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Preference for Public Sector Jobs and Wait Unemployment: A Micro Data Analysis

Asma Hyder

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS

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Jobs and Wait Unemployment:
A Micro Data Analysis**

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ISLAMABAD**

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C O N T E N T S

	<i>Page</i>
Abstract	v
Introduction	1
Some Background Issues	2
Data	2
Econometric Methodology	4
Empirical Results	6
Conclusions	9
Appendices	11
References	17

List of Tables

Appendix Table 1. Variable Descriptions	11
Appendix Table 2. Variable Summary Statistics	12
Appendix Table 3. Job Preference and Unemployment Duration Models	13
Appendix Table 4. OLS Wage Equation Estimates for Sectoral Equations	14
Appendix Table 5. Public Sector Wage Differentials	15
Appendix Table 6. Multinomial Logit Results	16

ABSTRACT

This paper exploits responses on the stated preferences for public sector jobs among a sample of unemployed in Pakistan to inform on the existence of public sector job queues. The empirical approach allowed job preference to influence unemployment duration. The potential wage advantage an unemployed individual would enjoy in a public sector job was found to exert no independent influence on the stated preference indicating that fringe benefits and work conditions are perhaps more important considerations. The stated preference for a public sector job was found to be associated with higher uncompleted durations. The estimated effect suggests that, on average and controlling for education and other characteristics, those unemployed who stated a preference for public sector jobs had higher uncompleted durations of between four and six months. This finding was taken to confirm that there are long queues for public sector jobs in Pakistan.

JEL classification: J31, J64

Keywords: Wage Differentials, Wage Structure, Unemployment: Models, Duration, Incidence, and Job Search

INTRODUCTION

The existence of sizeable reward differentials between the two sectors ensure that public sector jobs are coveted in many developing economies, and particularly so by the more educated [see Blaug (1979)]. This can give rise to job queues and wait unemployment given risk-averse agents' preferences for stable and well paid public sector jobs. Although it is possible to interpret wait unemployment or queuing as part of an optimal job search strategy, there may be sizeable private and social opportunity costs associated with such behaviour.

The purpose of this paper is to explore the relationship between public sector job preferences, as expressed by unemployed individuals and their unemployment duration in Pakistan. The data used in our analysis are drawn from the Pakistan Labour Force Survey of 2001-02. Since the early 1990s the government of Pakistan has been committed to the implementation of a set of deregulation and liberalisation policies, which incorporates some degree of down-sizing in the public sector. However, public sector employment still comprises over one-half of all wage employment in Pakistan and, in spite of the re-orientation of the economy towards the private sector in recent years, the competition for employment in the public sector remains keen. Public sector employment in Pakistan is still viewed as attractive because of better pay, better work conditions, and the availability of an array of fringe benefits (e.g., pension rights and free medical benefits).¹

This study attempts to examine the existence of a job queue through analysing the public sector job preferences of a sample of unemployed individuals. The primary objective of this paper is an examination of the relationship between public sector job preferences and an individual's duration of unemployment.² Our modelling approach is to treat the public sector job stated preference as a function of, *inter alia*, the public-private wage gap and allow job preference to endogenously influence an individual's unemployment duration. The data section provides a description of the unemployment duration measure.

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¹Discussed briefly in Bilquees (2006).

²The duration is uncompleted in nature.

SOME BACKGROUND ISSUES

The earlier studies of Lindauer and Sabot (1983) for Tanzania and Van der Gaag and Vijerberg (1988) for Cote D'Ivoire provide mixed evidence on the size and direction of the public sector pay gap with the latter study highlighting the importance of selection bias in informing any reasonable interpretation. Terrell (1993), using data for Haiti, reports a relatively large average public sector pay gap with selection bias apparently relevant in only one sector. Skyt-Neilsen and Rosholm (2001) detected a positive average *ceteris paribus* pay gap in favour of public sector workers in Zambia but noted that at the upper end of the conditional wage distribution it became negative for the highly educated. Said (2004), using data for Egypt, found a wage gap in favour of the private sector for males which was reversed when wages were replaced by a broader compensation measure. Mengistae (1999) detects a sizeable pay gap in the urban labour markets of Ethiopia. Finally, Hyder and Reilly (2005) report a sizeable average wage differential in favour of public sector workers in Pakistan.

The existence of positive differentials in favour of the public sector may give rise to job queues and 'wait' unemployment. In addition, the queues may also be influenced by the fact that the public sector is generally characterised by more favourable work conditions and fringe benefit provision. The queuing behaviour may be concentrated among particular types of labour market participants. Blaug (1979) noted the prevalence of university graduates among the unemployed in the cities of the least developed countries and Upadhyay (1994) argues this as a commonly observed phenomenon in the densely populated countries of South Asia. Boudarbat (2005) notes a preference for public sector employment in Africa and a willingness among the educated to engage in 'wait' unemployment to secure the more well paid and stable public sector jobs.

There is a modest empirical literature for developed countries on investigating whether a queue actually exists for public sector jobs. The primary motive for testing the existence of queues is that it is taken to provide indirect evidence that public sector workers secure higher overall compensation [see Gregory and Borland (1999)]. Poirier's (1980) bivariate probit with partial observability has been used to provide empirical evidence on the existence of public sector job queues [for example, see Abowd and Farber (1982)]. Mengistae (1999) modifies this approach to examine the evidence for such queues in Ethiopia's urban labour market.

DATA

This study uses cross-section data drawn from the nationally representative Labour Force Survey (LFS) for Pakistan for 2001-02. The survey covers all urban and rural areas of the four provinces of Pakistan as defined by the 1998 Population Census. The LFS excludes the Federally Administered

Tribal Areas (FATA), military restricted areas, and protected areas of the NWFP. These exclusions are not seen as significant since they constitute only about 3 percent of the total population of Pakistan.

The sample used for the primary analysis is comprised of 767 individuals who gave their status as unemployed but available for work. Our analysis is restricted to those aged between 15 and 60 years of age. Table A-1 of the Appendix reports the definitions of the variables used in our analysis. The unemployment duration variable is interval-coded and an appropriate econometric procedure to account for this is discussed in the next section. The public sector job preference variable is constructed from a question which asked respondents to state a preference for the type of job for which they are available. The relevant categories comprised (i) full-time paid employment with government, (ii) full-time paid employment with private business/industry, (iii) part-time paid employment, (iv) self-employment given the necessary resources and facilities, (v) other type of employment such as commission, contract employment, daily wage employment etc. The public sector job preference was constructed as a binary measure with responses to category (i) coded as one, and all other responses coded zero.

Our approach requires estimation of a public/private sector wage differential for the unemployed. In order to do this we estimate for employees (using the LFS data) separate log hourly wage equations.³ The private sector is here broadly defined to include workers employed in private limited companies, cooperative societies, individual ownership and partnerships. Given the need to construct a wage differential for the unemployed, the wage specifications include only those variables available for the unemployed group. Nevertheless, the wage specifications are reasonably rich from the perspective of the Mincerian tradition and contain age and its quadratic, educational level, whether the individual undertook vocational training, marital status, settlement type and a set of regional controls. We believe that the private sector definition we use, though not perfect, is sufficiently broad to approximate the pecuniary gains associated with the four alternatives expressed under (ii) to (v) above.

The estimated wage equations were subject to selectivity correction based on Lee's (1980) procedure, and with appropriate instrumentation, yield vectors of unbiased wage coefficients for the relevant sectors.⁴ These coefficients are taken to provide the prices that the unemployed would receive for their characteristics if selected at random into either the public or the broadly defined alternative private sector. The wage gap is constructed by fitting the wage equation coefficients to the relevant characteristics (excluding the selection terms) for each individual, and then taking the difference between the two. This

³The hourly wages expressed in rupees, was calculated by dividing weekly earnings by number of hours worked per week.

⁴A similar approach was adopted by Gyourko and Tracy (1988).

could be taken to represent for each individual their public/private wage offer differential.

Table A-4 reports the estimates for the hourly wage equations using the samples of public and private sector employees. The estimates are plausible by the standards of the empirical wage determination literature and there is evidence of selection bias in the private sector equation.⁵ The public-private sector wage differentials are computed using both uncorrected and selectivity-corrected OLS estimates. These are reported in Table A-5 and are separately computed using the sample mean characteristics for the public sector workers, the private sector workers, and the sample of unemployed. The estimates suggest sizeable and comparable average public-private sector wage gaps for all three groups.

Table A-2 reports the summary statistics for the full sample of unemployed and by stated job preference. The unemployed are generally young, male, unmarried with a fifth possessing no formal education. Over one-quarter have been unemployed for over a year. The wage offer differential suggests that an average unemployed individual would earn 37 percent more in hourly wages if selected into a public sector as compared to a private sector job. Of those that express a preference for a public sector job, over one-fifth has a university degree and 42 percent have been unemployed for over one year. In contrast, those without such a preference have lower incidence of high duration unemployment, are less well educated, and more likely to head a household. The pattern evident from an inspection of these raw data is that the more educated prefer public sector jobs, and those that prefer public sector jobs have higher uncompleted durations. However, the public wage gap differentials for both types of unemployed are broadly comparable.

ECONOMETRIC METHODOLOGY

Our econometric model comprises two equations: a public sector job preference equation and an unemployment duration equation. Assume y_{1i}^* is a latent variable that captures an individual's preference for a public sector job. It is assumed related to a set of explanatory variables (x_i) using the following relationship:

$$y_{1i}^* = x_i' \beta + u_i \quad \text{where } u_i \sim N(0,1) \quad \dots \quad \dots \quad \dots \quad (1)$$

The x_i vector is assumed to include the individual's predicted wage offer gap between a public and a private sector job. Let y_{1i} denote an observable binary variable that conveys information on whether an individual has a

⁵The instruments for identification of the selection parameters are head of household and lived in the district since birth.

preference for a public sector job, which is denoted $y_{1i}=1$ if this is the case, and $y_{1i} = 0$ if not. The relationship between the latent variable and the observed variable is given by: $y_{1i} = 1$ if $y_{1i}^* > 0$, and $y_{1i} = 0$ if $y_{1i}^* \leq 0$. This application can be formulated as a simple binary probit model and the specification of the log likelihood function is now discussed.

The above model described in Equation (1) shows the probability of preferring a public sector job is $F(x'\beta)$ and independent observations leads to the joint probability, or likelihood function,

$$Prob (y_{1i=1,2,\dots,n} | x) = \prod_{y_{1i}=0} [1 - \Phi(x_i'\beta)] \prod_{y_{1i}=1} \Phi(x_i'\beta) \quad \dots \quad \dots \quad (2)$$

The likelihood function for a sample of n observations can be written as;

$$L(\beta | data) = \prod_{i=1}^n [\Phi(x_i'\beta)]^{y_{1i}} [1 - \Phi(x_i'\beta)]^{1-y_{1i}} \quad \dots \quad \dots \quad \dots \quad (3)$$

By taking log of the above equation, we will obtain the following log likelihood equation:

$$\ln L = \sum_{i=1}^n \{y_{1i} \ln \Phi(x_i'\beta) + (1 - y_{1i}) \ln [1 - \Phi(x_i'\beta)]\} \quad \dots \quad \dots \quad (4)$$

$F(\cdot)$ represents the cumulative distribution function for the standard normal.

The unemployment duration variable is expressed in discrete intervals measured in months. Let y_{2i}^* denote an underlying latent dependent variable that captures the i th individual's unemployment duration. This can be expressed as a linear function of a vector of explanatory variables (z_i) using the following relationship:

$$y_{2i}^* = z_i'\gamma + e_i \quad \text{where } e_i \sim N(0, \sigma^2) \quad \dots \quad \dots \quad (5)$$

It is assumed that y_{2i}^* is related to the observable ordinal variable y_{2i} as follows:

$$\begin{aligned} y_{2i} = 0 & \quad \text{if} & \quad -\infty < y_{2i}^* \leq a_1 \\ y_{2i} = 1 & \quad \text{if} & \quad a_1 < y_{2i}^* < a_2 \\ y_{2i} = 2 & \quad \text{if} & \quad a_2 \leq y_{2i}^* < a_3 \\ y_{2i} = 3 & \quad \text{if} & \quad a_3 \leq y_{2i}^* < a_4 \\ y_{2i} = 4 & \quad \text{if} & \quad a_4 \leq y_{2i}^* < +\infty \end{aligned}$$

where the a_j are known thresh hold values. This application can be formulated as an interval regression (or grouped dependent variable) model and the specification of the log likelihood function can be written as,

$$\log L = \sum_{j=0}^4 \sum_{i \in k} \log \left\{ \Phi \left[\frac{a_k - Z_i' \beta}{\sigma} \right] - \Phi \left[\frac{a_{k-1} - Z_i' \beta}{\sigma} \right] \right\} \quad \dots \quad \dots \quad (6)$$

Following Stewart (1983), we treat the first and the last intervals as open-ended in this case so for $j=0$, $\Phi(a_j) = \Phi(-\infty) = 0$ and for $j=4$, $\Phi(a_j) = \Phi(+\infty) = 1$, where $\Phi(\cdot)$ denotes the cumulative distribution function for the standard normal.

EMPIRICAL RESULTS

The estimates of wage equation, with and without correction for selectivity are reported in Table A-4. For the case of correction of selectivity, selection term is estimated based on a five category MNL. The first three categories are for employed individuals in the public, private and state owned enterprises, fourth category contains unemployed but actively looking for work and the last category is consist of unemployed and do not want work at all.⁶ The multinomial results are given in Table A-6. For the identification between sectoral attachment equations and wage equations “head of the household” and “time spent in the present district” are not included in the wage equation. The purpose of estimating wage equation here is to predict wages for those unemployed but looking for work. For this specific purpose only those variables are included in the wage equations that also have the information about those unemployed individuals looking for work. For example occupational categories are not included in the wage equation, as we do not have this information for those unemployed.

Starting with the Table A-4 (wage equations corrected for selection) the estimated coefficient for “male” is significant with positive sign when estimated without correction for selectivity in both public and private sector. But it is lower in magnitude in the private sector and insignificant in public sector. Males earn 34.4 percent more then their female counterpart in the private sector. The estimated age effect is poorly determined in the public sector and in the private sector it is significant and suggests a concave shape. Earnings are maximised at 58 years of age in the private sector. The educational categories are consistent with human capital theory; wage premium is directly proportional to the level of

⁶Before applying the multinomial logit model to obtain the probabilities for sectoral attachment, it is necessary to test the assumptions of the model. The multinomial logit has some potential weaknesses; one is that the choices made are assumed independent of the remaining alternatives, known as the “independence of irrelevant alternatives (IIA)” property. This becomes a particular problem when the choices or outcomes are close substitutes for one another. Thus, in regard the IIA assumption for the MNL has been tested and above categories i.e., public private and State owned enterprises are based on this test. The results of these tests can be provided on request.

education. Moreover, the rate of return is higher for the private sector as compared to the public sector, perhaps indicating the scarcity of educated people in the private sector.

All the estimated effects for the regional categories are significant. Individuals in urban areas earn more than their rural counterpart. Balochistan is the highest earning state, as it is the omitted category and the rest of provinces effects are statistically significant from the base and possess negative signs. Marital status is insignificant in public sector but significant in private sector with a positive sign.

The Table A-3 report respectively the estimates for stated job preference (using a univariate probit model) and unemployment duration (using an interval regression model).⁷ The job preference model is relatively austere and includes the wage offer gap measure,⁸ a set of regional effects, and a control for settlement type. The wage differential between the public and private sector is used as an independent variable in the probit model for public sector job preferences. For this purpose, first of all wages were predicted based on the wage equations reported in Table A-5 for all the individuals. Then, this difference between the public and private pay for the unemployed is included in the public sector job preference model. The estimated effect for the wage offer differential is poorly determined and suggests wage differences appear unimportant in determining the public sector job preferences of the unemployed. This suggests that the preference for a public sector job is perhaps influenced more by fringe-benefits and work conditions than by wage rates. For example, the most pronounced issues for preference for a public sector is working hours. The public sector is committed to providing workers with reasonable hours of work, which must not exceed 48 hours per week. Workers must be provided with at least one day off in each seven-day period. Overtime work is a key issue for many enterprises, due to tight deadlines imposed by buyers, and the need to accommodate rush orders. This need must be balanced against the right of workers to choose whether or not they wish to work overtime (unless some mandatory arrangements for overtime have been included in a legally binding collective agreement), and their right to receive premium rates for overtime hours worked.

Protection in the form of annual leave, sick leave, and special leave is determined by law in the public sector. Labour protection issues including protection against hazards in the work place, issues of work safety as well as protection from work related diseases and illness are considered important in the government sector jobs. Social security that includes protection against the

⁷The limited set of variables reported in the duration equation are those that registered either statistical significance or close to it.

⁸The effects of age, gender, marital status, and human capital effects on job preferences are assumed captured through the wage differential measure.

effects of economic and social hardship resulting from a reduction in earnings due to work accidents, work illness, unemployment, or retirement is another main benefit that workers can enjoy while being in the public sector.

The workers in the public sector job receive pensions and many other benefits like free medical care and loans with negligible rate of interest even after retirement. All these issues make the public sector jobs more attractive than the private sector job. In terms of non-wage benefits private sector in Pakistan is flourishing now and many private firms are offering attractive pay packages. However, because of these above described attractive non-wage features of the public sector people are more likely to prefer public sector jobs. These factors are viewed as more important than wages, hence the statistical insignificance of the wage in the preference equation.

The separate effect of provincial and urban/rural categories is important while exploring the public sector job preference because the government sector jobs are announced particularly with the quota for residents of all the provinces. The quota is usually announced according to the population of every province with its urban rural areas. Based on this formula a particular number of jobs are allocated for provincial quota and rest of the jobs are on merit. The highest number of jobs in different announced jobs is allocated to Punjab as it is most highly populated province. Then come Sindh, NWFP and Balochistan, respectively. The unemployed residents in urban areas are, on average and *ceteris paribus*, almost eight percentage points more likely to state a preference for the public sector job. In addition, there is also a substantial variation in the public sector job preferences across regions with those in either Punjab or Sindh less inclined towards government jobs compared to the Baloch reference group.

The estimates for the unemployment duration model reveal a strong role for education. The higher the level of education, the longer the reported uncompleted unemployment spell and the relationship appears to be monotonic. Those with a university degree report being unemployed for almost four months more relative to those without any formal education, on average and *ceteris paribus*. An unemployed head of household reports a lower unemployment duration than a non-head. This suggests that, controlling for the reported characteristics; family responsibilities (perhaps capturing risk-aversion) motivate an individual to take the earliest acceptable job offer. Another main reason for this is the absence of formal social security system (i.e., no unemployment benefits).

The stated preference public sector job variable enters the duration equation exogenously in this specification. The estimated effect is well determined and sizeable in magnitude. It suggests that those with a preference for a public sector job, controlling for education and other factors, have significantly higher uncompleted unemployment durations than those without such a preference. This could be interpreted as consistent with the notion that

such individuals are in a state of wait unemployment and are prepared to consider long periods of unemployment to satisfy their stated job preference. This provides some tentative evidence for the existence of a public sector job queue in Pakistan. Another important variable that may be important to determine the duration of unemployment is household income that is not available in the data set.

It might be interesting to explore why these unemployed individuals prefer to be in the queue to get a public sector job, why they don't take a private sector job for this short period of time on a temporary basis. First of all, most of the individuals in this category have university degree or with higher education, they might have high expectation to get a public-sector job. Among these unemployed individuals 86 percent are male. They might want to spend this time for job search and may want to enter in a job for their life time career.

Another important thing is that the mean age of this unemployed group with public sector preference is 24 years. According to cultural and family system in Pakistan, at this age usually individuals either male or female (married or unmarried) are living with their parents so they can afford to wait until they get some public sector job according to their expectations. Another important feature of this unemployed class is that almost 77 percent are singles and only 23 percent are married. Thus singles may be free from their household financial responsibilities and can afford to wait for a public sector job. Moreover almost 88 percent of this unemployed class with public sector job preference is living in the present district since birth. Since the individuals have been living at the same place for a long period of time, they are well settled and can afford to be unemployed for the period of job search. A potential of our approach, is the issue of the uncompleted duration of unemployment. This is due to lack of information in our data set. Thus, we are unaware for how long these individuals remain unemployed. A panel data study might be more useful for such analysis that this is currently not available in Pakistan.

CONCLUSIONS

The study used the stated preferences for public sector jobs among the unemployed to inform on the existence of public sector job queues in Pakistan.

The more substantive contribution of the paper lies in what it reveals about the relationship between job preferences and unemployment duration in Pakistan. The potential wage advantage an unemployed individual would enjoy in a public sector job exerted no independent influence on the stated preference, perhaps suggesting that fringe benefits and work conditions are more important considerations. However, there was some regional variation in stated job preferences and those residing in urban areas were more likely to indicate a preference for a public sector job than those in rural areas. This may reflect the greater availability of such jobs in urban areas.

A small number of variables were found to influence uncompleted unemployment durations. The turnover within the unemployed among household heads appears high and may be taken to reflect their risk-aversion given greater family responsibilities. However, the key driver for turnover was education level and the monotonic nature of the relationship suggested that the more educated tend to engage in wait unemployment as they conduct job search. For instance, an unemployed individual with a university degree had 4.1 months higher uncompleted duration than someone with no formal education, on average and *ceteris paribus*. The stated preference for a public sector job is also associated with higher uncompleted durations. The estimated effect suggests that, on average and controlling for education and other characteristics, the unemployed who stated a preference for public sector jobs have higher uncompleted durations by close to four months. The point estimate rises to well over six months when the stated preference measure is treated endogenously. This could be taken to confirm that there are queues for public sector jobs in Pakistan and that they are lengthy.

I acknowledge that use of uncompleted durations provides an incomplete portrait of the phenomenon investigated here. If individuals hold out for a public sector job, the completed unemployment durations may be considerably higher and our estimates could be taken to provide an under-estimate of the effect. In addition, the preferences for a public sector job may be influenced by the duration of unemployment experienced. This is recognised as plausible but its modelling provides an added complication and is not pursued here, thus recommended for further investigation.

Table A-1

Variable Descriptions

Variable	Description
Job Preference	=1 if 1 if the individual expresses a preference for a public sector job; = 0 otherwise.
Unemployment Duration	This is an interval coded variable where:
DUR_1	Unemployment Duration < One month.
DUR_2	One month = Unemployment Duration < two months.
DUR_3	two months = Unemployment Duration < seven months
DUR_4	seven months = Unemployment Duration < twelve months.
DUR_5	Unemployment Duration = twelve months
Since Birth	=1 if the individual was born in the district they currently reside in; = 0 otherwise.
Male	= 1 if the individual is male; 0 = female.
Age	The age of the respondent expressed in years.
Head	=1 if the individual is the head of household; = 0 otherwise.
NFE	=1 if the individual has no formal educational qualifications; = 0 otherwise.
Primary	=1 if the individual's highest qualification is to primary level (five years of education); = 0 otherwise.
Middle	=1 if the individual's highest qualification is to middle level (eight years of education); = 0 otherwise.
Matriculation	=1 if the individual's highest qualification is to matriculation (ten years of education); = 0 otherwise.
Intermediate	=1 if the individual's highest qualification is to two years of college (twelve years of education); = 0 otherwise.
Degree	=1 if the individual's highest qualification is a university degree (including professional and postgraduate); = 0 otherwise.
Train	
Urban	=1 if the individual resides in an urban area; = 0 otherwise.
Balochistan	=1 if the individual resides in Baloch; = 0 otherwise.
Punjab	=1 if the individual resides in Punjab; = 0 otherwise.
Sindh	=1 if the individual resides in Sindh; = 0 otherwise.
NWFP	=1 if the individual resides in the North-West Frontier Province; = 0 otherwise.
Married	=1 if the individual is married; = 0 otherwise
Wage Differential	This is computed as $X_i'[\hat{\beta}_{public} - \hat{\beta}_{private}]$ where X_i denotes the vector of characteristics for the i th individual and $\hat{\beta}_j$ denotes the vector of wage coefficients for the j th sector where j =public, private reported in Table A3.

Table A-2

Variable Summary Statistics

Variable	Mean Value	Job Preference=1	Job Preference=0
Job Preference	0.452	1.000	0.000
Unemployment Duration			
DUR_1	0.139	0.078	0.190
DUR_2	0.249	0.182	0.305
DUR_3	0.206	0.179	0.229
DUR_4	0.136	0.133	0.138
DUR_5	0.270	0.429	0.138
Since Birth	0.869	0.876	0.864
Male	0.893	0.859	0.921
Age	26.186 (9.97)	24.178 (7.30)	27.845 (11.48)
Head	0.206	0.130	0.269
NFE [†]	0.203	0.084	0.300
Primary	0.172	0.104	0.229
Middle	0.164	0.127	0.195
Matriculation	0.229	0.317	0.157
Intermediate	0.103	0.158	0.057
Degree	0.129	0.210	0.062
Train	0.043	0.049	0.038
Urban	0.516	0.550	0.488
Balochistan [†]	0.079	0.095	0.064
Punjab	0.400	0.363	0.431
Sindh	0.159	0.141	0.174
NWFP	0.362	0.401	0.331
Married	0.317	0.231	0.388
Wage Differential			
Selectivity	0.318	0.309	0.325
Corrected	(0.154)	(0.167)	(0.142)
Uncorrected	0.374 (0.167)	0.388 (0.185)	0.362 (0.150)
Sample Size	767	347	420

Notes: to Table A-2.

(a) Standard deviations are reported in parentheses for continuous variables.

(b) [†] Denotes omitted category in estimation.

Table A-3

Job Preference and Unemployment Duration Models

	Separate Stated Job Preference and Unemployment Duration Equations with Stated Job Preference as Exogenous Regressor	
	Stated Job Preference	Unemployment Duration
Constant	0.052 (0.185)	4.134*** (0.917)
Since Birth	‡	-0.988 (0.764)
Head	‡	-1.836*** (0.649)
Primary	‡	1.108 (0.828)
Middle	‡	1.442* (0.842)
Matric.	‡	2.996*** (0.814)
Intermediate	‡	3.213*** (1.018)
Degree	‡	4.130** (0.959)
Job Preference ⁹	‡	3.596*** (0.565)
Wage Differential	-0.207 (0.325)	‡
Urban	0.194** (0.094)	‡
Punjab	-0.297** (0.189)	‡
Sindh	-0.390* (0.201)	‡
NWFP	-0.073 (0.182)	‡
S	1.0	6.536*** (0.244)
N	767	767
Log(L)	-21.6	-1362.4

Notes: to Table A-3.

(a) The estimates in column one are based on estimation of a univariate probit model.

(b) The estimates in column two are based on the estimation of an interval regression model.

(c) ‡ denotes not used in estimation.

(d) ***, **, * denote statistical significance at the 0.01, 0.05, and 0.1 level respectively using two tailed tests.

⁹Our approach allowed "Job Preference" to enter in the unemployment duration model exogenously after applying Durbin -Wu-Hausman test. The results of this test can be provided on request.

Table A-4

OLS Wage Equation Estimates for Sectoral Equations

Variables	Means and Sample Proportions		Selectivity Corrected OLS		Uncorrected OLS	
	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector
	Constant	1.00	1.00	2.534*** (0.360)	1.554*** (0.304)	2.066*** (0.118)
Male	0.881	0.906	0.009 (0.062)	0.296*** (0.101)	0.086*** (0.028)	0.496*** (0.041)
Age	37.14 (9.29)	30.23 (11.01)	0.007 (0.012)	0.035*** (0.009)	0.021*** (0.007)	0.050*** (0.006)
Age Squared ÷ 100	14.66 (7.15)	10.35 (7.65)	0.009 (0.015)	-0.030*** (0.001)	-0.008 (0.008)	-0.053*** (0.008)
Primary	0.103	0.205	0.068** (0.034)	0.135*** (0.026)	0.092*** (0.030)	0.128*** (0.025)
Middle	0.085	0.129	0.110*** (0.038)	0.267*** (0.038)	0.146*** (0.029)	0.217*** (0.029)
Matriculation	0.225	0.169	0.298*** (0.046)	0.321*** (0.040)	0.352*** (0.024)	0.263*** (0.029)
Intermediate	0.162	0.062	0.437*** (0.054)	0.496*** (0.061)	0.505*** (0.026)	0.403*** (0.039)
Degree	0.283	0.101	0.437*** (0.060)	1.078*** (0.056)	0.876*** (0.027)	1.016*** (0.044)
Urban	0.592	0.643	0.121*** (0.018)	0.114*** (0.024)	0.111*** (0.016)	0.141*** (0.021)
Train	0.066	0.043	0.078* (0.042)	0.060*** (0.049)	0.088** (0.039)	0.082*** (0.048)
Punjab	0.369	0.532	-0.126*** (0.029)	-0.307*** (0.046)	-0.155*** (0.021)	-0.243*** (0.035)
Sindh	0.270	0.277	-0.116* (0.028)	-0.174*** (0.047)	-0.141*** (0.022)	-0.117*** (0.037)
NWFP	0.181	0.118	-0.249*** (0.031)	-0.343*** (0.045)	-0.274*** (0.025)	-0.326*** (0.044)
Married	0.881	0.906	0.011 (0.031)	0.069** (0.030)	0.033 (0.027)	0.060** (0.030)
$\frac{\Phi_i}{P_i}$ Selection Term	1.018	1.228	-0.075 (0.054)	-0.133*** (0.063)	‡	‡
Ln(wage)	3.20 (0.59)	2.52 (0.71)	‡	‡	‡	‡
N	3310	3694	3310	3694	3310	3694
s	‡	‡	0.464	0.577	0.464	0.577
Adjusted R ²	‡	‡	0.386	0.337	0.386	0.337

Notes: to Table A-4.

(a) A five-category multinomial logit model was used to compute the Lee selection terms.

(b) ***, **, * denote statistical significance at the 0.01, 0.05, and 0.1 level respectively using two tailed tests.

(c) ‡ Denotes not applicable.

Table A-5

Public Sector Wage Differentials

Based on	Unconditional	Conditional
Public Sector Mean Characteristics	0.211** (0.107)	0.326*** (0.017)
Private Sector Mean Characteristics	0.311*** (0.122)	0.344*** (0.017)
Unemployed Mean Characteristics	0.318*** (0.139)	0.374*** (0.024)

Notes: to Table A-5.

- (a) ***, **, * denote statistical significance at the 0.01, 0.05, and 0.1 level respectively using two tailed tests.
- (b) The unconditional differentials are based on the selectivity corrected estimates from Table A-4, the conditional estimates are based on the uncorrected OLS estimates from Table A-4.

Table A-6

Multinomial Logit Results

Variable	Public Sector		Private Sector		State Owned Enterprises		Unemployed (looking for work)	
	Coefficient (Std. error)	z	Coefficient (Std. error)	z	Coefficient (Std. error)	z	Coefficient (Std. error)	z
Urban	-0.0509 (-0.0576)	-0.88	0.50149 (0.0482)	10.39***	0.3616 (0.1304)	2.77***	-0.0669 (0.0825)	-0.81
Sindh	-0.0001 (-0.0663)	0	-0.1838 (0.0537)	-3.42***	0.4570 (0.1402)	3.26***	-0.3814 (0.1132)	-3.37***
Nwfp	-0.1624 (0.0735)	-2.21**	-0.9099 (0.0663)	13.72***	-0.3285 (0.1842)	-1.78**	0.4738 (0.0908)	5.22***
Baloch	0.5451 (0.083)	6.56***	-0.9918 (0.0829)	11.96***	-	0.5523 (0.1749)	0.4309 (0.1491)	-2.89***
Head	1.3257 (0.0769)	17.23***	1.13443 (0.0732)	15.48***	1.3241 (0.1739)	7.61***	0.6624 (0.1336)	4.96***
Gender	3.3304 (0.0785)	42.4***	4.2695 (0.0745)	57.24***	5.2771 (0.36)	14.66***	3.6556 (0.137)	26.66***
Age	0.6533 (0.0189)	34.57***	0.4164 (0.0138)	30.04***	0.5476 (0.0408)	13.39***	0.3940 (0.0248)	15.89***
Agesq	-0.0084 (0.0002)	-34.98***	-0.0060 (0.0002)	-32.09***	-0.0072 (0.0005)	-14.04***	-0.0056 (0.0003)	15.79***
Marr	0.5849 (0.0848)	6.9***	-0.0682 (0.0714)	-0.96	0.2543 (0.1984)	1.28*	-0.7981 (0.1242)	-6.42***
Pri	0.9385 (0.0914)	10.26***	0.1572 (0.0673)	2.33***	0.3334 (0.1991)	1.67**	0.5264 (0.1313)	4.01***
Middle	0.8801 (0.10135)	8.68***	-0.6926 (0.0746)	-9.27***	0.2312 (0.2077)	1.11	0.0147 (0.1385)	0.11
Matric	1.7296 (0.0845)	20.45***	-0.5282 (0.0696)	-7.59***	0.6166 (0.1804)	3.42***	0.2698 (0.1274)	2.12**
Inter	1.9927 (0.098)	20.32***	-1.0414 (0.0939)	-11.08***	0.2414 (0.2322)	1.04	0.0253 (0.1577)	0.16
Degree	2.8992 (0.0945)	30.67***	0.06754 (0.0927)	0.73	1.5154 (0.1879)	8.06***	1.0328 (0.1549)	6.67***
Train	1.1382 (0.144)	7.9***	1.0757 (0.1434)	7.5***	1.3738 (0.2432)	5.65***	0.9872 (0.2141)	4.61***
Sincebir	0.2104 (0.0719)	2.93***	-0.2676 (0.06)	-4.46***	-0.2732 (0.1461)	-1.87**	-0.0680 (0.119)	-0.57
Cons	-17.4406 (0.3517)	-49.58***	-10.5831 (0.2397)	-44.15***	-18.1399 (0.8088)	-22.43***	-11.5641 (0.4254)	-27.18***

Number of Obs = 41563

LR Chi2(64) = 24953.39

Prob > Chi2 = 0.0000

Log Likelihood = -16835.085

Pseudo R² = 0.4257*Notes:* (a) The omitted category is unemployed and do not want to participate in the labour market.

(b) ***, **, * denote statistical significance at the 0.01, 0.05, and 0.1 level respectively using two tailed tests.

(c) However in approaching the problem i.e., for prediction of wages for unemployed individuals, wage equations are estimated only for public and private sector.

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