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Willing to Pay for Security: A Discrete Choice Experiment to Analyse Labour Supply Preferences

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Abstract
This paper investigates the extent to which labour supply preferences are responsible for the marked rise in atypical work arrangements in the UK and US. By employing vignettes in a discrete job choice experiment in a representative survey, I estimate the distribution for preferences and willingness-to-pay over various job attributes. The list of attributes includes key distinguishing factors of typical and atypical work arrangements, such as security, work-related benefits, flexibility, autonomy and taxation implications. The results are indicative that the majority of the population prefer characteristics associated with traditional employee-employer relationships, and this preference holds even when analysing just the sub-sample of those in atypical work arrangements. Additionally, preferences across the UK and US are very similar, despite differences in labour market regulations. Rather than suggesting that labour supply preferences have contributed to the increase in atypical work arrangements, I find that the changing nature of work is likely to have significant negative welfare implications for many workers.

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1 Introduction

A number of developed economies have experienced an increase in the proportion of workers involved in atypical work arrangements (Boeri et al., 2018). These include, though are not limited to, arrangements such as short and zero hours contracts, gig and HIT (human intelligence task) work, and freelancing. In the United Kingdom, the proportion in self-employment has risen by 25% over the past two decades, and as shown by figure 1, this increase is entirely driven by those without employees[1]. The proportion of workers on zero hour contracts (ZHCs)[2] has increased from 200,000 to almost a million over the same time period. The United States has experienced similar trends, with Katz and Krueger (2019) finding almost a 20% rise in the proportion of workers engaged in alternative work arrangements between 2005 and 2015.

Ceteris paribus, these shifts in work patterns are likely to have an impact on worker's welfare. Income and wages for atypical work arrangements are on average lower than traditional employment relations in the UK, and ZHC workers experienced a greater drop in wages and weaker recovery following the onset of the Great Recession (see figures 2a and2b). Similarly in the US, Katz and Krueger (2016) find that even after conditioning on personal characteristics and occupation dummies workers in atypical work arrangements have lower weekly earnings. Atypical work arrangements are additionally generally not afforded certain non-pecuniary benefits such as job security and holiday and sick pay. However, they are more likely to enjoy other benefits such as flexibility, autonomy and a favourable tax structure. This indicates two possible mechanisms, one where labour demand conditions for traditional employees are weak, thus pushing workers into accepting more precarious working conditions with lower wages, and another where workers are choosing to trade in pay and security for more flexible and autonomous working arrangements. This paper investigates the extent to which the

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[1]This encompasses freelancers, gig and HIT workers and crowd workers.

[2]ZHCs are an employment contract under which a worker is not guaranteed any hours and is only paid for work carried out. For a full discussion of ZHCs see Datta et al. (2019)

latter is responsible, and seeks to answer whether labour supply preferences for particular job attributes could be a causal factor in the evolution of the labour market.

Eliciting labour supply preferences is challenging. Realised choice data lacks detailed information on both the chosen job and the available alternatives resulting in identification issues. To overcome this I exploit the trade-off between typical and atypical job attributes in a discrete job choice experiment using vignettes in a novel representative survey. I estimate preferences and willingness-to-pay (WTP) distributions for a variety of job attributes which often distinguish typical from atypical work arrangements. The survey setting allows the collection of individual level characteristics including detailed demographics and preferences such as risk aversion. This additional information in conjunction with the distributional estimation allows for a careful treatment of individual heterogeneity.

Using a mixed logit model I find that workers in both the UK and US value security and traditional employment benefits such as holiday and sick pay far more than hours and location flexibility, autonomy and tax perks. Estimates are very similar across the two countries which is unexpected given differences in labour market institutions. While a small proportion of workers place a substantial value on flexibility, an even smaller proportion place a lower value on security. Thus, little evidence is found that backs the hypothesis that worker preferences have contributed to the increase of atypical work arrangements. On the contrary, the evidence suggests that approximately half of workers in atypical roles would prefer more traditional work arrangements, and therefore the changing nature of work may have important welfare implications. The results are robust to a variety of specifications, unaffected by hypothetical bias, and little evidence of inattention is found.

The remainder of this paper is structured as follows. Section 2 gives an overview of the existing literature on the topic. Section 3 describes the survey design and data,

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and section 4 motivates and describes the vignette methodology used, with reference to country specific labour market regulations. Section 5 outlines and develops the model and empirical framework. Section 6 reports the results and compares them to a simple calibrated model of search, and section 7 closes with some concluding remarks and discusses policy implications.
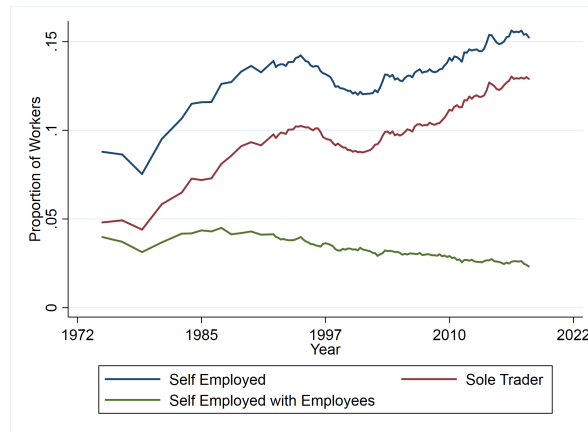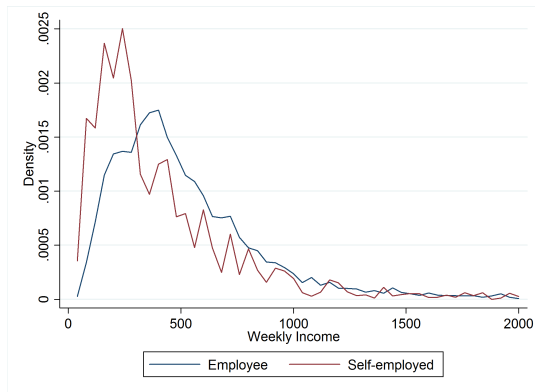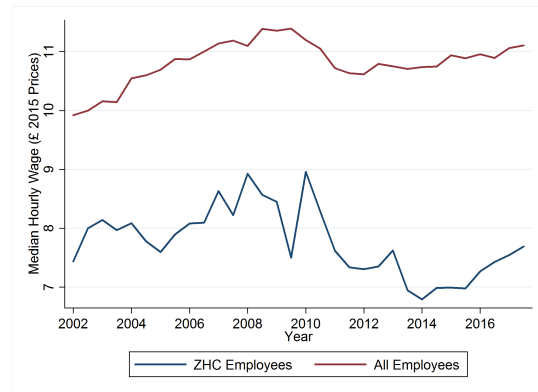

Figure 1: UK Self Employment Proportions: 1975 -2018

Source: Labour Force Survey (LFS)

(a) Employee vs Self-Employed Income: 2016   (b) UK Employee Wages, All vs ZHC: 2002 -2018

Figure 2: Atypical vs Typical Income and Wages

Source: Family Resource Survey and LFS

2 Related Literature

Analysis of atypical work arrangements and their impacts to workers is not a new topic. A branch of early literature from the 1990s characterised such arrangements as offering lower wages with less security and benefits, and little scope for human capital accumulation (Rodgers and Rodgers, 1989; Beard and Edwards, 1995; Nollen, 1996; Kalleberg, 2000). However, even at that time the heterogeneity in the market was highlighted (Büchtemann and Quack, 1989).

The emergence of atypical work arrangements has been attributed to a variety of causes including weak demand conditions, regulation, demographic changes, technological change and preferences. In the early literature Cordova (1986) highlights the importance of the slow down in economic growth that occurred in the 1980s, while more recently Katz and Krueger (2017) find that US workers who experience unemployment spells are more likely (7 to 17%) to be involved in a form of atypical work arrangement. Kalleberg (2000) argues that technological improvements in information and communication systems additionally made it easier for firms to arrange temporary workers, and this is further exemplified by the emergence of recent online "gig" platforms. Parts of the early literature also highlight the importance of labour market regulation in driving increases in atypical work (Lee, 1996; Capelli et al., 1997). Recent causal evidence from Datta et al. (2019) confirm this as a contributing factor, finding that the introduction of the National Living Wage (which represented a 7.5% increase in the wage floor) increased care homes and domiciliary care agencies use of ZHCs.

A small body of recent literature exists that looks to estimate worker preferences over job characteristics and fringe benefits, and it is these studies that this paper is most comparable to. Mas and Pallais (2017) employ a discrete choice experiment during the hiring period for a call centre in the US. They estimate the WTP distribution for flexibility attributes for jobs, including flexibility of hours and work location, and find that

hours flexibility is not valued by the majority of workers, though there is a long right tail who are price inelastic for flexibility. Both Eriksson and Kristensen (2014) and Wiswall and Zafar (2017) use a similar vignette method as used in this study. While a focus in both papers is placed more so on preferences over job packages and other characteristics such as bonuses and health insurance, some attributes of the atypical-typical trade-off are considered, such as flexibility. Eriksson and Kristensen (2014) in particular find that among five different job amenities (such as bonuses and on the job training) that flexibility is the most valued.

This paper contributes to the above literature along a number of dimensions. Firstly, it uses an experimental design which allows the distributions of preferences to be backed out for arguably the most important distinguishing characteristics of typical and atypical work arrangements. This allows for a much fuller understanding of labour supply decisions into atypical jobs. Secondly, as the experiment employs vignettes in a survey setting, it allows for other individual level preferences to be elicited, such as risk aversion, as well as other individual level characteristics. As a result this offers itself to deeper heterogeneity analysis. Finally, it uses representative samples of both the UK and US population, and thus can be generalised to make inferences about the labour supply decisions for workers in the UK and US, while also lending itself to make cross country comparisons.

3   Survey Design and Data

Data was collected using an internet based survey launched in July 2018 on the Prolific Academic platform, targeted at a panel of working-age UK and US respondents. The Labour Choice Survey (LCS) was approximately 15 minutes long and contained questions on demographics, instruments for measuring preferences relating to risk and time, a short cognitive ability test and a fictitious discrete job choice experiment based on vignettes. Respondents were paid £4.55 ($5.81) for completing the survey, equivalent

to £18.20 ($23.26) per hour. This rate is far higher than what is often paid on online platforms[3] and is equivalent to the 68th percentile of income in the UK and the 63th in the US. This helps mitigate selection issues which could arise from a lower payment rate, and improves sample representativeness. Prior to taking the survey to the field, a small pilot survey was run on a different platform and respondents were asked to give feedback concerning the clarity of the questions and no issues were raised.

3.1 Preferences

Two preference parameters which might be correlated with job choice decisions, and in particular self-employment decisions, are risk aversion and time discounting. Self-employment is often characterised by short-term contract work which offers less security than traditional employment. It is thus hypothesised that individuals with lower levels of risk aversion may be more likely to select into self-employment and therefore present with lower WTP for job security characteristics. Additionally, newly formed companies or sole traders can face a number of months or years as the business develops till they see meaningful returns. The self-employed may therefore be represented more by individuals with a lower discount factor.

In order to elicit preferences on both risk aversion and discounting I employ part of the preference survey module from Falk et al. (2016). For both preferences a hypothetical choice experiment is used which is analogous to the more commonly used revealed preference approach.

For both preferences the streamlined quantitative questions are used due to time restrictions, though as noted by Falk et al. (2016), this has a minimal impact on the explanatory power of the module. For both risk and discounting, five interdependent hypothetical

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[3]Hara et al. (2018) estimate the median hourly wage on Mechanical Turk is only $2 per hour.

choice experiments are asked following a "staircase" procedure.[4] Risk preferences are elicited with a choice between a lottery and a sure payment, while discounting preferences are elicited with a choice between a payment today and a payment in 12 months. Figures 5 and 6 in section A.1 present example quantitative questions for risk and discounting preferences respectively.

3.2 Cognitive Ability Test

There appears no a priori reason why cognitive ability should be linked to labour choice decisions, and estimates from the US indicates that there is no relationship between job preferences and cognitive ability (Mas and Pallais, 2017). However, to test this on a UK based sample I also include a short cognitive test.

I use a highly streamlined version of the Wonderlic Personnel Test. The full test consists of 50 multiple choice questions to be answered in 12 minutes. Due to time constraints I reduce this to 6 questions to be answered in 90 seconds. The questions cover logic, maths and literacy, and are of varying difficulty in order to create separation of scores.

3.3 Descriptive Statistics and Representativeness of Sample

Table 1 presents descriptive statistics from the LCS, and where possible, the corresponding statistics from the UK's Quarterly Labour Force Survey (QLFS) and the US's Current Population Survey (CPS) in order to assess the representativeness of the respondents.

There is an even spread of men and women in the survey[5] as well as an even spread across ages. In the UK (US) 67% (53%) are cohabiting with some form of partner and

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[4]For illustrations of the staircases please see Appendix E and F in Falk et al. (2016).

[5]Seventeen respondents identified as transsexual or non-binary in total, all others identified as either male or female.

52% (41%) have children. All these figures line up relatively well with the QLFS and CPS statistics, though our UK sample has marginally less people with children (to the tune of 8 percentage points). Measures for the preference parameters are very similar across the two countries. The samples are on average risk averse, requiring an £82.95 ($89.06) certainty equivalent to induce indifference to a £300 ($300) 50/50 lottery, and they discount the future at a rate of 0.66 (0.64) per year.

Respondents possess a variety of education levels and approximately 50% have an undergraduate degree or higher in both countries. The education level proportions are generally similar to the national data, though in the US the LCS survey has undersampled those with a lower level of education.

As everyone in the sample is by definition in some form of employment (respondents on Prolific Academic are paid to respond to surveys) I restrict analysis in the national data to only those who are active in the labour force. 69% (62%) of the LCS sample earn the bulk of their earnings through a traditional employment relationship while the remaining 31% (38%) through self-employment channels, such as freelancing, gig work and running a business. There is around 16 (28) percentage points more individuals who are classified as self-employed in the LCS sample in comparison to the national data, though this is unsurprising given the platform being used is likely to draw in more gig and HIT workers. That said the mean employee hourly rate of £14.10 ($23.02) in the LCS is almost identical to the national data. The mean hourly rate from self-employment is very similar to the employment hourly rate though has a larger standard deviation in both the US and UK. The gig hourly rates (£5.55 and $10.62) are considerably lower however, and in the UK's case, below the National Living Wage (£7.83).

Overall the LCS samples match the national data well, and based on the aforementioned observables the LCS sample is generally representative of the entire population.

Table 1: Descriptive Statistics

	UK				US			
	LCS	LCS	QLFS	QLFS	LCS	LCS	CPS	CPS
	Mean	StdDev	Mean	StdDev	Mean	StdDev	Mean	StdDev
Demographics								
Female	0.53	0.50	0.49	0.50	0.53	0.50	0.48	0.50
Age	42.01	13.40	42.61	12.48	39.38	13.18	41.88	13.30
Married, cohabiting	0.67	0.47	0.71	0.46	0.53	0.50	0.55	0.50
Has children	0.52	0.50	0.60	0.49	0.41	0.49		
Preferences								
Certainty Equivalent to 50/50 (£/$)300 lottery	82.96	47.79			89.06	53.18		
Discount Factor	0.66	0.17			0.64	0.18		
Education								
Less Than High School	0.20	0.40	0.24	0.43	0.01	0.10	0.06	0.24
High School	0.20	0.40	0.23	0.42	0.09	0.29	0.27	0.44
Technical, Vocational, Some College	0.09	0.29	0.08	0.27	0.38	0.49	0.29	0.45
Batcherlor's Degree or higher	0.50	0.50	0.43	0.50	0.52	0.50	0.38	0.48
Woderlic Test Score /6 (IQ)	1.55	1.27			1.68	1.33		
Work								
Employee	0.69	0.46	0.85	0.35	0.62	0.49	0.90	0.30
Self-employed	0.31	0.46	0.15	0.35	0.38	0.49	0.10	0.30
Employee Hourly Rate (£/$)	14.10	8.62	14.75	9.59	23.02	16.39	24.28	15.65
Self Employment Hourly Rate (£/$)	14.56	11.84			24.05	25.56		
Gig Work Hourly Rate (£/$)	5.55	5.54			8.12	10.62		
N	2,013		42,116		1,871		55,102	

4 Vignettes

4.1 Motivation

The use of realised choice data to elicit preferences has a number of shortcomings. Firstly, detailed job data (beyond wages) for a sample of the labour force is not easily available. Secondly, even if the aforementioned data was available, it would not be possible to view the alternatives within an individual's choice set, and thus deducing a ranking would not be possible. Finally, within this data there would undoubtedly be correlation between

observable and unobservable job characteristics, thus biasing the results.[6] In using an
experimental approach with vignettes these shortcomings can be overcome. By offering
respondents a repeated set of choices between jobs which have had specific attributes
manipulated so as to create a trade-off, preferences can be identified. Furthermore, by
making it explicit that the jobs only differ on the observables there is no possibility of
an omitted variable bias. By giving a respondent a set of six choice scenarios, a clearer
description of their individual preference ranking is revealed, and individual level fixed
effects can be controlled for. Finally, the use of vignettes allows one to mix character-
istics of atypical and typical work arrangements easily to disentangle preferences over
each attribute, which would otherwise not be possible.

The only drawback of using vignettes comes from the potential presence of a "hypothet-
ical bias"[7] which has been widely noted in the contingent valuation literature (Loomis,
2011). However, I would argue that the contingent valuation approach is very different
to that used in this paper. The contingent valuation literature generally concerns public
goods and environmental valuations (e.g. oil spills); this is fundamentally different to the
question asked here, as markets for such goods do not actually exist (see Portney (1994)
and Loomis (2011)). Thus decision making and choices are likely to be highly arbitrary
for such problems. For the markets of interest here (i.e. labour markets), agents will
have taken previous consideration to their employment choices, as well as have real life
reference points. Indeed, Eriksson and Kristensen (2014) argue that relative valuations
between non-pecuniary job benefits should not be affected by a hypothetical bias. Fur-
thermore, this is supported by empirical evidence. Mas and Pallais (2017) run both a
field experiment in the employment process for a call centre, as well as a hypothetical
choice experiment in the Understanding America Study (UAS) survey, and find that the
results between the two approaches are very similar. They conclude that a well designed
survey-based choice experiment can elicit responses close to actual market choices, and

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[6]For a formal derivation of this omitted variable bias see Wiswall and Zafar (2017).

[7]The biasing of estimates as the experiment is based on a hypothetical setting.

that the survey has additional advantages as questions can be posed that would not be appropriate in a job application. Nevertheless, as outlined in section 4.4 certain ex-ante and ex-post measures are taken to mitigate any possible bias.

4.2 Attributes and Values

Jobs are described by seven attributes- wage, longevity, holiday and sick pay eligibility, flexibility of work hours, flexibility to work from home, ability to choose tasks performed on-the-job and tax implications. These characteristics have been chosen as they are likely to reflect differences between traditional and atypical working arrangements. Though they are unlikely to offer a complete description of typical versus atypical jobs, they were chosen for their importance and tractability. Caussade et al. (2005) find that the more attributes varied in a discrete choice setting, the greater the detriment to the ability to choose. Therefore in each vignette only three of the characteristics are varied between the two jobs and the remaining four are held constant so as to reduce cognitive burden.

Atypical jobs are often likely to be characterised by some job attributes which individuals may find preferable. The ability to choose hours and place of work are non-pecuniary benefits which describe many atypical employment relationships. ZHCs, for example, should in theory allow workers the opportunity to turn down work if they so wish.[8] Similarly many online freelancing platforms function without any expectation of a self-employed worker even meeting their clients, and thus working from home is common. Additionally, self-employed workers are afforded far greater autonomy over the tasks they perform. They have the ability to either turn down jobs or parts of jobs they do not wish to perform, or even sub-contract them out. Finally, self-employed workers are able to declare taxes through their yearly self-assessment in which they may deduct certain expenses from their tax liability. These include work related travel, use of home as office space, equipment, communication connections (e.g. internet and phone) and utility bills.

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[8]It is questionable however, whether all ZHC roles afford workers this ability in practice (Wakeling, 2014).

Conversely atypical jobs are often likely to be characterised by contractual obligations that differ from the usual "permanent" employment relationship, this is certainly the case with freelancing and other forms of self-employment. The longevity attribute thus considers this, while also acting as a proxy for job security. Furthermore, atypical work arrangements, in particular self-employment, offer no holiday or sick pay as is mandatory in the UK in an employment role[9]. The trade-off between these benefits and costs is what the vignettes attempts to exploit to estimate WTP for various attributes.

Table 2: Vignette Attributes and Values

Attribute	Values
Wages	£8.50, £10, £11.50, £13, £14.50, £16, £17.50
	$12, $14.16, $16.33, $18.50, $20.66, $22.83, $25
Holiday & Sick Pay	28 days paid annual leave and 16 weeks paid occupational sick leave (or pro rata if part time),
	No holiday pay and no sick pay
Longevity	1 month, 1 year, Permanent
Ability to choose hours	Freely choose how many hours and when you work them,
	40 hours a week 9am-5pm
Ability to work from home	Can work from home all the time,
	Can work from home 50% of the time,
	Can not work from home
Ability to choose which tasks you do on the job	May freely decide which tasks are done on the job relevant to the occupation
	Must perform all tasks dictated by the company
Tax Implications	Declare taxes as self-employed and thus can deduct relevant expenses,
	Taxed as a traditional employees and thus may not deduct relevant expensese

Table 2 presents each job attribute and the various values which each attribute can take. Hourly wages range from £8.50 ($12) to £17.50 ($25), in gaps of £1.50 ($2.16). The option for holiday and sick pay is chosen as 28 days paid annual leave is mandatory in

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[9]There are no similar federal mandatory rulings in the US, however more than half of employees do get some coverage.

the UK and the median occupational sick pay in the UK is 16 weeks (Unison, 2017).

4.3 Job Attributes and Institutions in the US & UK Labour Markets

In order to get comparable results across the two countries the experiments for both samples are identical aside from the currency and hourly wages as outlined in table 2. It is important to note however that the institutional arrangements for some of these attributes are different in the US than to the UK, and furthermore the interpretation of some attribute values may be different.

Only around 34% of employment relationships in the US are afforded some type of "just cause" protection in their contracts (Verkerke, 2009). This means the remaining 66% of employees are subject to the "at-will" standard of employment law, where an employer can dismiss an employee without notice, and without having to present a reason for termination. This is fundamentally different to the UK where workers are protected by statutory minimum notice periods, unfair dismissal legislation, and redundancy pay rights. These rights are usually less binding in short fixed term contracts as they require minimum work periods. As a result, a "Permanent" job in the UK is likely to have a different interpretation to the same job in the US, and thus one would expect a lower WTP for a permanent job in the US than the UK.

As mentioned above, full time workers in the UK must receive at least 28 days paid annual leave per year (including public holidays), while in the US there is no statutory minimum. Despite there being no legislative requirement, around 77% of American employees do receive some paid leave, though survey data suggests that it is much less than the UK, with the average private sector employee receiving only 16 days paid leave per year (Ray et al., 2013). Similarly, in the UK workers are entitled to Statutory Sick Pay (£92.05 per week) for up to 28 weeks paid by your employer, though survey data suggests that three quarters are covered by occupational sick pay schemes. In the first year of employment the median worker receives 16 weeks coverage, and this increases

to a full years coverage after 5 years. In the US at a federal level there is no statutory sick pay, though some states have passed legislation on paid sick leave. According to the BLS the average private sector employee has 8 days of paid sick leave available to them in their first year, while federal employees are eligible for 13 paid sick days per year. Given the wide difference in the status quo of these two job attributes in the two countries, this could induce some behavioural differences as per the endowment effect (Kahneman et al., 1991).

4.4 The Questions

In order to personalise the question, the individual's forename is inserted into the start of the introductory text. Furthermore, respondents are advised that jobs are identical in every possible way except for those characteristics highlighted in the vignette. As outlined above, this part of the question is key for identification and ensuring the analysis is causal. Though hypothetical bias is unlikley to be an issue in this setting as already discussed, two recommendations to address hypothetical bias are utilised. Firstly, Carson and Groves (2007) recommend that the survey design must have the potential to affect future utility to ensure incentive compatibility. Indeed, there is evidence that bias reduces in contingent valuation exercises where the probability of a real economic commitment increase (Landry and List, 2007; Mitani and Flores, 2014). As a result the question is framed so that respondents may "have their say" and that the results may inform policy making in the future. Secondly, after each vignette a follow up question asks the respondent for the certainty of their response on a scale of 0-100. Estimation can then be performed on just those with high certainty levels (e.g. 70 and above). A similar technique has previously been used in the contingent valuation literature for public goods, where respondents responding affirmative for some sort of provision are recoded as "no" if their certainty measure if less than a specific cutoff (Blumenschein et al., 2008, 2001). Figures 8 and ?? in section A.1 show an example introduction and question from the hypothetical discrete choice experiment.

4.5   Choice of Vignettes

In each scenario the wage plus two other characteristics are varied across the two jobs while the remaining characteristics are held constant. Assuming preferences over attributes are independent, there are 3276 possible unique vignettes which could be presented. This number reduces to 468 if we consider vignettes with the same varied non-wage characteristics and the same difference in wage (Δ_{wage}) across the two jobs as duplicates.

106 vignettes were chosen by a randomisation program that had to fulfil a number of requirements. In particular:

- Each attribute was given an equal number of occurrences of being varied, weighted by the possible number of values that attribute could take.

- Of the six possible Δ_{wage}'s, each should appear a minimum of 13 times in total across the 106 vignettes.

- Each Δ_{wage} should appear at least four times for each varied characteristic, ensuring a full possible range of trade-offs for each attribute.

- No more than 15% (16) of vignettes should have responses which a priori appear strictly dominated.

The chosen 106 vignettes were then grouped into 6 sets according to which attributes were varied, and respondents were randomly presented with one of the vignettes from each set.

5   Model and Empirical Framework

In this section I present the canonical random utility model used in discrete choice settings, and apply it to the context of job choices and then show how WTP can be calculated based off estimates of this model.

5.1 The Canonical Random Utility Model and Mixed Logit Estimation

Let $i = 1, ..., I$ index individuals, $j = 1, ..., J$ jobs and $a = 1, ..., A$ attributes. Individual i maximizes utility from job j, $U_{ij} \in \mathbb{R}$ with

$$U_{ij} = u_i(X_j) + \epsilon_{ij} \tag{1}$$

where a job X_j is simply a vector of A attributes $X_j = [X_{j1}, ..., X_{jA}]$. $u_i(X_j)$ represents the individual specific utility over the given job characteristics and $\epsilon_{ij} \in \mathbb{R}$ is an individual-job specific error term.

An individual i chooses job j out of choice set $\mathscr{J}$ if it results in the highest possible utility. Formally j is chosen if $\forall \ j' \neq j \ \in \ \mathscr{J}$, $U_{ij} > U_{ij'}$. ϵ_{ij} is treated as random, assuming linear sub utility we thus know that the probability individual i chooses job j is

$$P_{ij} = Pr(\epsilon_{ij'} - \epsilon_{ij} \ < (X_j - X_{j'})'\beta_i) \ \forall j' \neq j \ \in \mathscr{J} \tag{2}$$

By imposing some assumption on the distribution on the individual-job specific error term we get some of the most commonly used discrete choice models. In particular, if we assume that ϵ_{ij} is distributed i.i.d. Type I extreme value and restrict $\beta_i = \beta \ \forall i$ we obtain the conditional logit model:

$$P_{ij} = \frac{exp(X_j'\beta)}{\sum_{j \in \mathscr{J}} exp(X_{j'}'\beta)} \tag{3}$$

While the conditional logit model was a workhorse for estimation of discrete choice models for a period it has two key limitations. Firstly, it assumes preferences are homogeneous across agents which is not ideal for investigating labour supply decisions across a varied populace. Secondly the model presents with an independence of irrelevant

alternatives (IIA) property:

$$\frac{P_{ij}}{P_{ik}} = \frac{exp(X'_j\beta)/\sum_{j'\in\mathscr{J}} exp(X'_{j'}\beta)}{exp(X'_k\beta)/\sum_{j'\in\mathscr{J}} exp(X'_{j'}\beta)} = \frac{exp(X'_j\beta)}{exp(X'_k\beta)} \tag{4}$$

which implies that any changes to the choice set $\mathscr{J}$ (except to jobs j and k) should have no effect on the ratio of the probabilities of choosing job j or k. This would evidently be problematic in a scenario of job choice where options in a choice set could grow or change, with jobs which are highly substitutable for one another.

It is possible however to overcome both of these limitations. In particular, if we allow heterogeneity in preferences (i.e. in β_i), then conditional on a specific β_i equation (3) becomes:

$$P_{ij}(\beta_i) = \frac{exp(X'_j\beta_i)}{\sum_{j\in\mathscr{J}} exp(X'_{j'}\beta_i)} \tag{5}$$

To back out the unconditional probability one simply integrates (6) over the distribution of β_i which, if we assume a parametric form, depends on some parameters θ:

$$P_{ij} = \int \frac{exp(X'_j\beta_i)}{\sum_{j\in\mathscr{J}} exp(X'_{j'}\beta_i)} f(\beta|\theta)d\beta \tag{6}$$

and thus we allow decision makers to have different preferences, and the IIA property no longer holds allowing general patterns of substitution between alternatives. This is the mixed logit model from Revelt and Train (1998) and can be estimated via simulated maximum likelihood.

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This model is highly useful for the setting being studied, in particular it does not impose a representative agent requirement and allows for a distribution of preferences which are not related to observable characteristics. Furthermore, it relaxes any assumptions of income maximisation and allows agents' utility to be driven by other non-pecuniary benefits which are often important in job choice. Note that the above can also extend X_j to X_{ji} so that it contains not only job characteristics but also observable demographic characteristics interacted with job characteristics. This would allow the estimated parameters of the distribution to vary across subsets of the population, which is highly desirable for analysing job choice preferences. For example, it may be the case that the sub sample of individuals with a lower level of personal assets may have a higher mean preference for job security. Arguably the key limitation of this model is the requirement of specifying a distribution f for preferences β, typically a normal or lognormal distribution is assumed.

5.2 Willingness To Pay

To simplify the interpretation of the β_i estimates, and to further give them greater economic meaning it is usual to transform the estimates into a WTP. This transformation is relatively straight forward. If we take (1) and substitute in a linear sub utility function we have:

$$U_{ij} = \beta_{i0}X_{j0} + \beta_{i1}X_{j1} + ... + \beta_{iA}X_{jA} + \epsilon_{ij} \tag{7}$$

where X_{j0} is the wage for job j and the remaining variables represent other job characteristics. If the wage coefficient is fixed (i.e. not randomly distributed) and we differentiate equation (7) and set it equal to zero we get:

$$dU_{ij} = \beta_0 dX_{j0} + \beta_{i1}dX_{j1} + ... + \beta_{iA}dX_{jA} + d\epsilon_{ij} = 0 \tag{8}$$

Assuming that only the wage (X_{j0}) and another variable, e.g. job security (X_{js}), vary we have:

$$\beta_0 dX_{j0} = -\beta_{is} dX_{js} \iff$$
$$\frac{-\beta_{is}}{\beta_0} = \frac{dX_{j0}}{dX_{js}}|_{dU_{ij}=0} \iff \qquad (9)$$
$$WTP_{is} = -\frac{\beta_{is}}{\beta_0}$$

The interpretation of this is clear: the WTP of individual i for a change in job security measures how much the wage must be changed to ensure that utility remains constant. Such an interpretation is highly useful, as it effectively places a monetary value on different job characteristics and can thus be informative on job choice decision making.

As the coefficient to the wage variable is assumed fixed, this implies that a variable's WTP is distributed the same as the variables's preference coefficient, though scaled by the inverse of the wage coefficient. Furthermore, choosing to fix the wage coefficient is convenient for two reasons. Firstly, if all coefficients are allowed to vary then, as noted in Revelt and Train (1998), identification is difficult. Secondly, the ratio of two normally distributed variables does not have well defined moments and the ratio of a normal and log-normal distribution can result in a highly skewed WTP distribution.

One drawback of this approach however is the assumption that preferences over wages do not vary in the population. While convenient, if this restriction doesn't hold, then variation in preferences to the wage may be incorrectly interpreted as a variation in WTP. A possible workaround developed by Train and Weeks (2005) involves a redefining of the model into what they call WTP space (in contrast to preference space). If we define the WTP coefficient for variable s, $\gamma_{is} = \frac{\beta_{is}}{\beta_{i0}}$ then equation (7) becomes:

$$U_{ij} = \beta_{i0} X_{j0} + \beta_{i0} \gamma_{i1} X_{j1} + ... + \beta_{i0} \gamma_{iA} X_{jA} + \epsilon_{ij} \qquad (10)$$

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Obviously equations (7) and (10) are equivalent, however the key difference is estimating according to equation (10) will mean assuming a distribution for WTP rather than preferences. Train and Weeks (2005) find that models estimated in preference space fit the data better, but result in larger (and sometimes unrealistic) means and standard deviations for the WTP distribution. Thus, while estimates in preference space will be used as a baseline, as recommended by Hole and Kolstad (2012) estimates in WTP space will be used for sensitivity analysis.

6   Results

6.1   Baseline Results

Columns 1 and 4 of table 3 presents the baseline estimates for the UK and US respectively, of the mixed logit model discussed in section 5, where the wage parameter is assumed fixed, and all other variables are assumed to be distributed normally. Parameters associated with contract longevity (permanent and one year) are compared against a baseline of one month, holiday and sick pay against no such benefits, flexible hours against a standard 9am-5pm arrangement, ability to work from home (both 100% and 50% of the time) against a requirement of always working in the office, workplace autonomy against a baseline of a dictatorial set up, and being taxed as self-employed against a traditional employee taxation arrangement. In both countries all mean estimates are highly significant and positive aside from that for the attribute associated with being taxed as self-employed, which is negative. For similar parameters, the estimates appear sensible. In particular, the mean preference for a permanent contract is larger than that for a one year contract, and the preference to work from home 100% of the time is larger than the 50% counterpart.

The mean estimates are suggestive that individuals highly value security. Both per-

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manent and one year contracts compared to a baseline of one month have the highest coefficients (2.88 and 1.92 respectively in the UK and 2.40 and 1.78 in the US), eligibility for holiday and sick pay follows second in the UK (1.89) though in the US is almost identical to working from home 100% (1.596 and 1.623 respectively). Various forms of flexibility are highly valued, though not to the same extent as security. Within the set of flexibility parameters, working from home 100% of the time has the largest coefficient (1.36 in the UK) while flexible hours and working from home 50% of the time have similar mean preference estimates (0.76 and 0.88 respectively in the UK and 0.79 and 0.99 in the US). Workplace autonomy (through choosing tasks) remains valued though relatively less so (0.574 in the UK and 0.561 in the US).

The only surprising mean estimate is that for declaring taxes as a self-employed worker (-0.25 in the UK and -0.12 in the US), which given the ability to declare certain expenses, one would expect to be positive. However the negative sign can be explained by two possibilities. One is that a large number of respondents have not filled out self-employed tax returns before, and thus have limited knowledge of the potential value. A second possibility is that filling out self-employed tax returns can be cumbersome and time consuming, and in some cases may require the help (and therefore expense) of an accountant. This is especially the case when compared to the effortless PAYE system that almost all employees experience. This in turn could mean that an attribute of declaring taxes as self-employed may actually result in disutility at the mean. It is useful to note however that 33% of individuals in the UK and 40% in the US do have a positive valuation of self-employed taxation as demonstrated by figure 9 and table 5.

All estimates for the standard deviations are significantly different from zero except for the work from home attribute, though it is significant at the 10% level for the 100% of the time variation in the UK and significant at the 5% level for the 50% variation in the US. This demonstrates the importance of allowing for a distribution in preferences for job attributes, as there is evidently heterogeneity across the sample.

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Table 3: Mixed Logit Estimates

	UK (£)			US ($)		
	(1)	(2)	(3)	(4)	(5)	(6)
	Preference space	Preference space (WTP)	WTP Space (%)	Preference Space	Preference Space (WTP)	WTP Space (%)
Mean						
Wage	0.321***			0.244***		
	(0.00988)			(0.00746)		
Permanent	2.881***	8.99***	55.4***	2.401***	9.84***	44.1***
	(0.115)	(0.277)	(1.73)	(0.103)	(0.330)	(1.29)
One Year	1.916***	5.98***	37.7***	1.780***	7.30***	32.0***
	(0.0797)	(0.197)	(1.25)	(0.0790)	(0.254)	(1.06)
Holiday & Sick Pay	1.890***	5.90***	35.2***	1.596***	6.54***	27.3***
	(0.0776)	(0.189)	(1.02)	(0.0700)	(0.230)	(0.897)
Flexible Hours	0.763***	2.38***	14.9***	0.789***	3.23***	14.2***
	(0.0606)	(0.177)	(0.943)	(0.0621)	(0.236)	(0.905)
Work Home- 100%	1.355***	4.23***	22.6***	1.623***	6.66***	25.6***
	(0.0707)	(0.193)	(1.16)	(0.0777)	(0.269)	(1.17)
Work Home- 50%	0.883***	2.75***	14.0***	0.985***	4.04***	14.3***
	(0.0603)	(0.177)	(1.05)	(0.0655)	(0.245)	(1.04)
Choose Tasks	0.574***	1.79***	11.2***	0.561***	2.30***	10.7***
	(0.0517)	(0.154)	(0.89)	(0.0537)	(0.212)	(.860)
Self-Employed Tax	-0.250***	-0.78***	-2.61***	-0.122**	-0.50**	-0.49
	(0.0526)	(0.164)	(1.00)	(0.0524)	(0.215)	(0.883)
SD						
Permanent	1.525***	4.76***	22.2***	1.424***	5.84***	20.9***
	(0.148)	(0.416)	(3.33)	(0.136)	(0.503)	(2.00)
One Year	0.701***	2.19***	14.3***	0.672***	2.76***	13.3***
	(0.154)	(0.463)	(3.14)	(0.146)	(0.574)	(1.67)
Holiday & Sick Pay	1.009***	3.15***	16.6***	0.838***	3.43***	10.1***
	(0.133)	(0.387)	(2.62)	(0.128)	(0.492)	(2.28)
Flexible Hours	1.037***	3.23***	11.6***	1.036***	4.25***	13.5***
	(0.116)	(0.334)	(2.79)	(0.122)	(0.464)	(1.80)
Work Home- 100%	0.382*	1.19**	6.53*	0.309	1.26	7.45***
	(0.197)	(0.606)	(3.52)	(0.274)	(1.12)	(2.84)
Work Home- 50%	0.0273	0.09	2.83	0.340**	1.39**	4.27*
	(0.158)	(0.494)	(2.55)	(0.169)	(0.680)	(2.30)
Choose Tasks	0.441***	1.38***	9.14***	0.359**	1.47**	5.95***
	(0.167)	(0.511)	(2.04)	(0.178)	(0.719)	(2.11)
Self-Employed Tax	0.561***	1.75***	8.61***	0.485***	1.99***	8.57***
	(0.161)	(0.486)	(2.88)	(0.154)	(0.613)	(2.16)
N	24336	24336	24336	22652	22652	22652
Log-Likelihood	-5870.39		-5771.21	-5448.46		-5359.42
AIC	11774.77		11578.42	10930.91		10754.84
BIC	11912.47		11724.22	11067.39		10899.35

A striking feature of these results is the similarity in both ranking and effect size across the two countries. The wage parameter is larger in the UK, which in turn means that WTPs will be different, however this is unsurprising given the sterling to dollar exchange rate[10].

For a clearer interpretation of the aforementioned results, I additionally calculate the relevant WTPs for each parameter, and these are located in columns 2 and 5 of table 3. These are simply the empirical counterparts to equation 9, and offer a very neat meaning to the estimated results: for a change in a job characteristic, how much would an individual need to pay (or be paid) to maintain the same level of utility. Columns 3 and 6 report the WTP reported in % terms of the wage rate, and is estimated in WTP space. It is worth noting that the specification estimated in WTP space performs better on all three measures of fit.

What is striking about these results is the value which agents place on parameters associated with job security in both countries. On average an individual in the UK (US) is willing to give up approximately 55% (44.1%) of their hourly earnings to secure a permanent contract or 37.7% (32.0%) for a one year contract, against a baseline of a one month contract. As outlined in section 4.3, labour market regulation is very different between the UK and US, and one would assume that a permanent contract would be worth considerably more in the UK, and while that is somewhat true, a permanent contract is still highly valued in the US. Given the size of the permanent estimate, there was concern that the parameter could be picking up respondents expectations of career development in jobs with permanent contracts, despite being instructed that jobs are identical aside from the characteristics highlighted. This would obviously bias up the results for the permanent contract. However, given the one year contract has a sizeable WTP estimate as well, it appears unlikely this is the case. Though estimating a slightly

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[10]The exchange rate was in the region of £1=$1.31 during the time of the survey

different parameter, the results bear some similarity to Mas and Pallais (2017)'s finding that workers would be willing to take a \$6 per hour pay cut for a job that gave 40 hours per week over one that only offered 20 hours per week.

Second to contract length, holiday and sick pay has the largest WTP at almost 35.2% (27.3%) of hourly wages at the mean. Holiday pay entitlement in the UK gives workers 28 days paid annual leave per year (if full time), and a number of companies do not deduct bank holidays from this amount. The NHS for example, the UK's largest employer, gives in total 37 days paid holiday for staff tenured over 5 years. A back of the envelope calculation using the estimate from column 2 in table 3 implies that someone on an hourly rate of £15 an hour gains an additional £2.50 an hour from holiday pay.[11] Thus such a high WTP for holiday and sick pay must mean that either agents place a very high value on the insurance against sickness, or they systematically overestimate the attribute's value. If the latter of these issues is the case, as 69% of our UK sample are employees and recipients of this benefit, we may be seeing a form of the endowment effect within these estimates.[12] Thus, as agents may interpret it as "giving up" holiday and sick pay, the estimate could actually be interpreted as a willingness to accept (WTA), and the endowment effect could in turn be resulting in this over-valuation.[13] A similar anomaly could in fact be happening with the estimates for contract longevity if a large portion of respondents are accustomed to longer contracts.

Holiday and sickness coverage in the US is on average less and this could explain why the WTP estimate (when estimated in %) is around 25% lower in the US. That said, the estimated WTP for holiday and sick pay in the US is still large. While an endowment effect could be biasing up the results for the US sample, one would expect it to be smaller than the UK as there is a smaller proportion of employees (7 percentage points

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[11]37 days paid holiday per year equates to 7.4 working weeks and thus 45 weeks of remaining work. $\frac{7.4}{45} \approx 16.5\%$. $16.5\% * £15 \approx £2.50$.

[12]The endowment effect is the observation that agents place greater value on goods they own.

[13]In particular, the difference between the WTA and WTP would be equal to the bias induced by the endowment effect. For a more complete description please refer to Kahneman et al. (1991).

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less) and, as discussed in section 4.3, both coverage and depth of this benefit is less. One alternative explanation, aside from a high valuation of sickness insurance, is that in the US there is no statutory law concerning unpaid leave from work aside for sickness and caring responsibilities. Therefore the benefit of 28 days paid annual leave may be valued not just for the paid leave, but also for the guarantee of time off work around national holidays. However, without more information, it is difficult to conclusively say what may be driving the surprisingly large estimates for holiday and sick pay.

WTP estimates for flexibility are also considerable. At the mean agents are willing to give up around 22.6% (25.6%) of their hourly wage to be able to work from home, and 14.0% (14.3%) 50% of the time. Similarly at the mean agents are willing to give up 14.9% (14.2%) of their hourly wage to be able to choose their work hours. Workplace autonomy appears to be valued slightly less, though is still significant at approximately 11.2% (10.7%) on average.

While analysis of the means is informative, one benefit of the methodology used is the full picture offered of the distribution of WTPs. Figure 3 presents CDFs of WTPs estimated in % terms for each attribute against their baseline state in both countries, with a marker at the median. As one can see from the CDFs, WTPs for job attributes are very similar across the two countries, and in fact for the job attributes where there are no major institutional differences (i.e. flexible hours, choice of tasks and work from home) the distributions look almost identical. In the cases of contract length and holiday and sick pay, the distributions do show some difference, however the differences are generally smaller than expected given the large regulatory differences across the two economies.

As already noted, aside from declaring taxes as self-employed, most attributes have a very small proportion of individuals that would require a wage premia to induce indifference. The permanent attribute while having a large mean, also has a large standard deviation resulting in a wide distribution of WTP. One fifth of people would be willing to

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Figure 3: CDFs of WTPs, Estimated in WTP Space
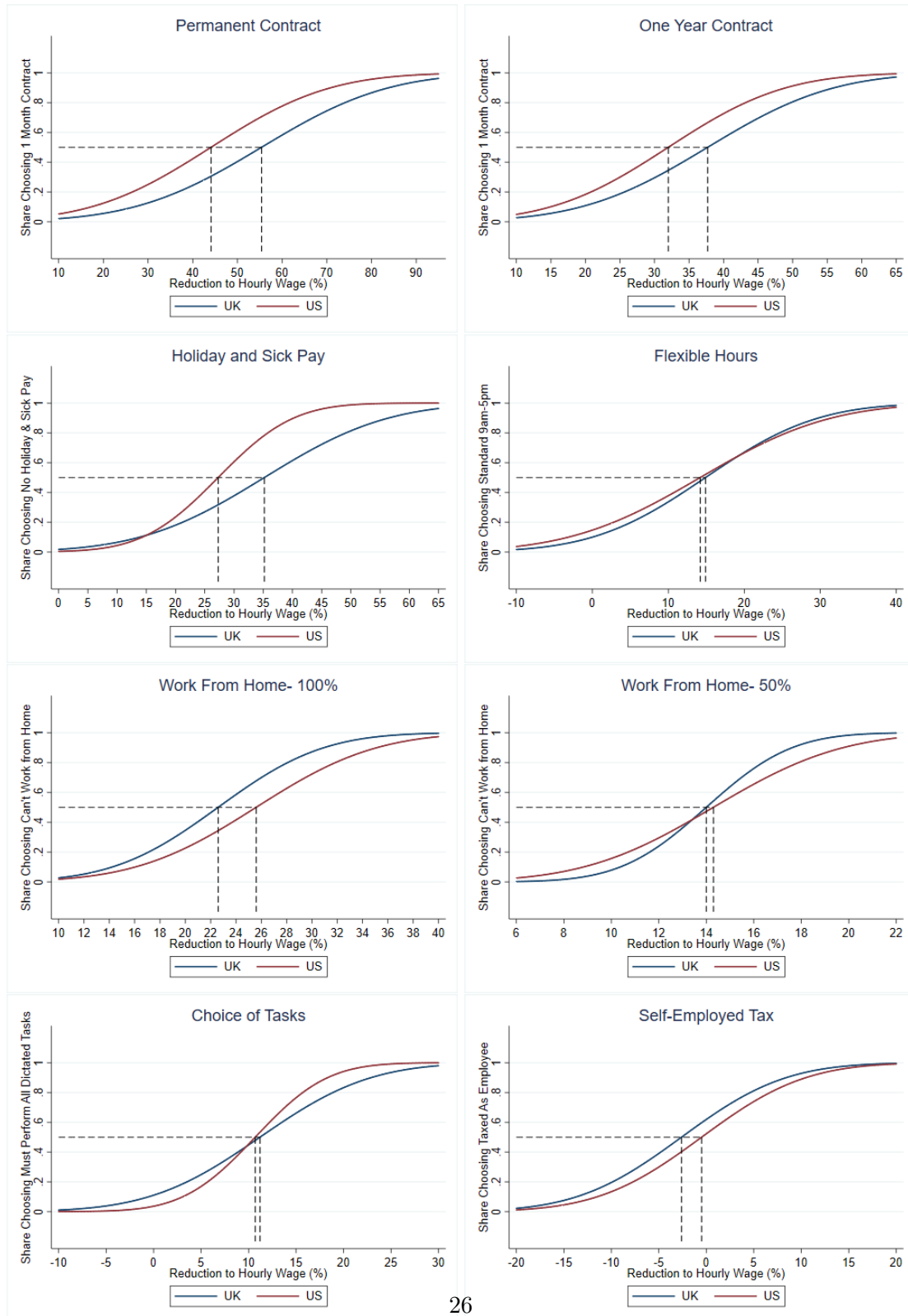
pay more than 70% in the UK, and 60% in the US, of their hourly wage for a permanent rather than a one month contract. It is worthwhile to note that these WTPs have been fitted to a normal distribution, and as the support is unbounded, the tails should be treated with some caution.

There is a small proportion of individuals willing to pay highly for flexibility. In the UK a fifth of individuals are willing to forgo 28% of their hourly wage or more, to be able to work from home all the time and the equivalent figure for the US is 32%. In both the US and the UK around a fifth of people are willing to pay 25% of their hourly wage for flexible hours. These figures however, are still dwarfed by the WTP for security related traditional employment attributes, even at the bottom end of the distribution. In the UK only around 10% of individuals, and in the US only about 25% of individuals, would be willing to forgo a permanent contract in exchange for avoiding a 30% pay reduction.

Overall, while there is clearly a small proportion of individuals willing to pay highly for flexibility, autonomy and a self-employed tax structure, there are even less willing to give up security. The evidence thus far is suggestive that preferences for flexibility, autonomy and tax benefits are unlikely to be driving the changes in work patterns seen in the aggregate data.

6.2 Contract Length and Theory

As discussed in section 6.1 respondents across both countries placed the largest value on more secure jobs, as measured by contract length, and the estimates for these were at first glance surprisingly high. In order to see how well the results align with theory, I calibrate a simple search model to see how well the estimates line up.

Let δ be the seperation rate, λ the offer rate, r the interest rate, w the wage, z the unemployment benefit, U the value of being unemployed and V the value of being employed.

The value of being employed is

$$rV = w + \delta(U - V) \tag{11}$$

and the value of being unemployed

$$rU = z + \lambda(V - U) \tag{12}$$

With some manipulation and letting $\rho = \frac{z}{w}$ be the replacement ratio, $r \approx 0$ and noting in the steady state $\frac{\delta}{\lambda+\delta} = u$ where u is the unemployment rate, one can show the elasticity of the wage to the seperation rate is

$$\frac{d \, lnw}{d \, ln\delta} = (1 - \rho)u \tag{13}$$

If one sets $w = £14.10$ which is the mean hourly wage in the UK sample, and assuming 35 weekly hours, the weekly income is £507.50. In the UK Jobseekers Allowance (unemployment insurance) is equal to £73.10 per week, and thus $\rho = 0.144$. Furthermore current data from the ONS states that $u = 0.04$.

Thus

$$\frac{d \, lnw}{d \, ln\delta} = 0.03424 \tag{14}$$

If we assume time is monthly, then a one month contract implies $\delta^{month} = 1$, and in expectation a one year contract implies $\delta^{year} = 0.083$. Therefore, switching from a one year to a one month contract implies an 11 times increase in δ, and by equation 14 this would require a 37.4% increase in the wage. This calibrated figure aligns almost exactly with the estimate from column 3 in table 3 for the one year contract, offering assurance that the estimates are within a theoretically sensible range.

6.3 Employees vs Self-Employed

It is unsurprising that at the mean individuals value attributes which are associated with traditional working arrangements more so than flexibility, autonomy and tax benefits. Until recently this was the arrangement for almost all workers in the UK economy, and currently around 62% of the workforce are in full time employee-employer relationships. In the US this figure is slightly higher at 67%. Two key questions in ascertaining whether the rise in atypical work arrangements is predominantly demand or supply side driven are:

- Do those in atypical work arrangements have different preferences to those in traditional employment relationships?

- If they do, is this difference large enough to make them value atypical work more than traditional working arrangements?

Before turning to a greater breakdown of heterogeneity I will seek to answer these two questions. Table 6 in section A.2 presents an extension of the normally distributed model estimated in WTP space,[14] with interaction effects at the mean for those whose earnings predominantly come from various forms of self-employment.[15] For both countries all interaction effects except those for holiday and sick pay and tax are statistically significant and all are in the direction one would expect to see when workers sort into types of employment relationships based on their preferences. In particular, the self-employed have a lower preference for security and higher preferences for flexibility, workplace autonomy and self-employment tax structure. At the mean self-employed agents are willing to pay £2.40 ($3.05) less per hour for a permanent contract than employees. Their WTP for parameters generally associated with atypical work attributes is between £0.56 ($0.63) to £2.12 ($3.20) higher than employees. It is noteworthy that even self-employed individuals appear indifferent to being able to declare taxes as self-employed at the mean. This

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[14]This is estimated in WTP space rather than preference space given the marginally better fit WTP space estimates give, as detailed in section 6.5.

[15]The standard deviation of the distributions is assumed to remain constant between the employed and self-employed for computational reasons, thus the interaction effect simply represents a shifting of the distribution.

suggests that filling out tax returns and maintaining sole-trader accounts is costly. These results confirm the fact that those in atypical working relationships have a comparatively greater preference for these working arrangements than those in traditional relationships.

Table 4: WTP Employed vs Self-Employed

Parameter	WTP(£)			WTP($)		
	All	Employed	Self-Employed	All	Employed	Self-Employed
Typical						
Permanent	8.97	9.69	7.29	9.92	11.13	8.09
OneYear	6.03	6.54	5.07	7.26	7.88	6.31
Holiday & Sick Pay	5.71	5.90	5.90	6.44	6.56	6.56
Atypical						
Flexible Hours	2.26	2.05	3.12	3.06	2.08	5.17
Work Home-100%	3.56	3.02	5.14	5.87	5.95	8.15
Work Home-50%	2.18	1.87	2.94	3.26	3.07	4.24
Choose Tasks	1.57	1.40	2.28	2.20	1.79	2.58
Self-Employed Tax	-0.53	-0.67	-0.11	-0.29	-0.55	-0.55
Typical	14.68	15.59	13.19	16.36	17.69	14.65
Atypical	6.86	5.80	10.43	10.84	8.26	15.35

For ease of exposition, table 4 presents the mean WTPs estimated in WTP space in the US and UK for three samples: all respondents, the employed and the self-employed. It is clear from these estimates that while self-employed individuals have comparatively greater preferences for atypical employment, they still value security very highly. In the UK the self-employed value a permanent contract more than any other attribute by a sizeable margin (£1.39). In the US a permanent contract is the second most valued attribute by the self-employed, with the ability to work from home all the time only marginally more valued ($0.06). In both countries the self employed have a greater preference for both a one year contract and holiday and sick pay more so than any of the atypical attributes excluding working from home 100%.

The last two rows of table 4 show a simple summation of the atypical and typical param-

eters.[16] Based on these job attributes it appears at the mean, that even self-employed individuals prefer typical over atypical work arrangements in the UK. This is suggestive that, for more than half of the self-employed in the UK,[17] working in an atypical working arrangement is not preferred to typical work, and thus their choice of work arrangement is unlikely going to be supply-side driven. The proportion in the US is just below half but still sizeable (47%). This implies that the increase in atypical jobs may have important negative welfare implications for workers, and may represent a form of redistribution from workers to firms. As the self-employed do have a comparatively greater preference for atypical work, it may be the case that when presented with weak traditional employment opportunities, they are the first to sort into atypical work, though further work is required to confirm this.

One caveat to this analysis is that it relies on the attributes used in the vignettes to be the most valued by agents when considering job choices, and furthermore, that they are representative of a specific working arrangement. Given the attribute values were based on the statutory rules and average workplace arrangement in the UK this implies this analysis may be more suited to the UK setting. The only other attribute which may have a sizeable value and could be an important distinguishing factor of a typical work arrangement is the opportunity for on the job training. This however is likely to have a positive WTP (evidence from Eriksson and Kristensen (2014) confirms this) and thus would further compound the valuation of a typical work arrangement against an atypical one. There are obviously circumstances where traditional employees may get more flexibility to work from home (for example computer programmers) and there are circumstances where those who are self-employed may be relatively secure if they have over time built up a base of regular customers. However, contract longevity, holiday and sick pay, flexibility, autonomy and tax implications appear a priori to be the most important distinguishing factors on average for different working arrangements.

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[16]For the typical summation "one year" is excluded and for atypical "work home-50%" is excluded.

[17]The actual figure is 68%, which can be calculated by simply summing the 6 normally distributed random variables, and looking at the share below £0.

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6.4 Additional Heterogeneity Analysis

Table 7 located in section A.2 presents the results of the mixed logit model estimated in WTP space with the full set of interactions, so as to analyse heterogeneity at the mean along a number of dimensions.[18] Women in both the US and UK are found to have a higher WTP for holiday and sick pay (£0.96 and $1.11), while in the UK they have a stronger preference for contract security and in the US a weaker one. These results in the UK indicate that women have a stronger preference for security in general, though no similar conclusion can be drawn in the US. Women are also found to value hours flexibility more so in the UK than their male counterparts, and this may go some way in explaining why more women in the UK are in ZHC positions than men (approximately 3% of women have ZHCs while around 2.3% of men do).

Risk averse agents are identified by those whose certainty equivalent to the 50/50 £300 lottery is less than £150. Unsurprisingly, risk averse agents are seen to value security more than their risk neutral and risk loving counterparts. On average risk averse agents are willing to pay an extra £2.42 ($2.68) per hour for a permanent contract and £1.58 ($2.26) for a one year contract. This is suggestive that less risk averse agents sort into self-employment. Young individuals (defined by those whose age falls below the mean age of the sample) value a permanent contract by around £1.23 more per hour in the UK (though no significant difference in the US) and individuals with children place a considerable amount more (£3.08 and $1.41) on a permanent contract, demonstrative that a regular cash flow is highly important for these individuals. In the US both women and those with children place a greater value on working from home all the time ($1.32 and $1.04 respectively). This suggests an interaction between these two may contribute to the gender pay gap in the US.

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[18]As before, interactions only shift the distribution, maintaining the same standard deviation.

A question is asked in the survey concerning respondents' ability to pay for an unexpected cost shock. Based on the response to this, a dummy variable was created to mark individuals who would not be able to weather a £500 cost shock through either self-insurance or informal insurance (e.g. borrowing from a family member). I find no significant interaction effects for this marker, nor for those who scored above average on the IQ test (aside from flexible hours in the US). Agents in the sample who are more patient in the US, have a stronger preference for security while in the UK there is no discernible pattern, with patient agents preferring both security and flexibility attributes, however the effect sizes are generally small.

6.5 Robustness

One drawback of assuming that preferences are normally distributed is that the distribution spans from $-\infty$ to $+\infty$. This implies that some individuals will place a negative value on some preferences which one would assume should always be positive, and that a small proportion of individuals would have either implausibly high or low preferences for certain attributes.

Analysis of the distributions for preference estimates in columns 1 and 4 of table 3 (see figure 9 in section A.1) reveals even preferences which one would assume are strictly preferred by all individuals (e.g. holiday and sick pay) have some share of people who negatively value the parameter, as a result of the distribution which the parameters are fitted to. Table 5 gives the proportion of preferences below zero when fitted to a normal distribution. Aside from method of taxation, flexible hours and choosing tasks, all preferences have a share below 0 of less than 5%. As a result, to test for sensitivity to the chosen distribution, column 2 of tables 8 and 9 located in section A.2 presents the natural logarithm of the coefficients when fitting all preferences with a share below 0 at less than 5%, to a log-normal distribution, and column 3 presents the transformed results so they are comparable to the baseline specification, which is located in column 1.

Table 5: Share of Preferences Below Zero

Parameter	Share Below Zero (UK)	Share Below Zero (US)
Permanent	2.94%	4.59%
One Year	0.31%	0.40%
Hoiday & Sick pay	3.05%	2.84%
Flexible Hours	23.08%	22.3%
Work Home-100%	0%	0%
Work Home- 50%	0%	0.19%
Choose Tasks	9.66%	5.91%
Self-Employed Tax	67.2%	59.9%

As can be seen, when comparing columns 1 and 3, there is little qualitative difference at the mean and for the standard deviation between the normal and log-normal specifications.[19] Additionally, the normal distribution performs better on both the Akaike and Bayesian Information Criteria, as well as having a larger log-likelihood, thus fitting the data better.

One drawback of fitting the preferences to a log-normal distribution is the resulting thicker right hand tail. Figure 4 presents the distributions for the permanent preference parameter when it is assumed to be normal and log-normal. As can be seen, the log-normal distribution predicts a greater share of the population to be located in the right hand side tail, at potentially implausible estimates (the mean WTP for the permanent parameter is already very high as seen in section 6.1). Thus whether a normal or log-normal distribution is assumed, the tails should be treated with caution.

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[19]One would a priori assume flexible hours would dominate its 9am-5pm counterpart (and similarly for workplace autonomy) unless some agents have a preference for a type of commitment device. Thus, a specification was also estimated which imposed flexible hours and tasks to be distributed log-normally. This caused little variation in the parameter estimates, except for flexible hours and tasks, which saw their standard deviation increase by an implausibly high manner resulting in an absurdly thick right tail. It is thus assumed that forcing those parameters to only be positive distributed results in a misspecification issue.

Figure 4: Normal vs Log-Normal Preference Distribution for Permanent
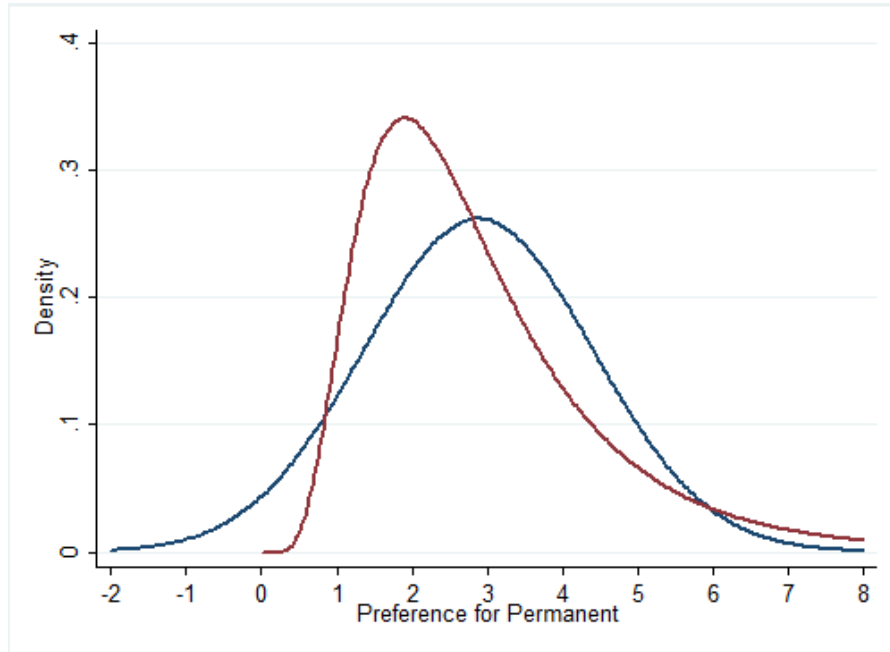
Column 4 of tables 8 and 9 presents the results for the specification which only includes vignette responses where individuals give a follow up certainty score of 70 or higher. As mentioned in section 4.4, if any hypothetical bias does exist, this may serve in reducing it. As can be seen, all estimated mean coefficients increase in absolute size (the only exception is self-employed tax in the US) and similarly, the estimated standard deviations are marginally larger for some parameters. The estimated standard deviations for a few parameters become insignificant, this could point to a more concentrated distribution for those with higher levels of certainty, however this could also be due to a loss of power from the drop in sample size. It is important to note that the relative effect sizes are not fundamentally different from the baseline specification. The relative effect sizes (which are effectively WTPs) are more important for interpreting the estimates, and as it stands, the preference ordering remains generally unchanged [20]. This is demonstrated in tables 10 and 11 which present the counterpart WTP estimates to tables 8 and 9,

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[20]Ability to choose tasks increases to marginally preferred to flexible hours in the UK and holiday and sick pay becomes marginally more preferred to work from home 100% in the US

as well as additional columns estimated in WTP space rather than preference space in terms of both currency and %.

The results estimated in WTP space rather than preference space are generally similar to the baseline and have little qualitative difference, though notably the standard deviation estimates are moderately smaller for the permanent contract and flexible hours in both countries. Thus in line with what Train and Weeks (2005) find, the estimates in WTP space are arguably more realistic (e.g. for permanent contracts), as the smaller standard deviation makes extremely high WTP estimates less likely. Conversely to what Train and Weeks (2005) find, the model in WTP space also performs better on all three measures of fit.

It is clear from tables 10 and 11 there is little variation across specification, demonstrating the lack of sensitivity to distributional assumptions, certainty of responses and space of estimation, thus offering strong credibility to the results.

One final aspect to consider is the issue of inattention biasing the results. Humans have been found to be inattentive in a vast number of economic areas including calculating tax, purchasing services, durable, and non-durable goods, and when making investment decisions (Gabaix, 2017; DellaVigna, 2009). The setting of labour market decisions is unlikely to be an exception, and this may be of particular concern given the hypothetical setting of the experiment. To quantify the extent that the sample was inattentive two seperate measures are calculated. Firstly, respondents were asked a simple attention question part way through the survey.[21] Secondly, of the 106 vignettes described in section 4, 8 had strictly dominating options. In both the UK and US only 1% of the sample answered the attention question incorrectly, and only 4% of responses chose a strictly dominated job. Assuming inattentive respondents made a choice with equal probability across jobs, this would mean that the inattention rate was 8%. This rate is

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[21] "What is 20-13?"

low and unlikely to cause consequences for the interpretation of the results.

7 Conclusion

This paper contributes to the literature concerning the rise in atypical work arrangements, with a focus on the UK and the US, two economies which have seen a rise in atypical work arrangements. A key question addressed is whether this rise is due to labour supply preferences. By employing vignettes in a discrete job choice experiment in a novel survey with a representative sample, I estimate worker preferences over various job attributes which are usually associated with either typical or atypical forms of employment. Though the list of job attributes is not exhaustive, it contains arguably the most important distinguishing factors for typical and atypical work arrangements. Each job is described by a wage, security, entitlement to holiday and sick pay, hours and location flexibility, autonomy and taxation implications.

Using a mixed logit model, I estimate the full distributions of the WTP for the aforementioned preferences, and the results are robust to the fitted distribution, hypothetical bias and space of estimation. The inattention rate is additionally found to be low, giving the results strong credibility.

I find that attributes typically associated with traditional employee-employer relationships are by far the most valued. At the mean individuals are willing to give up approximately 50% of their hourly wage for a permanent contract against a one month contract in the UK and US, and a calibrated search model suggests the estimates align well with theory. Given the differences in labour market regulation across the two economies, it is surprising that a permanent contract in the US is worth almost as much as permanent contract in the UK to the respondents. After contract length the second highest valued job attribute in both countries is holiday and sick pay with WTPs of 35.2% and 27.3% of ones hourly wage. Given the substantial estimates for both of these job attributes

it is suggestive that some behavioural biases (such as the endowment effect) may be resulting in an upward valuation, and estimates may be interpreted as a willingness to accept (Kahneman et al., 1991). Mean hourly WTPs for location and hour flexibility are substantial but considerably smaller (22.6% and 14.9% respectively in the UK and 25.6% and 14.2% in the US), and hourly WTP for autonomy is smaller still (11.2% in the UK and 10.7% in the US). Analysis of the full distributions reveal that in the right tail there is a small proportion of individuals willing to pay substantially for flexibility and autonomy. However, there is an even smaller proportion of individuals in the left hand tails willing to pay less for security and entitlement benefits. When measuring the WTP in % change to wage, the distributions across the two economies look very similar, in particular for the job attributes where there exists no legislative difference.

Heterogeneity analysis reveals that, at the mean, self-employed individuals have a comparatively greater preference for atypical job attributes in comparison to their employed counterparts. This suggests that individuals do sort into types of work based on their preferences. However, self-employed individuals still value attributes associated with typical employee-employer relationships in general more than flexibility and autonomy. Distributional analysis suggests that in the UK over 50% of self-employed individuals would prefer to be in a typical work arrangement. In the US this figure is just less than half, but as the holiday and sick pay attribute is aligned to the UK's statutory guidelines the analysis is not as suitable for the US setting. Given the omittance of an opportunity for training attribute, which is generally associated with a traditional employment relationship, these figures should be seen as a lower bound. Thus, supply side factors are unlikely going to be a key cause of the rise in atypical work arrangements, and the increase is likely to have important welfare implications. Additional heterogeneity analysis presents suggestive evidence that the gender gap observed for those on ZHCs in the UK may be partly due to a greater preference for hour flexibility by females.

The only attribute with a negative valuation is the ability to declare taxes as self-

employed, which is surprising. Despite some arguments that the fiscal set up in the UK may be driving labour supply choices, it appears that on average individuals prefer being on the PAYE system. This finding also stands when looking only at self-employed individuals who would likely have a better knowledge of the benefit of being able to deduct expenses from one's tax liability.

These results have important policy implications at both the government and firm level. The growth of atypical work arrangements, such as self-employment and ZHCs, is unlikely going to be driven by supply side factors. This study in fact suggests that, ceteris paribus, worker's will be on average suffering welfare losses if the proportion of atypical primary jobs grows. Thus policy targeted to remediate some of the welfare losses experienced by atypical workers would likely have high impact, and policies targeted by wage level may be a coarse instrument given the size of the compensating wage differentials for security.

In the UK, this gives credence to certain policy recommendations outlined in the government commissioned report "Good work: the Taylor review of modern working practices" (Taylor et al., 2017). In particular, policies aimed at securing workers in precarious employment relationships rights closer to employees, such as holiday and sick pay, would likely give a welfare boost to these workers. However, it is vital analysis be performed on the demand side to confirm this is the case. Given the results presented here, it suggests the welfare boost to workers should far outweigh the cost to firms, but a true welfare assessment would require a consideration of the firms elasticity for labour demand. Other policies aimed at offering workers more security, such as the "right to request" guaranteed hours, may also have positive welfare impacts, while also appreciating the heterogeneity in preferences that has been revealed. Conversely, other policies recommended in the Taylor review, especially those concerning tax alignment between employees and self-employed should be considered more carefully. Individuals appear to prefer being taxed through the PAYE system, thus forcing the self-employed to pay

relatively higher tax rates than they currently face, while also having to fill tax returns may be a step away from a fairer tax system.

US respondents to the experiment valued the UK statutory holiday pay, and median sick pay almost as much as UK respondents, despite having no federal legislation on either benefits. This suggests that in the US policies aimed at securing employees statutory holiday and sick pay (similar to those in the UK), would be preferred by the majority of workers. It would have large impacts on the 23% of US employees who do not receive any voluntary paid leave, while almost doubling the number of paid holidays the average employee gets. Given the general similarity of preferences across the UK and US, further research concerning the welfare value of legislation concerning "just cause" protection in the US would be also highly informative.

For the firm, these results suggest that the ability to work from home is a highly valued compensating wage differential for many workers. Evidence from an experiment in China suggests that working from home has positive productivity impacts on workers (Bloom et al., 2014), and thus giving employees the option to work from home could represent a win-win situation for firms and workers.

Given the results of this paper, research concerning the demand side of the story would be highly valuable, in particular to enable a complete welfare analysis of some of the aforementioned policies. Some analysis in this vein does exist (Datta et al. (2019)), though it is limited to a specific policy response, concerning the UK's National Living Wage. If it is found that firms are benefiting from the rise in atypical work arrangements, this could be indicative of a redistribution of welfare from workers to firms, and representative of a weakening in the position for labour.

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A Appendix

A.1 Additional Figures

Figure 5: Example Risk Question

Figure 6: Example Discounting Question

5%

Nikhil, have your say! The following questions are designed to understand some of the reasons why people choose to do different types of work, such as full and part time employment, freelancing and contracting.

Assume that for one reason or another you are looking for a new job. You soon receive several job offers in the occupation of your choice, and must decide which one to choose.

You will now be presented with six scenarios, and in each scenario you will have a choice of two jobs.

The jobs are identical in every way except for the features which are emphasized by yellow highlighting.

Please think carefully about your choices, as the responses may help inform government policy in the future.

Next

Figure 7: Vignette Introduction

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← Back

11%

Exit Survey ⏻

Questions marked with a * are required

The jobs are identical in every way except for the features which are emphasized by yellow highlighting.

Which job do you prefer A or B? Please mark the corresponding circle.

Job A   Job B

○   ○

*

	Job A	Job B
Hourly wage before tax:	£16.00	£8.50
Holiday & sick pay:	28 days paid annual leave and 16 weeks paid occupational sick leave (or pro rata if part time)	28 days paid annual leave and 16 weeks paid occupational sick leave (or pro rata if part time)
Longevity:	The job is for 1 month	The job is permanent
Ability to choose hours:	You may freely decide how many hours you work a week, and when you do them	You may freely decide how many hours you work a week, and when you do them
Ability to work from home:	You may not work from home	You have the option to work from home 50% of the time
Ability to choose which tasks you do on the job:	You may freely decide which tasks you do on the job relevant to your occupation	You may freely decide which tasks you do on the job relevant to your occupation
Tax Implications:	You declare taxes as self-employed and thus can deduct relevant expenses	You declare taxes as self-employed and thus can deduct relevant expenses

Figure 8: Vignette Introduction

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Figure 9: Distribution of Preferences
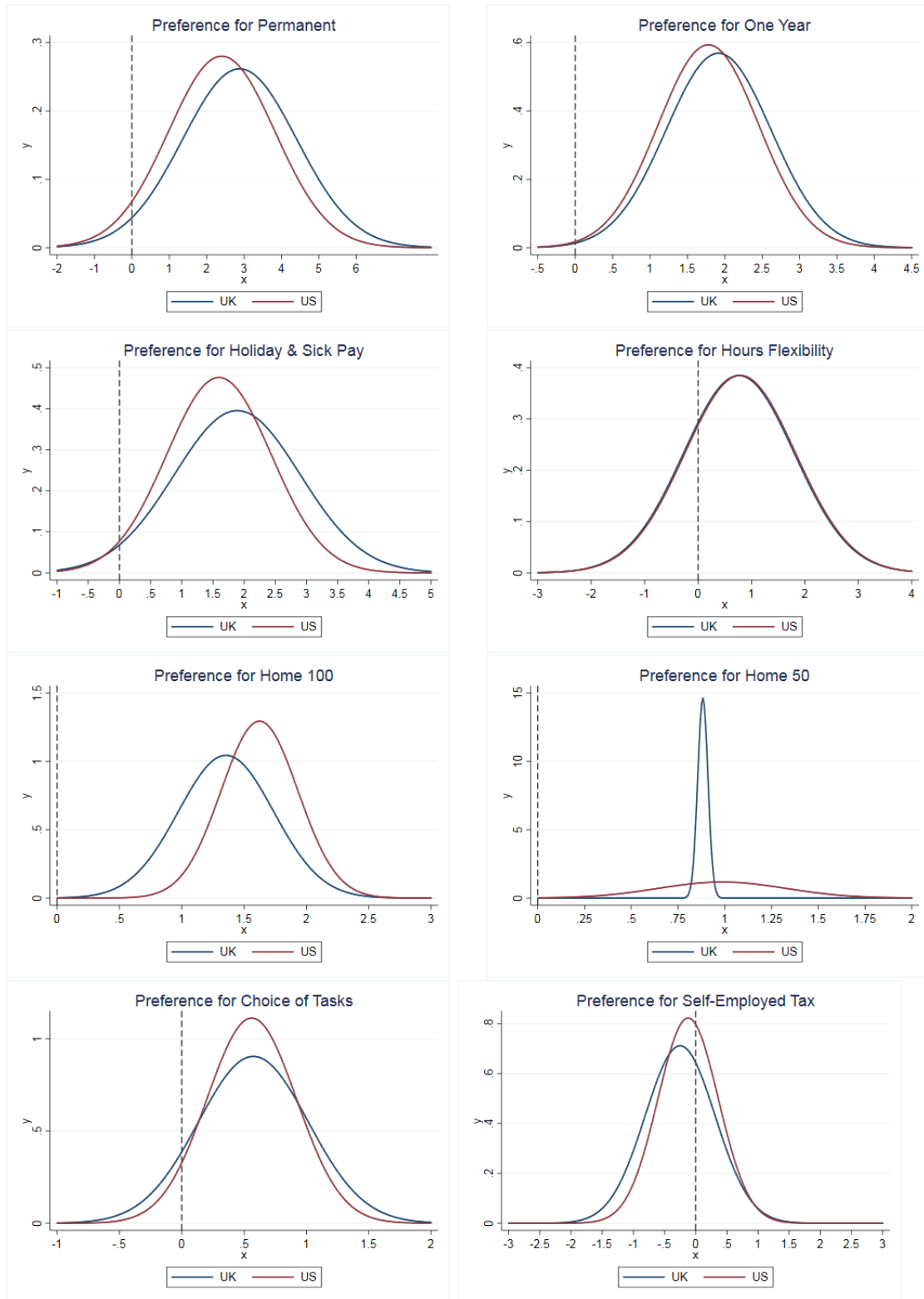
A.2 Additional Tables

Table 6: WTP Heterogeneity by Working Arrangement

	UK (£)	US ($)
Mean		
Permanent	9.69***	11.13***
	(0.313)	(0.422)
One Year	6.54***	7.88***
	(0.214)	(0.310)
Holiday & Sick Pay	5.90***	6.56***
	(0.196)	(0.275)
Hours	2.05***	2.08***
	(0.199)	(0.277)
Work Home-100%	3.02***	4.95***
	(0.215)	(0.321)
Work Home-50%	1.87***	3.07***
	(0.199)	(0.291)
Choose Tasks	1.40***	1.79***
	(0.174)	(0.243)
Self-Employed Tax	-0.67***	-0.55**
	(0.188)	(0.251)
Self-Employed*Permanent	-2.40***	-3.05***
	(0.452)	(0.627)
Self-Employed*OneYear	-1.47***	-1.57***
	(0.375)	(0.509)
Self-Employed*Holiday & Sick Pay	-0.57	-0.14
	(0.353)	(0.452)
Self-Employed*Hours	1.07***	3.09***

	(0.374)	(0.465)
Self-Employed*Work Home-100%	2.12***	3.20***
	(0.402)	(0.565)
Self-Employed*Work Home-50%	1.07***	1.17**
	(0.368)	(0.477)
Self-Employed*Choose Tasks	0.88***	0.79**
	(0.325)	(0.398)
Self-Employed*Self-Employed Tax	0.56*	0.63
	(0.322)	(0.412)
SD		
Permanent	3.52***	5.18***
	(0.303)	(0.463)
One Year	1.54***	3.19***
	(0.447)	(0.434)
Holiday & Sick Pay	3.08***	3.48***
	(0.296)	(0.375)
Hours	2.87***	3.80***
	(0.302)	(0.437)
Work Home-100%	0.72	2.03***
	(0.444)	(0.573)
Work Home-50%	0.52	1.44***
	(0.358)	(0.482)
Choose Tasks	1.26***	0.24
	(0.343)	(0.602)
Self-Employed Tax	0.53	1.45**
	(0.544)	(0.569)
N	24336	22652
Log-Likelihood	-5748.55	-5329.71

Table 7: Mixed Logit with Full Set of Interactions

		WTP (£)	WTP ($)
Mean			
	Permanent	5.264***	7.961***
		(0.784)	(1.094)
	OneYear	3.501***	5.722***
		(0.670)	(0.905)
	Holiday & Sick Pay	3.158***	4.025***
		(0.588)	(0.737)
	Flexible Hours	2.162***	1.081
		(0.655)	(0.826)
	Work Home-100%	3.438***	3.503***
		(0.661)	(0.904)
	Work Home-50%	1.883***	3.561***
		(0.593)	(0.818)
	Choose Tasks	1.502***	1.081
		(0.483)	(0.687)
	Self-Employed Tax	0.136	-0.334
		(0.531)	(0.743)
Female*	Permanent	0.331	-1.057*
		(0.443)	(0.594)
	OneYear	0.822**	-1.485***
		(0.352)	(0.487)
	Holiday & Sick Pay	0.960***	1.113***
		(0.329)	(0.425)
	Flexible Hours	0.822**	0.192
		(0.334)	(0.430)
	Work Home-100%	0.370	1.039**
		(0.333)	(0.524)

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	Work Home-50%	0.0758	-0.261
		(0.320)	(0.454)
	Choose Tasks	0.0987	0.277
		(0.281)	(0.390)
	Self-Employed Tax	-0.813***	-0.0575
		(0.291)	(0.393)
Risk Averse *	Permanent	2.421***	2.676***
		(0.650)	(0.775)
	OneYear	1.580***	2.262***
		(0.567)	(0.684)
	Holiday & Sick Pay	1.325***	0.195
		(0.474)	(0.562)
	Flexible Hours	-0.463	1.350**
		(0.578)	(0.624)
	Work Home-100%	-0.885	0.564
		(0.564)	(0.686)
	Work Home-50%	0.0640	-0.458
		(0.480)	(0.623)
	Choose Tasks	0.225	0.865
		(0.399)	(0.540)
	Self-Employed Tax	-0.291	0.0637
		(0.440)	(0.567)
Young *	Permanent	1.230**	0.220
		(0.511)	(0.656)
	OneYear	0.435	0.371
		(0.384)	(0.544)
	Holiday & Sick Pay	0.686**	1.011**
		(0.348)	(0.477)
	Flexible Hours	-0.495	-0.483
		(0.348)	(0.488)
	Work Home-100%	-0.109	-0.628
		(0.357)	(0.565)
	Work Home-50%	-0.205	-0.430

		(0.341)	(0.491)
	Choose Tasks	-0.486	-0.292
		(0.301)	(0.425)
	Self-Employed Tax	0.284	0.274
		(0.297)	(0.444)
Has Child *	Permanent	3.083***	1.414**
		(0.495)	(0.659)
	OneYear	1.496***	0.155
		(0.398)	(0.528)
	Holiday & Sick Pay	0.326	1.056**
		(0.341)	(0.467)
	Flexible Hours	-0.412	-0.410
		(0.355)	(0.469)
	Work Home-100%	0.0321	1.317**
		(0.356)	(0.563)
	Work Home-50%	0.0529	0.767
		(0.350)	(0.482)
	Choose Tasks	-0.542*	-0.0887
		(0.296)	(0.417)
	Self-Employed Tax	-0.374	-1.038**
		(0.312)	(0.432)
Self −Employed *	Permanent	-2.013***	-3.055***
		(0.542)	(0.605)
	OneYear	-1.538***	-1.442***
		(0.373)	(0.497)
	Holiday & Sick Pay	-0.411	0.0607
		(0.343)	(0.448)
	Flexible Hours	0.908**	2.802***
		(0.355)	(0.463)
	Work Home-100%	1.999***	2.967***
		(0.373)	(0.545)
	Work Home-50%	1.226***	1.017**
		(0.364)	(0.481)

	Choose Tasks	0.456	0.763*
		(0.333)	(0.405)
	Self-Employed Tax	0.796***	0.535
		(0.303)	(0.404)
Self-insurance *	Permanent	-0.564	0.203
		(0.472)	(0.574)
	OneYear	-0.0402	-0.0753
		(0.374)	(0.477)
	Holiday & Sick Pay	0.313	0.216
		(0.348)	(0.424)
	Flexible Hours	-0.254	-0.247
		(0.351)	(0.434)
	Work Home-100%	-0.574	0.558
		(0.364)	(0.524)
	Work Home-50%	-0.171	0.436
		(0.349)	(0.447)
	Choose Tasks	0.0383	-0.0913
		(0.288)	(0.394)
	Self-Employed Tax	0.377	-0.145
		(0.309)	(0.393)
Patient *	Permanent	0.722	1.542***
		(0.440)	(0.571)
	OneYear	0.751**	1.244***
		(0.354)	(0.482)
	Holiday & Sick Pay	0.676**	0.673
		(0.339)	(0.421)
	Flexible Hours	0.846**	0.215
		(0.339)	(0.431)
	Work Home-100%	1.121***	-0.0792
		(0.340)	(0.519)
	Work Home-50%	0.283	-0.355
		(0.325)	(0.453)
	Choose Tasks	0.198	0.402

		(0.290)	(0.398)
	Self-Employed Tax	-0.579**	0.624
		(0.295)	(0.397)
High IQ *	Permanent	-0.682	-0.827
		(0.504)	(0.644)
	OneYear	-0.296	-0.0547
		(0.438)	(0.529)
	Holiday & Sick Pay	0.551	0.447
		(0.386)	(0.461)
	Flexible Hours	0.235	1.166**
		(0.396)	(0.506)
	Work Home-100%	-0.605	0.212
		(0.408)	(0.581)
	Work Home-50%	-0.561	-0.159
		(0.361)	(0.495)
	Choose Tasks	0.498	-0.197
		(0.323)	(0.431)
	Self-Employed Tax	-0.148	-0.611
		(0.333)	(0.440)
SD			
	Permanent	3.808***	4.702***
		(0.298)	(0.436)
	One Year	1.817***	3.174***
		(0.286)	(0.357)
	Holiday & Sick Pay	3.133***	3.134***
		(0.233)	(0.388)
	Flexible Hours	3.072***	3.581***
		(0.237)	(0.362)
	Work Home-100%	1.117***	2.082***
		(0.315)	(0.606)
	Work Home-50%	1.107***	0.107
		(0.273)	(0.548)
	Choose Tasks	0.985***	0.803*

	(0.278)	(0.467)
Self-Employed Tax	0.277	1.173**
	(0.318)	(0.555)
N	24336	22652
Log-Likelihood	-5659.22	-5272.12

Table 8: Mixed Logit Preference Estimates- UK

	(1) Normal	(2) LogNormal	(3) Transformed Log Normal	(4) Normal-Certainty≥70
Mean				
Wage	0.321***	0.313***	0.313***	0.395***
	(0.00988)	(0.00923)	(0.00923)	(0.0137)
Permanent	2.881***	0.928***	2.916***	3.686***
	(0.115)	(0.0378)	(0.140)	(0.161)
OneYear	1.916***	0.580***	1.874***	2.438***
	(0.0797)	(0.0430)	(0.076)	(0.108)
Holiday & Sick Pay	1.890***	0.480***	1.917***	2.225***
	(0.0776)	0.0444)	(0.095)	(0.104)
Flexible Hours	0.763***	0.751***	0.751***	0.888***
	(0.0606)	(0.0595)	(0.0595)	(0.0765)
Work Home-100%	1.355***	0.243***	1.336***	1.633***
	(0.0707)	(0.0692)	(0.069)	(0.0899)
Work Home-50%	0.883***	-0.137**	0.873***	1.005***
	(0.0603)	(0.0678)	(0.059)	(0.0750)
Choose Tasks	0.574***	0.566***	0.566***	0.728***
	(0.0517)	(0.0509)	(0.0509)	(0.0670)
Self-Employed Tax	-0.250***	-0.245***	-0.245***	-0.341***
	(0.0526)	(0.0512)	(0.0512)	(0.0685)
SD				
Permanent	1.525***	0.534***	1.674***	1.739***
	(0.148)	(0.0599)	(0.273)	(0.177)
OneYear	0.701***	0.310***	0.595***	0.477
	(0.154)	(0.0706)	(0.1482)	(0.326)
Holiday & Sick Pay	1.009***	0.584***	1.221***	1.223***
	(0.133)	(0.0836)	(0.247)	(0.167)
Flexible Hours	1.037***	0.997***	0.997***	1.182***
	(0.116)	(0.112)	(0.112)	(0.142)
Work Home-100%	0.382*	0.307*	0.4202	0.0562
	(0.197)	(0.181)	(0.265)	(0.235)
Work Home-50%	0.0273	0.0374	0.0327	0.0138
	(0.158)	(0.179)	(0.156)	(0.191)
Choose Tasks	0.441***	0.448***	0.448***	0.540***
	(0.167)	(0.156)	(0.156)	(0.167)
Self-Employed Tax	0.561***	0.473**	0.473**	0.692***
	(0.161)	(0.189)	(0.189)	(0.185)
N	24336	24336		18818
Log-Likelihood	-5870.39	-5875.20		-3941.87
AIC	11774.77	11784.39		7917.747
BIC	11912.47	11922.08		8051.071

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Table 9: Mixed Logit Preference Estimates- US

	(1) Normal	(2) LogNormal	(3) Transformed Log Normal	(4) Normal- Certainty≥70
Mean				
Wage	0.244***	0.240***	0.240***	0.292***
	(0.00746)	(0.00703)	(0.00703)	(0.010)
Permanent	2.401***	0.728***	2.44***	3.091***
	(0.103)	(0.0447)	(0.122)	(0.148)
One Year	1.780***	0.492***	1.750***	2.249***
	(0.0790)	(0.0492)	(0.078)	(0.111)
Holiday & Sick Pay	1.596***	0.316***	1.623***	1.923***
	(0.0700)	(0.0542)	(0.082)	(0.0953)
Flexible Hours	0.789***	0.771***	0.771***	0.876***
	(0.0621)	(0.0608)	(0.0608)	(0.0726)
Work Home-100%	1.623***	0.436***	1.622***	1.892***
	(0.0777)	(0.0537)	(0.078)	(0.103)
Work Home-50%	0.985***	-0.0411	0.970***	1.108***
	(0.0655)	(0.0726)	(0.063)	(0.0821)
Choose Tasks	0.561***	0.552***	0.552***	0.690***
	(0.0537)	(0.0533)	(0.0533)	(0.0649)
Self-Employed Tax	-0.122**	-0.129**	-0.129**	-0.0646
	(0.0524)	(0.0510)	(0.0510)	(0.0638)
SD				
Permanent	1.424***	0.576***	1.533***	1.826***
	(0.136)	(0.0662)	(0.255)	(0.172)
One Year	0.672***	0.368***	0.665***	0.914***
	(0.146)	(0.0683)	(0.1379)	(0.175)
Holiday & Sick Pay	0.838***	0.580***	1.028***	1.026***
	(0.128)	(0.0963)	(0.231)	(0.169)
Flexible Hours	1.036***	1.024***	1.024***	0.891***
	(0.122)	(0.121)	(0.121)	(0.157)
Work Home-100%	0.309	0.308***	0.5112***	0.688***
	(0.274)	(0.0844)	(0.150)	(0.182)
Work Home-50%	0.340**	0.144	0.1404	0.346
	(0.169)	(0.280)	(0.277)	(0.234)
Choose Tasks	0.359**	0.401**	0.401**	0.148
	(0.178)	(0.161)	(0.161)	(0.335)
Self-Employed Tax	0.485***	0.316	0.316	0.327
	(0.154)	(0.259)	(0.259)	(0.284)
N	22652	22652		18292
Log-Likelihood	-5448.46	-5453.04		-3898.82
AIC	10930.91	10940.08		7831.64
BIC	11067.39	11076.55		7964.49

Table 10: WTP Estimates UK

Parameter	WTP (£/%)				
	Normal	Log-Normal	Normal-Certainty ≥70	Normal-WTP Space	Normal-WTP Space(%)
Mean					
Permanent	8.99	9.31	9.34	8.97	55.4
One Year	5.98	5.99	6.18	6.03	37.7
Holiday & Sick Pay	5.90	6.12	5.64	5.71	35.2
Flexible Hours	2.38	2.40	2.25	2.26	14.9
Work Home-100%	4.23	4.27	4.14	3.56	22.6
Work Home-50%	2.75	2.79	2.55	2.18	14.0
Choose Tasks	1.79	1.80	1.84	1.57	11.2
Self-Employed Tax	-0.78	-0.78	-0.86	-0.53	-2.61
SD					
Permanent	4.76	5.35	4.40	3.65	22.2
One Year	2.19	1.90	1.21^+	1.99	14.3
Holiday & Sick Pay	3.15	3.90	3.10	2.68	16.6
Flexible Hours	3.23	3.19	2.99	1.98	11.6
Work Home-100%	1.19	0.98^+	0.14^+	1.38	6.53
Work Home-50%	0.09^+	0.12^+	0.03^+	0.86	2.83^+
Choose Tasks	1.38	1.43	1.37	1.31	9.13
Self-Employed Tax	1.75	1.51	1.75	1.52	8.61
Information Criteria					
Log-Likelihood	-5870.39	-5875.20	-3941.87	-5792.42	-5771.21
AIC	11774.77	11784.39	7917.74	11620.85	11578.42
BIC	11912.47	11922.08	8051.07	11766.64	11724.22

All estimates marked with a + are insignificant at a 10% level. The remaining are all significant.

Table 11: WTP Estimates US

Parameter	Normal	Log-Normal	Normal-Certainty ≥ 70	Normal-WTP Space	Normal-WTP Space(%)
			WTP ($/%)		
Mean					
Permanent	9.84	10.21	10.58	9.92	44.1
One Year	7.30	7.31	7.70	7.26	32.0
Holiday & Sick Pay	6.54	6.78	6.58	6.44	27.3
Flexible Hours	3.23	3.22	3.00	3.06	14.2
Work Home-100%	6.66	6.77	6.48	5.87	25.6
Work Home-50%	4.04	4.05	3.80	3.26	14.3
Choose Tasks	2.30	2.31	2.36	2.20	10.7
Self-Employed Tax	-0.50	-0.54	-0.22[+]	-0.29[+]	-0.49[+]
SD					
Permanent	5.84	6.40	6.25	5.25	20.9
One Year	2.76	2.78	3.13	3.10	13.3
Holiday & Sick Pay	3.43	4.29	3.51	3.62	10.1
Flexible Hours	4.25	4.28	3.05	3.14	13.5
Work Home-100%	1.26	2.13	2.36	1.60	7.45
Work Home-50%	1.39	0.59[+]	1.18[+]	0.98[+]	4.27
Choose Tasks	1.47	1.67	0.51[+]	1.51	5.95
Self-Employed Tax	1.99	1.32[+]	1.12[+]	2.20	8.57
Information Criteria					
Log-Likelihood	-5444.12	-5504.19	-3889.02	-5402.11	-5359.42
AIC	10922.23	11026.38	7812.03	10840.22	10754.84
BIC	11058.71	11098.63	7944.87	10984.72	10899.35

All estimates marked with a + are insignificant at a 10% level. The remaining are all significant.

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