Employer recruitment preferences and discrimination: a stated preference experiment

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Abstract

This paper presents a novel approach of applying stated preference methods in the field of labour economics. Differences in behaviour and labour market disadvantage are connected to the presence, and ages of children, the so-called 'family gap'. There are major difficulties in collecting accurate information about the recruiting practices of employers and identifying their preferences towards different characteristics of new recruits. Employer answers to direct questions may not illicit reliable answers due to them having unconscious biases, confounding various potential employee characteristics, social or legal pressures on not appearing to be biased against certain types of potential employees or them practicing discrimination. This paper applies stated preference methods to identifying employer preferences to three sets of characteristics of potential recruits: age, gender and presence and age of their youngest child. This method is tested using face-to-face interviews with 52 firms. The results indicate that there are strong employer preferences against those: having childcare responsibilities for children aged under 5; and being over 50 years old. Employer preferences favour: those between the ages of 25 and 39; those with no childcare responsibilities; and women. This suggests that the influences of age, gender and children are crucial factor when discussing gender and labour demand.

Employer Recruitment Preferences and Discrimination: A Stated Preference Experiment

Introduction

The personal and household characteristics of a job seeker may influence a potential employer in addition to the usual job and skills related factors such as qualifications and education and other human capital (e.g. Becker, 1971). However, there are major difficulties in collecting accurate information about the recruiting practices of employers and identifying their preferences towards different types or characteristics of new recruits. Employer answers to direct questions may not illicit reliable answers due to: them having unconscious biases; conflating various potential employee characteristics; social or legal pressures on not appearing to be biased against certain types of potential employees; or discrimination (see for instance, Howell, and Sims, 1994, on the unwillingness of voters to say they supported an racist candidate). This paper presents a novel use of Stated Preference analysis to identifying employers' preferences and applies it to particular characteristics of potential recruits: age, gender and presence of young children.

Specifically the paper considers the influence of the age of job seeker, their gender and the age of their youngest child upon employer preferences. In terms of age, there is evidence concerning employer preferences against recruiting older workers (Johnson, 2007; Adams 2004; Borsch-Supan, 2003; Duncan, 2001). The reasons for this may include perceived lower productivity due to poorer health, lower levels of qualifications, perceived lower creativity and innovativeness. Wages tend to rise with age, until the mid-50s, (Mincer, 1974), and older workers may be more difficult to sack due to legislation (e.g. workers over 40 in the US are covered by the Age Discrimination in Employment Act). However, some loss of productivity among older workers may be due to skills obsolescence, rather than age (Skirbekk 2004). On the other hand, older workers may have greater life and work experience, longer tenures, lower turnover, less absenteeism and require less supervision than

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younger workers (Johnson, 2007). There may also be supply-side factors which discourage older workers from applying or wanting work, such as early retirement or other benefits and the balance between consumption, savings, leisure and other responsibilities, such as caring for a spouse or grandchildren (Hurd, 1990).

There is a large literature on gender variations in wages and careers for both labour demand- and supply-side reasons. Largely supply-side factors include differing: human capital (Blau and Kahn 2003; Oaxaca and Ransom, 1994); motivations and attitudes; prevalence of part-time; the effect of breaks or other differences in work history between female parents and others, due to leaving work or working part-time because of childcare responsibilities (Budig and England, 2001; Lundberg and Rose, 2000; Dex et al., 1998; Waldfogel, 1997, 1998).[1] Largely demand-side factors include: occupations, with Manning and Petrongolo (2008) arguing that the part-time versus full-time pay penalty is almost entirely due to occupational segregation; characteristics of employers that women concentrate in, including unionisation, firm size, government and industrial sector (for example: Cohen and Hoffman, 2003; Grimshaw; 2000; Olsen and Walby, 2004); and discrimination (Becker, 1971; Joshi and Paci, 1998; Neumark, 1988; Wright and Ermisch, 1991).

In terms of children and gender, differences in behaviour and labour market position are connected to the presence, and ages, of children of female parents, the so-called 'family gap'. There is a growing literature identifying that differences in behaviour and labour market disadvantage is strongly connected to the presence, and ages, of children for female parents, with some arguing that this 'family gap' may be more important than the gender gap (Joshi et al., 1999; Paull, 2006). While wage differences between full-time men and women have been narrowing in the UK, these have been diverging for part-time women, (Gregory and Connelly, 2008). Career breaks, due to childcare responsibilities, are often seen as a major determinant of gender pay differences (Manning and Robinson, 2004; Hakim, 2004), occupational

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[1] In this paper the presence of young children, refers to the job seeker having primary responsibility for childcare, whom we will refer to, for simplicity, as their parent.

prestige and job quality (Malo and Muñoz-Bullon, 2007). For instance two-thirds of women in a longitudinal study by Stewart and Greenhalgh (1984) had had a break in their career and work experience and only around half went back to the equivalent occupational status afterwards. Using British Household Panel data, Booth and van Ours (2008, p. F98) argue that a women's labour market position is mainly influenced by the presence of children and their ages. In particular women without children or who have children over 12 years old are less likely to be in part-time work.

On the supply-side, parents may wish to spend more time with their young child (or children) and feel that their presence at home is particularly important for the child's development in the early years.[2] There may also be problems with the availability of childcare, especially before the child goes to Primary School at around 5 year old (after which the childcare costs should reduce significantly as they will be at school much of the day). After the child reaches Secondary school age, at around 12 years, mothers are more likely to go back to longer work hours or full-time work as the children are more independent, need less childcare and spend more time in school. If the parent returns to full-time work at this stage, they are still likely to suffer long-term career disadvantage, as they may have missed out on the early career develop stages compared to contemporary men and women who did not have children (or men who did have children), and also their commitment, aspirations and confidence in their future career may be more limited.

On the demand-side, there may be reluctance by employers to recruit parents with small children or those who may potentially have children in the near future. Two particular reasons for this are, first, workers with young children may be perceived, which may or may not be correct, to have lower productivity. This may be due to perceptions of them: being less flexible (for example in terms of hours they can work, days or periods they are

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[2] This primarily relates to mothers of young children, who currently take the major role in childcare responsibilities. Paull (2008) found that a child's birth had little impact on the hours a man worked, although after the first birth there was considerable movement towards part-time work for women which continued for the next 10 years and to a degree for the rest of their lives. Of course men may also be similarly disadvantaged if they take the major childcare role.

unavailable, geographical area they can work in and the ability to change hours at short notice); being more likely to take more time off due to sickness or childcare arrangements for their children; having lower levels of work commitment or willingness to take on added responsibility; and requiring greater management or supervisory time to deal with, for example in creating fixed work rotas for them.

Second, the presence of young children may be taken as a signal for the probability of having another child. In many countries, including those in the European Union such as the UK, the parent would be entitled to maternity leave which would result in various associated employer costs (such as maternity pay, loss of work time, hiring and wage costs of replacement staff etc.). So being a parent with young children may act as a signal for an employer indicating a perceived increase in the probability of such future costs (other such signals may be age and gender). These may lead to discrimination whereby employers avoid recruiting young parents.

Hence an important question is whether the disadvantage in the labour market, including the low wages and disrupted career patterns, are due to: a women's choices (e.g. preferring not to work or work part-time so as to look after a child, at least until they reach Primary school; or having to stay at home due to the non-availability or cost of childcare); their human capital and other characteristics; and/or employers' bias or discrimination.[3] This paper focuses specifically upon the latter issue: the attitudes of employers to those with young children.

The next section briefly considers some models of employer discrimination in terms of having biased preferences, particularly statistical discrimination. Section 3 sets out an overview of the use of state preference methods. Section 4 presents the methodology followed in section 5 by the results of an

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[3] There may be other advantages or disadvantages beyond wage levels, such as job satisfaction, or stress. For instance, Booth and van Ours (2008) found that women have higher hours and job satisfaction if they work part-time (irrespective of the length of hours per week) but their life satisfaction was greater if they worked full-time compared to part-time but not statistically significantly so (although any working was better than not working), while job and life satisfactions for men are not affected by their hours of work.

experiment where the method was tested using face-to-face interviews with a sample of small and medium sized enterprises (SMEs) in the UK. The final section presents conclusions.

Discrimination and employer preferences

Much has been written on employment discrimination by gender, ethnicity, age and so on. There are a number of discrimination models such as: Becker's (1971) taste model (Altonji and Blank, 1999); the crowding out model, where females are concentrated or 'crowded' within a relatively small number of occupations or sectors and hence the large supply of labour keeps the wages low, while the opposite may happen in some 'men's occupations' (Pike, 1984, p. 3); dual labour markets (Doeringer and Piore, 1971) and job ladders models, where men and women may have the same job related abilities, but women have greater links to and ability in non-paid job activities, including household and childcare activities (Lazear and Rosen, 1990). An interesting experiment by Weichselbaumer (2003) found that while there was a negative effect of Lesbian orientation when applications were sent in response to advertisements by employers, but gender identity did not appear to have a significant overall impact on the chances of hiring.

In this paper, of particular importance is statistical discrimination where employers exhibit preferences for or against certain groups, due to imperfect information about individual applicants. Here employers take membership of a group (e.g. mothers with young children, or older job seekers) as a signal which is seen as providing information concerning the person's productivity, as some information is unobservable at the level of the individual (Altonji and Pierret, 2001; Arrow, 1973; Phelps, 1972). If, for instance, two applicants are identical in terms of their skills and experience etc. then rather than choosing between the two people at random, the employer may ascribe the characteristics of a group to those of an individual job applicant based upon prior experience or otherwise.

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In the case of a parent of a young child, the employer has personal may assume that potential worker from this group will have higher costs or lower productivity so they will act as if the real wage per hour of a parent is greater than the nominal cost. The model can be extended here to also incorporate the second issue discussed above, which is where having a young child is seen as a signal for a high likelihood of having another child in the near term. This would be the cost of maternity leave etc. as discussed above, discounted down to the average hourly rate spread over the period that the employee is likely to remain in employment with the employer. It may also be weighted by the ease of replacement of a staff member going on maternity leave, so if there was difficulty of attracting an equivalent worker to cover for the person on maternity leave, such as where the post has considerable firm specific skills and training, or there were other reasons that it would be difficult to find a temporary replacement to cover the maternity leave, then the value attributed to m would be greater. Hence the perceived hourly cost by the employer would be:

$$w_p(1 + I + \varphi m) \hspace{4cm} \text{(Eq. 1)}$$

where w_p is the wage rate for parents, I is the perceived reduced productivity due to the lack of flexibility, increase time off etc. due to childcare, m is the cost of maternity leave and φ reflects the difficulty in replacing the employee during maternity leave.

Given that equal pay and other legislation should ensure equal pay for equivalent work in countries such as the UK, then w_p (wages of parents of young children) should equal w_n (wages of non-parents), i.e. there would not be wage flexibility on the part of the employer. So if parents of young children and those without young children are perfect substitutes, then employers will avoid recruiting the former quality of parents.[4] Generally legislation should enforce flexibility such as maternity leave (Dex and Sheibl, 2002), although

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[4] It should be stressed that this paper concerns the recruitment of parents with young children and not the retention of existing employees who already have young children or have a baby. In these cases the employer would more firmly be bound by legislation and also they would have a clearer knowledge of actual productivity of the staff member.

conscious or unconscious preferences may lead to a bias by some employers.

Hence the employer can be seen as estimating l, m and φ (Eq. 1 above), on the basis of some expected probability based on their past experiences. For example, the employer may assume that a young woman will have a high probability of having a child in the near future, so that they are likely to take maternity leave, while assuming that even if a man of the same age has a child, it will not affect his work patterns. Similarly another woman without children, but with the same skills etc. may be viewed as less likely to have a child and so be chosen in preference to a woman with a young child. Even if these employer assumptions were not correct, it would still affect the hiring decision. Hence in statistical discrimination a potential worker's productivity is uncertain and is seen as depending on factors that are difficult to measure in the formal application process Levitt (2004).[5]

An important aspect is that a person can move between different groups over time, although much of the theory assumes a person stays in a specific group (e.g. gender). For instance, a woman might have a child and so move into the young mother group, or another woman's children may grow older and they move out of the group. So 'group membership' will vary over time (other examples may be a person ageing or moving to a new address out of an area that may be 'redlined' by employers). In addition, over time the age of having the first child has risen, so a person may have an established career and more evidence of their personal productivity (e.g. through credible references). The time spent on maternity leave may also fall (as has been the trend in recent decades), partly due to their great income (and so affordability of childcare as well as greater opportunity cost of not working).

This section has indicated that there may be employer preferences for not taking on certain groups. Some of this may be due to gender bias and some

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[5] Modern strict recruitment processes try to minimise this by clearly seeking justification for all choices during the recruitment process. Statistical discrimination in society is common, for instance where older drivers may qualify for cheaper insurance than younger ones.

due to a bias against parents with young children. It has also been suggested that there may be a signalling effect (using the presence of young children to signal future maternity leave). In this case it may be that gender and young age of the job seeker may also be used as signalling devices. Hence the analysis seeks to control for gender and age, as well as the presence of young children. The next section describes the use of Stated Preference methods in order to consider the employers choice of whether or not to hire someone (which may be based upon statistical discrimination resulting from their perception of the effective real wage that would be paid for members of different groups).

Stated Preference Methods

Stated Preference (SP) analysis is useful in understanding the value and importance of goods and services that are difficult to analyse through the investigation of markets and prices. It is argued here that SP methods can be useful to measure the preferences of employers concerning potential recruits (or workers in general) and that through controlling for 'other' key variables (by using scenarios) they can also take account of some unobserved heterogeneity among the respondents in terms of their attitudes towards different types of recruits.[6]

Stated Preference methods rely on giving people hypothetical choices about a good or service, or in this case a potential recruit, then asking them to state what their choice or preference is among the allowable options. The person being questioned may state their preference by giving a monetary value or by selecting one option over all other options, depending on how the question is

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[6] Another method by which a researcher can determine the employment prospects for potential recruits would be to investigate the actual hiring practices of employers in regard to applicant characteristics like gender, age and childcare responsibilities. This process would be a revealed preference analysis of the employer. The collection of accurate information on all formal and informal applicants is necessary for comparison with the characteristics of the applicant who is finally selected by the employer. If it were possible to collect all this information accurately, it would be possible to determine how job applicant characteristics impact on their employability.

framed. By examining how people respond to a range of choices it is possible to estimate their preference for a particular characteristic of a potential worker by using choice modelling.

There have been useful experiments where employers have been approached with fictitious application forms etc. to determine their preferences or biases (e.g. Bertrand and Mullanaithan, 2004; Weichselbaumer, 2003). However, these are unlikely to be effective where a face to face interview with an employer is used and also may not identify characteristics not fully developed in an application form or unobserved factors influencing an employer in making their decisions.

This paper uses a Choice Experiment (CE) - a technique that falls under the Choice Modelling (CM) framework.[7] CEs are able to analyze separate and distinct characteristics of any potential job applicant. The object of this CE is to determine the relative strength of preference by employers for job applicants by gender, their own age, and the age of their (youngest) child. It is customary when using any SP methods to include a monetary characteristic (wage, in this case) in the questionnaire and to structure the hypothetical questions in such a manner as to monetarise the different characteristics being investigated.[8]

The economic theory behind the use of choice experiments finds its origins in business marketing applications from the 1970's. Today, choice experiments are widely used particularly in environmental and transport economics (e.g. Leitham et al., 2000), housing (Walker et al., 2002) and also in health economics (Carlsson and Martinsson, 2003). The remainder of this section considers the characteristics theory of value and random utility theory,

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[7] Within SP methods there are two groups of techniques, choice modelling (CM) and contingent valuation (CV). Contingent valuation concentrates on the good or service as a whole, while choice modelling examines peoples preferences for individual characteristics or attributes of the good or service.

[8] This was not done in this research as it was believed participating employers may be reluctant to participate in the survey and the experiment was seeking to test if the methods in general could be applied successfully. However, there is no problem in principle of including monetarised values.

multinomial logit models and random parameters logit models as they apply to the issues discussed above.

The Characteristics Theory of Value and Random Utility Theory

Choice Experiments (CE) are based on two fundamental building blocks: Lancaster's characteristics theory of value, and random utility theory. Lancaster (1966) asserted that the utility derived from a good comes from the characteristics of that good, not from consumption of the good itself. Goods normally possess more than one characteristic and these characteristics (or attributes) will be shared with many other goods. The value of a good is then given by the sum of the value of its characteristics. Random Utility Theory (RUT) states that not all of the determinants of utility derived by individuals from their choices are directly observable by the researcher, but that an indirect determination of preferences is possible (McFadden, 1973; Manski, 1977). The utility function for a representative consumer can be decomposed into observable and stochastic sections:

$$U_{an} = V_{an} + \varepsilon_{an} \qquad \text{(Eq. 2)}$$

Where U_{an} is the latent, unobservable utility held by consumer n (or employer in the case of this study) for choice alternative *a* (or job seeker characteristic in the case of this study), V_{an} is the systemic, or observable portion of utility that consumer *n* has for choice alternative *a*, and ε_{an} is the random or unobservable portion of the utility that consumer *n* has for choice alternative *a*. So the utility of an employer seeking to hire a person may relate to observable factors (such as the experience, skills, gender and age of a person), while unobservable factors may be how well they will fit into the workplace and whether or not they may take time off due to childcare or maternity reasons. Research is focused on a probability function, defined over the alternatives which an individual faces, assuming that the individual will try to maximise their utility (Bennett and Blamey, 2001; Louviere et al., 2000). This probability is expressed as:

$$P\ (a \backslash C_n) = P\ [(V_{an} + e_{an}) > (V_{jn} + e_{jn})],\ \forall a \neq j\ , \qquad \text{(Eq. 3)}$$

for all j options in choice set C_n; *a* and *n* are as previously described; or:

$$P\ (a\backslash C_n) = P\ [(V_{an}\text{-}V_{jn}\ ) > (e_{jn} \text{-}\ e_{an})], \qquad \forall a \neq j\ . \qquad\qquad (Eq.\ 4)$$

To empirically estimate (4), and thus to estimate the observable parameters of the utility function, assumptions are made about the random component of the model. A typical assumption is that these stochastic components are independently and identically distributed (IID) with a Gumbel or Weibull distribution.

Multinomial logit (MNL) models

This leads to the use of multinomial logit (MNL) models (sometimes called conditional logit models) to determine the probabilities of choosing *j* options (Hanley, Mourato and Wright, 2001):

$$P(U_{an} > U_{jn}) = \frac{\exp(\mu V_a)}{\Sigma_j \exp(\mu V_j)}\ ,\ \forall a \neq j \qquad\qquad (Eq.\ 5)$$

Here, μ is a scale parameter, inversely related to the standard deviation of the error term and not separately identifiable in a single data set. The implications of this are that the estimated β's cannot be directly interpreted as to their contribution to utility, since they are confounded with the scale parameter. When using the MNL model choices must satisfy the Independence from Irrelevant Alternatives (IIA) property, which means that the addition or subtraction of any option from the choice set will not affect relative probability of individual *n* choosing any other option (Louviere, et al., 2000). Modelling constants known as alternative specific constants (ASCs) are typically included in the MNL model. The ASC accounts for variations in choices that are not explained by the attributes or socio-economic variables, and sometimes form a status quo bias (Ben-Akiva and Lerman, 1985).

Random parameters logit (RPL) models

Another econometric approach is the Random Parameters Logit (RPL) where the utility function for respondent *n* choosing over alternatives *j* (*j*=1,2,...*J*), U$_{jn,}$ is augmented with a vector of parameters η that incorporate the individual preference deviations with respect to the mean preference values that are expressed by vector β:

$$U_{jn} = C_j + \Sigma_k \beta_{jk}\ X_{jkn} + \Sigma_m\ \gamma_m\ S_{mn}\ C_j + \Sigma_k\ \eta_{kn}\ X_{jkn} + \varepsilon_{jn} \qquad\qquad (Eq.\ 6)$$

where C_j is an alternative specific constant ($C_J=0$, for identification purposes), X_{jkn} is the kth attribute value of the alternative j; β_{jk} is the coefficient associated with the kth attribute, S_{mn} is the mth socio-economic characteristic of individual n, and γ_m is the coefficient associated with the mth individual socio-economic characteristic. Note that socio-economic characteristics are invariant across choice occasions for each individual in the sample, so are interacted with the alternative specific constant. Furthermore, η_{kn} is a vector of k deviation parameters which represents the individual's tastes relative to the average (β) and ε_{jn} is an un-observed random term which is independent of the other terms in the equation, and which is identically and independently Gumbel distributed. The researcher can estimate β, γ and η; the η terms, as they represent personal tastes, are assumed constant for a given individual across all the choices they make, but not constant across people. Random parameter logit probabilities are weighted averages of the logit formula evaluated at different values of β, with the weights given by the density $f(\beta)$.

The probability that respondent n chooses alternative i is given by:

$$P_{ni} = \int L_{ni}(B) \, f(B) \, d(B) \qquad\qquad (Eq.\ 7)$$

where $L_{ni}(\beta)$ is the logit probability evaluated at parameters β. Since the integral (Eq. 7) has no closed form, parameters are estimated through simulation and maximizing the simulated log-likelihood function. In order to estimate the model it is necessary to make an assumption over how the β coefficients are distributed over the population. Here we assume that preferences for all the job applicant characteristics follow a normal distribution which allows for both a positive and negative preference values.

By conducting a choice experiment it is therefore possible to estimate the relative strength of preferences that employers have for job applicants based on three characteristics, gender, age and childcare responsibilities.

Methodology

A total of 52 small and medium size businesses were interviewed face-to-face. The firms were located in the UK. In addition to collecting information about the firm and their current employees each employer was given 11 cards like the illustration in the Annex. Each card had a different pairing of possible applicant profiles from which the employer was asked to indicate their preference. From this information it is possible to estimate the relative likelihood of a job applicant being selected or preferred based on the characteristics presented.

Businesses were selected randomly from business databases and the numbers in each local government area were weighted approximately by population. Businesses were contacted by phone and letter. Interviews were requested with business owners and managers involved in the recruitment of new staff.

The interview sought to characterise aspects of the business that may affect the likelihood that an individual with childcare responsibilities would be capable of undertaking employment within the business. To this end, interviews sought information on the volume of replacement and additional staff, recruitment methods, employer expectations of shop-floor level worker with regard to reliability, flexibility, adaptability, team working, timekeeping, honesty, absence rates and conscientiousness.

Three worker characteristics critical to the recruitment decision making processes of employers were gender, age and age of children. Employers within SMEs were asked to express a preference for one of two possible candidates or leave the position vacant. The interviewee was allowed the option of leaving the position vacant to accurately reflect the options available to the business. Without this option the employer is faced with a conditional choice and forced to select a potential applicant which they may have otherwise rejected. When the interviewee selects this option no observable

attributes exist and the choice is treated as a missing value in the analysis (Hensher et al., 2005)

Differences between the two candidates were limited to gender, age and whether the individual had childcare responsibilities for children aged under 5 years, children aged 5 to 11 or no childcare responsibilities at all, i.e. no children under 12. The ages of the hypothetical candidates varied from young (25 or less), 25 to 39; 40 to 49; 50+ years of age. Gender was male or female. Combining these characteristics together gives 24 unique applicant profiles, however fractional factorial design allowed for 20 profiles to be used in the experiment. These profiles were paired and presented in 11 choice cards. One card used the same profiles as another card but in reverse order. This was done to test for consistency of responses[9]. A series of scenarios were presented to employers who were asked to choose between two hypothetical candidates. The scenarios were adjusted to quantify employer preferences with regard to the age, gender and childcare responsibilities of potential employees.

Stated Preference analysis was then used to examine the preferences or values that employers placed on different characteristics of potential job applicants. The interviewees were presented with a series of scenarios and asked to assume the following: the candidates are being considered for a permanent position working on the shop floor; all candidates have the minimum necessary qualifications and experience to be employed by your company; there are no other significant barriers to their employment; the candidates are identical except for the three characteristics presented in the profiles. By presenting employers with differing profiles of potential job applicants and asking them to indicate their choice (preference), it is possible to identify the relative importance they place on certain characteristics like gender, age and age of their (youngest) child. Details were also asked about

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[9] Only 4 of the 52 persons interviewed exhibited inconsistency of choice.

the makeup of their existing workforce for these jobs in terms of age and gender.[10]

The RPL model was the preferred model for estimating the preference structure of the sample frame as the MNL model failed the Hausman-test of the IIA assumption. Effects coding was used in the data set for the attributes.

Results

Table 1 reports the estimated coefficients from the choices made by the survey respondents. The coefficients are interpreted as the parameters of the indirect utility function, although the fact that they are confounded with a scale parameter means that one cannot directly interpret their numerical value. The scale parameter cancels out when calculating the relative proportional effect of the estimated coefficients. Coefficient signs show the influence of the characteristics on choice probability. A positive value indicates a positive preference by employers for the particular characteristic level which means it is an advantage for the job applicant. A negative value indicates a negative preference and a disadvantage for a job applicant.

The results suggest that there is a statistically significant (at the 1% level) positive preference by employers for applicants who are a woman, have no major childcare responsibilities and are 25-39 years of age. Solely being a woman does not appear to be used by employers as a signal for childbearing in the near future.

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[10] Additional covariates were examined as possible explanatory factors for employer preferences. The covariates were; an alternate specific constant, total number of employees at each firm, percentage of women employed at each firm, and if the firm was in an industry dominated by women, men or neither gender. All covariates were found to be statistically insignificant in their influence on employer preferences.
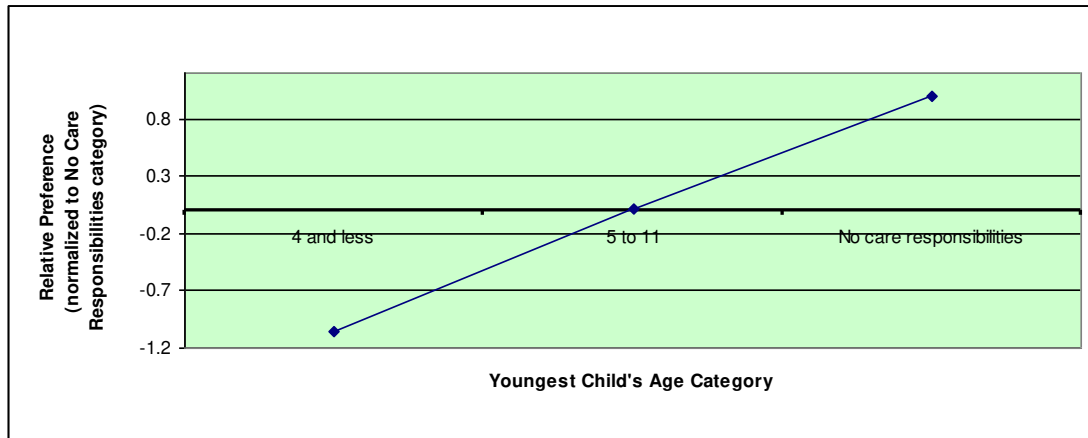
Table 1: Model of Employer Preferences for Recruits

Variables	Coeff.	Std.Err.	t-ratio	P-value
Woman	0.380	0.106	3.562	0.0004
Under Age 25	0.083	0.149	0.557	0.5777
Age 25 to 39	0.533	0.155	3.445	0.0006
Age 40 to 49	-0.233	0.160	-1.459	0.1447
Age 50 or older	-0.383	0.166	-2.309	0.0210
Child Aged Under 5 Years	-0.668	0.165	-4.044	0.0001
Child Aged between 5 to 11	0.012	0.137	0.092	0.9270
No Children Under 12	0.656	0.155	4.244	0.0000

Random parameters logit model. 52 respondents, N = 560 with 12 missing values. McFadden Psuedo-R^2 = 0.18.

Having a child who is under 5 years old is a disadvantage and highly significant (p = 0.0001). Having a child aged 5-11 years old does not influence the preference of employers (P = 0.927). Having no childcare responsibilities (or only children of 12 or more) was strongly significantly positively correlated to the preferences of employers (p = 0.0001). The presence of childcare responsibilities were found to be negatively correlated to employer preferences and becoming more important as the age of the job seeker's child(ren) decreased (Figure 1). It is important to note that by disaggregating by the age of the youngest child of applicants, the analysis was able to identify that it is not children in general but children of pre-school age that are the source of disadvantage in seeking employment.
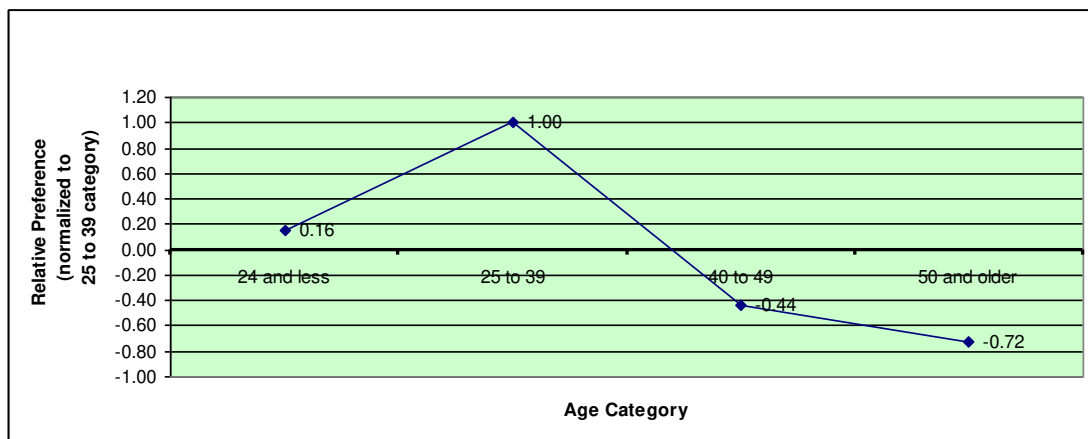
Figure 1: Employer's Relative Preference for Applicants by Childcare Responsibilities

Normalized to most preferred - No Care Responsibilities.

The impacts from an applicant's age proves to be advantageous for the 25 to 39 age group while a disadvantage for older job applicants, and insignificant for younger applicants. This suggests that age is not used as a signal for the likelihood of having children. This is not particularly surprising given that the age of having a first child was 30 years old in 2005 in the UK (Eurostat, 2008).

Figure 2: Employer's Relative Preference for Applicants by Age Category

Normalized to the most preferred category – Aged 25 to 39.

Figure 2 shows the relative preference of the firms surveyed for the age of job applicants. The preference is normalized to the most preferred group, aged

between 25 and 39. The other three age categories are less preferred, the oldest two groups having a negative preference by employers.

Analysis of the stated preference questions asked in the face-to-face questionnaire produced the following results:

- Having childcare responsibilities for children age 4 or less has the largest negative impact on an employer's preference for hiring a job applicant.

- Having childcare responsibilities for children between the ages of 5 to 11 has little or no impact on an employer's preference for hiring a job applicant.

- Having no childcare responsibilities (or no children under 12 years old) has a positive impact on an employer's preference for hiring a job applicant.

- Being between the ages of 25 and 39 has a large positive impact on an employer's preference for hiring a job applicant.

- Being age 40 or older reduces an employer's preferences for hiring a job applicant. This negative impact increases once the job applicant is 50 or older.

- Being a woman increases an employer's preference for hiring a job applicant.

- Being a woman creates an advantage that just counter balances, or offsets, the disadvantage of being age 50 or older.

- Being a younger job applicant, age 24 or less, does not impact on an employer's hiring preferences.

- The most preferred person to hire is a woman, age 25 to 39, with no childcare responsibilities. She is the most "advantaged".

- The least preferred person to hire is a man, age 50 or older, with childcare responsibilities for children age 4 or less. He is the most "disadvantaged".

These results would appear to be consistent with statistical discrimination, where the presence of young children signalled that the person may have another child in the near future, and so take maternity leave, and/or a perception of lower productivity among those with young children. The result

of a negative preference for those over 50 years old also indicates statistical discrimination for older job seekers.

In order to test a hypothesis that two attributes, woman with pre-school age child(ren), may interact and experience a negative preference contrary to or in excess of the main attribute preferences found in the analysis, a simple count test was conducted. The combined attributes, woman with pre-school age child(ren), occurred 145 times. The combined attributes were preferred 71 times while all other alternatives were selected 74 times. This indicates that no systemic bias against this profile occurred.

Conclusions

Stated preference methods were used to measure the employer preferences for potential recruits in terms of gender, age and presence and age of children. The results indicate that there are strong employer preferences against those: having childcare responsibilities for children under 5 years old; and being aged 40 or older, but especially being over 50 years old. Employer preferences were found to favour those between the ages of 25 and 39, no childcare responsibilities and women. The most preferred person to hire is a woman, age 25 to 39, with no childcare responsibilities. These suggest that both older age and presence of very young children may be used as 'signals' by employers which bias them against such potential recruits and hence support the apparent use of statistical discrimination.

The presence of childcare responsibilities were found to be negatively correlated to employer preferences and became more important as the age of the job seeker's youngest child decreased. It is important to note that through disaggregating by the age of the youngest child of the applicant, the analysis was able to identify that it is not children in general but children of pre-school age that are the source of disadvantage in seeking employment. What the results indicate is that, while there may be supply-side factors leading to greater numbers of mothers taking part-time work or leaving work, there are

clear demand-side influences that will affect the ability of those with young children to find work. This suggests that a key factor in gender differences should include the differences between mothers, specifically mothers of young children, and other women.

The results support the potential usefulness of Stated Preference methods in analysing labour markets, even with relatively small sample sizes (52 employers in this case). There is considerable scope for additional Stated Preference based analysis of other labour market issues, additional attributes of job seekers, identifying differences in effects between the perceived flexibility of those with children and the perceived likelihood of taking maternity leave, the effects of job levels and preferences for part-time versus full-time work and the monetarisation of the employer preferences for these and the employment attributes considered in this paper. The results of this paper suggest that such extensions using Stated Preference methodology would be well worthwhile.

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Annex

Illustration A1 below shows one of the choice sets that employers were asked to consider in the face-to-face interviews. The possible job applicant characteristics were gender, age and age of their child(ren). The respondent was asked to compare the two candidates by the given characteristics and select the preferred one or to select neither if they would be preferred to leave the post vacant. Notice that the two candidates are both women but are different in age and in childcare responsibilities.

Illustration A1: Example of a Choice Card presented to respondents.

Card	Candidate A	Candidate B	Neither
Gender	Female	Female	Leave the position vacant
Age	40 - 49 years old	less than 25 years old	
Care Duties	Child(ren) aged 4 or less	Child(ren) aged 5 to 11	

For Card 2 which candidate do you prefer? Candidate A, B or Neither