

A Discrete Choice Experiment to Identify Preferences for Different Levels of Workplace Attributes, in the context of “Self-Handicapping”

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Economics with Econometrics BSc

School of Economics, University of Kent, July 2022

Abstract

Self-handicapping can be defined as an attempt to externalise a potential failure by offering an excuse, reducing effort to creating obstacles (Decker, Durrand and Mitchell, 2018). Whilst there is extensive research in the field of psychology regarding human behaviours and self-handicapping, there is little research surrounding the economic impact of such behaviour. More specifically, what factors affect the likelihood of an individual to self-handicap, in the context of the workplace. This paper seeks to investigate individuals’ preferences for different levels of workplace attributes and how they influence the choice of the decision maker. A discrete choice experiment was conducted to establish these preferences by requiring respondents to identify their preferences for attributes within a hypothetical secondment. The experiment was conducted using an online survey and a mixed logit was developed with results showing that individuals require compensation for changes to a job that require increasing challenge and responsibility, in the context of ‘self-handicapping’.

1) Introduction

The motivation for this dissertation stems from an internal desire to understand the main causes behind a human behaviour known as ‘self-handicapping’. Self-handicapping involves creating impediments to successful performance on tasks that individuals consider important. Such impediments can be the result of action, like going out the night before an exam or inaction, like not studying for an exam. In the context of the workplace, these behaviours can take a different form, such as avoiding accountability, and poor engagement. Decker and Mitchell (2016) identify a variety of forms of self-handicapping behaviours within the workplace that will be discussed in further detail in section 2. As a general concept, self-handicapping sees a wide variety of behaviours and dispositions that have been suggested as examples of the behaviour, including procrastination, lack of effort or practice, illness, shyness and excuses. All such behaviours can translate into working life and therefore limit the progression of individuals in their career as a result of a reduced likelihood to put themselves forward. Handicapping is most commonly thought to be purposeful, but is born out from reasons that aren’t purposeful, like confidence and self-esteem issues or other negative perceptions of ourselves as well as the fear of failure (Decker and Mitchell, 2016)

The idea is that you put metaphorical barriers in place and otherwise reduce effort so that if subsequent academic or career performance is low, these circumstances will be seen as the cause rather than the lack of success. It is therefore interesting to investigate why academic underperformance and general success in the workplace proceeds self-handicapping. This poses the question; is it the attributes of the job or personal attributes that determine whether or not an individual would put themselves forward for a secondment?

This dissertation subject leads into questions around glass ceilings. More specifically, its content will give an insight into the reasons behind females in a large proportion of cases being in lesser roles than their male counterparts, as well as spark questions surrounding the gender pay gap.

This research will begin to identify links between productivity and pay, as well as productivity and success. The combination of attributes gives an initial indication of why we may lose productive people by not offering them the right combination of job attributes. This allows us to begin to learn ways in which we can get people out of their comfort zone and encourage success alongside it. Within a business setting, juxtaposed to a psychological setting, this is something that has not been widely researched beyond surface level. As the topic of self-handicapping encompasses all aspects of life, this dissertation will solely focus on a hypothetical workplace setting. Ultimately, this dissertation will provide an insight into preferences for, and, whether it is the attributes of the job or personal attributes that determine whether or not an individual would put themselves forward for a secondment as well as the relative importance of these attributes. Subsequently, suggestions will be given as to what can be done to mitigate or even eliminate self-handicapping behaviour in the future, in the context of economic welfare.

2) Literature Review

One of the main theories underpinning this research comes from Lancaster's utility theory (1966) as well as McFadden's Random Utility Theory (1973). Lancaster's utility theory sets out that goods give rise to multiple characteristics and that it is in these characteristics, not the goods themselves, on which consumers exercise their preferences. This can translate through to the context of workplace attributes, where there are no tangible goods, but instead

intrinsic properties that a job provides. Essentially, it is the characteristic provided by the job that directly drives utility. Using Lancaster's theory puts forward the idea that a particular combination of characteristics is preferred by the consumer juxtaposed to a bundle of goods, or in this case, it is the preference for characteristics of the attributes rather than the attributes themselves.

The theoretical foundation of a discrete choice experiment is relatively complex as it combines numerous economic theories. One such theory is McFadden's Model attaining to random utility which is also highly relevant in this context. The Random Utility Model is consistent with Lancaster's theory of characteristics and plays a key role in interpreting and the understanding of the processes that discrete choice experiments examine (Kjaer, 2005). (Thurstone, 1927) proposed the modelling of individual choice as the outcome of a process in which the random variable can be associated to each alternative and when these perceived stimuli are interpreted as levels of utility, we can interpret this as a model for economic choice where the respondent choose the option that will yield the highest level of utility (Anderson, 1991 and McFadden, 2001). In this dissertation, the respondent will select the combination of attributes that maximises their utility based on the characteristics of each attribute. The development of random utility theory became the benchmark for the use of choice techniques in economic literature because it provided the link between observed behaviour and economic theory (Kjaer, 2005). Random utility theory allows the researcher to elicit preferences for complex multidimensional goods (transposed to dimensions of a job in this paper), for which models of preferences can be estimated (Hall, 2002). A fundamental within probabilistic choice theory is that there is a degree of uncertainty surrounding an individual's choices and that it is not possible to perfectly predict individual choices. As such, it is important that when dealing with uncertainty in these models, instead of identifying a

single alternative as the chosen option, each alternative will be assigned a probability to be chosen. This characteristic will be employed further into this paper given by section 3.

There is of course a degree of limitations when conducting choice experiments. Neoclassical economic theory assumes that individuals who are instructed to choose an alternative from a choice set of alternatives possess unlimited information processing capacity, allowing them to rank alternatives in a consistent and rational manner (Kjaer, 2005). The individual can therefore determine their best choice and will repeat this choice under identical circumstances. This is to say that the researcher only observes the part of the utility that makes up the alternative (Kjaer, 2005). McFadden (1973) recognises that there are in fact inconsistencies in choice experiments and that individuals do not always choose the same alternative despite there being no change to the choice set given to them. McFadden points out that it is difficult to ‘observe or control all the factors influencing behaviour’. Random Utility Theory therefore assumes that the individual acts rationally to maximise utility, and as it is difficult to observe the respondent’s true utility function, a solution is required to attempt to attain this. Probabilistic choice theory can thus be introduced not to reflect a lack of rationality on the part of the individual, but to reflect a lack of information in relation to the characteristic of the alternatives and potentially the characteristics of the individual on the part of the researcher (Manski, 1977). These concepts must be considered when analysing the data from the DCE.

In order to elicit preferences for workplace attributes in the context of self-handicapping, it is necessary to consider the best approach to go about doing so. So far, it has been acknowledged that a discrete choice experiment will be implemented in order to provide an answer to the posed question. It has also been identified that respondents will behave

differently and that heterogeneity must be accounted for. The remainder of this section will analyse the work of various authors in relation to the methodological approach and use of DCEs and a further analysis on the background to the contextualisation of self-handicapping, to inform the design of the experiment.

A paper by Buckell, Marti and Sindelar (2017), a discrete choice experiment is used to provide policy relevant estimates of impacts of alternative flavour bans on preferences for cigarettes and e-cigarettes in adult smokers and recent quitters. Their experiment included a choice of tobacco products and the inclusion of an 'opt out' option. Tinelli states that the decision to include an opt out alternative with the experiment is best guided by whether or not the existing and current situation and/or nonparticipation is a relevant alternative. This gives rise to the idea that excluding this option if relevant essentially nullifies the experiment. The hypothetical scenario for this paper is supposed to reflect a realistic career consideration and the exclusion of an 'opt out' alternative forces respondents into a choice that may not match their preferences and thus the respondent does not utility maximise. This means that the inclusion of an opt out provides respondents with an option to choose the status quo. This aids later analysis in terms of separating those more likely to self-handicap from those less likely to. Despite this, Buckell, Marti and Sindelar identify that in the context of cigarette bans, their equivalent 'opt out' option denoted as 'none' may reflect a willingness to quit smoking, but that it may also reflect that the individual responding to the survey would not choose any of the displayed options and instead use other products. In the context of this dissertation, the selection of the status quo may not reflect preferences as clearly as the selection of a change to the respondent's current job role. This must be considered in future data analysis.

Reinforcing the idea that the use of a cost attribute allows for better economic analysis of preferences via willingness to accept and willingness to pay, a paper by Tinelli (2016) argues the inclusion of a cost attribute (payment vehicle) within a DCE allowed for the estimation of benefits in terms of satisfaction and utility. Setting appropriate levels, both in the number and in range for a cost attribute is important in the context of willingness to accept. One such payment vehicle can take the form of salary, this form of payment vehicle was used in both Tinelli and Buckell, Marti and Sindelar where differences in the levels of the payment vehicle provided an incentive to respondents and will ultimately inform the willingness to accept a change in job role. The inclusion of this attribute will also give rise to identifying how respondents trade off differences in wage against utility gained from alternative attributes and their corresponding levels.

In Tinelli's paper, the aim was to provide social care researchers, policymakers and extend out to practitioners with the best practice guidelines on how to use discrete choice experiments to value respondents' preferences in the context of social care. A particular focus was placed on the idea of cognitive burdens involved with questionnaires and experiments. This informed the careful consideration of how many attributes would allow for a sufficient and usable model whilst not allowing respondents to succumb to questionnaire fatigue and risk invalidating or skewing the results. A review of literature by Marshall (2010) estimated that 70% of the studies reviewed included 3 to 7 attributes. Previous studies have reinforced this in identifying that individuals are able to cope with approximately 16 choices before succumbing to questionnaire fatigue (Bekker-Grob, 2012). If the setting provided too many attributes this would therefore likely lead to cognitive burden (Tinelli, 2016) and result in respondents opting for alternatives that do not maximise utility. When applying the context of this paper and considering the nature of self-handicapping, as given in section 1, it is

especially important to consider the design of the experiment in relation to the number of attributes. A similar consideration was provided in Tinellis paper, where the demographic of the experiment was likely to be vulnerable individuals or those with a disability.

Ultimately, the research seeks to characterise the decision problem in terms that the respondent can understand (Tinelli, 2016). This means that defining the chosen attributes before respondents answered the choice cards was crucial so that the option selected matched their true preferences. In the context of this paper, job considerations are something the majority of individuals deal with at various points in life. As well as this, every individual's experience of the workplace varies and therefore it was paramount that the definitions of the attributes were general enough to be understood but specific enough to be relatable. An additional detail involves using 'forced responses' as seen in Buckell, Marti and Sindelar in order to avoid respondents missing or skipping through questions. This is relevant in the context of a DCE where all choice cards are variations of each other as well as in the context of the demographic criteria, where all respondents are required to have a full or part time job and are therefore subject to time constraints.

In closer relation to the context of the research question, Mitchell and Decker provide an analysis on the topic of self-handicapping and its associated behaviours, relevant to the workplace. They outline that self-handicapping often expresses itself in terms of avoidance. This reiterates the idea that those with a tendency to self-handicap may identify themselves through opting for the status quo in the survey. An interesting observation that corresponds well with the aim of this research is Decker and Mitchell's results displaying gender differences in self handicapping. This highlights the potential need to account for sex heterogeneity within this research, in that respondents may not value the same attributes

equally. Decker and Mitchell (2017) found that, for example, gender differences may be caused by differences in independence. This inspired the inclusion of an attribute relating to the level of independence in the hypothetical job role. This assists the ability to distinguish what causes self-handicapping behaviour and it will be of interest to see in this study whether gender differences arise in this context.

In a journal article by McCrea and colleagues found that men engage in more behavioural self-handicapping than women do. They review evidence that suggests such differences result from women placing more importance on displaying effort than men do. They outline that a new measure, named the 'worker scale' uniquely explained differences in gender in the tendency to behaviourally self-handicap. They also found that the use of the worker scale predicted academic performance, finding that there is a strong association with self-handicaps and underperformance (McCrea, 2008). An additional area of interest that influences self-handicapping is competition. Competition is of key relevance to the workplace and would likely have different effects between males and females as well as the workplace environment as a whole. Ferguson and Dorman (2002) asserts that surveys of students found a correlation between academic self-handicapping and academic self-efficacy. The more competitive the classroom environment, the more students tended to self-handicap. This is an interesting observation that is likely to extend into the workplace environment and thus reveal itself within this study.

In order to elicit preferences for changes in job attributes, this paper will use marginal willingness to accept to establish the degree to which respondents would need to be compensated for the disutility of a change in job role. Willingness to accept is far less typically used than its opposite; willingness to pay in order to assign monetary value to

something. Measures of willingness to pay in the mixed logit model have been long debated in a preference context due to the non 0 profitability of a 0 denominator in the WTP ratio. As a result of this, it can be the case that unreasonable and extreme WTP values can plague the welfare analysis (Ying, 2018).

There is a general consensus surrounding the optimal design and considerations required for an effective DCE, placing emphasis on careful design and choice of attributes as well as considerations surrounding interpretation from the literature reviewed. The subsequent sections are informed by this literature and are inspired by the limited work that came before.

3)Methodology

3)i) Choice of experiment

For this dissertation a Discrete Choice Experiment (DCE) was implemented in order to establish individuals' preferences for workplace related attributes in the context of a secondment and their willingness to accept an uplift in salary given other changes to their job role???. The aim was to examine the degree to which particular attributes influence the choice of the decision maker. A discrete choice experiment sets out a hypothetical set of variables within the attributes where there is a degree of variation. A paper by Mazzanti (2003) defines this type of experiment as a 'tool aimed at measuring economics values and assessing user preferences concerning "multi attribute" and "multi value" levels' as a method for evaluation. This type of experiment is used across a wide variety of fields, particularly in studies surrounding healthcare like (Kjaer, 2005) and behaviour and as such is a good method to assume for this study. Ultimately, this experiment looks to create a realistic scenario such that accurate data can be collected and analysed. A discrete choice situation is defined as one

in which the respondent faces a choice among a set of alternatives meeting the following criteria (Train 1993):

- The number of alternatives in the set is finite
- The alternatives are mutually exclusive
- The set of alternatives is exhaustive (all possible alternatives are included)

Choice experiments can thus be used to examine the response of the individual to changes in the scenario attributes. Rather than examine the entire scenario as a package, the choice experiment allows the researcher to break down the relevant attributes of the situation and to determine preferences for different attributes (Garrod & Willis 1999).

3ii) Choice of model

This study trials a conditional logit and ultimately uses a mixed logit model to analyse respondent preferences. A mixed logit is a highly flexible model that can approximate any random utility model (McFadden and Train, 2000). Although there are multiple types of logistic regression, the mixed logistic regression is preferential as the independent variables are nonlinearly related to the conditional probabilities. Mixed logit probabilities are the integrals of standard logit probabilities over a density of unobserved random parameters (Train, 2003), given by the following equation 1:

$$P_{ic} = \int L_{ic}(\beta_i) f(\beta_i) d\beta_i \quad (1)$$

Where $f(\beta_i)$ is the random parameter density function which is continuous. The mixed logit resolves 3 limitations of the conditional logit by allowing for random taste variation. The fundamentals of the model specification can be shown by the works of Train (2003). He points out that mixed logit is based on the assumption that the unobserved portion of utility consists of a part that follows any distribution specified by the researcher plus a part that is IID extreme values (Train, 2003). With the conditional logit, the critical assumption is that the unobserved factors are uncorrelated over alternatives, as well as having the same variance for all alternatives (Train, 2003). This assumption is restrictive but does still provide a highly convenient form for the choice probability. Despite the convenience of the logit, a mixed logit allows the unobserved factors to follow any distribution (Train, 2003). The characteristic that defines the mixed logit is that the unobserved factors can be decomposed into a part that contains the correlation and heteroskedasticity and another part that is IID extreme value. Thus, a mixed logit can approximate any discrete choice model.

The mixed logit probability can be derived from utility maximising behaviour in several ways, the most widely used is based on random coefficients. The decision maker or respondent faces a choice among J alternatives. The utility of person n from alternative j can be shown by equation (2).

$$U_{nj} = \beta_n x_{nj} + \varepsilon_{nj} \quad (2)$$

Where x_{nj} are observed variables that relate to the alternative and decision maker, β_n is a vector of coefficients of these variables for person n representing that person's tastes, and ε_{nj} is a random term that is iid extreme value (Train, 2002).

In running a regression using the mixed logit, the resultant coefficients can then be used to calculate the marginal willingness to accept a percentage increase in income (MWTA) for the individual attributes assigned to the regression. The willingness to accept for a unit change in a certain attribute can be computed as the marginal rate of substitution between the cost attribute 'bonus' and the quantity expressed by a given attribute, at constant utility levels (Gaudry, 1989) the MWTA is calculated with respect to minus the cost variable (Jara-Diaz, 1990) in this way, the WTA in a linear utility function simply equals the ratio between the parameters of the variable of interest and the cost variable (that is, the marginal utility of an uplift in salary). Measures of willingness to accept are useful for multiple reasons. First, they can directly inform policy makers by providing information about how much people value some goods or services and can thus inform the pricing of these goods or services (Hanley, 2003). Another reason is that WTA measures can be a convenient tool to make relative comparisons and rankings of the desirability of goods and services.

In order to calculate MTWA the following formula (3) was implemented;

$$MTWA_i = \beta_{X_i} / (-) \beta_{\text{bonus}}. \quad (3)$$

3)iii) Survey Design

In order to attain usable data, a discrete choice experiment was conducted via an online form. The survey was distributed via friends and family and shared on various social media platforms. As the survey was mainly distributed to peers and family friends, there was a skew towards the 18-25 category as well as towards females. As previously outlined, the survey

consisted of a hypothetical setting followed by 11 choice cards. The hypothetical setting was such that;

“In ADDITION to your normal contractual role, you have been offered the opportunity to work on a SPECIAL PROJECT/SECONDMENT. For example if you work in the public sector as a Nurse, this may involve work on a clinical trial. If you are a Business Professional in the private sector, this may involve working exclusively on a high profile case. You will be required to answer a series of questions concerning factors that inform your decision making.”

The criteria sets out that the number of alternatives in the set is finite and the alternatives are mutually exclusive.

In terms of eligibility, respondents were required to fit the following criteria;

1. The respondent must be over 18 years old
2. The respondent must have a part time or a full time job

Having undergone research surrounding how best to gain the most accurate and valid results from respondents through DCEs, the decision was made to include 6 attributes and 2-3 levels depending on the attribute, randomly distributed across choice cards and displayed by “Option 1” or “Option 2”. As well as this, there was an added option for each card that read “I would not volunteer for either of these secondments”, this was the status quo option. This status quo option would hypothetically reflect the respondent’s current position. For the attributes attaining to extra hours, as well as length of secondment and the end report to, the levels associated with the attributes reflected increasing relative challenge and movement away from status quo, this again was aimed to separate those likely to self-handicap away

from those less likely. When displayed to the respondent, any given choice card was a random combination of 2 of the 3 levels, with the exception of the attribute “requirements” where only 2 were ever given. This was to force the respondent to trade off various levels of the attributes against one another such that the most significant attributes could be identified that explained the influence over putting oneself forward for the secondment. The survey was such that attributes were included that possess both positive and negative utility to induce respondents to weigh up the levels of each attribute and trade off one attribute for another. For example, the use of the attribute post secondment concerns whether respondents would have to report to just one group of people or a wider more senior group or groups of people. This attribute relates to a respondent’s comfort zone and is a negative utility attribute. This attribute will give rise to distinguishing whether confidence and comfort leads to self-handicapping. The vehicle for which we can establish this is through the use of status quo and marginal willingness to accept.

The 6 included attributes are shown below;

Attributes	Level 1	Level 2	Level 3
Bonus as a percent of salary or annual income	Increase by 0%	Increase by 5%	Increase by 10%
Extra hours worked per week	+0	+5	+8
How long is the secondment	3 months	6 months	9 months
Who you report to and the end of the secondment	Present to board	Present to board + present to external panel/customers	Present to board/customers/immediate colleagues
Who you are required to work with	Working individually	Part of a wider team	-
What you are offered post secondment	Back to old job	Potential to progress/continue with higher wage	Choice of new job at a similar grading within department/field (your choice of positions at a similar level)

- Table 1: Attributes

These attributes were chosen in line with what was likely to influence the average worker within their everyday job and felt they were broad enough to inform later analysis. The attributes captured both intrinsic and extrinsic forms of motivation and gave rise to the separation of confident and driven individuals from less confident and more introverted individuals. For example, presenting to a group of more senior staff members as juxtaposed to just one would commonly affect individual's willingness to put themselves forward. To be able to calculate WTA, the experiment required a payment vehicle which in this experiment

was a % increase in salary. This referred to an uplift in salary to accommodate potential increases in difficulty and responsibility brought about by the secondment.

The inclusion of a cost attribute is of high importance with a DCE. In this paper, the inclusion of 'bonus' becomes an elicitation procedure for willingness to accept. This means that the benefits in the context of the hypothetical secondment are estimated in monetary terms and allows the DCE to be consistent with welfare economics (Kjaer, 2005). This makes it possible to indirectly obtain the respondents willingness to accept for an alternative in its entirety, or the respondent's willingness to accept for the attribute respectively, namely, the marginal willingness to accept (Kjaer, 2005). This is indirectly obtained because respondents are not directly asked their WTA but instead have to trade payment for disutility of a change in a valued attribute. This method of obtaining WTA can be considered to be an advantage over other choice experiments like a CVM because it draws focus away from the monetary aspect (Blamey, 2000).

In relation to deciding what levels the attributes should take, in terms of bonus increments of 5% were chosen with the aim of being different enough from each other to force respondents to weigh up the benefit of a large increase in income against the alternative attributes.

Increments that were too close to each other may not allow respondents to rationally distinguish between higher income and the disutility of alternative attributes. The aim was to make the trade-off big enough that it would be clear in the analysis that a respondent has forgone the benefit of income. In terms of hours per week, the option of 0 additional hours was given as time is finite and often of large importance in a working week, those who selected this option were likely to have a high willingness to accept for working any additional hours in a week. The remaining levels allowed for the possibility that some

respondents would work little hours at present and therefore would be willing to accept compensation for the disutility experienced from working extra hours. Both attributes concerning who respondents would hypothetically report to and what they would do post secondment were ultimately levelled as incremental counts. An initial aim was to generate levels within Stata, but a fault with the data forced the treatment of these levels as equivalent to qualitative differences. The levels for the length of the secondment were given as 3 month increases. It would be interesting to note if those more likely to self-handicap would be more or less likely to have a higher willingness to pay for a return to their old job, or the certainty of a longer secondment. For the attribute attaining to who the respondent who hypothetically have to work with, i.e. working alone or as part of a wider team, it would be expected that respondents would have a higher willingness to accept for having to work individually as opposed to sharing the burden of responsibility across a team.

A definition of each attribute was also given to respondents such that their decision making was informed. This is shown below;

BONUS: This refers to the uplift in your wage or salary, as a percentage, for the duration of the special project. If on salary it is a simple calculation, if not then we will look at the previous year's earnings and calculate the bonus as a proportion of that

ADDITIONAL HOURS PER WEEK: This refers to the likely extra hours that will be required of you in addition to the hours you work in your current job role.

LENGTH OF SECONDMENT: This refers to the length of time the special project is expected to run.

REPORT TO: Refers to which person or group of people you would be required to present to at the end of the special project. This presentation may include a review of your work and details on your successes and failures. Details referring to whom you would be presenting to will be clear when answering the survey.

REQUIRED TO: This relates to whether you will be required to work alone on the project or whether you work as part of a wider team.

POST SECONDMENT: This refers to your options once the special project is finished.

Respondents were in addition asked a set of socioeconomic questions before the choice cards, including those surrounding gender identification, income, risk tendency, whether they worked in the public or private sector, all of which are outlined in the demographic response table in section 4. These questions will aid the analysis in relation to identifying differences in responses between demographics and the potential need to account for sex heterogeneity. This gives an insight into whether certain groups opt for the status quo and thus self-handicap. This is in part inspired by Decker and Mitchell as mentioned in section 2 where it was found that gender differences may be caused by differences in independence. This could mean an attribute defining the level of independence in the new job role - namely 'report to' could further distinguish what causes self-handicapping behaviour and address the question.

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Differences in behaviours and choice selection can be analysed by splitting the sample into subsamples using these demographics.

In order to turn my ideas for attribute ideas and levels into functional choice cards for respondents I used the `dcreate` command in Stata to incorporate my attributes and establish the number groups and sets that were suitable. I divided 22 sets in 2 so that respondents answered 11 choice cards, to provide enough variation to distinguish preferences, but not enough to cause questionnaire fatigue. The design involved is a fractional factorial design. This means that the higher order interactions can be eliminated, such that a fraction of the choice cards can be used, but the full effects can still be analysed as pointed out by (Jaynes, 2016). Respondents born on odd days of the year then answered one block of cards, and those on even, the alternative set of cards. Each of the 2 groups therefore answered 11 choice cards. The values and levels shown in the choice cards are guided both by previous literature as well as informed views of realistic and context specific workplace influences. An example choice card is given below;

Please select the option that best matches your preferences *

CHOICE SET 1, BLOCK 2

CARD 1	Option 1	Option 2
Bonus (% of salary)	10%	0%
Additional Hours / week	0	5
Length of Secondment	3 months	9 months
Report To	Present to board	Present to board and Customers/Clients
Required To	Work with a team	Work independently
Post Secondment	Return to original job	New job within your field at original grading (funding for retraining included if necessary)

- Option 1
- Option 2
- I would not volunteer for either of these secondments

Table 2: Choice Card Example

3)iv) Limitations of the Design

It is important to acknowledge how the data may be skewed as a result of the demographic that responds to the survey. The demographic of this sample is outlined further in section (3). In the future, the use of a preselected sample would provide more balanced and conclusive results that aren't skewed toward a particular group of people. The use of social media will of course target a younger demographic and the process of distributing the survey lent itself to a high proportion of students and therefore part time workers. Part time workers are perhaps not the most fit to respond to a survey that revolves around job influences. In addition, a more selective choice of responses for the socioeconomic questions may better represent types of

people as opposed to very individual and unique responses. For example, the inclusion of a question attaining to current job role gave respondents the option to fill in their unique specification and therefore lead to a more difficult breakdown of the types of individuals who opted for certain choices. This fault with the survey also caused a few cases with multiple answers given that were difficult to identify post data manipulation. This led to Stata identifying cases dropped due to no positive outcome, multiple positive outcomes, or a single observation per case.

An additional limitation saw cases dropped due to collinearity as there was no variation across alternatives. This could be a coding error or an error in the survey. This ultimately left qualitative variables being miscoded. Stata displayed that there were 19 cases for which there was no response at all and 13 cases (sets of cards) for which people have pickled multiple options. When considering the semantics of the levels presented to respondents, the resultant solution was to think about the alternative levels for attributes that were qualitative as counts. This is to say that we can think about the alternative levels as counts just as much as we can think about them as qualitative differences. The counts are escalating and the levels are framed such that they are incremental. The limitation here is that the model loses the non-linearity of the model. This must be considered when analysing results.

4) Results

4)i) Survey responses and demographic

After the close of the survey, the total number of responses came to 116 and the number of observations when manipulating the data came to 3829. Using the raw data alone, a breakdown of the demographic can be shown by observing answers to the socioeconomic and

pre choice card questions answered by respondents. This breakdown can be seen in the table below.

Question	Total Number	% of Total
Age		
18 - 25	42	36.2%
26 - 35	21	18.1%
36 - 45	14	12.1%
46 - 55	21	18.1%
56 - 65	17	14.7%
65+	1	0.9%
Gender	Total Number	% of Total
Male	39	33.6%
Female	77	66.4%
Pre-Tax Income Bracket	Total Number	% of Total
Up to £10,000	27	23.3%
£10,001 - £20,000	10	8.6%
£20,001 - £30,000	20	17.2%
£30,001 - £40,000	10	8.6%
£40,001 - £50,000	11	9.5%
£50,001 - £60,000	8	6.9%
£60,001 - £70,000	3	2.6%
£70,001 - £80,000	3	2.6%
Above £80,001	20	17.2%
Prefer not to say	4	3.4%
Risk Tendency	Total Number	% of Total
Risk Loving	23	19.8%

Risk Neutral	55	47.5%
Risk Averse	38	32.8%
Public vs Private Sector	Total Number	% of Total
Public	27	23.3%
Private	89	76.7%
Work Individually vs Part of Team	Total Number	% of Total
Individually	11	9.5%
Part of a Team	105	90.5%
Job Classification	Total Number	% of Total
Entry Level or Associate	12	10.3%
Staff Member	42	36.2%
Executive or Senior Manager	14	12.1%
Partner	5	4.3%
Supervisor	5	4.3%
Specialist	4	3.4%
Doctor	0	0%
Professional	21	18.1%
Consultant	4	3.4%
Other	9	7.8%
Current Hours pw	Total Number	% of Total
Under 10 hours	16	13.8%
11-20 hours	10	8.6%
21-30 hours	14	12.1%
31-40 hours	37	31.9%
41-50 hours	31	26.7%
51-60 hours	6	5.2%
More than 60 hours	2	1.7%

- *Table 3: Demographic sample*

The results here show that the majority of responses came from the 18-25 bracket as well as from females. Both categories show roughly $\frac{2}{3}$ of respondents were female and $\frac{1}{3}$ of respondents fell into the younger age bracket. Public vs Private sector divisions saw 76.7% majority towards the private sector. This is not necessarily indicative of a bias that will affect results, but perhaps suggests that income priorities may differ. In terms of income, the majority of respondents fell into the under £10,000 pre income tax bracket, this suggests that aligned with the most common age, respondents were likely to be students with part time jobs. The next highest income brackets were those in the £20,001 - £30,000 bracket as well as the above £80,001. Once again, the prior bracket aligns with the expected salary for those 18-25 year olds with graduate jobs and early career salaries. The latter and large portion with high incomes is explained by the survey being extended to colleagues of family members from the legal industry. Both of these show that there is likely to be bias within the results, and as suggested in section (3) a preselected sample may be required in the future to provide more rounded results. As expected, the most common hours per week reported by respondents was 31-40 hours with 31.9% of respondents selecting this option. It was interesting to note that nearly half of the sample selected that they tended neither toward risk or away from risk, and that a further third of the sample reported being risk averse. This leaves only around 20% of the sample revealing that they consider themselves to be risk loving. In the future, more in depth analysis of correlation between gender and risk tendency would prove interesting especially in the context of self-handicapping

4(ii) Running a Regression - Conditional Logit Model

After collecting the data, it had to be cleared and transformed so that it could be analysed in Stata. The raw results were exported to excel and reshaped from wide form the long form.

The 'cm' command that will be used in Stata requires multiple observations to hold the data
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for a single statistical observation. Wide data would be just one Stata observation for each case. Therefore `cm` commands require that data be in long form. By default, any missing value within any observations for a case causes the entire case to be dropped from the analysis. In this case, Stata identified a difference of 6 cases dropped either as a result of no positive outcome, or multiple positive outcomes. This limitation will be discussed in further detail at a later point, but for the regression, the option *altwise* was used such that only observations with missing values to be dropped as opposed to an entire case. The data was then ordered by block and coded such that appropriate variables were replaced as dummies, and any qualitative variables were coded in counts, where a higher count was indicative of a more strict or challenging version of the one before.

The table below provides evidence of the initial regression using *cmlogit*, stating the regression coefficient, p-value and MWTA. This regression includes the choice card attributes. MWTA is not given by the regression outright but calculated by dividing the coefficient of the attributes by (negative) Bonus coefficient, where bonus is the cost attribute. The coefficients in isolation stand as a means to consider sign and significance within the regression. Computing MWTA allows for more in depth and quantifiable analysis.

C	Coefficient	P-Value	MWTA
ALT			
Bonus	-0.036	0.001***	-
Additional	0.025	0.000***	0.694
Length	0.132	0.000***	3.667
Report To	0.204	0.000***	5.667
Required To	-0.164	0.007***	-4.556
Post Secondment	-0.284	0.000***	-7.889

- *Table 4: conditional logit regression results*

All of the coefficients from this initial *cmlogit* are statistically significant at the 1% level. From the sign of the coefficients, we can determine the direction of an effect. Choice models are typically difficult to interpret. The coefficients that we estimate when we fit a choice model rarely allow the researcher to directly test hypotheses of interest (Stata Press, 2019). From the sign of the coefficient, we can determine the direction of an effect, and in the cases of conditional logit and mixed logit models, we can compute odds ratios. Beyond this, the coefficients are almost uninterpretable. For the attributes that possess positive coefficients, it can be said that increases in the coefficients leads to an increased willingness to accept compensation from an increase in the attribute level, whilst for attributes with negative coefficients, the opposite is true and respondents are willing to forego an increase in salary from an increase in the attribute level. All of the attributes have the expected signs considering this, with the exception of 'Required To' and 'Post Secondment' where an increase from level 1 to 2 to 3 and the likelihood to increase disutility is subjective.

In this experiment, the cost attribute is Bonus and as outlined in section (3) refers to an uplift in salary and therefore denotes willingness to accept for a change in the qualitative attribute, so the marginal willingness to accept. Essentially respondents were asked whether they are willing to receive compensation for the disutility of a change in their job attributes.

Having calculated willingness to accept, in terms of the attribute 'additional' - a numeric attribute, for a unit increase in additional hours, the willingness to accept is 0.694. Similarly, for an additional unit in the attribute length, which refers to the length of the secondment, the

willingness to accept is 3.667. This means that for a one unit increase in additional hours, the respondents on average were willing to accept £3.67 more. In cases where the MWTA is negative, this is how much on average the respondent was willing to accept for a decrease in in attribute of one unit, for example post secondment and required to. This gives an initial interpretation of the willingness to accept given the conditional logit. A more in depth analysis will be given in relation to the mixed logit, the model of choice for this study.

4(iii) Case Variable Analysis – Conditional Logit Model

<u>Level</u>	<u>Coefficient</u>	<u>P- value</u>
<u>Level 1</u>	(Base alternative)	
<u>Level 2</u>	<u>Coefficient</u>	<u>P- value</u>
1. Gender	-0.207	0.129
1. sector	0.224	0.206
1. Team	0.031	0.898
Age	0.008	0.123

Risk tendency	-0.186	0.043
Pre-tax income	-4.74	0.173
Current hours per week	0.005	0.421
__Cons	-1.15	0.015
<u>Level 3</u>	<u>Coefficient</u>	<u>P- value</u>
1. Gender	0.508	0.105
1. sector	0.784	0.027
1. Team	0.056	0.920
Age	0.019	0.112
Risk tendency	-0.388	0.041
Pre-tax income	-8.09	0.303
Current hours per week	-0.003	0.866
__Cons	-2.54	0.005

- *Table 5: conditional logit – case variables*

This table gives the output from the case variables included in the conditional logit. The case variables in the regression mostly produced insignificant results with the exception of risk tendency at level 2 and level 3. This case variable has a negative coefficient of -0.186 and -0.388 respectively and are significant at the 5% level. This means that there is a negative relationship between an individual's risk tendency and their willingness to accept a bonus for a change to their job from level 1 to level 2 and 2 to 3. This implies that as individuals become more risk averse, they are less inclined to accept a change to their job for a bonus increase from 0% to 5% and 5% to 10%. As the model of choice for this experiment is the mixed logit, a more in depth analysis will be given for the cmmixlogit output.

4(iv) Running an alternative Regression - Mixed Logit

Subsequently, a mixed logit was carried out. As mentioned in the methodology, a mixed logit allows random coefficients on one or more of the alternative specific predictors in the model. This means that the coefficients on these variables are allowed to vary across individuals. Through these random coefficients, the model allows correlation across alternatives. In this way, a mixed logit relaxes the IIA assumption. Specifying random coefficients can model correlation of choices across alternatives, thereby relaxing the IIA property that is imposed by McFadden's choice model. McFadden and Train (2000) show that the mixed logit model can approximate a wide class of choice representations.

The finalised estimating equation for the mixed logit gives;

$$U_{ij} = \beta_{0i} + \beta_{1i}\text{Bonus} + \beta_{2i}\text{Additionalhrs} + \beta_{3i}\text{Length} + \beta_{4i}\text{Reportto} + \beta_{5i}\text{Requiredto} + \beta_{6i}\text{PostSecondment} + \beta_{7i}\text{Gender} + \beta_{8i}\text{Sector} + \beta_{9i}\text{Team} + \beta_{10i}\text{Age} + \beta_{11i}\text{Risktendency} + \beta_{12i}\text{Pretaxinc} + \beta_{13i}\text{Currenthrspw} + e_{ij}$$

The results of the mixed logit are tabulated below;

<u>C</u>	<u>Coefficient</u>	<u>P Value</u>	<u>MWTA</u>
ALT			
Bonus	-0.037	0.037	
Additional	0.033	0.002	0.892
Length	0.153	0.000	4.135
Report To	0.239	0.000	6.459
Required to	-0.245	0.027	-6.621

Post Secondment	-0.496	0.000	-13.405
/Normal			
sd(additional)	0.079		
sd(length)	0.148	-	
sd(reportto)	0.298	-	
sd(requiredto)	0.025	-	
sd(postsecondment)	0.010	-	

- *Table 6: Mixed logit Model regression results*

Here, we take the variables (additional length reportto requiredto postsecondment) and fit random coefficients for them. This means that the model allows random coefficients for the stated variables and so the coefficients on these variables are allowed to vary across individuals, this is the relaxation of the IIA assumption that is not possible with the use of the conditional logit imposed by McFadden's choice model. This model uses the default distribution for the random coefficients which is a normal Gaussian distribution. The estimated standard deviation for the random coefficients is relatively small, with the exception of report to and length. The high standard errors on these parameters indicate that they are not precisely estimated, and so this must be taken into account in terms of significance.

The estimated means of the random coefficients for the attributes in the model again show the expected signs in line with those of the conditional model.

4)v) Marginal Willingness to accept using the Mixed logit Model

The interpretation for Willingness to Accept is as follows; the marginal willingness to accept is the amount of money a respondent is willing to be compensated in order to receive an

increase in the attribute by one unit. Respondents are willing to accept 0.892 for a 1 unit increase in additional hours. This means for every additional hour of work a week, respondents would be willing to be compensated with a 0.892% bonus to their current salary for every hour over their current. This positive value would be expected given that working hours the sample group consisted of roughly a third already working over 40 hours per week. The MWTA for a unit increase in the length of the hypothetical secondment is a 4.135 bonus as a percentage of current salary. Again, with an increased length of a given secondment, comes more time away from the original job and a general change in job role, amongst other challenges. This high value for willingness to accept perhaps suggests that amongst the sample, there was a high degree of individuals who were not willing to step outside of their comfort zone. This is perhaps acknowledged in respondents' answer toward risk tendency where 32.8% of the sample would classify themselves as risk averse. For the attribute report to which refers to who the respondent would have to report to at the end of the second, an incremental increase from one count to the next produces a WTA of 6.459. This means that respondents would require a 6.459% bonus to their current salary to report to a more stringent and challenging person or group of people within the secondment. The attribute required to produce a negative value of willingness to accept. This means that for a one unit increase in the attribute, or a movement from working as a team to individually, respondents would forego a percentage increase in current salary of -6.621. Additionally, the attribute post secondment also saw a negative value of willingness to pay. This means that respondents would be willing to forego -13.405% increase in their salary to avoid a change to their current job come the end of the hypothetical secondment. A point of consideration here is the use of the phrase 'a one unit increase'. This is dependent on how the data is levelled. For example, a one unit increase in the length of secondment is in months, and a one unit increase in extra

hours is in hours. For the qualitative variables, this unit increases is in relative incremental counts. In order to establish meaningful figures for WTA, a scale must be considered.

4)vi) Case Variable and Marginal Analysis using Mixed Logit Model

Alternative	Coefficient	P-Value
1	Base alternative	
2		
1- Gender	-0.249	0.159
1 - Sector	0.314	0.181
1 - Team	-0.017	0.956
age	0.011	0.126
Risk tendency	-0.205	0.076
Pre-tax income	-6.62	0.157
Current hrs per week	0.007	0.387
__cons	-1.516	0.025
3		
1- Gender	0.623	0.090
1 - Sector	0.999	0.032
1 - Team	0.046	0.947
age	0.023	0.123
Risk tendency	-0.476	0.073
Pre-tax income	-8.87	0.365
Current hrs per week	-0.004	0.848
__cons	-3.421	0.012

- Table 7: Case variables for mixed logit

In the above table (7), we see coefficients for the case specific variables. These are interpreted relative to the base alternative 1. All coefficients for case specific variables here are statistically insignificant. Regardless, we can use margins to more easily interpret the

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results of this section of the model. Margins calculates statistics based on predictions of a previously fit model (Stata Press, 2019). After fitting the choice model, margins provide estimates such as marginal predicted choice probabilities and marginal effects that allow for the easy interpretation of the choice model. For this model, inputting ‘margins’ gives outcome probabilities, so the average predicted probability of selecting each alternative. More specifically, using gender as a case specific categorical variable using ‘margins gender’ will show the average predicted probability of selecting each alternative as a possible outcome at each of the levels. The margins of gender are tabulated below;

Level against Gender	margin
1 0	0.529
1 1	0.521
2 0	0.363
2 1	0.301
3 0	0.108
3 1	0.177

- Table 8: Gender margins

Here, females were coded as 1 and males, 0. This tabulation outlines that the expected probability of a male choosing level 1 is 0.529 compared to an expected probability of 0.521 for females. This pattern continues through for the probability of choosing level 2. This implies that males are more likely to choose the option closer to the status quo and gives an indication that males are more likely to self-handicap. For level 3, females have a higher expected probability of choosing a level 3 attribute compared to their male counterparts.

Repeating this marginal analysis for Team where being part of a team took a value of 1 and individually, 0, the expected probabilities are tabulated below;

Level against Team status	margin
1 0	0.524
1 1	0.523
2 0	0.325
2 1	0.320
3 0	0.150
3 1	0.156

- *Table 9: Team margins*

Here we see that those who work as part of a team in their current role have a lower expected probability of opting for a movement away from the status quo.

A final interpretation using margins investigates sectors, where those in the public sector were assigned a value of 0 and 1 if they worked in the private sector.

Level against sector status	margin
1 0	0.593
1 1	0.500
2 0	0.310
2 1	0.322
3 0	0.097
3 1	0.177

- *Sector margins*

Here we see that private sector workers are have a higher expected probability of choosing the highest level attribute.

The implications of results in tables (8, 9 and 10) will be discussed in the subsequent section.

5) Discussion and Implications

Based off the results of this study, recommendations can be made relating to workplace designs and workplace policy designed to limit the degree to which individuals self-handicap and thus would be less likely to put themselves forward a secondment. Recommendations can be put forward by establishing whether it is the attributes of the job itself or the attributes of the individual that decide the likelihood that an individual will put themselves forward for a secondment. It must be recognised that this recommendations are based off preferences elicited by the sample and therefore do not reflect or represent the true preferences of workers.

This can be informally answered by considering what self-handicapping looks like in the workplace. Attributes were chosen tactically to allow types typical self-handicapping behaviours to reveal themselves through the DCE. As will be recalled, not putting oneself forward can be said to be a form of self-handicapping as it can be considered to be a behaviour that limits success. Behaviours that lead to this outcome can include avoid challenge and risk and avoiding accountability, to name but a few. These traits can be identified in respondents through the types of socioeconomic questions asked to respondents as well inspired the selection of attributes such as who you would be required to work with and whether individually or as part of a team. An economic analysis of this behaviour comes from the inclusion of willingness to accept.

The results of this analysis show that the highest willingness to accept came from the attribute report to. As has been outlined throughout this paper, the attribute 'report to' sees

incremental increases in who the respondent would hypothetically have to report to at the end of the secondment, and each level sees a more pressured and critical review of the respondent's performance at the end of the secondment. As we would expect to see, respondents were willing to accept a high value of 6.459, meaning respondents would require a 6.459% bonus to their current salary to report to a more critical panel of individuals post secondment. In line with a majority of respondents claiming a tendency away from risk, it could be said that individuals are less likely to progress in their career and thus self-handicap as a result of the unnecessary consequence of facing a more critical and intimidating review for doing so. The recommendation here would be to offer alternative forms of assessment to individuals, and/or to reduce the intensity of the end report by reducing the size of review panel. This shows that it is likely the attribute of the job combined with the attribute of the individual that encourage self-handicapping behaviour.

The second highest willingness to accept was calculated from the length of the secondment. The high value gives an indication that the longer the time away from the respondent's current role, the more they wish to be compensated for such. Although speculative, could be as a result of the skew of respondents from early stages of their career as well as respondents considerably closer to retirement age. Age and experience could discourage a change from the norm that is unrelated to self-handicapping behaviour. The recommendation here would be to offer a trial period giving eligible participants to better understand the extent and consequences of a new temporary job role. In the design experiment it was hypothesised that a longer length of secondment could sway certainty either way. This is to say that a 3 month secondment is short with the promise of a return to the old job, but a 9 month secondment gives certainty in respect to routine and structure, both features that could mitigate the effects of self-handicapping.

It was interesting to note for the attributes required to and post secondment, a negative coefficient for WTA. This indicated that the respondent associated negative utility in relation to these attributes and were therefore willing to forego an uplift in salary to avoid a change in the job role. It was important to note here that for those who already worked as part of a team, the status quo was positively selected, show that those in teams did not express gains in utility from a change to work alone. This was supported by the marginal analysis showing the expected probability of opting for team based work vs individual work. This is indicative to some degree of self-handicapping behaviour and so it could be recommended that to mitigate self-handicapping in the workplace, team based work be encouraged.

In relation to the marginal analysis undergone in section 4, it was interesting to note that males were less likely to opt for a change from level 1 to level 3, compared to their female counterparts. Despite this, the disparity was not large and could indicate that preferences across both males and females were displayed relatively equally. It was expected that gender differences would be obvious given Decker and Mitchell's study of self-handicapping in the workplace. This analysis is to some extent highlighting that it is the attributes of the individual that affect the degree to which an individual would put themselves forward for a secondment.

6) Conclusions

This paper set out to elicit preferences for changes in workplace attributes using a discrete choice experiment. This was in an attempt to identify self-handicapping behaviours that would reduce an individual's likelihood to put themselves forward for a secondment and give

a degree of recommendation as to how to mitigate these behaviours in the workplace. Using Both McFadden's RUT and Lancaster's Utility Theory, this dissertation constructs a model in which respondents' preferences can be identified through given attributes and the relative importance of the attributes can be calculated using Marginal Willingness to Accept.

The discrete choice experiment experienced a degree of limitations, including unequal weighting of demographics across the sample, a lack of similar studies relating to self-handicapping and choice experiments, extending to limitations from collinearity, resulting in the loss of non-linearity within the model. Despite this, the DCE yielded some interesting results that were analysed in sections 4 and 5. In studies come before relating to self-handicapping in the workplace agree on the conclusion that self-handicapping behaviours are expressed in the workplace through lack of accountability and avoiding challenge and risk. Respondents more often than not required compensation for an increase in challenge or risk, and there was a positive selection towards the status quo on average from male respondents as well as those who already worked as part of team, which is in line with the concept of spreading responsibility and not being accountable, both being typical behaviours of self-handicapping.

Recommendations to mitigate these effects are limited in light of the fact that studies relating to self-handicapping in the workplace are so limited and more in depth studies would have to be undergone to establish a general pattern and subsequent consensus on ways to deal with self-handicapping behaviour. This is especially so given the limitations of this model. As far as this model is able to give accurate representations of preferences for changes in job attributes, team based work appears to be favoured by individuals as well as certainty guarantees in the context of time and a worker's ability to account for the future.

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