The mean value of job satisfaction across all over-workers is 7.15 with a standard deviation of 1.8, as compared to 7.7 for the entire sample with a standard deviation of 1.7.

We estimate our model in the cross section. For this we use wave 10 of the HILDA data. The primary reason for this is that wave 10 is the first time an appropriate trade union membership variable appears. A commensurate variable capturing membership of industrial groups is present from wave one, but this original variable includes both employer associations and worker associations (Wooden 2009). This is inappropriate because we would expect membership in trade unions and employer organisations to push overwork in different directions. Union membership might increase bargaining power and thereby reduce the propensity to overwork while membership in an employer organisation might mean the individual is self-employed, which we find to have a strong positive effect on the propensity to overwork. With our definitions wave 10 provides us with a cross-sectional sample of 531 over-workers.[ii]

The probit model we utilise is as follows:

$$Overwork_i = \alpha + \beta X_i + \varepsilon_i$$

As already discussed, Overwork is a dummy variable that equals 1 if an individual works more than 50 hours per week *and* says they want to work less. X is a vector of independent variables that we might reasonably expect to influence the propensity to overwork. We follow Drago et al. (2009) for most of its contents with a few changes. We include: gender, age, marital status, wage, education, employment type (contract, full time, part time etc.), being employed as a manger, being employed as a professional, credit card debt, household debt, children, union membership, employment in the public service, the cost of job loss, self-perceived job security and self-employment status.

Gender, marital status and self-employment are captured using a dummy variable. Age is a continuous variable and we include a quadratic term. Education is controlled for using three dummy variables for tertiary, university or postgraduate educated, which leaves high school

educated only as the remainder. Contract type is similarly controlled for using several dummy variables. We also include dummies for up to 4 children. That is to say, the variable for 2 children will only equal 1 if the individual has exactly 2 children.

The manager dummy takes a value of 1 if the individual's job code falls into any of the following categories: 'Manager', 'Chief Executives, General Managers', 'Farmers and Farm Managers', 'Specialist Manager' and 'Hospitality, Retail and Service Manager'. The Professional dummy takes a value of 1 if the individual's job code falls into any of the following categories: 'Professionals', 'Arts and Media Professionals', 'Business, Human Resources and Marketing', 'Design, Engineering, Science and Technology', 'Education Professionals', 'Health Professionals', 'ICT Professionals' and 'Legal, Social and Welfare Professionals'.

Studies in personnel economics suggest that managers and professionals are more likely than other groups to be overworked for two reasons (Landers et al. 1996). First, the screening methods employed by firms to identify managerial-quality employees, especially in professional services firms, such as the partner-associate model, tournament systems and probationary periods, all create a rat-race effect which leads to long work hours (Lazaer 1979). Second, managerial tasks are typically very hard to job share (Greef & Nel 2003). With regards to self-employment, a 2003 Australian Bureau of Statistics report noted that 'very long hours are more common among workers who are self-employed' (ABS 2003). The self-employed have fewer incentives to shirk than their employed peers, have a strong relationship between their work effort and rewards, and may be existentially invested in their jobs. We would thus expect them to be more prone to overwork on average.

Public service employment and union membership are captured using dummy variables. We would expect these to be negatively correlated with overwork. Union membership should in theory improve employee's bargaining power, which should help them attain their optimal work hours. The Australia public service has a very strong union and attracts staff by offering better work-life balance arrangements than the private sector (Skinner and Chapman 2013).

To capture debt levels Drago et al. use the ratio of total household debt to annual disposable income. Higher ratios imply greater difficulty in servicing debt, so we would expect them to be correlated with a propensity to overwork arising out of what Schor (1999) describes as a 'work and spend cycle'. Individuals constantly purchasing the latest 'must-haves' may resort to debt financing. We also include the ratio but include as well a second continuous variable

for joint credit card debt. We feel this variable may capture a consumerist 'work and spend' cycle more effectively than the household debt ratio, which could reasonably be expected to include things like health care debts and mortgages, that is, goods not typically associated with consumerism.

Job security is captured by a variable indicating the respondent's own belief regarding the percentage chance of losing his/her job in the next 12 months. The cost of job loss is captured by a variable indicating the respondent's own belief regarding the percentage chance of finding a similar job if laid off

In order to control for wage we cannot use the wage variable from HILDA because it is derived from annual salary and is thus a function of hours, as is our dependent variable, overwork. This leads to endogeneity. To overcome this, we estimate a wage equation and use its predictions as the independent variable. For the contents of our wage equation we follow Breunig and Mercante (2010). We include age, poor English ability, residence in New South Wales (the most economically advanced state in Australia), residence in a capital city, educational attainment, years of work experience, partner's wage, unearned income, children and non-resident children and outright home ownership. Full details of the estimation can be found in the appendix in Tables A.1 and A.2.

Using our estimates from the probit model we can plot the relationship between the propensity to overwork against job satisfaction to examine the relationship. If hours-satisfaction is merely one component of overall job satisfaction then we might see job satisfaction rise with the propensity to overwork. We could conclude that while individuals would prefer to work less they may be sufficiently compensated for their long work hours in some way.

Results of the probit model

We present here a summary discussion of the results of the probit estimation, including average marginal effects. For the full regression outputs, including results for marginal effects at the sample means, please see Appendix A, Tables A.3 to A.5.

Age, marital status, contract-based work, the individual's perceived job security, professional status and the household debt ratio were found to have no statistically significant effect on the propensity to overwork. Cost of job loss had a statistically significant effect on the propensity to overwork, but the magnitude of the effect is very small.

University training has a statistically significant negative effect on the propensity to overwork, with an average marginal effect of a 5% reduction in the propensity to overwork. However, postgraduate and tertiary training had no statistically significant effect.

Positive contributors to a propensity to overwork were managerial status, self-employment, wage and being male. The average marginal effect of being a manager is to increase the propensity to overwork by 10%. The average marginal effect of self-employment is an 8% increase in the propensity to overwork. The average marginal effect of an increase in an individual's wage of $10 is a 9% increase in their propensity to overwork. Finally, the average marginal effect of being a man is to increase the propensity to overwork by 8%. All of these effects were statistically significant at the 1% level except for wage, which was significant at the 5% level.

These results match up well with our discussion earlier. Managers' tasks are typically substantial and difficult to share. Self-employed individuals are likely existentially invested in their work and have few incentives to shirk. There is also a direct relationship between their work and earnings, all of which incentivises long hours. And we would expect that those who are working long hours are doing so at least in part because of the incentive effects of high wages.

Drago et al. (2009) thoroughly investigate the gender effect. Some of the effect is derived from traditional gender roles wherein men work long hours and are career focused while women keep house. The relative opportunity costs associated with education and career advancement viz. parenting faced by men also mean that neo-traditional families are increasingly prevalent in Australia (Drago et al. 2009; Moen 2003).

The strongest negative determinants of overwork are union membership, public service membership and the presence of children in the household. Being a member of the public service marginally reduces the propensity to overwork by 6% on average. For union membership, the effect was a 2% reduction. These effects can be explained by bargaining power. Unions can advocate for members and help them secure more appealing work hours.

The Australian public service workers union also happens to be one of the stronger unions in Australia. In addition, public service workers are often highly trained and thus have greater labour market mobility, which improves their bargaining position (ABS 1998). Finally, government jobs typically pay less than comparable private sector ones in Australia, and so may need to attract talent by offering better work hour conditions (ABS 2013).

While the presence of four children in the household has no statistically significant effect on the propensity to overwork (relative to having no children), one, two and three children are all significant at the 5% level. Having one child marginally reduces the propensity to overwork by 4% on average, two by 3% and three by 5% (all relative to having no children.). Note that these are not cumulative. We hypothesise that while child-rearing might be costly, individuals who have children want to spend time with them and are thus discouraged from overworking.

Figure 1: Propensity to overwork against job satisfaction, wave 10
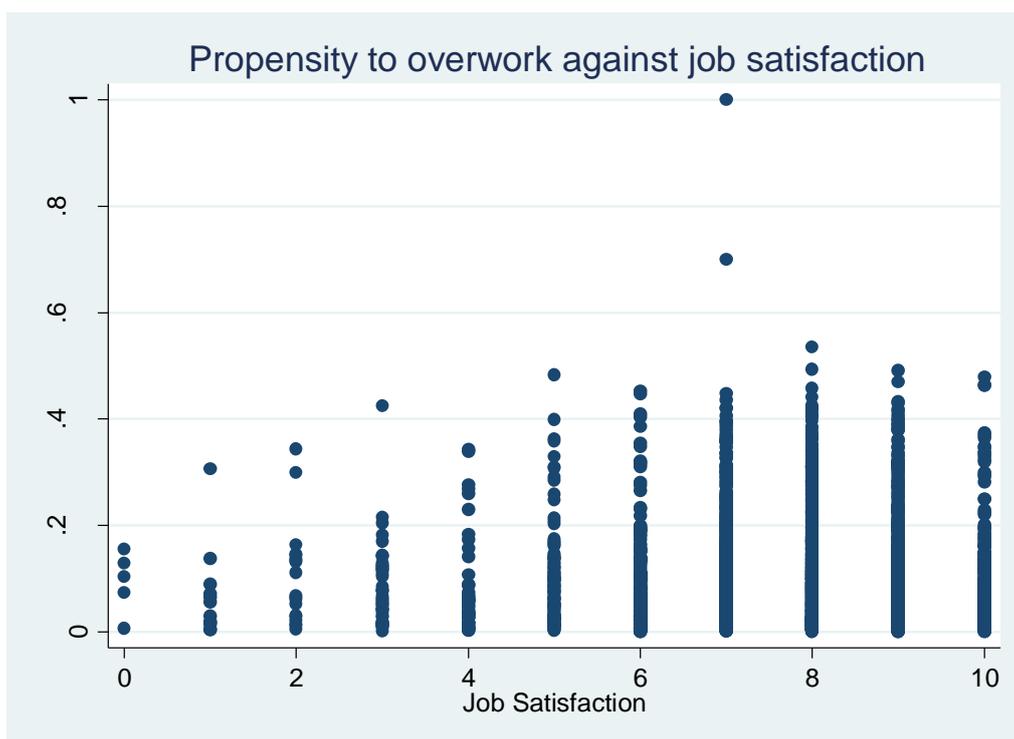
We complete the first phase of our investigations by estimating a propensity to overwork score for all the individuals in the sample, and plotting this against job satisfaction. The results are presented in figure 1.

There appears to be a mild positive relationship. As the propensity to overwork rises, so too does the individual's level of job satisfaction, at least until 8/10. However, the Spearman correlation coefficient is only 0.02 and is not statistically significant. Regardless, it turns out that job satisfaction is actually quite high among over-workers in general, as evident from figure 2, below, averaging 7.1 across the first twelve waves of HILDA.

Fig. 2: Job satisfaction among over-workers, average over 2001-2012
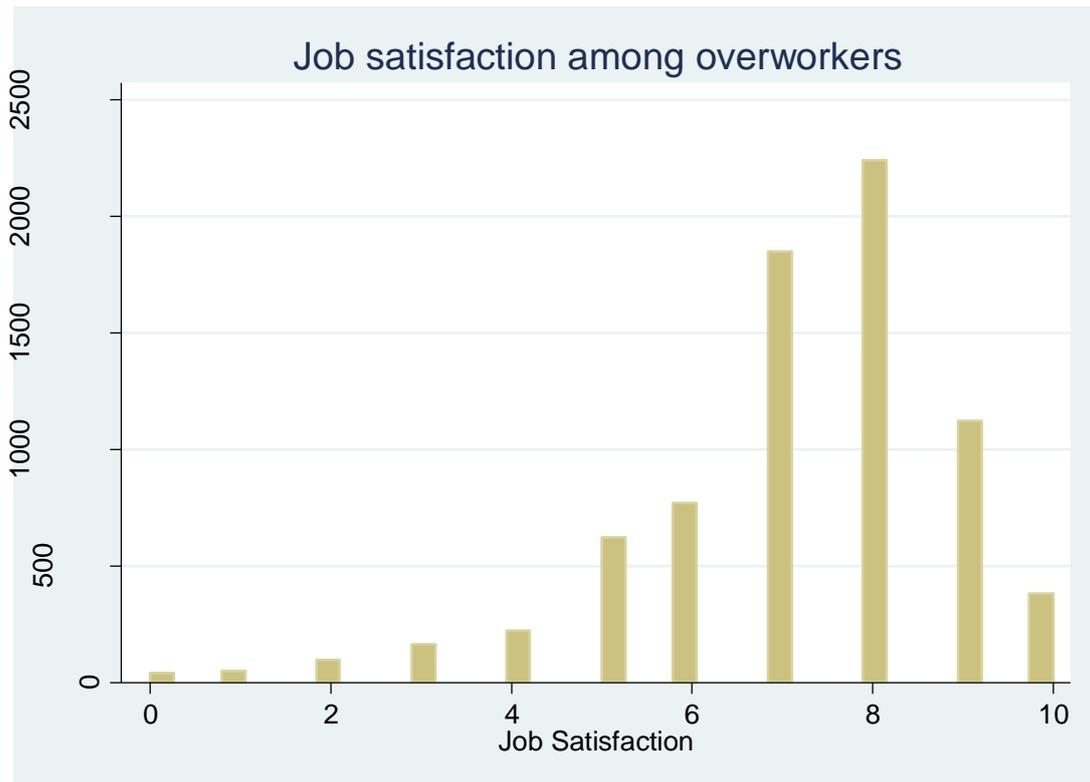
The distribution of job satisfaction levels among over-workers is not dissimilar from those of non-over-workers, as shown in figure 3, below.

These results conform to our hypothesis that work-hours and pay satisfaction are not the only components of job satisfaction, and that over-workers who would be willing to sacrifice wage to reduce their hours may nonetheless be quite happy in their jobs. This finding suggests that the notion of overwork does not necessarily challenge traditional economic theories of labour markets.

Fig. 3: Job satisfaction among non-over-workers, average over 2001-2012
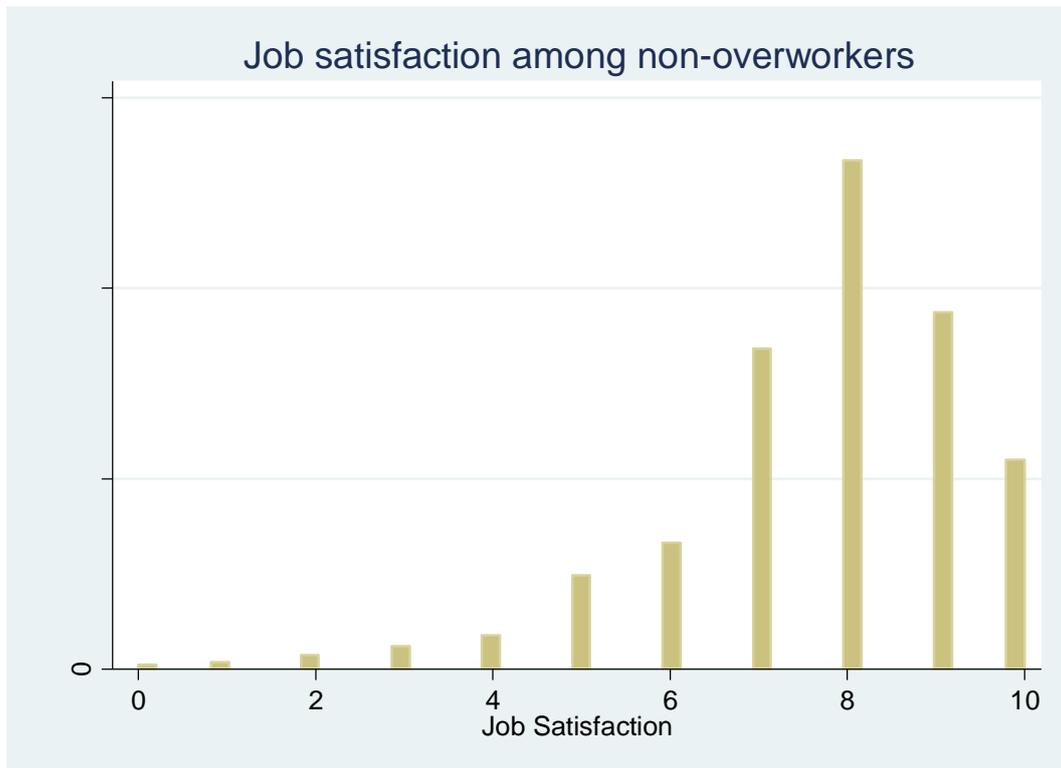
In the next stage of our analysis we try to get a more detailed understanding of the interplay between hours-satisfaction and job-satisfaction by making use of six questions in HILDA that track workers' satisfaction with five subcomponents of job satisfaction. These subcomponents are pay satisfaction, satisfaction with hours, security satisfaction, flexibility satisfaction and satisfaction with the work itself. To increase our sample size we move away from wave 10 and pool data from across the first 12 waves of HILDA (2001–2012). We cluster on xwaveid, the individual cross-wave identifier and apply population weights. We have 7,498 observations of overwork in the sample. We find the following results for the components of job satisfaction among over-workers.

Table 1.1: satisfaction with elements of job satisfaction among over-workers

Variable	Mean*	S.D.	Mean**	S.E.
Wage	12.0	(0.24)	7.6	(0.05)
Job satisfaction	7.1	(0.04)	7.7	(0.01)
Hours worked	62.4	(0.2)	33.7	(0.1)
Pay satisfaction	6.6	(0.06)	6.9	(0.02)
Hours satisfaction	5.1	(0.05)	7.4	(0.01)
Security satisfaction	7.8	(0.06)	7.9	(0.01)
Flexibility satisfaction	5.9	(0.06)	7.6	(0.01)
Work-itself satisfaction	7.6	(0.04)	7.6	(0.01)
Sample size	7,498		89,215	

* over-workers

** non-over-workers

As expected, among over-workers, hours-satisfaction and flexibility-satisfaction border on dissatisfaction, but they seem to be offset by satisfaction with other factors, which are at times quite good, such as satisfaction with security and the work itself. The results are starker in comparison to non-over-workers, where hours and flexibility satisfaction are 2.3 and 1.7 points higher respectively.

In an effort to obtain more information we split the sample into satisfied and dissatisfied over-workers. This allows us to get a clearer picture of what factors drive job-dissatisfaction among over-workers and which factors off-set it. Across the panel we have 6307 observations of satisfied and 1191 of dissatisfied over-workers.

Table 2.1: Satisfaction with components of job satisfaction among *satisfied* over-workers; N=6307

VARIABLE	MEAN	S.E.
Wage	12.4	(0.25)
Job satisfaction	7.7	(0.02)
Hours worked	62	(0.2)
Pay satisfaction	7.0	(0.05)
Hours satisfaction	5.5	(0.04)
Security satisfaction	8.1	(0.05)
Flexibility satisfaction	6.4	(0.05)
Work-itself satisfaction	8.0	(0.03)

For the satisfied over-workers satisfaction with all aspects of work has improved compared to the average of all over-workers. Total hours has not moved noticeably and neither has wage. However, satisfaction with security and the work itself have crept over the 8/10 threshold. This makes intuitive sense. Our probit analysis noted managers and the self-employed are likely to be over-workers. We would expect highly educated and highly ranked (within firms) individuals like managers to have good job security and be engaged in challenging and satisfying work. The self-employed are also more likely to be engaged in tasks they find personally fulfilling.

Table 2.2: satisfaction with components of job satisfaction among *dissatisfied* over-workers; N=1191

VARIABLE	MEAN	S.E.
Wage	10.2	(0.5)
Job satisfaction	4	(0.05)
Hours worked	63.5	(0.5)
Pay satisfaction	4.8	(0.1)
Hours satisfaction	3.1	(0.1)
Security satisfaction	6.4	(0.2)
Flexibility satisfaction	3.4	(0.1)
Work-itself satisfaction	5.7	(0.1)

Among dissatisfied workers we see opposite changes, with satisfaction scores mostly lower than the average over-worker. Hours and flexibility satisfaction are well below the 5/10 threshold. Other factors are bordering on or above satisfaction levels, suggesting that hours related issues may be the principle driver of dissatisfaction among these over-workers. Wage falls from an average of 12 among over-workers to 10.2, a decrease of 15%. Pay satisfaction also falls by 31.4% compared to the average, suggesting that there are limited wage-incentives to offset the harsh hours in this subsample.

Transition dynamics among dissatisfied over-workers

This paper explains why some conscripts seemingly become trapped overworking in jobs they don't like. Thus far we have observed that part of the explanation is that over-workers often possess high job satisfaction despite hours dissatisfaction. They would not want to change jobs in this case. We noted above, however, that there are a substantial number of

over-workers who are dissatisfied with their jobs and that hours dissatisfaction seems to be a major part of their overall job dissatisfaction. This leads us to two further questions. First, do those individuals who are overworked and dissatisfied with their jobs change jobs over time to ones wherein they are satisfied? And second, do those dissatisfied workers who remain in their jobs experience an increase in job satisfaction over time?

If the answer is yes to both questions then the labour market is functioning to allow adjustment. We don't have to be too concerned with the overwork phenomenon, at least from a policy point of view. On the other hand, if people seem to be hanging around in jobs they don't like then there is evidence that people are getting 'trapped', and we may need some action.

Because HILDA is a panel data set we can investigate these issues. We again pool data from the first 12 waves. To determine whether someone changed jobs we use a question in HILDA that asks whether an individual has changed jobs in the last 12 months. We can combine this with lagged values of the overwork dummy and job satisfaction variable to track the behaviour of dissatisfied over-workers.

Across all waves, we have 223 observations of a dissatisfied over-worker changing jobs. This amounts to 18.7% of dissatisfied over-workers (N=1191). This compares to a job change rate of only 8.1% among satisfied over-workers and 14.1% among non-over-workers. The table below shows the average scores of this group on the components of job satisfaction in their first survey after changing jobs.

Table 3.1: job satisfaction and its components among previously dissatisfied over-workers who changed jobs in the last 12 months; N=223

VARIABLE	MEAN	S.E.
Wage	11.7	(0.63)
Job satisfaction	6.7	(0.14)
Hours worked	50.3	(1.3)
Pay satisfaction	6.4	(0.2)
Hours satisfaction	6.0	(0.2)
Security satisfaction	6.9	(0.2)
Flexibility satisfaction	6.2	(0.2)
Work-itself satisfaction	7.2	(0.16)

The improvements in all variables are stark. Wage increases by an average of 14.7%. Hours worked fall by 13 per week on average—a 26% decrease. Satisfaction with all other indicators improves. It seems that things typically work out well for those dissatisfied over-workers who are able to change jobs.

Next we examine observations of dissatisfied over-workers who do not change jobs for one year. In this case we have 580 observations.

Table 3.2: job satisfaction and its components among previously dissatisfied over-workers who did not change jobs in the last 12 months; N=580

VARIABLE	MEAN	S.E.
Wage	9.8	(0.6)
Job satisfaction	5.7	(0.1)
Hours worked	56.9	(0.7)
Pay satisfaction	5.3	(0.16)
Hours satisfaction	4.2	(0.15)
Security satisfaction	7.0	(0.2)
Flexibility satisfaction	4.8	(0.2)
Work-itself satisfaction	6.4	(0.1)

Job satisfaction rises to 'satisfied' levels. Critically, while wage declines by 4.1% on average for these workers their hours also decline by 11.6%. Hours-satisfaction improves by more than a point on average, as does flexibility satisfaction. Even pay satisfaction improves despite the reduction in wage. This sub-sample of workers appear to be able to negotiate fewer hours in their job over time and get closer to their preferred levels, supporting the basic labour market model. Satisfaction on all other components rises as well.

Table 3.3: job satisfaction and its components among dissatisfied over-workers who do not change jobs for 2 years; N=94

VARIABLE	MEAN	S. E.
Wage	7.2	(1.2)
Job satisfaction	4.7	(0.3)
Hours worked	61	(1.5)
Pay satisfaction	4.4	(0.4)
Hours satisfaction	3.1	(0.3)
Security satisfaction	6.2	(0.4)
Flexibility satisfaction	4.1	(0.4)
Work-itself satisfaction	6.0	(0.4)

We turn now to dissatisfied over-workers who don't change jobs in the 12 months between surveys and then don't change jobs again over the next 12 months despite remaining dissatisfied and overworked.

Here we start to see evidence of some people becoming 'trapped' overworking in jobs they are dissatisfied with. These workers have spent two consecutive periods overworking in jobs they dislike without changing jobs and without seeing much improvement in their job satisfaction scores. Wages for this group are substantially lower on average (7.2) than those of dissatisfied over-workers (10.2) and hours, hours-satisfaction and flexibility-satisfaction have not improved sufficiently over time to achieve overall satisfaction. Flexibility-satisfaction has improved somewhat over time but hours-satisfaction has not moved at all. Pay satisfaction is lower than for the baseline group and satisfaction with security and the work itself is stagnant over time. Total hours are only 2.5 hours lower per week than for the baseline group and still above 60.

Before undertaking an analysis of these 'trapped' over-workers, it is critical to note the precipitous drop in sample size when we focus on this 'trapped' group. We have 1191 observations of dissatisfied over-workers in the panel and 580 observations of dissatisfied over-workers who do not change jobs for 12 months, but only 94 observations for dissatisfied over-workers who do not change jobs for 24 months. Of these, only 57 appear to be unique individuals. This suggests that some individuals are trapped overworking for a long time, thereby contributing several observations. More importantly though, it suggests that being 'trapped' is a very rare phenomenon.

To get an insight into why these 57 individuals have such poor job mobility we undertook an in depth analysis of each of them examining a range of statistics.[iii] Only two issue stand out: job category and education.

Among the 57 individuals concerned, very few jobs were frequently observed. The only exceptions were farmers, of whom there were 10 (17.5%), and hospitality, retail or service managers, of whom there were 14 (24.5%). Both of these job categories are characterised by strict work hours dictated by opening hours or sunlight, so it makes sense that they might contain a cluster of people dissatisfied with their long hours. Farmers are also commonly heavily invested in their land, making a job change difficult.

In terms of education, only 15% of the sample had a university level or higher degree and a full 45% had only attended high school. This would make these individuals reliant on experience to command wages, increasing the marginal cost of job change and limiting their mobility. It would also reduce the number of jobs they were qualified for. Interestingly, none of the farmers had completed university and only 3 had tertiary training, and only 1 of the hospitality, retail or service managers had a university degree. The combination of a rigid work hour job and limited job mobility could understandably lead to a job trap.

We view these results as suggestive of a pattern that requires further investigation. The small sample size makes it difficult to draw strong conclusions.

Conclusions

Based on the results of our inquiry, we make the following tentative conclusions. First, we find evidence that job satisfaction involves more than an optimisation across only hours and income. We have found that people reporting that they would forgo income in order to work less nonetheless often report job satisfaction. Past studies have found people to care about the level of responsibility they have in their workplace, the capacity their job gives them for agency, the amiability of co-workers and the location of their job, among other things (Dunette et al. 1967, Gormley 2003; Kalleburg 1977). We found high satisfaction among over-workers on job-security satisfaction and 'work-itself', suggesting these factors may also play an important role in job satisfaction.

Second, there is a mild positive relationship between the propensity to overwork and job satisfaction, but it is statistically insignificant. The cause of this is unclear, but from the high 'work-itself' satisfaction scores mentioned above, we might speculate that some of the more enjoyable jobs available require long hours.

Third, individuals becoming 'trapped' overworking in jobs they dislike for several years is a rare phenomenon. Dissatisfied over-workers tend to change jobs or negotiate an adjustment of their work conditions so as to work fewer hours.

Fourth, in our analysis, the only qualities of trapped over-workers that stand out are low levels of education and common employment in industries, notably farming and hospitality, characterised by rigid work hour requirements. One possible explanation is that limited

education may make such individuals dependent on experience to command high wages, thereby increasing their marginal cost of job change and limiting their mobility.

The principle policy implication of our findings is that the labour market in Australia appears to be working where overwork is concerned. Overwork is not a threat to people's ability to find jobs that they like. Given the other costs it would entail, State intervention to address long work hours is not necessary. When the preference of individuals for shorter hours becomes strong they change jobs or request shorter hours.

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[i] Neo-traditional households are those where the two parties express 'modern' attitudes to gender norms but nonetheless fall into traditional gender roles.
[ii] Breunig et al. (2014) show that the patterns of over- and under-work are relatively constant across waves. Our results are very similar if we use a different wave.
[iii] Full details available upon request

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<u>APPENDIX</u>

All do-files for this project are available by request from the authors. Please contact mark.fabian@anu.edu.au. These files include detailed information on how variables were cleaned and coded.

Table A.1: Summary statistics and variable definitions for wage equation

Name	Definition	Mean	S.D.
	Wage Equation		
Age100	Age divided by 100	0.4	0.15
Badenglish	=1 if the respondent rates their own competency with English as poor, =0 otherwise	0.14	0.34
NSW	=1 if resident of NSW, =0 otherwise	0.3	0.5
Capitol	=1 if resident of a capital city of Australia, =0 otherwise	0.56	0.5
Postgrad	=1 if the individual's highest level of qualification is a postgraduate qualification; =0 otherwise	0.08	0.27
Uni	=1 if the individual's highest level of qualification is a bachelor's degree; =0 otherwise	0.12	0.3
Tertiary	=1 if the individual's highest level of qualification is a tertiary qualification; =0 otherwise	0.3	0.4
Experience	Years in the workforce	21.1	14.6
Exp2div100	Experienced squared divided by 100	6.6	7.4
pwage100	Partner's wage divided by 100	6.2	7.8
unearnedI1000	Unearned household income divided by 1000	6.1	22.3
Children	Number of children in the household	0.5	1.0
homeown	=1 if respondent owns their own home, =0 otherwise	0.3	0.5

Table A.2: Regression results of wage equation

Source	SS	df	MS
Model	70770.7867	15	4718.05245
Residual	186663.617	4683	39.8598371
Total	257434.404	4698	54.7965951

Number of obs =	4699
F(15, 4683) =	118.37
Prob > F =	0.0000
R-squared =	0.2749
Adj R-squared =	0.2726
Root MSE =	6.3135

wage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
age100	56.60763	8.790796	6.44	0.000	39.37354	73.84173
c.age100# c.age100	-79.68886	9.382392	-8.49	0.000	-98.08276	-61.29496
badenglish	-2.120946	.2811624	-7.54	0.000	-2.672156	-1.569735
NSW	.8001189	.1926781	4.15	0.000	.4223792	1.177859
capitol	.7780525	.2598981	2.99	0.003	.2685298	1.287575
postgrad	5.683642	.2982808	19.05	0.000	5.098871	6.268413
uni	3.685857	.2669479	13.81	0.000	3.162513	4.2092
tertiary	1.153429	.2441547	4.72	0.000	.6747712	1.632087
exp2div100	-.3883397	.0721913	-5.38	0.000	-.5298685	-.2468108
experience	.3595621	.0345756	10.40	0.000	.2917776	.4273466
pwage100	-.0505656	.0129302	-3.91	0.000	-.0759149	-.0252163
unearnedI1000	-.0593268	.0097138	-6.11	0.000	-.0783705	-.0402831
children	-.0882153	.0962095	-0.92	0.359	-.2768313	.1004006
nonreskids	-.7936102	.2859351	-2.78	0.006	-1.354178	-.2330428
homeown	-.3634275	.2097642	-1.73	0.083	-.774664	.047809
_cons	-8.686744	1.837265	-4.73	0.000	-12.28865	-5.08484

Table A. 3: Summary statistics and variable definitions for Probit equations

Probit			
Name	**Definition**	**Mean**	**S.D.**
Gender	=1 if male; =0 if female	0.49	0.5
Age	Years old; continuous variable	40	15
Marital	=1 if the individual is married, =0 otherwise (de facto = 0)	0.46	0.5
Wageeq	The wage of the individual as predicted by the wage equation	6.5	3.8
Postgrad	=1 if the individual's highest level of qualification is a postgraduate qualification; =0 otherwise	0.08	0.27
Uni	=1 if the individual's highest level of qualification is a bachelor's degree; =0 otherwise	0.12	0.3
Tertiary	=1 if the individual's highest level of qualification is a tertiary qualification; =0 otherwise	0.3	0.4
Contract	=1 if the individual works as a contractor; =0 if they do not	0.04	0.2
Manager	=1 if the individual is a manager; =0 if they are not	0.13	0.34
Professional	=1 if the individual is a professional; =0 if they are not	0.2	0.4
Cdebt	own credit card debt divided by 1000	0.6	2.8
Hdebtratio	Household debt divided by household disposable income	2	22.7
Child1	=1 if the household has exactly 1 children; =0 otherwise	0.9	0.3
Child2	=1 if the household has exactly 2 children; =0 otherwise	0.1	0.3
Child3	=1 if the household has exactly 3 children; =0 otherwise	0.04	0.2
Child4	=1 if the household has exactly 4 children; =0 otherwise	0.01	0.1
Union	=1 if union member; =0 if not	0.03	0.12
Servant	=1 if the individual is a public servant; =0 if they are not	0.03	0.16
Costjobloss	Self-perceived ability to find a similar job if laid-off, expressed as a percentage chance	54	39
Jobsec	Self-perceived chance of losing job in the next 12 months, expressed as a percentage chance	8	19
selfemp	=1 if the individual is self-employed; =0 if they are not	0.16	0.37

Table A.4: Regression result of Probit estimation

```
Probit regression                              Number of obs   =       2596
                                               LR chi2(23)     =     213.45
                                               Prob > chi2     =     0.0000
Log likelihood = -660.85011                    Pseudo R2       =     0.1390
```

overwork	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gender	.6130873	.0929367	6.60	0.000	.4309347	.7952399
age	-.0208119	.0415598	-0.50	0.617	-.1022676	.0606438
c.age#c.age	.0001552	.0004675	0.33	0.740	-.0007611	.0010715
marital	.2795276	.6433785	0.43	0.664	-.9814711	1.540526
wageeq	.1556411	.0783005	1.99	0.047	.002175	.3091073
c.wageeq# c.wageeq	-.0052587	.0045198	-1.16	0.245	-.0141173	.0036
postgrad	-.1968952	.237527	-0.83	0.407	-.6624395	.2686492
uni	-.3918626	.1858591	-2.11	0.035	-.7561396	-.0275855
tertiary	-.0969074	.108498	-0.89	0.372	-.3095596	.1157449
contract	.106171	.1372187	0.77	0.439	-.1627727	.3751147
manag	.7566949	.0975178	7.76	0.000	.5655634	.9478263
prof	.1010865	.1168012	0.87	0.387	-.1278396	.3300126
cdebt	-.008647	.0092846	-0.93	0.352	-.0268444	.0095505
hdebtratio	.0055283	.005684	0.97	0.331	-.0056122	.0166688
child1	-.2980045	.1266384	-2.35	0.019	-.5462111	-.0497979
child2	-.2421457	.1210696	-2.00	0.045	-.4794378	-.0048535
child3	-.3189259	.1483152	-2.15	0.032	-.6096183	-.0282334
child4	-.3343651	.3152175	-1.06	0.289	-.95218	.2834499
union	.1803189	.0968746	1.86	0.063	-.0095518	.3701896
servant	-.4178793	.2268007	-1.84	0.065	-.8624006	.026642
costjobloss	.0042544	.0014199	3.00	0.003	.0014713	.0070374
jobsec	-.0038677	.0025961	-1.49	0.136	-.008956	.0012206
selfemp	.6032328	.1358667	4.44	0.000	.336939	.8695267
_cons	-2.571167	1.019273	-2.52	0.012	-4.568906	-.5734277

Table A.5: Average Marginal effects (as reported in text)

	dy/dx	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.0840006	.012839	6.54	0.000	.0588365	.1091646
age	-.0009311	.0007045	-1.32	0.186	-.002312	.0004497
marital	.0382988	.0881402	0.43	0.664	-.134453	.2110505
wageeq	.0090224	.0043313	2.08	0.037	.0005331	.0175117
postgrad	-.0269771	.0325569	-0.83	0.407	-.0907875	.0368334
uni	-.05369	.0254977	-2.11	0.035	-.1036646	-.0037155
tertiary	-.0132775	.0148746	-0.89	0.372	-.0424312	.0158762
contract	.0145467	.0188016	0.77	0.439	-.0223037	.0513972
manag	.1036766	.0133315	7.78	0.000	.0775473	.129806
prof	.0138501	.016006	0.87	0.387	-.017521	.0452212
cdebt	-.0011847	.0012718	-0.93	0.352	-.0036773	.0013078
hdebtratio	.0007574	.0007785	0.97	0.331	-.0007683	.0022832
child1	-.0408303	.0173622	-2.35	0.019	-.0748597	-.006801
child2	-.033177	.0165977	-2.00	0.046	-.0657079	-.0006461
child3	-.0436968	.0203435	-2.15	0.032	-.0835693	-.0038243
child4	-.0458122	.0432046	-1.06	0.289	-.1304917	.0388673
union	.0247059	.0132768	1.86	0.063	-.0013161	.0507279
servant	-.0572547	.0311047	-1.84	0.066	-.1182188	.0037094
costjobloss	.0005829	.0001949	2.99	0.003	.0002008	.000965
jobsec	-.0005299	.0003559	-1.49	0.136	-.0012274	.0001675
selfemp	.0826504	.0186522	4.43	0.000	.0460927	.1192081

Table A. 5: Marginal effects at the sample means

```
at              : gender          =      .5423729  (mean)
                  age             =      44.45763  (mean)
                  marital         =      .9965331  (mean)
                  wageeq          =      7.892525  (mean)
                  postgrad        =      .1409861  (mean)
                  uni             =      .1664099  (mean)
                  tertiary        =      .3744222  (mean)
                  contract        =      .0835901  (mean)
                  manag           =      .1540832  (mean)
                  prof            =       .251926  (mean)
                  cdebt           =      1.096094  (mean)
                  hdebtratio      =      2.638005  (mean)
                  child1          =       .248074  (mean)
                  child2          =      .3204931  (mean)
                  child3          =      .1305855  (mean)
                  child4          =      .0192604  (mean)
                  union           =        .23151  (mean)
                  servant         =      .0496918  (mean)
                  costjobloss     =      50.26194  (mean)
                  jobsec          =      7.558552  (mean)
                  selfemp         =      .1810478  (mean)
```

	dy/dx	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
gender	.0752082	.0138334	5.44	0.000	.0480953	.1023212
age	-.0008601	.0006157	-1.40	0.162	-.0020669	.0003467
marital	.03429	.0789779	0.43	0.664	-.1205038	.1890838
wageeq	.00891	.0034572	2.58	0.010	.002134	.015686
postgrad	-.0241534	.0279594	-0.86	0.388	-.0789527	.030646
uni	-.0480703	.0213878	-2.25	0.025	-.0899895	-.0061511
tertiary	-.0118878	.0132109	-0.90	0.368	-.0377807	.0140052
contract	.0130241	.0168349	0.77	0.439	-.0199716	.0460199
manag	.0928248	.0150041	6.19	0.000	.0634173	.1222323
prof	.0124004	.0143166	0.87	0.386	-.0156595	.0404604
cdebt	-.0010607	.0011398	-0.93	0.352	-.0032946	.0011731
hdebtratio	.0006782	.0006987	0.97	0.332	-.0006913	.0020476
child1	-.0365566	.0159195	-2.30	0.022	-.0677583	-.0053549
child2	-.0297043	.015282	-1.94	0.052	-.0596565	.0002478
child3	-.0391231	.0187728	-2.08	0.037	-.0759171	-.002329
child4	-.041017	.0389505	-1.05	0.292	-.1173586	.0353246
union	.02212	.0119479	1.85	0.064	-.0012975	.0455375
servant	-.0512618	.0283568	-1.81	0.071	-.10684	.0043164
costjobloss	.0005219	.0001781	2.93	0.003	.0001729	.0008709
jobsec	-.0004745	.0003224	-1.47	0.141	-.0011064	.0001575
selfemp	.0739994	.0173975	4.25	0.000	.0399009	.1080979