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What Aspects of Formality Do Workers Value? Evidence from a Choice Experiment in Bangladesh

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ABSTRACT

What Aspects of Formality Do Workers Value? Evidence from a Choice Experiment in Bangladesh¹

Using a choice experiment among 2,000 workers in Bangladesh, we to elicit willingness to pay (WTP) for specific job benefits typically associated with formal employment. We find that workers value job stability the most; the average worker would be willing to forego a 27 percent increase in monthly income in order to obtain a 1-year written contract (relative to no contract), or to forego a 12 percent increase to obtain thirty days of termination notice. On average, government workers place a higher value on contracts than do private sector employees, while casual workers particularly value higher pay. Our use of choice experiments to overcome the challenges associated with estimating WTP for specific job benefits from hedonic wage regressions or from observed job transitions is of interest in its own right, especially in a developing country context where data on worker transitions are unavailable and many workers are informally employed.

JEL Classification: J46, J32, J81

Keywords: informality, worker benefits, discrete choice experiments

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1. Introduction

A large share of workers in developing countries are part of the “informal” economy – whether that is measured in terms of lack of firm registration, tax evasion, self-employment, employment in small firms, or off-the-books employment (ILO 2014, LaPorta and Shleifer 2008, Tybout 2000). The prevalence of informality presents a concern for a variety of reasons, including the fact that workers in the informal sector are often subject to poor working conditions, and receive few or none of the benefits that are available to formal workers such as written contracts or paid leave. Attempting to extend formal job protections to informal workers – or even to enforce all existing protections – is beyond the reach of regulatory agencies in many settings, and may actually encourage informal firms to move even further into the shadows. Thus, understanding which job benefits are most valuable to workers can help policymakers and regulators to focus their limited resources.

In this paper, we used a choice experiment involving approximately 2,000 workers in Bangladesh to elicit workers’ preferences for specific benefits associated with formal employment. In the choice experiment, we presented each worker with two alternative jobs, which differed in terms of the levels of five attributes: a written contract, termination notice, paid leave, working hours, and access to a retirement fund. The worker was also told the monthly income that would be associated with each job.² The worker was then asked to decide which job he or she would select, if given an opportunity to choose between the two alternatives. We used the tradeoffs between monthly income and each of the other

² Monthly income was presented as percentage increase in income compared to the respondent’s current monthly income from his or her main economic activity.

attributes to estimate the willingness to pay (WTP) for that particular attribute (i.e., job benefit).

A key contribution of our work is that it is one of only a handful of choice experiments that examine preferences for job attributes. Such stated preference methods have been used extensively in the marketing, environmental, health and transportation literature; however, while there are a few papers that use choice experiments to elicit preferences for job attributes (Ubach et al. 2003, Scott et al. 2004), these are generally limited to specific health care occupations. One recent exception is the study by Assy et al. (2018) which estimates youth preferences for different jobs attributes, and their willingness to pay for support services to access wage or self-employment in Kenya.

To mitigate the concern that the workers' stated choices might not reflect their actual choices, we carefully identified the job benefits to include in the choice experiment, and the levels of those benefits that would be offered, based on a review of the Bangladesh Labour Law, discussions with policymakers and other stakeholders in Bangladesh, and focus groups with workers. We designed the experiment to allow identification of the WTP for each attribute, and randomly assigned each respondent to 6 choice scenarios. We then tested the scenarios through a pilot survey, and modified the attribute levels based on feedback regarding the appropriateness and realism of the scenarios. In the actual survey, we used practice questions to ensure that respondents understood the choice exercise.

An important advantage of choice experiments is that they can help to overcome a critical challenge that arises when using revealed preference methods: namely, that in the presence of unobserved heterogeneity among workers or firms, standard hedonic estimates of the WTP for non-wage attributes will be biased (Hwang et al. 1992, Hwang et al. 1998). Some early studies attempted to overcome these difficulties using panel data, with mixed

results (Brown 1980, Duncan and Holmlund 1983). Another approach is to use information on job duration – namely, to estimate preferences for specific job benefits by examining whether workers stay longer in jobs with those benefits (Gronberg and Reed 1994, Reed and Dahlquist 1994). However, it is not clear that duration models solve the key problem of unobserved heterogeneity, since an important identifying assumption they make is that the *involuntary* separation rate is the same across jobs with different benefits. More recently, a number of studies have estimated search models to identify the total value of non-wage attributes (Sullivan and To 2014, Hall and Mueller 2018) and the contribution of non-wage attributes to variation in observed wages (Taber and Vejlin 2016, Sorkin 2018). However, only a few of these papers distinguish between different types of attributes: Dey and Flinn (2005, 2008) focus on health insurance, while Bonhomme and Jolivet (2009) use self-reported satisfaction with five job characteristics.³

Our study complements, and contributes to, this strand of literature in several ways. First, estimation of search models generally requires longitudinal data (usually from administrative records) on worker transitions, which are often not available in developing countries. Even where such data do exist, they may not include workers who do not participate in the formal labor market. Our study demonstrates how a choice experiment can be used to estimate WTP in a setting where most workers are informally employed or self-employed, and where no longitudinal data on workers or firms exist.

Second, by creating hypothetical tradeoffs between specific job benefits and wages, and keeping everything else equal between alternative job options, we are able to estimate WTP for a number of individual benefits, rather than for a bundle of amenities. We can calculate quantitative estimates of workers' valuations of specific benefits, and identify

³ Respondents are asked to rate their satisfaction with type of work, working conditions, working times, distance to job / commuting time, and job security (Bonhomme and Jolivet 2009).

which benefits are valued the most. Third, because our work enables us to elicit preferences for job benefits from a wide range of workers, it also allows us to examine the extent to which preferences for specific attributes differ by individual characteristics and type of current employment.

Our study also contributes to the policy discussion regarding informality. While many employment protections, such as basic occupational safety or paid leave, are supposed to apply to all workers, in reality such protections are more likely to be enforced in larger, formal firms (and even there not on a uniform basis) and government agencies may not have sufficient resources to extend enforcement efforts to numerous, small firms. Moreover, attempting to extend additional formal protections or to enforce all existing protections on informal firms may encourage them to become even less visible to regulators. Our study therefore views formality as a continuum, and our findings shed light on which benefits attached to formal employment might be more valuable to workers, and thus should have higher priority in policy discussion.

The rest of this paper is organized as follows. Section 2 provides a brief overview of the survey methods, while Section 3 describes the choice experiment design. Section 4 presents results, and Section 5 concludes.

2. Survey Methods

We conducted a survey of approximately 2,000 workers in the two major administrative divisions of Bangladesh.⁴ We used a two-stage sampling design to select workers to interview in four districts: Dhaka, Gazipur, and Narayanganj districts in the Dhaka division, and Chittagong district in the Chittagong division. We began with a list of

⁴ There are 8 administrative divisions and 64 districts in Bangladesh. We conducted surveys in urban and peri-urban areas comprising three districts in Dhaka and one district in Chittagong.

the number of households in each of 1,971 *mouzas* (the lowest administrative level at which national surveys are conducted in Bangladesh and for which such data were available) in the four targeted districts. We used the *mouza* as our primary sampling unit (PSU) and selected 80 *mouzas* with probability proportional to size (PPS) where size was the number of households.⁵ Within each *mouza*, we selected 30 households for first-stage sampling, using a random walk method, as follows. Three enumerators, plus a supervisor, would arrive at the selected *mouza*. The supervisor first reviewed the general layout of households in the *mouza*, and then directed each enumerator to start at a different point, typically along the outside border of the *mouza*. The enumerator was instructed to visit each 10th household.⁶ At each selected household, we used a screener questionnaire to collect basic information about all household members, including age, gender, employment status and type of employment.

The screener resulted in a roster of approximately 3,800 working adults. Since one of the key aims was to understand transitions between employment types, we stratified the roster by gender as well as by the following employment types: Paid employee in government; Paid employee in a private entity; Apprentice/Intern/Trainee; Seasonal worker; Day laborer / casual worker; Domestic worker in a private household; Self-employed / business owner with no employees; Self-employed / business owner employing only paid or unpaid family members; Self-employed / business owner employing some non-family members; and Paid or unpaid family member working in a household business.

⁵ The sample included 50 *mouzas* from Dhaka, 7 from Gazipur, 4 from Narayanganj and 19 from Chittagong.

⁶ The replacement rules for the household selection were as follows: If the enumerator was unable to talk to someone at the selected household, or if the potential respondent was busy, the enumerator would return up to 2 more times (up to 3 visits). If the household could not be reached after 3 visits, or refused to participate, the enumerator would choose the household next door. If this first replacement was also unsuccessful, the enumerator would select the household next door to that one. If the second replacement was also unsuccessful, the enumerator would go on to the next original household (i.e., 10th household).

Our target sample size was 2,000 workers. Within the smaller gender-employment type strata, we selected all workers.⁷ Within the larger strata, we randomly selected 40 percent of the workers. Of the target sample, we successfully completed 1,964 interviews (98.2 percent completion rate).

3. Choice Experiment Design and Model Estimation

Below, we describe how we identified the attributes and levels that were included in the choice experiment, as well as how the specific choice scenarios were selected. We also present the models that we used to analyze the choice experiment data.

3.1 Attributes and Levels

In the choice experiment, we told respondents that we would present them with two hypothetical employment opportunities, each with different levels of the following attributes: a written contract, termination notice, paid leave, working hours, a retirement fund (Provident Fund), and monthly income. We asked them to assume that all other attributes not presented in the scenario were identical between the two jobs. The alternatives were unlabeled; that is, we did not identify jobs as “formal” or “informal”, as doing so may have caused respondents to make assumptions about other aspects associated with the jobs, rather than focusing on the attributes listed above. The respondents were then asked to indicate which of the two jobs they would select if given a choice.

Table 1 shows an example of a choice set. This could reflect a real-world situation in which a worker has to choose between two different job offers. Job A offers a 6-month written contract, 15 days of termination notice, working hours in the range of 30-45 hours/week, and 14 days of paid leave, but no Provident Fund. The respondent is told that Job A

⁷ These were: all employment type cells for women, and seasonal worker, domestic servant, and apprentice/intern/trainee employment type cells for men.

would pay a monthly salary 20% above his or her current monthly income. Job B offers the same attributes in terms of termination notice, paid leave, and Provident Fund. However, this job offers a longer contract (1 year), longer working hours (45-60/week), and lower increase in income (10% increase over current income).

Table 1. Example Choice Scenario

| | JOB A | JOB B |
|---|---|---|
| Written Contract | 6 months initially | 1 year initially |
| Termination Notice | 15 days | 15 days |
| Working hours | 30-45 hours per week | 45-60 hours per week |
| Amount of paid leave (not including major government holidays / festival leave) | 10 days | 10 days |
| Provident Fund | No | No |
| Monthly income | 20% higher than your current monthly income from main economic activity | 10% higher than your current monthly income from main economic activity |

The full set of attributes and levels that we included is shown in Table 2. The specific attributes and their levels were initially selected based on a review of the Bangladesh Labour Law, and were refined through a series of discussions with policymakers and other stakeholders, as well as focus groups with workers, and a pilot survey. Since our survey included respondents who were self-employed or working for family businesses, and also included respondents with a wide range of current incomes, we framed the monetary variable relative to current monthly income, rather than a fixed wage. In addition, the levels for income included only increases rather than decreases because, based on our focus groups, we found that offering a lower income was likely to result in immediate rejection of the choice scenario. To make the options more realistic, access to a Provident Fund was only offered for jobs that also included long-term contracts.

The full survey instrument, including the choice experiment module, is available online.⁸

Table 2. Full Set of Attributes and Levels

| Attribute | Levels |
|--|---|
| Written Contract | None 6 months initially 1 year initially Long term |
| Termination Notice | None 15 days 30 days 60 days |
| Working hours | 30-45 hours per week 45-60 hours per week 60-75 hours per week |
| Amount of paid leave (excluding government holidays and festival leave) | None 5 days 10 days 15 days |
| Provident Fund | Yes No |
| Monthly income | Same as now 10% increase over current income 20% increase over current income 30% increase over current income 40% increase over current income 50% increase over current income |

3.2 Experimental Design

Given the numbers of attributes and levels, we could not include all possible combinations of them in the choice experiment. Therefore, we used an efficient experimental design in order to create a reasonable number of choice sets. We designed the specific choices offered to respondents in order to allow identification of all main effects using an efficient design in Choice Metrics (NGene). The attributes were combined to create 48 choice sets in 8 blocks, each with 6 choice situations. To mitigate fatigue and

⁸ https://www.rand.org/pubs/working_papers/WR1199.html

cognitive burden, each respondent was presented with one block of 6 choice sets. The blocks/choice sets were randomly assigned to respondents to rule out the possibility of any ordering effects on choices.

3.3 Model Estimation

To estimate WTP using the choice experiment data, we follow standard practice by starting with a random utility model (McFadden, 1973). Suppose that the utility an individual receives from a particular alternative j depends on the attributes x_j associated with that alternative:

$$U_j = v(x_j) + \varepsilon_j$$

where ε_j reflects individual characteristics that are unobserved by the researcher. Each individual chooses the alternative that provides the maximum utility, and the probability that the individual selects alternative i from choice set S is given by:

$$Pr_n(Y = i) = Pr_n(v_i + \varepsilon_i > v_j + \varepsilon_j) = Pr_n(v_i - v_j > \varepsilon_j - \varepsilon_i), \forall j \neq i$$

If we assume that the unobserved errors are independent and identically distributed with a Type 1 extreme value distribution, this yields a conditional logit model. Using a linear-in-parameters utility function, we can write the probability that individual n chooses alternative i as:

$$Pr_n(Y = i) = \frac{\exp(x'_i \beta)}{\sum_{j \in S} \exp(x'_j \beta)}$$

The parameters can then be estimated using a standard maximum likelihood model. The ratio between the parameter estimates for any two attributes k and m yields the marginal rate of substitution (MRS) between them. Since one of the attributes is monthly income, the marginal value of any other attribute can be estimated by taking the ratio of the parameter on that coefficient β_k and the parameter on income β_w :

$$WTP_k = \frac{\partial U / \partial x_k}{\partial U / \partial x_w} = \frac{\beta_k}{\beta_w}$$

The standard conditional logit model assumes that preferences are homogeneous. We use two methods to explore heterogeneity in preferences among respondents in our sample. First, we include interaction terms between the preference parameters and observable individual characteristics.⁹ Second, we estimate a latent class model, which allows the preference parameters to vary across groups, or classes, of individuals. We write the probability that individual n chooses alternative i , conditional on being in class C , as:

$$Pr_{n|c}(Y = i) = \frac{\exp(x'_i \beta_c)}{\sum_{j \in S} \exp(x'_j \beta_c)}$$

Following Swait (1994) and Boxall and Adamowicz (2002), we estimate the probability that an individual n is in a particular class c as:

$$Pr_{nc} = \frac{\exp(z'_n \delta_c)}{\sum_c \exp(z'_n \delta_c)}$$

where z_n are observable characteristics associated with individual n . The unconditional probability of observing individual n choosing alternative i is therefore equal to the probability that the individual is in class c , times the probability of choosing alternative i conditional on being in class c , summed over all classes:

$$Pr_n(Y = i) = \sum_c Pr_{nc} * Pr_{n|c}(Y = i)$$

⁹ Individual characteristics that do not vary across alternatives cannot be directly estimated in a standard conditional logit model, as they drop out when taking the difference between utilities.

We estimate the preference parameters (β) as well as the parameters on individual characteristics associated with class membership (δ) using an expectation maximization algorithm.

4. Results

We begin by presenting some basic demographics of the survey sample, before proceeding to the choice experiment results.

4.1 Respondent Demographics

Table 3 shows basic demographics for the 1,964 individuals who completed the survey. Sampling weights are applied. Approximately 35 percent of respondents were women; we oversampled women, who make up only 18 percent of the underlying population. The mean age of respondents was approximately 36 years. Most workers had some schooling, typically at the primary or secondary level. Because of our focus on the Dhaka and Chittagong areas, about 20 percent of the (weighted) sample consisted of workers in the garments industry, and another 15 percent were in other types of manufacturing industries.

Panel (b) shows the distribution of respondents by gender and type of employment.¹⁰ About 40 percent of men, and 50 percent of women, were private sector employees. About 45 percent of men, and 25 percent of women, were either self-employed or family members working in a household business. About one-third of the self-employed men, but only about 7 percent of self-employed women, reported having non-family member employees in their businesses.

In Panel (c), we show some basic summary statistics for the types of benefits reported by workers in their current jobs. We only report benefits for wage workers (that

¹⁰ We asked workers who had multiple jobs to focus on the job in which they spent the most hours.

is, we exclude workers who are self-employed or are family members working in household businesses). We also group workers into three categories: government employees (including workers in government and semi-government entities), private employees (paid employees in private entities), and casual workers (apprentices, seasonal workers, day laborers/casual workers, and domestic workers in private households).

As we would expect, benefits were most prevalent among government employees; the degree of formality is decreasing across the columns. Written contracts, sick leave, casual leave (that is, paid vacation), and access to a Provident Fund were nearly ubiquitous among government workers. About 75 percent of all respondents reported that they would receive termination notice if they were let go from their jobs.

Private sector employees were also more likely to receive benefits than casual workers, with 25 percent reporting written contracts, and nearly 50 percent reporting verbal contracts. Sick leave and casual leave were also fairly common. Termination notice was less common, only being reported by 45 percent of workers, and only around 12 percent reported having access to a Provident Fund.

Not surprisingly almost none of the casual workers reported written contracts, but half did report verbal contracts, and over 60 percent reported sick leave. Casual leave was only reported by about 25 percent of casual workers. Nearly 15 percent of casual workers reported that they would receive termination notice if they were let go from their jobs; most of these were domestic workers.

In Panel (d), we report the 25th, 50th, and 75th percentiles of monthly income reported by individuals.¹¹ We break out wage workers into the three categories discussed

¹¹ Individuals either provided us with an estimate of their monthly income, or a range into which their income fell. For those who provided a range, we used the midpoint of the range. We were unable to collect information about income (an estimate or a range) for 36 individuals. Another 21 reported zero income.

above, and non-wage workers into three additional categories: self-employed workers who either do not have any employees or only have family employees, self-employed workers who have at least one non-family employee, and family members working in household businesses.

As we would expect, median monthly income is highest for government workers, at about 25,000 Taka. Interestingly, self-employed workers report the next highest monthly income, with those who have non-family employees reporting about 20,000 Taka, and those who do not reporting about 15,000 Taka. Private employees report a median monthly income of 9,000 Taka, while casual and family workers report only 7,500 Taka.¹²

Table 3. Summary Statistics for Respondents

| <i>Panel (a): Basic Demographics</i> | | | |
|--------------------------------------|----------------------|-------------------|-------|
| Female | | | 18.0% |
| Age | 0-25 | | 21.9% |
| | 26-35 | | 35.6% |
| | 36-45 | | 22.8% |
| | 46-55 | | 12.8% |
| | 56+ | | 6.9% |
| | Education | Less than primary | |
| Some primary | | | 22.8% |
| Some secondary | | | 19.6% |
| Some high school | | | 16.0% |
| High school degree | | | 9.5% |
| Bachelors degree or higher | | | 15.4% |
| Missing | | | 0.3% |
| Industry | Garments | | 20.4% |
| | Other Manufacturing | | 15.5% |
| | Trade/Transportation | | 27.8% |
| | Other services | | 36.3% |
| <i>Panel (b): Type of Employment</i> | | | |
| | Male | Female | Total |
| | % | % | % |
| Paid employee in government | 4.3 | 5.5 | 4.5 |

¹² As a comparison, the World Bank estimates that annual per-capita income in Bangladesh was about \$1,212 USD (97,600 Taka) in 2015, or about \$101 USD (8,100 Taka) per month.

| | | | |
|---|------|------|------|
| Paid employee in semi government entity | 1.7 | 2.7 | 1.9 |
| Paid employee in a private entity | 38.3 | 49.9 | 40.4 |
| Apprentice/Intern/Trainee | 0.1 | 0.3 | 0.1 |
| Seasonal worker | 0.2 | 0.7 | 0.3 |
| Day laborer / casual worker | 10.4 | 3.2 | 9.1 |
| Domestic worker in a private household | 0.3 | 10.5 | 2.1 |
| Self-employed / business owner with no employees | 19.7 | 16.9 | 19.2 |
| Self-employed / business owner employing only paid or unpaid family members | 7.0 | 4.5 | 6.5 |
| Self-employed / business owner employing some non-family members | 15.0 | 1.9 | 12.7 |
| Paid or unpaid family member working in a household business | 2.9 | 4.0 | 3.1 |
| Total | 100 | 100 | 100 |

Panel (c): Benefits by Employment Type

| | Government employees % | Private employees % | Casual workers % |
|--------------------|---------------------------|------------------------|---------------------|
| Written contract | 91.9 | 25.0 | 1.6 |
| Verbal Contract | 5.0 | 48.2 | 51.3 |
| Sick leave | 98.5 | 87.8 | 63.7 |
| Casual leave | 96.6 | 61.3 | 26.0 |
| Provident Fund | 92.8 | 12.7 | 0.0 |
| Termination notice | 73.5 | 45.3 | 14.4 |

Panel (d): Monthly Income

| Monthly Earnings (2016 Taka) | 25% percentile | 50% percentile | 75% percentile |
|---------------------------------|----------------|----------------|----------------|
| Employment Type | | | |
| Government employee | 15,000 | 23,000 | 30,000 |
| Private employee | 6,913 | 9,000 | 15,000 |
| Casual worker | 6,000 | 7,500 | 12,000 |
| Self-employed alone/with family | 7,500 | 15,000 | 20,000 |
| Self-employed (with non-family) | 15,000 | 20,000 | 30,000 |
| Family worker | 3,500 | 7,500 | 15,000 |

Note: Summary statistics for individuals in survey. Sampling weights are applied. In Panel (c), we only include wage workers who were able to provide an answer; maternity leave is limited to women who were able to provide an answer. In Panel (d), if respondents did not provide an exact monthly income, but did indicate the bin into which their income fell, we used the median value from the bin for their income.

4.2 Strictly Dominated Alternatives

The attributes and levels for the choice experiment, and the pairing of alternatives in the choice scenarios, were developed with the aim of asking individuals to make relatively difficult tradeoffs. If the tradeoff between alternatives was too easy to make, then we would gain little information about how much people value each attribute. Thus, we expected to see individuals making different choices – in other words, we did not expect to see every respondent who was faced with the same choice scenario to select the same job.

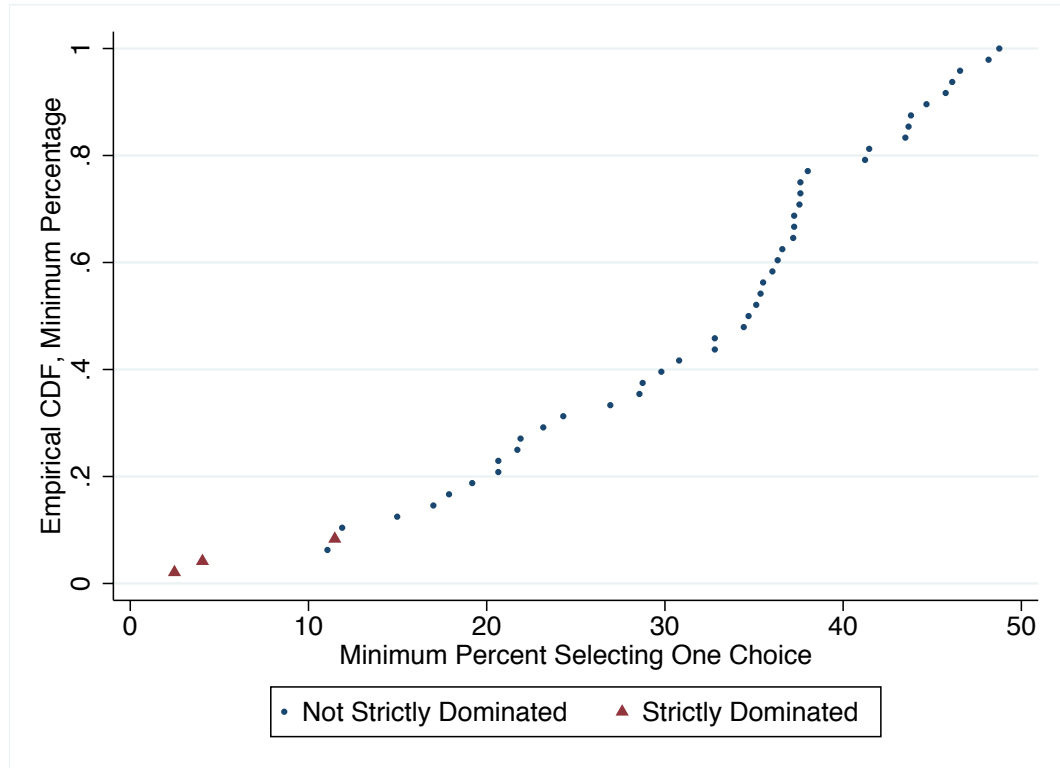
However, we did include three scenarios in which one of the alternatives was *strictly dominated*. That is, the strictly dominated alternative was paired with another alternative that was likely to be preferred in terms of all attributes. In these cases, we would expect few, if any, individuals to select the strictly dominated alternatives. The inclusion of strictly dominated alternatives does not provide substantive information about preferences, but does serve as a check on whether respondents understood the scenarios and made coherent choices.

For each of the 48 choice scenarios, we calculated the percent of respondents who chose Job A and the percent who chose Job B, and then identified the minimum (for example, if 45 percent chose Job A and 55 percent chose Job B, we identified the minimum as 45 percent). A small minimum suggests an easy choice.

Figure 1 shows the empirical CDF of these minima. In general, it appears that there was a substantial amount of heterogeneity in choices, with many scenarios in which about one-third of respondents selected one job but the other two-thirds selected the other. The strictly dominated scenarios appear as triangles, and are all in the left tail of the CDF. That

is, as we would expect, the strictly dominated jobs were selected by very few individuals, far fewer than those who selected one of the non-dominated jobs.

Figure 1. Empirical CDF of Minimum Percent Selecting One Scenario



Note: CDF of the minimum percent of respondents who chose one of the two alternatives. A minimum of 50 percent would indicate that half of the respondents selected each alternative. Strictly dominated choices are shown as triangles.

4.3 Conditional Logit Results

Table 4 presents results from the conditional logit model. In Column (1), all attribute levels are included as dummy variables. The excluded levels are: contract (none), termination notice (none), hours (30-45), paid leave (none), Provident Fund (none), and income (no change). Sampling weights are applied, and standard errors are clustered at the level of the respondent. In Column (2), we enter the percent change in income as a linear variable rather than as a set of dummies. A small number of respondents indicated that they

did not receive a wage in their current jobs; since the percent change in income may have been meaningless for these respondents, we therefore excluded them in Column (3).¹³ In Column (4), we enter notice, work hours, and leave linearly (where hours are set equal to the median number in each bin). Column (5), like Column (3), excludes those with zero reported income from their current jobs, using the linear specification of Column (4). In Column (6), we re-estimate the model in Column (5), without applying sampling weights, and confirm that results are similar.

All of the coefficients are highly significant across specifications, and the signs of the coefficients are consistent with economic theory. Longer contracts are valued more highly, as are longer durations of termination notice and greater amounts of paid leave. Respondents prefer fewer working hours (conditional on receiving the same income), and prefer having a Provident Fund. The coefficients on greater monthly income are also positive, as we would expect.

¹³ Among the 65 respondents in our sample who indicated that they were household members working in a family business, 6 reported earning no income. 11 self-employed respondents also reported zero income, as did 1 domestic worker, 1 day laborer, and 2 paid employees. In the case of the 4 wage workers who reported zero income, it is not clear if this reflected a failure to be paid by their employers recently, or a refusal to respond to the income question. In addition, income information was missing for 36 respondents.

Table 4: Conditional Logit Coefficient Estimates

| | (1) All | (2) All | (3) Pos. Income | (4) All | (5) Pos. Income | (6) Pos. Income, No Weights |
|------------------------|-----------------------|------------------------|------------------------|-------------------------|-------------------------|-----------------------------------|
| Contract - 6 months | 0.841*** (0.0619) | 0.814*** (0.0610) | 0.816*** (0.0616) | 0.969*** (0.0550) | 0.970*** (0.0554) | 0.955*** (0.0519) |
| Contract - 1 year | 1.341*** (0.0653) | 1.382*** (0.0651) | 1.398*** (0.0656) | 1.373*** (0.0595) | 1.391*** (0.0596) | 1.327*** (0.0558) |
| Contract - long-term | 2.392*** (0.0969) | 2.364*** (0.0956) | 2.374*** (0.0970) | 2.229*** (0.0920) | 2.243*** (0.0932) | 2.148*** (0.0869) |
| Notice - 15 days | 1.086*** (0.0548) | 1.163*** (0.0538) | 1.163*** (0.0545) | | | |
| Notice - 30 days | 0.930*** (0.0550) | 1.045*** (0.0490) | 1.052*** (0.0495) | | | |
| Notice - 60 days | 1.444*** (0.0673) | 1.476*** (0.0649) | 1.488*** (0.0659) | | | |
| Notice | | | | 0.0198*** (0.000894) | 0.0201*** (0.000906) | 0.0196*** (0.000849) |
| Hours - 45-60 | -0.201*** (0.0391) | -0.166*** (0.0380) | -0.166*** (0.0385) | | | |
| Hours - 60-75 | -0.577*** (0.0436) | -0.494*** (0.0403) | -0.500*** (0.0409) | | | |
| Hours | | | | -0.0213*** (0.00130) | -0.0215*** (0.00132) | -0.0229*** (0.00127) |
| Leave - 5 Days | 0.273*** (0.0561) | 0.261*** (0.0560) | 0.251*** (0.0568) | | | |
| Leave - 10 Days | 0.281*** (0.0509) | 0.312*** (0.0481) | 0.310*** (0.0487) | | | |
| Leave - 15 Days | 0.382*** (0.0448) | 0.439*** (0.0421) | 0.442*** (0.0425) | | | |
| Leave | | | | 0.0267*** (0.00250) | 0.0271*** (0.00252) | 0.0256*** (0.00238) |
| Provident Fund | 0.869*** (0.0601) | 0.881*** (0.0586) | 0.883*** (0.0593) | 0.907*** (0.0542) | 0.909*** (0.0550) | 0.869*** (0.0525) |
| Income - 10 Perc. Inc. | 0.374*** (0.0655) | | | | | |
| Income - 20 Perc. Inc. | 0.999*** (0.0846) | | | | | |
| Income - 30 Perc. Inc. | 1.793*** (0.102) | | | | | |
| Income - 40 Perc. Inc. | 2.025*** (0.100) | | | | | |
| Income - 50 Perc. Inc. | 2.596*** (0.0992) | | | | | |
| Perc. Change Income | | 0.0542*** (0.00194) | 0.0541*** (0.00196) | 0.0513*** (0.00181) | 0.0513*** (0.00182) | 0.0498*** (0.00171) |
| Observations | 23,568 | 23,568 | 22,884 | 23,568 | 22,884 | 22,884 |

Note: Standard errors clustered at the individual level. Sampling weights are applied. *** p<0.01, ** p<0.05, * p<0.1. Where applicable, excluded levels are: contract (none), notice (none), hours (30-45), leave (none), Provident Fund (none), and income (no change).

In Table 5, we use the coefficients from Column (4) of Table 4 to calculate the marginal value of each attribute (i.e. the marginal rate of substitution between the attribute and a one percent change in income, which is calculated by dividing the coefficient on each attribute by the coefficient on the percent change in income). The results suggest that the average worker would be willing to forego a 19 percent increase in monthly income in order to obtain a job with a 6-month contract (relative to no contract). This amount rises to 27 percent for a 1-year contract and 44 percent for a long-term contract.

Workers' preferences for job stability are also illustrated by the marginal value of termination notice. Since we modeled notice in terms of number of days, the value in Column (2) of Table 5 suggests that the average worker would be willing to forego an increase of 0.4 percent of monthly income for each additional day of notice. The typical requirement for notice in the Bangladesh Labour Law is 30 days; if we extrapolate the marginal value, we estimate that the average worker would be willing to forego an increase of about 12 percent of monthly income for 30 days of notice.

We can make a similar calculation for paid leave; 10 days are typically required under the Bangladesh Labour Law, and the MRS in Table 5 indicates that the average worker would be willing to forego an increase of about 5 percent of monthly income for this level of paid leave. Finally, Table 5 suggests that the average worker would be willing to forego an increase of around 18 percent of monthly income to have access to a job with a Provident Fund.

Table 5: Marginal Values of Attributes

| | Coefficient (1) | Marginal Value in Terms of % Income (β_k/β_w) (2) | Labour Law Requirement (3) | Marginal Value x Labour Law Requirement (4) |
|-----------------------------|--------------------|--|----------------------------------|--|
| Contract - 6 months | 0.969 | 18.9 | | |
| Contract - 1 year | 1.37 | 26.7 | | |
| Contract - long-term | 2.23 | 43.4 | | |
| Notice (days) | 0.0198 | 0.39 | 30 days | 11.7 |
| Hours (median) | -0.0213 | -0.42 | | |
| Leave (days) | 0.0267 | 0.52 | 10 days | 5.2 |
| Provident Fund (Yes) | 0.907 | 17.7 | | |
| Percent change in income | 0.0513 | 1.0 | | |

Note: Coefficients and associated marginal values of each attribute relative to income. Marginal value is calculated by dividing coefficient on attribute by coefficient on percent change in income. Labour law is based on requirement for typical workers given in the 2006 Bangladesh Labour Law.

4.4 Exploring Heterogeneity in Preferences

One advantage of including a wide variety of workers in the choice experiment is that we can examine how preferences vary across observable characteristics. First, we examined whether the valuation of benefits differed by gender or education level of the worker. To do so, we interacted each attribute with a female dummy. Separately, we also interacted each attribute with a dummy for workers who had at least some secondary level education. The WTP for each attribute for women is calculated by summing the coefficients on the baseline attribute plus the interaction term (attribute x female dummy), and dividing by the sum of the coefficient on salary in the baseline plus the interaction term (salary x female dummy). A similar calculation is used for those with at least some secondary education.

Table 6 shows the coefficients and marginal values of each attribute (relative to a percent change in income) across these different groups. Columns (1) and (2) show the baseline coefficient (for men) and the related WTP. Column (3) shows the interaction terms for women, while Column (4) shows the estimated WTP for women. Most notably, women's WTP for shorter hours is substantially larger in magnitude than the WTP among men – to work 10 fewer hours in a week, for example, men would be willing to forego a 3.7 percent increase in monthly income, whereas women would be willing to forego a 6.3 percent increase. While the interaction terms for contracts and access to a Provident Fund are also statistically significant, women's WTP for these attributes is similar to those for men.

Columns (5) through (8) show results by education level, and suggest that contracts are substantially more highly valued by those with higher levels of education. The WTP for the other attributes is fairly similar between those with and without at least some secondary education.

Similarly, Table 7 shows the coefficients and WTP for each type of benefit by employee type. We interacted each attribute with dummy variables for government employees, casual workers, and the self-employed (including family members). Columns (1) and (2) show results for private employees (the baseline category), while Columns (3) through (8) show the interaction terms and WTP for the other types of workers. The results in Table 7 suggest that government employees place a much higher value on contracts – particularly on long-term contracts – than do other types of employees. Of course, it is likely that the preference for such stability is what attracted these workers to the government sector in the first place. The valuations for contracts are fairly similar across the other types of employees. Although the interaction terms on 1-year and long-term

contracts are negative and significant for the self-employed, the interaction term on income is also negative, and the overall WTP for contracts among the self-employed is similar to the WTP among private employees.

Table 6: Conditional Logit Coefficient Estimates by Gender and Education

| | Male | | Female | | Less than Primary | | Secondary | |
|----------------------|----------------------|-------|-----------------------|-------|-----------------------|-------|----------------------|-------|
| | Coefficient (se) | WTP | Interaction (se) | WTP | Coefficient (se) | WTP | Interaction (se) | WTP |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Contract - 6 months | .987*** (.0646) | 18.8 | -.0926 (.107) | 19.6 | .861*** (.0847) | 16.9 | .187* (.112) | 20.7 |
| Contract - 1 year | 1.43*** (.0708) | 27.2 | -.3*** (.114) | 24.7 | 1.15*** (.0901) | 22.5 | .365*** (.12) | 29.9 |
| Contract - long-term | 2.31*** (.109) | 43.9 | -.446** (.177) | 40.8 | 1.81*** (.14) | 35.5 | .682*** (.186) | 49.2 |
| Notice | .0202*** (.00105) | 0.38 | -.00186 (.00176) | 0.40 | .0181*** (.00139) | 0.35 | .00278 (.00182) | 0.41 |
| Hours | -.0197*** (.0015) | -0.37 | -.0093*** (.00269) | -0.63 | -.0197*** (.00206) | -0.20 | -.00265 (.00266) | -0.25 |
| Leave | .028*** (.00293) | 0.53 | -.00661 (.00495) | 0.47 | .0282*** (.00397) | 0.55 | -.00282 (.00514) | 0.50 |
| Provident Fund | .944*** (.0631) | 17.9 | -.202* (.111) | 16.2 | .931*** (.0911) | 18.3 | -.0316 (.114) | 17.7 |
| Perc. Change Income | .0526*** (.00215) | 1.0 | -.00693** (.00351) | 1.0 | .0515*** (.00289) | 1.0 | -.000299 (.00372) | 1.0 |
| Observations | 23,568 | | | | 23,496 | | | |

Note: Columns (1) and (5) show the baseline coefficients for men and for workers with less a primary or lower education, while Columns (3) and (7) show interactions for women and for workers with a secondary or higher education, respectively. The WTP for each attribute for women is calculated by summing the coefficients on that attribute in Columns (1) and (3), respectively, and dividing by the sum of the coefficients on salary in Columns (1) and (3). A similar calculation is used for those with a secondary or higher education level. Omitted level for contract is none. Omitted level for Provident Fund is none. Standard errors are clustered at the respondent level. *, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

Table 7: Conditional Logit Coefficient Estimates by Employment Type

| | Private employee | | Govt employee | | Casual worker | | Self-employed | |
|----------------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|
| | Coefficient (se) (1) | WTP (2) | Interaction (se) (3) | WTP (4) | Coefficient (se) (5) | WTP (6) | Interaction (se) (7) | WTP (8) |
| Contract - 6 months | .998*** (.0855) | 18.8 | .215 (.234) | 25.3 | -.00735 (.176) | 16.8 | -.09 (.123) | 19.4 |
| Contract - 1 year | 1.47*** (.0904) | 27.7 | .364 (.272) | 38.2 | -.0416 (.18) | 24.3 | -.255* (.132) | 26.0 |
| Contract - long-term | 2.33*** (.144) | 44.0 | .879** (.406) | 66.9 | .0664 (.303) | 40.7 | -.368* (.203) | 41.9 |
| Notice | .0207*** (.00137) | 0.39 | .00263 (.004) | 0.49 | .00152 (.00297) | 0.38 | -.00263 (.00196) | 0.39 |
| Hours | -.0226*** (.00201) | -0.43 | -.00828 (.0058) | -0.64 | -.0039 (.00444) | -0.45 | .00466 (.00285) | -0.38 |
| Leave | .0287*** (.00386) | 0.54 | -.00491 (.0111) | 0.50 | -.00366 (.00837) | 0.43 | -.00306 (.00553) | 0.55 |
| Provident Fund | .98*** (.0855) | 18.5 | -.038 (.233) | 19.6 | -.026 (.182) | 16.2 | -.145 (.12) | 17.8 |
| Perc. Change Income | .0537*** (.00282) | 1.0 | -.00503 (.00819) | 1.0 | .00582 (.00574) | 1.0 | -.0062 (.004) | 1.0 |
| Observations | 23,568 | | | | | | | |

Note: Column (1) shows the baseline coefficients for private employees, while Columns (3), (5) and (7) show interactions for government employees, casual workers, and self-employed workers, respectively. The WTP for each attribute for government employees is calculated by summing the coefficients on that attribute in Columns (1) and (3), respectively, and dividing by the sum of the coefficients on salary in Columns (1) and (3). A similar calculation is used for casual workers and self-employed. Omitted level for contract is none. Omitted level for Provident Fund is none. Standard errors are clustered at the respondent level. *, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

We also explored preference heterogeneity by estimating a latent class model with three classes.¹⁴ Table 8 shows results for the class membership parameters (δ). In estimating probability that an individual was in each class, we used gender, age, education, and the size of the enterprise in which the individual was working at the time of the survey.

Table 8: Latent Class Membership Results

| | Class 1 (“Skilled”) | Class 2 (“Unskilled”) |
|-------------------------|----------------------------|------------------------------|
| Female | -0.364 (0.628) | -0.078 (0.178) |
| Age | 0.011 (0.01) | 0.002 (0.006) |
| Some Primary | 0.244 (0.494) | 0.00049 (0.225) |
| Some Secondary | 0.259 (0.631) | -0.204 (0.256) |
| Some High School | 1.068** (0.434) | -0.277 (0.284) |
| High School | 0.309 (0.469) | -0.839*** (0.293) |
| Bachelors | 0.847** (0.421) | -0.72*** (0.269) |
| Missing education | 0.812 (1.453) | -0.588 (1.308) |
| 6-10 employees | 0.841** (0.403) | 0.465 (0.31) |
| 11+ employees | 0.62** (0.246) | 0.201 (0.166) |
| Missing enterprise size | 1.838 (1.803) | 0.261 (1.728) |
| Constant | -1.661* (0.967) | 0.44 (0.385) |

Note: Class 3 is the omitted class. Omitted education level is none; omitted enterprise size is 1-5 employees. Sampling weights are not applied. *, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

¹⁴ We experimented with different numbers of classes and found that three classes produced reasonable results. Sampling weights are not applied in this case.

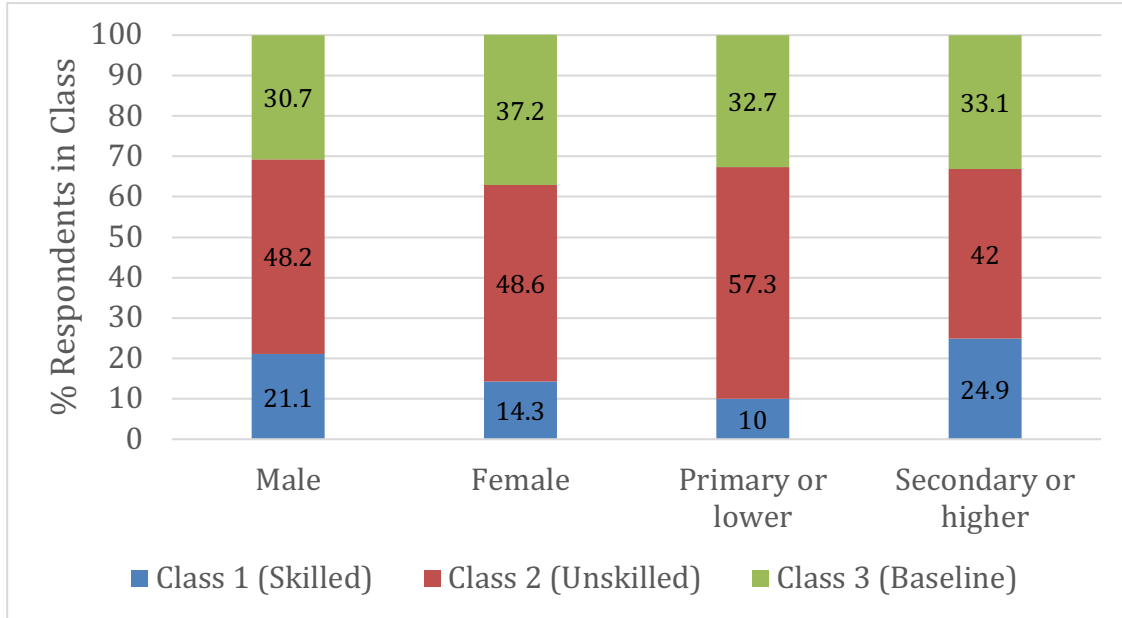
Class 3 is the omitted class, and all class membership parameters are normalized to zero for this class. Higher levels of education and larger enterprise size predict membership in Class 1. In contrast, lower levels of education predict membership in Class 2. For ease of exposition, we label these classes as “Skilled” (Class 1), “Unskilled” (Class 2), and “Baseline” (Class 3).

We can also explore how preferences are associated with worker characteristics by using the full set of results to assign individual workers to specific classes. The latent class model provides estimates of the *prior* probabilities that an individual is in each class, given the class membership results; as well as the *posterior* probabilities that an individual is in each class, based on the class membership results as well as the choices that he or she actually makes. We assign each individual to the class to which he or she has the highest posterior probability of belonging. Nearly half of the workers in the sample are assigned to the Unskilled class, while another one-third are assigned to the Baseline class, and the remaining 20 percent are assigned to the Skilled class.¹⁵

In Figure 2, we show the percentage of individuals who are assigned to each class, separately for men and women, as well as for those with low versus higher levels of education. Consistent with the coefficients on the female dummies in Table 8, women are less likely to be assigned to the Skilled class than men. As noted above, we derived the class labels from the fact that those with secondary or higher levels of education are more likely to be in Class 1 (what we label the Skilled class) than those with low levels of education.

¹⁵ Note that we do not apply sampling weights in this case, so the shares should not be taken to represent the underlying population.

Figure 2: Latent Class Results – Assigned Class by Gender and Education



Note: Percent of respondents assigned to each class in the latent class analysis, by gender and education. Respondents were assigned to the class to which they had the highest posterior probability of belonging.

Table 9 shows preference parameter estimates (β) from the latent class model. Columns (1), (3) and (5) show the coefficients on each attribute for the three classes, while Columns (2), (4) and (6) show the associated, average WTP for workers in each class.

The most common class is the Unskilled class, which has the lowest WTP for all benefits except for leave. Individuals in this class also exhibit the highest value for additional income. In Table 8, we found that individuals with low levels of education are more likely to be in this class. Consistent with this finding, average monthly income reported by individuals in this class is also lower than in the other classes; thus, these individuals may have a relatively high marginal utility of money.

The Skilled class is characterized by a particularly high WTP for contracts. The coefficient on leave for these workers is not significantly different from zero, suggesting that they do not place a high value on paid vacation. As noted above, membership in this

class is associated with higher levels of education and larger enterprise size (Table 8); more educated workers, and those in larger firms, may have a stronger preference for, or expectations about, stable employment.

The Baseline class also exhibits a higher WTP for contracts than the Unskilled class, and a higher WTP for termination notice and access to a Provident Fund than the Skilled and Unskilled classes. The average reported income of individuals in this class is between that of the Skilled and Unskilled classes; however, individuals in this class appear to be least sensitive to additional income. They also exhibit a stronger aversion to working longer hours, which may reflect the finding that women are more likely to be in this class than in the other classes (Table 8).

Table 9: Latent Class Preference Estimates

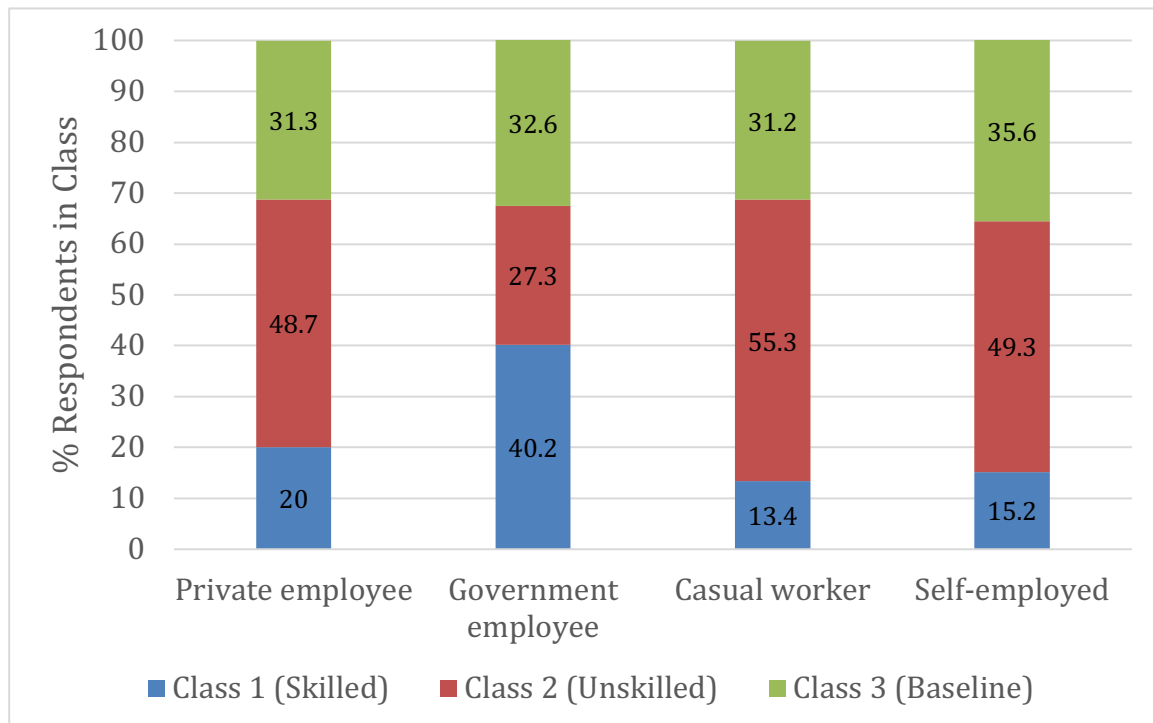
| | Class 1 (Skilled) | | Class 2 (Unskilled) | | Class 3 (Baseline) | |
|---------------------------------|----------------------|-------|----------------------|-------|----------------------|-------|
| | Coeff | WTP | Coeff | WTP | Coeff | WTP |
| | (se) (1) | (2) | (se) (3) | (4) | (se) (5) | (6) |
| Contract - 6 months | 2.617*** (0.488) | 44.4 | 0.548*** (0.194) | 5.6 | 0.856*** (0.246) | 29.5 |
| Contract - 1 year | 3.869*** (0.842) | 65.6 | 1.238*** (0.194) | 12.8 | 1.046*** (0.193) | 36.1 |
| Contract - long-term | 6.27*** (0.836) | 106.3 | 1.835*** (0.543) | 18.9 | 2.197*** (0.253) | 75.8 |
| Notice | 0.017*** (0.003) | 0.29 | 0.019*** (0.002) | 0.20 | 0.034*** (0.004) | 1.17 |
| Hours | -0.028*** (0.008) | -0.47 | -0.041*** (0.006) | -0.42 | -0.028*** (0.005) | -0.97 |
| Leave | 0.004 (0.018) | 0.07 | 0.056*** (0.008) | 0.58 | 0.018 (0.011) | 0.62 |
| Provident Fund | 0.734 (0.778) | 12.4 | 0.752*** (0.225) | 7.8 | 1.636*** (0.311) | 56.4 |
| Perc. Change Income | 0.059** (0.029) | 1.0 | 0.097*** (0.007) | 1.0 | 0.029** (0.013) | 1.0 |
| Class share | 0.198 | | 0.467 | | 0.335 | |
| # (%) workers assigned to class | 367 (18.7%) | | 949 (48.3%) | | 648 (33.0%) | |

Note: Results from a latent class analysis. Sampling weights are not applied. Omitted level for contract is none. Omitted level for Provident Fund is none. *, ** and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.

Finally, we can examine how preferences for specific benefits vary by individuals' employment at the time of the survey. In Figure 3, we show the percentage of individuals in each employment type who are assigned to each class. Government employees are more likely than private sector workers to be in the class that exhibits a very strong preference for contracts (Skilled). In contrast, casual workers are more likely than any other type of

worker to be in the Unskilled class, which exhibits the highest preference for higher income, and the lowest WTP for most other benefits. The self-employed are less likely than private employees to value contracts in particular (Skilled class) and more likely to value a broad range of benefits (Baseline class).

Figure 3: Latent Class Results – Assigned Class by Employment Type



Note: Percent of respondents assigned to each class in the latent class analysis, by type of employment at the time of the survey. Respondents were assigned to the class to which they had the highest posterior probability of belonging.

5. Conclusion

What specific aspects of formal jobs do workers value the most? In this paper, we used a choice experiment to elicit workers' WTP for contracts, termination notice, paid leave, preferred working hours, and access to a retirement account. Our results suggest that among these attributes, workers most value job stability – that is, the guarantee of longer-

term employment ensured by a contract. Our baseline results show that the average worker would be willing to forego an increase of about 19 percent of monthly income for a 6-month contract, 27 percent for a 1-year contract and 44 percent for a long-term contract (relative to no contract). Similarly, the average worker would be willing to forego an increase of about 12 percent of monthly income in order to obtain thirty days of termination notice.

These averages mask substantial heterogeneity among workers. Including interactions with observable characteristics in the conditional logit model, and using a latent class model, indicate that women are more averse to longer working hours than men. In addition, government employees are more likely to place a higher value on long-term contracts than private sector employees. In contrast, casual workers are substantially more likely than private employees to have a particularly strong preference for higher income, and a relatively low WTP for various benefits.

Our study lends support to the use of choice experiments to overcome the challenge of estimating WTP for specific job benefits from hedonic wage regressions or from observed job durations, especially in a setting in which longitudinal data are unavailable or in which many workers do not participate in the formal sector. The results from the choice experiment are consistent with economic theory, and the use of a stated preference method allows us to gauge the valuation of specific attributes by a wide range of workers – including casual workers and the self-employed, who may never have received some of those benefits. Despite the heterogeneity in observed preferences, we find a substantial amount of WTP for contracts and termination notice among all of the groups of workers we examine. To the extent that the capacity for enforcement of existing labor regulations is limited, it may therefore be valuable for policymakers to focus on aspects that improve job stability.

Our study also points to areas that may be fruitful for further research. First, our findings suggest potential sorting in the labor market – that is, employees with stronger preferences for certain types of benefits will be more likely to take jobs that offer those benefits. They may also, however, point to loss aversion – workers who are in jobs that have certain types of benefits may seek to avoid losing those benefits. Disentangling these two possibilities would improve our understanding of the drivers of the preference heterogeneity that we document. Second, most work on preferences for job benefits, including our study, focuses on workers’ preferences. Understanding employers’ preferences and willingness to offer different types of job benefits would be valuable for policymakers who seek to encourage provision of those benefits.

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