

## **Earnings Differential between Public and Private Sectors in Pakistan**

ZAFAR MUEEN NASIR

The paper explores the earnings differential between public and private sectors in Pakistan. The private sector is further divided into formal and informal sectors for comparison purposes. It utilises an expanded version of the human capital model to determine important determinants of earnings in each sector. Using standard technique, the earnings are decomposed into two parts, i.e., differential due to personal characteristics and due to earnings structure of the particular sector. *The Labour Force Survey 1996-97* is used for the analysis of wage differential. Results indicate that workers in public sector earn more than both private formal as well as informal sector workers. These earnings are higher due to their superior personal human capital endowment; however, the wage structure of the public sector is not helping them. The informal sector workers are earning lower than both public sector and private formal sector workers due to both personal characteristics and wage structure of the informal sector.

### **I. INTRODUCTION**

The paper provides an analysis of wage differential between the employees of public and private sectors. The private sector is divided into the formal and informal sectors. In the formal sector, workers are protected through legislation, but in the informal sector no such protection is available to the work force. The main objective of the paper is to highlight as well as determine the extent of exploitation of regular wage employees in different sectors. We investigate the role of wage-related personal characteristics of individuals in determining their wages and compute the differentials in earnings through the use of earnings functions. These differentials are also decomposed into the difference due to personal characteristics and the difference due to the structure of wages.<sup>1</sup> The study is important because the role of

Zafar Mueen Nasir is Senior Research Economist at the Pakistan Institute of Development Economics, Islamabad.

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<sup>1</sup>For example, see Smith (1976); Gunderson (1979); Lindauer and Sabot (1983) and others.

public sector is rapidly changing as the major source of employment. Not only has the creation of new jobs in the public sector been banned, many of the workers in this already-crowded establishment may lose jobs under the public sector right-sizing policies as well as through the privatisation of public sector concerns.

Wages in the public sector are determined through the political process or by service regulations rather than on the basis of productivity [Gunderson (1979)]. Therefore, the employees in the public sector enjoy higher wages as compared to other sectors. This is one of the sources of wage differential in different sectors. In contrast to the public sector, wages in the private sector are determined by the demand and supply conditions of the labour market. While there is a wage differential between the public and private sectors, wages differ rather significantly across formal and informal sectors within the private sector. No doubt, employees in the private formal sector have a higher content of human capital; but mainly because of the legal cover they earn a relatively higher income than the workers in the informal sector who virtually have no legal protection. Because of their vulnerability, the employees in the informal sector face considerably higher exploitation as compared to both employees of the public sector and the private formal sector. The study tests the hypotheses that:

- (a) the employees in the public sector are enjoying economic rent, and that
- (b) the informal sector workers suffer more exploitation as compared to the employees of the public and private formal sectors.

The paper is organised as follows. Section II provides the overview of the situation of different sectors in Pakistan. Section III formulates the theoretical model. Section IV deals with the data characteristics and limitations. Empirical results are discussed in Section V. Major findings and policy implications are presented in Section VI.

## **II. PUBLIC AND PRIVATE SECTORS IN PAKISTAN**

The public sector of Pakistan is not very significantly different from that of the other developing countries. Because of the high unemployment in the country, and as one of the major employers in the past, it is still an attractive sector of employment. However, with significant political interference and the pursuit of non-commercial goals, it is marred by inefficiency. The overstaffing and non-commercial pricing policy has not only led to high cost structure and low profitability; it has also driven most of the public sector establishments to the brink of insolvency [Faruqee, Ali and Choudhry (1995)]. Because political forces rather than economic considerations guided most of the actions in the public sector, these establishments have led to an increase in the financial burden on the already-resource-deficient national exchequer.

The mounting fiscal imbalances forced government to take serious notice of the situation. On the advice of international financial institutions, the Government of Pakistan adopted a Structural Adjustment and Stabilisation Programme in the late 1980s to remove the fiscal imbalances. One essential condition of the programme was to make the public sector more productive and cost-efficient by rightsizing/downsizing. As a result, since 1990, new recruitment is banned and many departments/ministries/corporations are going through the process of either downsizing or privatisation.<sup>2</sup> Moreover, despite continuous escalation of the cost of living since 1994, no significant relief in salaries has been provided. It is estimated that the real wages have eroded by about 50 percent for most public sector employees since 1994.<sup>3</sup>

Since the main concern of the paper is to compare the earnings between the public and the private sectors, it is interesting to discuss briefly the structure of the jobs in the private sector. The private sector in Pakistan provides long-tenure, high-wage, as well as short-term and low-paid jobs. The first kind of job exists in the formal sector where the entry is relatively difficult and requires not only a high content of human capital but also strong links. The jobs in this sector are of primary nature, and because of their characteristics are closely related to the public sector jobs. In contrast to the formal sector, the jobs in the informal sector are of secondary nature, and this sector is the biggest employer in Pakistan.<sup>4</sup> The entry in this sector is relatively easy and skill requirement for employment is also quite low. Although wages are determined by the market conditions, they are relatively low in this sector because of its low skill component [Kemal and Mahmood (1993)]. The working conditions and remuneration are unsatisfactory in the absence of any legal cover to the employees in this sector [Ghayur (1993)]. It attracts only those workers who cannot find jobs in the other two sectors. Therefore, in the light of the prevailing situation, in the study we shall deal with the formal and informal private sectors separately.

Considering the significant differences in the public, private formal, and private informal sectors, it will be an interesting exercise to explore the factors that determine the wage rates in the three sectors (i.e., public, private formal, and private informal) and the wage differentials among them. A number of studies have explored the differences in earnings in the public and private sectors and a majority of them have found public sector wages to be higher than those in the other sectors [Smith (1976); Gunderson (1979); Lindauer and Sabot (1983); Mann and Kapoor (1988);

<sup>2</sup>Despite the ban on vacancies, the Government recruited new staff in the 1990s in the presence of over-manning in various departments.

<sup>3</sup>This situation persists despite the fact that real wages of all the Federal Government servants were found to be negative over the entire period of 1977–92 [Bilquees (1994)].

<sup>4</sup>The new estimates of the *Labour Force Survey 1996-97* measure the informal sector employment at 64.4 percent, which is the highest of all sectors.

Gaag, Stelcner, and Vijverberg (1989); Terrell (1993)]. Most of these studies have included regular as well as non-regular workers in their analysis. The present study departs from the previous studies on two counts. First, it analyses the informal sector in the private sector in addition to the formal sectors both in the private and public sectors; secondly, it includes only salaried workers in the analysis.<sup>5</sup> The sample is restricted to only male employees to avoid the problems associated with field enumeration of females employees in the sample.<sup>6</sup>

### III. THEORETICAL MODEL

Separate earnings functions that include human capital and other characteristics of workers to determine their wages are estimated. A semi-log earnings function defined below is estimated:

$$\ln W = \beta_0 + \sum \beta_i X_i + u \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

where  $W$  is the monthly earnings of workers and  $X_i$  is the vector of personal characteristics of the workers. Experience of the workers is one of the main characteristics of workers; in the specification, age and its square terms are used as a proxy for experience.<sup>7</sup> The quadratic term of age in the basic human capital model of Becker (1964) and Mincer (1974) captures the diminishing returns to experience with time. Other variables include the marital status and occupation of the workers. This equation will be estimated for each sector of employment separately. The Chow test is used to test whether the sectors are structurally different from each other or not (i.e., public and private, public and informal, and private and informal).<sup>8</sup>

The difference in wages may arise due to two reasons. First, the difference in wages may arise due to a difference in endowment and productivity-related personal characteristics of the workers, and these include different levels of human capital, occupational difference, and other endowments. More productive workers will get higher compensation relative to the workers, who on average have a lower level of

<sup>5</sup>Other studies either focused on the public and private sectors only or included a third sector, which is not well-defined. For example, Mann and Kapoor (1988) included joint sector, which has elements of both the public and private sectors. Terrell (1993) divided the public sector into two sectors, i.e., publicly run establishments and public administration. These divisions are not helpful to distinguish the sectors clearly in the case of Pakistan.

<sup>6</sup>Based on different sources of information, female labour market participation is low as compared to their male counterparts [Afzal and Nasir (1987)]. There are social and cultural arguments for this, but the dominant among them is the enumeration problem [Irfan (1983)]. Most of the information is missing on females and that creates estimation and comparison problems.

<sup>7</sup>Age as a proxy for experience is used due to the non-availability of data on actual experience. The other method to calculate experience, i.e., age-education-6 is not possible as the data on education is available for levels instead of years. The other reason for not using the imputed experience is to avoid bias in estimates as the school-going age in Pakistan is not uniform [Ashraf and Ashraf (1993)].

<sup>8</sup>A statistically significant  $F$ -value will identify the structural difference in the sectors and will lead to the conclusion that these sectors be analysed separately.

productivity-related characteristics. Second, the wage differential may arise due to the wage structure across different sectors, i.e., employees with the same endowments may get different remuneration in different sectors.

To measure the wage differential, the mean of log wages between different sectors is used in calculations. The absolute difference  $D_{ij}$  is calculated as:

$$D_{ij} = \ln W_i - \ln W_j \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

Where  $i$  = high-wage sector and  $j$  = other sector.

Because of the nature and skill requirements of different sectors, a strong possibility exists for the marked difference in the wage structure of different employers and the endowments of their employees. The total wage differential may be decomposed into two parts: the first part is due to the difference in the wage structure and the second part is due to the wage-related characteristics and endowments of the workers employed in different sectors.<sup>9</sup>

The model of wage differential across groups  $i$  and  $j$  simply is:

$$\ln W_i = f_i(X_i) = \sum \beta_i X_i \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

$$\ln W_j = f_j(X_j) = \sum \beta_j X_j \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

where  $X_i$  and  $X_j$  are the mean values of the vectors of characteristics of sector  $i$  and  $j$  respectively.

The gross difference can be expressed as:

$$D_{ij} = \ln W_i - \ln W_j = [f_i(X_i) - f_i(X_j) + f_i(X_j) - f_j(X_j)] \dots \dots \quad (5)$$

where  $f_i(X_j)$  is the mean wage that employees of sector  $j$  would receive if they were paid according to the wage structure of sector  $i$ .

$$D_{ij} = [\sum \beta_i X_i - \sum \beta_i X_j] + [\sum \beta_i X_j - \sum \beta_j X_j] \quad \dots \quad \dots \quad \dots \quad (6)$$

$$= \sum \beta_i [X_i - X_j] + \sum [\beta_i - \beta_j] X_j \quad \dots \quad \dots \quad \dots \quad (7)$$

The first term in Equation (7) gives the part of the total difference in the average logarithmic earnings of the two groups of workers that exists due to the difference in the average amounts of earnings-related characteristics, and the second term gives the part due to total difference in average logarithmic earnings of the two groups, which exists due to the rate at which both sectors compensate their workers having the same characteristics. The size of this term will depend on the difference in the values of the regression coefficients estimated from earnings equations of the two groups. This strategy allows the determination of the part attributable simply to a difference in the structure of pay and a difference in the endowment of the workers which drive a wedge between pay levels in different sectors of employment.

<sup>9</sup>This strategy is commonly used in the literature to decompose wages of different groups [Blinder (1973); Birdsall and Fox (1985); Malkiel and Malkiel (1973); and Knight and Sabot (1982)].

#### IV. DATA CHARACTERISTICS AND LIMITATIONS

The data set used in this study is drawn from the *Labour Force Survey (LFS) 1996-97*, collected by the Federal Bureau of Statistics (FBS). The LFS data provide detailed socio-economic information about more than 110,000 individuals. The information on labour market activities is provided on the individuals of 10 years of age and older. To adjust for seasonal variations, the data collection is spread overall the years. The survey collects comprehensive information on various activities of workers. The information about age, literacy, education, training, occupation, employer type, and earnings is particularly important for this study.

Before proceeding to other details of the data, it is imperative to say a few words about the information collected through the Labour Force Surveys in Pakistan. Since 1965, the Labour Force Surveys are the major source of information of labour market statistics. A comparison of the LFS with other data sources shows the superiority of the LFS because of greater internal and external consistencies [Zeeuw (1996)]. Since 1990, the questionnaire of the LFS has been revised twice and a numbers of other changes are made to improve the quality of data collection as well as coverage of different sub-groups. The latest *Labour Force Survey 1996-97*, used in this study, properly identifies the public, private, and informal sectors of employment.<sup>10</sup> This feature of the LFS is lacking in other surveys of this series. The main problem was the identification of the informal sector. The following guidelines are used in the *LFS 1996-97* to identify the informal sector:

- (i) all household enterprises owned and operated by own-account workers, irrespective of the size of the enterprise (informal own-account enterprises);
- (ii) household enterprises owned and operated by employers with less than 10 persons engaged; and
- (iii) all household enterprises engaged in agricultural activities or wholly engaged in non-market production excluded.

The data set indicates that the informal sector is the biggest in size on the basis of employment as compared to the other sectors. It absorbs about two-thirds, i.e., 64.6 percent of the non-agricultural labour force. It is found that 36.7 percent of the workers in the informal sector are self-employed, 26.5 percent are unpaid family helpers, and 23.2 percent are engaged in piece-rate work or other casual work. The regular wage and salary workers, another important group, forms 11.3 percent of the informal sector employment.

This survey provides data on all categories of the labour force in the public and private sectors. Employees of the federal, provincial, and local government and other establishments run by the government administration are included in the public sector. The employees of big establishments employing more than ten workers are included in

<sup>10</sup>There is detailed discussion on data issues in Pakistan in Chapter One of the ILO Discussion Paper No. 33, which addressed the employment, output, and productivity issues of Pakistan (2000).

the private formal sector. Although the final sample of the study includes only regular wage employees, the survey sample covers all sorts of workers. It is observed that the coverage of regular wage employment is higher in the formal sectors (both in the public and private sectors). The majority of these individuals is of full-time employees who work more than 35 hours per week.<sup>11</sup> Accordingly, a higher percentage of casual or non-regular workers is observed in the informal sector.

The data on earnings include both cash and payments in kind. The current value of the in-kind benefits such as free or subsidised housing and transportation is included in the overall earnings reported in the survey. The other benefits such as bonuses are not included in these earnings.<sup>12</sup> It is important to mention that the data on earnings is not available for all sub-groups, but it covers fully the regular wage and salaried group. Because the aim is to gauge the extent of exploitation of wage employees, we restricted our sample to only regular wage and salary workers who reported some earnings.<sup>13</sup>

The final sample of regular salaried workers with positive earnings consists of 4997 individuals. In that, approximately 56 percent are employed in the public sector, 18 percent in the private sector, and 26 percent are working in the informal sector. The summary statistics provided in Table 1 reveals that there are considerable differences among workers employed in these sectors. Some of the important differences are highlighted here as a prelude to the regression analysis.

It is observed that relatively young and less-educated workers are employed in the informal sector and the majority of them are either working as labour or as service workers. It is noted that highly educated workers are concentrated in the public sector. On average, a higher percentage (i.e., 11 percent) of these workers have received vocational or on-the-job training as compared to the workers of the other sectors. It is consistent with the definition of the informal sector. The professional, associate professional, and clerical workers have higher representation in the public sector whereas higher percentage of managerial workers is located in the private formal sector. It may also be noted that workers in the public sector, on average, earn Rs 3902 per month, which is higher than the earnings in both the private formal and informal sectors.

<sup>11</sup>Those who work less than 35 hours are considered under-employed in the survey.

<sup>12</sup>Such an inclusion would increase the differential even further. We did not include this because of the low reporting of these benefits.

<sup>13</sup>The sub-groups such as the self-employed, women, unpaid family helpers, non-regular workers, and rural workers are excluded from the analysis. The self-employed are excluded because it is difficult to disentangle returns to physical capital and human capital and, secondly, they do not fall strictly in the wage-earners' category. Women are excluded due to their low coverage in the surveys in Pakistan. Another reason is the problem with properly specifying their wage function due to their sudden withdrawal and entry in the labour market. Unpaid family helpers do not earn any wages, and non-regular and casual workers do not qualify the criteria laid down for sample selection. As the rural sector wage employment is very limited, therefore we exclude them also from the analysis.

Table 1

*Definition and Summary Statistics of Variables*

Symbol	Definition	Public	Private	Informal	Total
N	Number of Observations	2793	890	1314	4997
		<b>Mean</b>	<b>Mean</b>	<b>Mean</b>	<b>Mean</b>
ln W	Log of Monthly Earnings	8.2692 (0.53)	8.2152 (0.60)	7.7431 (0.54)	8.1321 (0.59)
<b>Human Capital Background</b>					
AGE	Age in Years	37.13	34.12	32.07	35.27
ILL	Having no Formal Education (Proportion)	.1204	.2156	.3599	.2001
PRIM	Completed Five Years of Schooling (Proportion)	.0714	.0865	.1743	.1011
MIDD	Completed Eight Years of Schooling (Proportion)	.0792	.1371	.1446	.1067
MAT	Completed Ten Years of Schooling (Proportion)	.3915	.3124	.2245	.3336
DEG	General Degree Education (Proportion)	.1545	.1337	.0320	.1187
PDEG	Professional Degree Education (Proportion)	.1527	.0843	.0183	.1053
LIT	Literacy (Proportion)	.0303	.0304	.0464	.0345
TRAIN	Job Training (Proportion)	.0878	.1099	.1100	.0976
<b>Occupations</b>					
PRO	Professional (Proportion)	.1834	.0843	.0251	.1243
APRO	Associate Professional (Proportion)	.1228	.0697	.0464	.0933
MANG	Managerial Workers (Proportion)	.1089	.1180	.0259	.0887
SERV	Service (Proportion)	.1271	.0910	.2785	.1604
CLER	Clerical Workers (Proportion)	.2077	.1382	.0563	.1556
OPER	Operators and Drivers (Proportion)	.0689	.1787	.1644	.1135
PROD	Production Workers (Proportion)	.0482	.1607	.1766	.1019
LABOR	Labourers (Proportion)	.1331	.1596	.2268	.1625
<b>Other Characteristics</b>					
MS	Marital Status (Proportion)	.8319	.6876	.5822	.7405

Note: Figures in parenthesis are the standard deviation.

To further highlight the difference in these sectors, we present average monthly earnings of workers of different age groups in the public, private, and informal sectors in Table 2 and plot them in Figure 1. The association of earnings with age signifies the role of experience for higher earnings because age is used as a proxy for experience in the analysis.<sup>14</sup> It is interesting to note that although there are significant differences in compensation for workers in different sectors, yet the age-earnings profiles follow the life-cycle pattern in all three sectors of employment where income increases with age for some time, reaches the peak and then declines. Some interesting observations can be made on the basis of these age-earnings profiles.

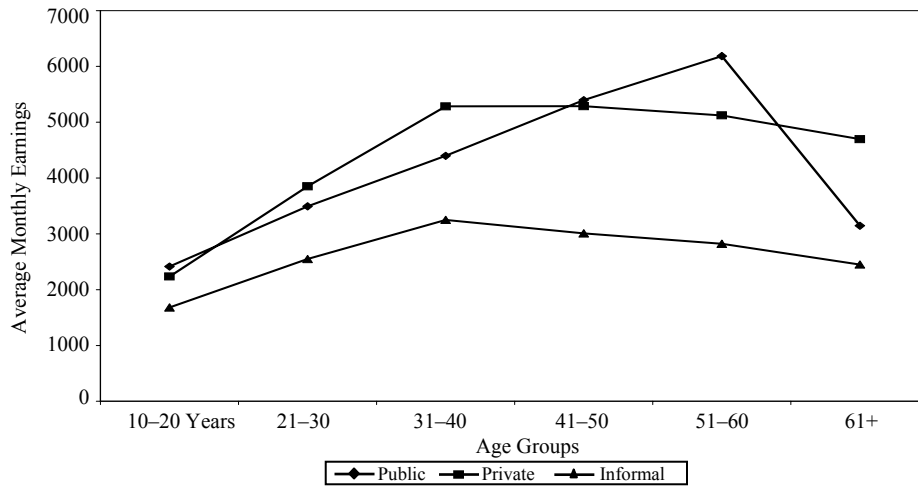
<sup>14</sup>It is important to note that the earnings associated with different age groups do not show the returns to experience only. There are other factors which also affect earnings and are not controlled here to disentangle the returns to experience. The regression analysis will be used to separate these returns.



Table 2

*Average Monthly Earnings of Male Workers, by Age Group*

Employer/Occupation	Public	Private	Informal	Total
10–20	2413.8	2234.8	1681.7	1935.1
21–30	3492.7	3850.3	2547.8	3299.3
31–40	4397.4	5283.5	3249.0	4330.5
41–50	5396.1	5287.4	3007.0	4970.1
51–60	6184.7	5122.3	2822.1	5186.2
61+	3144.7	4695.0	2449.7	2993.7
Total	3901.8	3696.7	2305.6	3401.9

**Fig. 1. Age-earnings Profiles of Workers in Different Sectors.**

The workers in the public sector start at a higher level of earnings and reach a higher peak as compared to the other two sectors. They attain the highest level of earnings in the age group 51–60. Because of the slow rise in the earnings of the public sector employees, the profile of the private formal sector workers surpasses the profile of the public sector employees in age group 21–30. The profile of public sector employees remains below the profile of the private formal sector workers till the age group 31–40 but surpasses it afterwards. The earnings of the workers in the public sector stay at a higher level till the age of 60 as compared to the private formal sector when the earnings of the private formal sector again exceed theirs. The main reason behind the smooth age-earnings profile of the public sector employees till age 60 is the relatively uniform pay scale system adopted by the government. The sharp decline in the earnings experienced by the public sector employees afterwards is due to the retirement benefits, which are much lower than the regular job benefits. The age-earnings profile of workers in the private formal sector shows lower earnings at the

start but then there is a sharp rise in the earnings with age, till the age group 41–50, when their earnings reach the peak and start declining afterwards. The decline in the earnings of the private sector workers is slow and smooth, unlike the public sector workers, who experience a sharp decline once they reach the peak of their earnings.

Interestingly, the peak in the informal sector is attained in the age group 31–40, much earlier than in the other two sectors of employment. Moreover, the peak earnings of the informal sector are also lower than the peak earnings of the other sectors. This is in conformity with the characteristics of informal sector employment. The profile of these workers remains below the profile of the other two sectors. This means that the life-long earnings of the workers in the informal sector are lower than in the other sectors of employment. This shows the vulnerability of workers to the conditions of the informal sector, where workers have no legal protection against unjust wages and working conditions.

On the basis of this information, it seems that there are significant differences in the characteristics and earnings of workers in these three sectors. It is, therefore, imperative to further explore these sectors to see what factors play the major role in wage determination and the extent of differential in earnings in these sectors. The ordinary least squares estimation technique is used to control for different characteristics of the workers and gauge the difference in earnings. The regression results and decomposition of wage differential are presented in the next section.

## V. EMPIRICAL RESULTS

The estimates of the earnings functions for different sectors are reported in Table 3. The Chow test reveals that there are structural differences in these sectors and a single equation does not explain the differences in earnings. For this reason, separate equations are estimated for all three sectors. Judged by the  $F$ -statistics and adjusted  $\bar{R}^2$ , model specification is good and the majority of the variables included in the models are important determinants of earnings. It is further noted that most of the variables included in the earnings equations are estimated with statistical precision (low standard error).

Although the pattern of estimated coefficients displays no major surprise, there is some difference, which needs to be addressed. It is noted that the importance of human capital varies by sector. In general, the magnitude of coefficients for different educational categories is relatively smaller in the public sector than the magnitude in both the private formal and informal sectors. The private formal sector does not treat workers with five years of education differently from those with no education, as there is no statistically significant premium associated for five years of education in this sector. The premium for primary education in the public sector is 6.40 percent, whereas in the private informal sector it is 24.7 percent, which is quite high relative to that in the public sector. As the demand for higher education is low in the informal sector as compared to the other two sectors, workers with below-

Table 3  
*Coefficients of Ordinary Least Square Estimates for Different Sectors*  
*(Dependent Variable = Log Monthly Earnings)*

Variables	Public	Private	Informal
Constant	6.9260*** (76.43)	6.6220*** (49.40)	6.1670*** (70.36)
AGE	0.0352*** (7.03)	0.0506*** (6.38)	0.0682*** (12.25)
AGESQ	-0.0003*** (-4.80)	-0.0006*** (-5.74)	-0.0008*** (-11.27)
LITRACY	0.0549 (1.22)	0.0472 (0.56)	0.1450*** (2.51)
PRIM	0.0622* (1.87)	0.0824 (1.48)	0.221*** (6.42)
MIDD	0.1170*** (3.584)	0.1220*** (2.54)	0.3060*** (8.13)
MAT	0.2410*** (9.09)	0.3080*** (7.14)	0.3360*** (9.81)
DEG	0.5140*** (16.04)	0.6880*** (11.75)	0.6600*** (8.46)
PDEG	0.7270*** (21.73)	0.8360*** (12.19)	0.7470*** (6.78)
TRAIN	0.0864*** (3.43)	0.0847* (1.89)	0.0687* (1.77)
MANG	0.5260*** (15.31)	0.5230*** (8.14)	0.2970*** (3.74)
PROF	0.1780*** (5.82)	0.3470*** (5.16)	0.3040*** (2.98)
APROF	0.0851*** (2.73)	0.0431 (0.66)	0.0175 (0.281)
CLERK	0.0780*** (2.76)	0.1180** (2.14)	0.0562 (0.976)
SERV	0.0057 (0.21)	0.0355 (0.61)	0.0029 (.088)
PROD	0.0909*** (2.40)	0.2280*** (4.65)	0.0717* (1.90)
OPRAT	0.0942*** (2.81)	0.1920*** (3.97)	0.1620*** (4.11)
MS	0.0167 (0.73)	0.1440*** (3.38)	0.0644* (1.76)
F-statistics	171.78	61.21	50.39
$\bar{R}^2$	0.509	0.535	0.390
N	2793	890	1314

\* Significant at 10 percent level.

\*\* Significant at 5 percent level.

\*\*\* Significant at 1 percent level.

degree education have much higher returns relative to illiterates in the informal sector in comparison with the other sectors. The relatively high demand of educational skills of workers in the private formal sector is fetching the highest rewards for degree education (both simple and professional) relative to illiterates in this sector.<sup>15</sup>

The coefficients of variable AGE (proxy for experience) in all three sectors are statistically significant but different in magnitude. The highest earnings are associated with the private informal sector followed by the private formal sector. In the public sector, the returns are almost half those in the private informal sector. The negative and statistically significant square term of age confirms the non-linear age-earnings profiles in all three sectors of employment.

Training has a positive impact on earnings because it brings 9.02 percent, 8.84 percent, and 7.11 percent premium for public, private formal, and private informal sector workers respectively. The high returns associated with training in the public sector suggest that workers get benefit in the form of incremental salary, additional allowance, or promotion due to training, in accordance with the government policy. The higher earnings associated with age, education, and training provide clear support to the human capital theory in the public and private sector [Becker (1964) and Mincer (1974)].<sup>16</sup>

The returns to non-human capital variables are also the source of difference in the estimates of different sectors. For example, marriage is associated with higher wages for men in the U.S. labour market. Married workers earn more because they are more productive than single workers [Becker (1981, 1985); Kenny (1983); Greenhalgh (1980)]. It has also been claimed that married workers have characteristics such as punctuality and motivation, which are valued highly by the employer and therefore higher wages are paid to such workers [Nakosteen and Zimmer (1982); Becker (1981); Keely (1977)]. In this study, the premium on marriage is significantly high in both the private formal and informal sectors as compared to the public sector, where returns are not significantly different from zero. As there are no considerations for efficiency and productivity in the public sector, these findings are not surprising. The private formal and informal sectors pay more to married workers due to their consideration for productivity-enhancing characteristics of workers.

The coefficients associated with different occupations reveal that managerial workers earn the highest premium and the service workers earn the least in all three sectors. The premium associated with managerial work is 69.2 percent, 68.7 percent, and 34.6 percent in the public, private, and informal sectors respectively.<sup>17</sup> It is noted

<sup>15</sup>The highest returns are associated with professional education in all three sectors.

<sup>16</sup>Although the returns to public sector employees are determined by the government pay policy, yet education does play a role to qualify them for the jobs or for other benefits in the public sector.

<sup>17</sup>The estimated premiums are relative to labour, which is the excluding category.

that professional workers earn a significantly higher premium in all three sectors but associate professionals earn statistically significant premium in only the public sector. Furthermore, the clerical workers do not earn statistically significant premium in the informal sector, whereas the returns are 8 percent and 12.5 percent in the public and private formal sectors respectively. Production workers receive the highest premium in the private sector, where they earn 25.6 percent more than the reference group. The returns for drivers and other skilled workers such as machine-operators are also high in the formal sector, where they earn 21 percent higher wages relative to those of the labourers. The returns for these workers are 9.9 percent and 17.6 percent in the public and informal sectors respectively.

### **Decomposition of Earnings Differential**

The differential in the earnings is calculated by using statistics in Table 1 and estimates of earnings functions presented in Table 3. The decomposition of earnings differential is based on the Equation 7. First, we shall discuss the earnings differential between the public and private sectors, and this will be followed by the earnings differential between the public and the informal sectors. The earnings differential between the private formal and informal sectors will be discussed at the end.

#### **Public and Private Formal Sector**

The statistics presented in Table 1 reveals that workers, on average, earn monthly earnings of Rs 3902 in the public sector and Rs 3697 in the private formal sector. This suggests that workers in the public sector earn Rs 205 more than the private formal sector workers.<sup>18</sup> This difference in average earnings is the result of the difference in average endowments (wage-related characteristics) of workers and the difference in the pay structure of the public and private sectors. The decomposition of this difference is presented in Table 4. The table contains two columns, which present the relative contribution of each factor in the earnings differential of these sectors.

Our calculations indicate that workers in the public sector establishments earn 215.49 percent more due to their superior endowments and 115.37 percent less due to their pay structure.<sup>19</sup> In rupee terms, public sector workers earn Rs 442 more than private sector due to their endowments and earn Rs 237 per month less than private

<sup>18</sup>In the case of developed countries, Gunderson (1979) found 6.2 percent wage advantage for Canadian workers whereas Smith found 7 percent wage premium for US workers in the public sector. In developing countries, Mann and Kapoor (1988) found a relatively high premium in favour of the public sector workers in the Indian state of Punjab whereas Gaag, Stelcner, and Vijverberg (1989) found no wage premium in the case of workers of Peru and Cote d'Ivoire.

<sup>19</sup>It is noted that the proportion of workers with ten and more years of schooling in the public sector is higher than in the private sector (see Table 1).

Table 4  
*Relative Contribution of Variables to the Earnings Differential  
 between the Public and Private Formal Sectors*

Variables	Endowment	Wage Structure	Total
Constant	0	0.3155	0.3155
AGE	0.105952	-0.525448	-0.419496
AGESQ	-0.064339	0.349252	0.284914
PRIM	-0.000939	-0.001747	-0.002687
MIDD	-0.006774	-0.000685	-0.00746
MAT	0.019063	-0.020931	-0.001868
DEG	0.010691	-0.023264	-0.012573
PDEG	0.049727	-0.009189	0.040538
LITRACY	-0.00000549	0.000234	0.000229
TRAIN	-0.001909	0.000187	-0.001723
PROF	0.01764	-0.014247	0.003393
APROF	0.004519	0.002927	0.007446
MANG	-0.004787	0.000354	-0.004433
CLERK	0.005421	-0.005528	-0.000107
OPRAT	-0.010343	-0.017477	-0.02782
PROD	-0.010226	-0.022032	-0.032258
SERV	0.000206	-0.002712	-0.002506
MS	0.00241	-0.087531	-0.085122
TOTAL	0.116305	-0.062336	0.053969

sector workers due to their poor pay structure. In this case, public sector employees with the same endowments are compensated at a lower rate as compared to private sector workers. If both kinds of workers were paid at the same rate (by private pay structure), the public sector workers would have received monthly earnings of Rs 4187.93, which is Rs 286.10 more than what they receive currently in the public sector. These hypothetical earnings are 13 percent more than those in the private sector. This suggests that workers in the public sector are not paid according to their skills and, therefore, are subject to exploitation.

The contribution of each variable towards the part of differential that exists due to personal characteristics is presented in Column 2 of Table 4. The positive sign associated with the factor in this column indicates that workers in the public sector enjoy the earnings advantage due to that particular factor whereas the negative sign means that workers of the other sector are receiving higher benefits due to that characteristic. The calculations presented in Table 4 indicate that Column 2 contains more positive signs than negative signs. It is also noted that the magnitude of the factors with positive signs is greater than the factors with negative signs. This suggests that workers in the public sector establishments earn more than those in the private sector because their wage-related characteristics favour them more than the private sector workers. It is observed that the human capital factors such as education and experience are benefiting public sector employees more than private sector workers.

The earnings differential due to structural difference in the two sectors is presented in Column 3 of Table 4. It is observed that there are more negative signs than positive ones in the column. This implies that workers in the private establishments are compensated at a higher rate for the same characteristics in comparison to public sector workers. This reduces the overall earnings advantage of public sector employees which they receive due to their superior endowments. In general, our results are in line with other studies [Gunderson (1979); Mann and Kapoor (1988); Gaag, Stelcner, and Vijverberg (1989)].

### Public and Private Informal Sector

The earnings differential between the public and private informal sectors and its decomposition into different parts are presented in Table 5. For the calculations of this differential, the same technique as discussed in the previous section is utilised. We observed that there is a big gap between these sectors in terms of the earnings of workers. The total differential in the average log monthly earnings of the public and

Table 5

*Relative Contribution of Variables to the Earnings  
Differential between the Public and Informal Sectors*

Variables	Endowment	Wage Structure	Total
Constant	0	0.8515	0.8515
AGE	0.178112	-1.05831	-0.880198
AGESQ	-0.105046	0.514242	0.409197
PRIM	-0.0064	-0.027679	-0.034079
MIDD	-0.007652	-0.027329	-0.034981
MAT	0.040247	-0.021238	0.01892
DEG	0.062965	-0.004672	0.058293
PDEG	0.097709	-0.000366	0.097343
LIT	-0.000884	-0.004181	-0.005065
TRAIN	-0.001918	0.001947	0.0000289
PROF	0.028177	-0.003163	0.025015
APROF	0.006502	0.003137	0.009638
MANG	0.043658	0.005931	0.049589
CLERK	0.011809	0.001227	0.013037
OPRAT	-0.008996	-0.011146	-0.020142
PROD	-0.011672	0.003391	-0.008281
SERV	-0.000863	0.00076	-0.000103
MS	0.00417	-0.027771	-0.023601
TOTAL	0.329919	0.196191	0.52611

the informal sector is 0.5261. The decomposition of this differential indicates that human capital and other wage-related characteristics account for 0.3299 of the differential. The pay structure contributes 0.1962 to the total differential as public sector workers are paid at a higher rate than those in the informal sector for the same characteristics. In rupee terms, the differential, on average, stands at Rs 1596 per month in favour of public sector workers. Of this total differential, Rs 1001 exists due to the difference in the personal characteristics of the worker and a difference of Rs 595 exists due to the difference in the pay structure of the public and the informal sector. In this case, workers in the informal sector are compensated at a lower rate than public sector workers for the same characteristics. The informal sector workers would have earned Rs 3205 instead of Rs 2306 if they were paid at the public sector rate for their characteristics.

The contribution of different characteristics presented in Column 2 of Table 5 indicates that age and higher education (i.e., Matric and above) offer more gain to public sector employees whereas training and below-Matric education favours informal sector workers. From Column 3, it is observed that most of the characteristics have a negative sign, indicating that workers in the informal sector are paid at a higher rate than the public sector workers for the same characteristics. These findings highlight the extent of exploitation of the workers in the informal sector as compared to employees in the public sector.

#### **Private Formal and Informal Wage Differential**

We have adopted the same methodology to calculate the wage differential of the private formal and informal sectors. The earnings differential and its decomposition are presented in Table 6. The observed total differential in the private formal sector and informal sector is 0.4720. The part of total differential that exists due to the difference in endowment is 0.2526, and the part due to the difference in wage structure is 0.2195. This decomposition suggests that workers in the private sector not only have higher endowments but are also compensated at a higher rate than those in the informal sector for the same characteristics and endowments. In rupee terms, workers in the private formal sector earn Rs 1391 more than the informal sector worker. These workers earn Rs 745 more due to the superior contents of their human capital and other endowments, and Rs 647 due to the superior pay structure. If workers in the informal sector were paid according to the pay structure of the private sector, they would have earned Rs 2847 instead of Rs 2305.61.

Column 2 of Table 6 indicates that most of the factors favour the private formal sector workers, as there are few negative signs in that Column. The informal sector workers receive the benefits of eight and less years of schooling, including literacy and training. Column 3 indicates that for most of the characteristics, the private sector workers are paid at a higher rate, which increases their earnings



Table 6  
*Relative Contribution of Variables to the Earnings  
 Differential between the Public and Private Sectors*

Variables	Endowment	Wage Structure	Total
Constant	0	0.536	0.536
AGE	0.10373	-0.564432	-0.460702
AGESQ	-0.081414	0.005697	0.124283
PRIM	-0.007235	-0.024158	-0.031393
MIDD	-0.000915	-0.026606	-0.027521
MAT	0.027073	-0.006286	0.020787
DEG	0.06997	0.000896	0.070866
PDEG	0.055176	0.001629	0.056805
LIT	-0.000755	-0.004538	-0.005293
TRAIN	-0.00000847	0.00176	0.001752
PROF	0.020542	0.001079	0.021622
APROF	0.001004	0.001188	0.002192
MANG	0.04868	0.005853	0.054022
CLERK	0.009664	0.003479	0.013144
OPRAT	0.002746	0.004932	0.007678
PROD	-0.003625	0.027603	0.023977
SERV	-0.006656	0.00906	0.002403
MS	0.015178	0.046343	0.061521
TOTAL	0.252643	0.219499	0.472141

significantly over the informal sector workers. This means that workers in the private formal sector have good prospects not only due to their personal characteristics but also due to the rate at which they are compensated.

The decomposition of earnings differentials supports the view that informal workers face more exploitation as compared to the other sectors. These results support our hypothesis regarding the workers in the informal sector. Another startling finding is about the public sector employees who are found to be equipped with superior endowments but are subject to exploitation by the public sector. If they were paid according to their endowments, they would have earned much more than what they were actually earning.

## VI. CONCLUSIONS AND POLICY IMPLICATIONS

The analysis of the earnings differential in the public, private, and informal sector is presented in this article. The main purpose of this study is to highlight the exploitation of wage employees in different sectors of employment in Pakistan. The role of personal characteristics of urban male workers is explored in the first part while the earnings differential and its decomposition is presented in the second part of the study. The earnings functions that include human capital and other endowments are estimated separately for each sector.

The results show that the informal sector workers are exploited due not only to their poor skills but also the wage structure of the informal sector. The public sector employees have superior endowments but the wage structure in that sector does not favour them. This is an indication of their exploitation. Only workers of the private formal sector enjoy both the benefits of their skills and the wage structure of the sector.

The regression estimates of employees of different sectors indicate that the human capital variables are the major determinants of their wages. The other variables such as the occupation of workers have some role in the public, private, formal, and informal sectors. The wage premium for married workers is quite high in the private (both formal and informal) sector whereas no premium has been found in the case of public sector work. This result is in line with the rules determining the wages in the public sector.

The decomposition of the wage differential indicates that the earnings advantage for the employees in the public sector is mainly due to the superior contents of their human capital and other endowments. It is further noted that the earnings advantage due to personal characteristics and endowments in the public sector is offset by the wage structure of private sector that pays compensation at higher rates for the same characteristics relative to the public sector. In the case of the informal sector, the benefit of both personal characteristics and wage structure goes to the public sector. Similarly, the benefit of personal characteristics and wage structure goes to the formal sector when the wage differential within the private sector is decomposed.

One can draw many policy implications from this analysis. The major concern is the exploitation of workers in the informal sector. This sector needs immediate attention from the government, first, to start the programmes to train and educate these workers. Secondly, they should be provided a protective cover so that the exploitation stops. The labour policy should include some measures to discourage the casualisation of jobs for the benefit of these workers. As for public sector workers, they should be compensated according to their endowments and more incentives be given to more productive workers. If these measures are not implemented, the public sector will lose its skilled or talented manpower, which may have serious repercussions for the economy as a whole.

#### REFERENCES

- Afzal, M., and Zafar Mueen Nasir (1987) Is Female Labour Force Participation Really Low and Declining in Pakistan? A Look at Alternative Data Sources. *The Pakistan Development Review* 26:4 699–710.
- Ashraf, J., and B. Ashraf (1993) An Analysis of the Male-Female Earnings Differential in Pakistan. *The Pakistan Development Review* 32: 4 895–904.
- Becker, G. (1964) *Human Capital*. New York: Columbia University Press.

- Becker, G. (1981) *A Treatise on the Family*. Cambridge, Mass: Harvard University Press.
- Becker, G. (1985) Human Capital, Effort, and the Sexual Division of Labour. *Journal of Labour Economics* 3: 33–58.
- Bilquees, Faiz (1994) Real Wages of the Federal Government Employees: Trends from 1977-78 to 1991-92. *The Pakistan Development Review* 33: 229–251.
- Birdsall, Nancy, and L. Fox (1985) Why Males Earn More: Location and Training of Brazilian Schoolteachers. *Economic Development and Cultural Change* 33: 533–56.
- Blinder, Alan (1973) Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resource* 8: 827–55.
- Faruqee, R., Ridwan Ali, and Yusuf Choudhry (1995) Pakistan's Public Agriculture Enterprises: Inefficiencies, Market Distortions, and Proposals for Reform. The World Bank, Washington, D. C. (World Bank Discussion Papers No. 305.)
- Gaag, V. D. J., M. Stelcner, and W. P. M. Vijverberg (1989) Public-Private Sector Wage Comparisons and Moonlighting in Developing Countries: Evidence from Cote d' Ivoire and Peru, Living Standards Measurement Study. The World Bank, Washington, D. C. (Working Paper No. 52.)
- Ghayur, Sabur (1993) The Informal Sector of Pakistan: Problems and Policies. Friedrich-Ebert-Stiftung, Islamabad. (The Informal Sector Study No. 3.)
- Greenhalgh, C. (1980) Male-Female Wage Differentials in Great Britain: Is Marriage an Equal Opportunity? *Economic Journal* 90: 751–775.
- Gunderson, M. (1979) Earnings Differentials between the Public and Private Sectors. *Canadian Journal of Economics* 12: 228–242.
- Irfan, M. (1983) Determinants of Female Labour Force Participation in Pakistan. Studies in Population, Labour Force and Migration Project. Pakistan Institute of Development Economics, Islamabad. (Report No. 5.)
- Keeley, M. (1977) The Economics of Family Formation. *Economic Inquiry* 15: 238–250.
- Kemal, A. R., and Zafar Mahmood (1993) Labour Absorption in the Informal Sector and Economic Growth in Pakistan. Friedrich-Ebert-Stiftung, Islamabad.
- Kenny, L. (1983) The Accumulation of Human Capital during Marriage by Males. *Economic Inquiry* 21: 223–231.
- Knight, J. B., and R. H. Sabot (1982) Labour Market Discrimination in a Poor Urban Economy. *The Journal of Development Studies* 19: 67–87.
- Lindauer, D. L., and R. H. Sabot (1983) The Public/Private Wage Differential in a Poor Urban Economy. *Journal of Development Economics* 12: 137–52.
- Malkiel, B. G., and J. A. Malkiel (1973) Male-Female Differential in Professional Employment. *American Economic Review* 63: 693-705.
- Mann, P. S., and B. L. Kapoor (1988) Earnings Differentials between Public, Private, and Joint Sectors in Punjab (India). *The Journal of Development Studies* 25: 97–111.

- Mincer, J. (1974) *Schooling, Experience, and Earnings*. New York: NBER and Columbia University Press.
- Nakosteen, R., and M. Zimmer (1982) Marital Status and Earnings of Young Men. *Journal of Human Resources* 22: 248–268.
- Smith, S. (1976) Pay Differentials between Federal Government and Private Sector Workers. *Industrial and Labour Relations Review* 29: 179–97.
- Terrell, Katherine (1993) Public-Private Wage Differential in Haiti: Do Public Servants Earn a Rent? *Journal of Development Economics* 42: 293–314.
- Zeeuw, Martin de. (1996) The Household Integrated Economic Survey of Pakistan 1990-91: Internal and External Consistency. *The Pakistan Development Review* 35:1 71–84.