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What Determines Employment in the Formal and Informal Sectors of Pakistan? Primary Data Insights from Lahore

Muhammad Ayyoub¹, Durdana Qaiser Gillani²

¹Lecturer in Economics, Government M.A.O. College, Lahore, Pakistan.

²Assistant Professor, Department of Economics, University of the Punjab, Lahore, Pakistan.

ABSTRACT

In developing countries, despite the fact that a larger part of GDP is generated by the formal sector, most people earn and spend their lives in the informal sector. We identify the determinants of formal and informal sectors' employment in the urban areas of district Lahore, by conducting a household survey in 2015. The multinomial logit model is used to analyze the data obtained from a sample of 309 workers. Our results indicate that personal, socio-economic and household factors are essential for regulating employment in both sectors. Furthermore, our findings provide evidence that employment in the sectors in question is significantly determined by the level of higher education, age, working experience of individuals, marital status, sound educational background of the parents of workers, the number of dependents and the presence of assets. The study also provides the policy framework to channelize employment opportunities in the urban labor market and advises the government to enhance the growth potential of workers by expediting the provision of higher education and other skill acquisition initiatives.

Keywords: Formal sector; Informal sector; Multinomial logit model

1. INTRODUCTION

As the role of formal and informal sectors is imperative for the growth and development of an economy, it has remained a debatable concern among economists for several decades. The question of interest is: what really determines, especially in the developing economies, the level of employment in formal and informal sectors? Let us commence by briefly defining the two sectors in question. Siqueira et al., (2016) differentiate these sectors as the formal ('legal') and informal ('social') institutions in a society. They opine that the formal institutions do not usually regulate the employment of the informal sector. However, it is only legitimated with the viewpoint of informal

Address of Correspondence

Muhammad Ayyoub
muhammad.ayyoub@mao.edu.pk

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institutions because, according to the standpoint of formal institutions, the informal employment is believed to be 'illegal'. We can infer that the formal sector is a documented fraction, whereas the informal sector is an undocumented or underground segment of the labor force in an economy. However, regarding the dominant policy discourses, according to Bhattacharya (2019), the informal sector can be treated as composed of the firms who are stuck at small scales of business with low levels of incomes and productivity due to institutional rigidities, market imperfections and country-specific regulatory biases. In traditional markets, it is difficult for the informal sector employees to solve their main problems which are caused because of some formal legal aspects (Zusmelia et al., 2019). Pisani (2019) has noted that not only the individuals but the firms in developed and developing world environments often start their businesses in the informal sector, which operates outside the purview of government oversight.

While the appropriate level of market regulation is country specific (Betcherman, 2019)¹, Tansel and Acar (2016) posit that, due to institutional or efficiency wage reasons, the formal sector employment has traditionally been considered the sector where wages are generally set above market clearing levels. In contrast, the informal employment is associated with the characteristics of inferior earnings, wage inequality, and poverty. The traditional segmented labor markets hypothesis states that the informal sector is only a survivalist alternative for those who are rationed out of formal sector employment. Jütting and de Laiglesia (2009) estimated the global informal sector and documented that it is comprised of around 60 percent of the world labor force.

The International Labor Organization (2013) documented that the share of the informal labor sector is bigger in the developing world, and that this type of employment is not an insignificant figure in the advanced economies as well. Schneider and Williams (2013) opined that France has the World's best and advanced institutional infrastructure to tackle the informal sector and employment. Despite this, the informal economy of France is almost equivalent to 11 percent of GDP. Given the informal sectors imply the longevity of unorganized, unregulated work (Kerswell & Pratap, 2019), the ratio of informal labor force in developing economies is much higher than that of the developed

¹ A comprehensive survey of the literature on the economics of informality can be found in Elgin and Erturk (2019) and Lopez-Martin (2019).

world. For instance, the informal economy in India provides more than 90 percent of the labor force (Regel & Pilz, 2019), and it came to prominence particularly after India's liberalization (Kerswell & Pratap, 2019). Islam and Alam (2019) have noted that the rate of employment creation by the informal sector in South-Asian developing countries is higher than the rest of the world.² A study by Okungu and McIntyre (2019) reveals that the informal sector of Kenya is estimated to be around 80 percent of the total workforce.

Let us be more specific by emphasizing only on the economy of Pakistan. Pakistan Economic Survey (2014-15) [henceforth PES] reports that the economy of Pakistan is one of the most populous economies of the world and that the population dynamics and trends also significantly influences growth and development in the country. In addition, as the urban population is increasing drastically, it has also been observed as an urbanizing country. According to PES (2015-16), in 2014, the population in rural and urban areas was observed to be 60.8 and 39.2 percent respectively. The rural population migrates to the cities because of little work opportunities in the agriculture sector in rural areas. Both the formal and informal sectors absorb this increasing urban population and play a dynamic role in the efficient performance of the economy. In this regard, these growing cities have been observed as centers of growth.

Economic growth has been observed as a flourishing indicator in the Pakistan economy during the year 2014-15. Both the commodity producing sector and services sectors performed better, compared to the previous year. Estimates indicate that the level of GDP growth remained at 4.24 percent during 2014-15. Agricultural, industry and services sector posted growth of 2.9, 3.6 and 5.0 percent respectively. However, as stated by PES (2015-16) statistics, the performance of large scale manufacturing sector has not been observed to be better in the current year 2015-16. The textile sector also influenced growth. Better growth has been seen too in construction related industry which shows a better picture of construction activities in the country. The wholesale and retail sectors are found to grow respectively at a rate of 3.4 percent in the current year. This sector depends on the agricultural and industrial sector output and imports.

² A few recent studies on the topic in question that effectively highlight the South-Asian perspective are Farooq et al. (2019); Rahman and Al-Hasan (2019); Sarkar (2019).

Despite a rapid growth of GDP, formal employment opportunities have been inadequate to absorb the rapidly growing labor force of Pakistan. Hence, a large proportion of the labor force is absorbed into the informal sector for employment (PES, 2015-16). The figures of the growth in the formal and informal sectors are valuable in formulating policies concerning employment, human resource development, and growth. Both sectors are regarded an important part of the economy. As Hull (2009) and Goel and Rehman (2019) reported, these sectors of employment help in job creation, production and income generation in the economy. These sectors have the propensity to employ a greater proportion of the growing labor force in both the urban and rural areas of countries having high population growth rates.

Table 1. Shares of the Formal and Informal Sectors in the Economy of Pakistan						
Sector	2012-13			2013-14		
	Total	Male	Female	Total	Male	Female
Formal	26.4	26.2	28.3	26.4	26.3	27.0
Informal	73.6	73.8	71.7	73.6	73.7	73.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
*Source: Pakistan Economic Survey: 2014-15.						

According to Pakistan Labour Force Survey (2013-14), the share of the informal sector is about seventy-three percent (73.6%) of non-agricultural employment, more in rural (76.7%) as compared to in urban areas (70.6%). Contrarily, formal sector activities are determined more in urban areas (29.4%) as compared to rural areas (23.3%). It is observed that the share of females in comparison with males is more noticeable in urban formal (32.9%) and rural informal (78.8%). Although, the proportion of males are more marked in rural formal (23.6%) and urban informal (71.1%). The relative shares of formal and informal sector levels remained the same during the period 2012-14 (Pakistan Labour Force Survey, 2013-14). We also summarize some relevant statistics from PES (2014-15) in Table 1.

According to Wamuthenya (2010), the informal sector consists of wage-workers, own-account-workers, employers and unpaid family workers because these workers are participating in small-scale economic activities. In this way, they create employment and generate income. According to the World Economic Forum's Global Agenda Council on

Employment (2014), various levels of education determine the employment decisions. Highly educated workers prefer to participate in formal employment and workers with low-quality education participate in informal work activities.

The topic in question has regained momentum recently. A series of the most recent studies (e.g., Basu, 2019; Coetzer, 2019; Charmes, 2019; Hammer, 2019) demonstrate the significance of the studied topic in the context of developing as well as developed countries. For instance, Gutierrez et al. (2019) highlighted the transitions between informal and formal employment in Bangladesh by utilizing some retrospective job histories from a newly conducted survey. Julià et al. (2019) have estimated the prevalence of informal workers and their working conditions and employment instability particularly by focusing on EU-27 countries. Seetharaman et al. (2019) have studied the dynamics of informal sector with reference to the special context of IT sector. Flórez (2019) has utilized a search and matching model to evaluate the efficiency in an economy with a larger informal sector, and concluded that the market solution to an economy with a larger informal sector is efficient.

Based on the discussions above, we attempt to highlight the factors that determine not only the employment in these sectors but also signify an influence on the economy of Pakistan. To achieve this objective, a household survey is conducted in the urban areas of Lahore (Punjab). We attempt to reveal the share of both sectors in the employment creation and income generation process of the labor market of Lahore. Another objective is to highlight the consequences of socio-economic and human capital variables on the employment decision of the workers of the sectors in question.

This article is structured as follows. The next section outlines the relevant literature concerning the determinants and dynamics of the urban informal sector. This is followed by another section which highlights the theoretical background, data and methodology. The second to last section is reserved for presentation of empirical results and their discussion. The last section concludes this article and gives a few policy implications.

2. LITERATURE REVIEW

The existing literature from the last 4 decades on the topic of informal and formal sectors and factors having an impact on its employment can be divided into two major domains. Firstly, the literature relevant to defining and differentiating the formal and informal employment sectors. Secondly, the literature based on the empirical analysis of the determinants of employment in these sectors. We briefly review and examine the prominent literature featuring both domains below.

The majority of economists describe the urban informal sector in slightly different ways. However, they are agreed upon the definition that all private sector enterprises officially documented, supported and controlled by the state are considered as the formal sector. Contrarily, the informal sector is characterized by individuals and enterprises that operate outside the documented system to earn typical ‘benefits’ and avoid regulations of the governments. Kozel and Alderman (1990) define the labor force activities in household enterprises engaged in the production of goods consumed at home, and describe these activities as fully productive and comprised of the primary part of the economy.

The 17th International Conference of Labor Statistics (2003) defines the informal sector employment or households in the following categories of jobs.

- i. Own-account workers working at owned informal sector enterprises;
- ii. Employers engaged in informal sector enterprises that they own;
- iii. Participating family workers (no matter their work domain);
- iv. Members of informal producers’ cooperatives;
- v. Workers ‘informally’ employed either in informal or in the formal sector;
- vi. Own-account workers producing goods for personal households.

Burki and Abbas (1991) measured the urban informal sector of Pakistan with respect to the size of enterprises and added unregistered firms and firms that hire 10 or fewer workers into this category. Apprentices and entrepreneurs were both included in the urban informal sector. Swaminathan (1991) incorporated unregistered and unlicensed establishments of enterprises or production units in the informal sector, and considered

those enterprises as the part of this sector that have an unregulated status. The author emphasizes that the employment in the informal sector is not conditioned by regulations (i.e., any contract) and workers do not access formal employment (i.e., fixed wages and employment security).

Henley et al. (2009) defined the employment in this sector as the workers and standalone enterprises without considering the size, where the number of employees remains in a single digit zone (i.e., fewer than 10 workers). Thus, an informal sector counts all household enterprises managed by their own accounts and workers and employers with fewer than 10 individuals involved in the production of activities. The agricultural sector and non-market production are the exceptions.

From the discussions above, we can argue that small-scale units that produce goods and services, primarily aiming at income and employment generations, and not having an intention of tax payment evasion can be regarded as the informal sector. All small-scale activities that are usually semi-organized and unregulated and use small and straightforward technology are regarded as informal. The informal sector also covers self-employed persons or employers of a few workers and unpaid family workers. This sector is comprised of unregistered employees, independent persons, and unpaid family workers. Other than this, main elements are the employers who hire less than five workers and do not pay any social security contribution.³

By using data from National Urban Employment Survey, Maloney (1999) worked on informality segmentation in the urban labor market in Mexico and estimated the earning differentials. The multinomial logit (MNL) results indicated a relationship between the formal and the informal sectors. The findings showed that the workers are involved in this sector because of inadequacies and low productivity levels of the labor in developing countries. The study concluded that the mobility from formal to informal and earnings differentials reveal the participants' inclination to work in the informal sector.

By using the multinomial regression approach, Roberts (2001) examined the factors that determine the job choice of rural-urban migrants. His findings indicated that personal and social characteristics and village-based networks motivate the migrants into

³ For a detailed survey, Jonasson (2011). The most recent attempts on the subject in question are Goel and Rehman (2019) and Tansel et al. (2019).

specific occupations and destinations. The results also revealed that illiterate migrants are engaged in the farming sector while their contribution is less in the construction sector. He sums up that the level of education and province of origin determine the job choice significantly. Rajjman (2001) conducted a survey to examine the motives and business intention of immigrants during 1994. The author used the logistic regression technique, and results showed that the business intent of immigrants is affected by their socio-economic choices. The study suggested that the policies to enhance public business must take into account both financial and non-financial factors.

Gallaway and Bernasek (2002) analyzed the factors that determine the trend of participation in the labor force of the formal and informal sector. The data for the study were taken from the Family Life Survey of 1993 (IFLS) in Indonesia. A MNL model was utilized for analysis, and the results revealed that low-aged females were employed more in the informal sector. It was also found that age influences the informal subsistence sector positively. Persons having higher education were more likely to be engaged in salaried or formal sector employment. On the other hand, the informal sector workers were found to be low educated. The results also revealed that women with low education earn little and work as part of domestic labor while having young children.

Reddy (2003) examined aspects of the urban informal sector by utilizing primary data from three different urban areas. The percentage distribution and factor analysis techniques were used. The share of informal employment was found to be very high, compared to some big cities in other developing countries. The results also revealed that informal sector activities require relatively long working days and weeks. Also, workers do not get benefit from credit facilities and have no contact with the national and municipal laws and regulations which rule the conduct of business in the country in question. The study proposed a major national level survey of the informal sector so as to formulate appropriate policies.

Blanchflower (2004) examined self-employment by using secondary data as well as the world values surveys. The probit model technique results highlight that men and older workers were more likely to be self-employed across the OECD countries rather younger workers. His findings also revealed that the probability of working in an

informal employment are lower in Europe compared to the United States. The study concludes that self-employment is lower in OECD countries compared to the other 80 countries. Pratap and Quintin (2006) used household survey data over the period 1993-95 and examined the division of the labor market in developing countries. Parametric tests were used to establish the association between the individual socio-economic variables and the informal sector. The study results showed that the formal sector wages were higher than the wages in the informal sector.

Mitra (2008) emphasized on the role of networks in gaining jobs in the urban labor market. The author used primary survey data, and presented the findings by utilizing the binomial logit model. The results showed that a bulk of workers were working in the urban informal employment with the help of different informal networks of information flows. Again, Bauder (2008) worked on the immigrants' decision to become self-employed. For this purpose, he collected primary data from a household survey in Canada. The ordinal logistic regression results showed that the origin and upbringing of immigrants have a positive influence on the wish to be self-employed. The ratio of female self-employed workers was found to be very low. Another inference was also drawn by Qui and Hudson (2010). According to them, the urban or rural background actually determines entrepreneurship drive compared to the ethnic origin of a worker. They also analyzed the private returns to education in China and indicated that there is a perceptible increase in rates of return to education, especially during the period 1997-2000. In their opinion, the returns to education depends mostly on gender and typical sectors of employment, and the level of education helps in reducing the gap in earnings.

Most recently, Windebank and Horodnic (2016) provided a policy approach for France and presented a strategy to deal with the informal sector and its employment. They tested the hypothesis that the participation in informal employment becomes greater if there exists an extended social contract between the state and its citizens. They analyze the data obtained from a sample of 1,027 interviews conducted in 2013. These face-to-face interviews were part of a special euro barometer survey. They reported that the above mentioned social contract between the state and its citizens is the weakest amongst men in comparison with their counterpart gender. They provided evidence that single and

divorced people and those living in rural areas are more engaged in informal sector employment in France.

Tansel and Acar (2016) investigated the topic in question for the Turkish labor market by using the formal/informal employment earning differentials through an investigation of the earnings of the employees of formal and informal sectors. The OLS and quantile regression methodologies were used to present evidence of the presence of an informal sector penalty. In addition, they posited that the observable factors can explain only half of the penalties found in the informal sector of Turkey. They also revealed that the employees in the formal sector get significantly higher wages compared to their informal counterparts. In the Turkish labor market, contrary to the existing literature, they found that self-employment corresponds to the lower-tier, and observable and unobserved individual characteristics explain the pay differentials between the two sectors. They concluded that the informal sector employment penalty persisted in the male sample, and along the earning distribution, wage differentials were not found to be uniform.

On the basis of literature on both prominent domains that have been reviewed in this section, we are now positioned to proceed with our empirical analysis based on the determinants drawn from the theory and the econometric approach used by the existing literature.

3. RESEARCH METHODOLOGY

3.1. Theoretical Background

Based on Becker (1965), the standard neoclassical microeconomic framework is hereby utilized to identify the determinants of employment in the formal and informal sector. The neoclassical microeconomic model is built on the choice and decision of participating in working and allocation of hours worked and is widely applied (for instance, in finding the solution to the research questions of labor supply).⁴ Within this framework, the decision to supply labor or not depends on the choices of a rational individual that depends on the utility maximization behavior.

⁴ For a detail on assumptions and limitations of the underlying theory, see Wamuthenya (2010) and Bolang and Osumanu (2019).

In our context, how a factor exerts its influence on the choice of an individual relies on how it impacts the employment decision, which is mainly determined by the wages. The factors that can increase (or vice versa) the opportunity to be hired or getting employment (that is, in another way, whether to supply the labor to market or not) in the formal or informal sector could be mainly education, age, gender, marital status, parents' educational background, family set-up, assets, and the number of dependents on an individual. These factors can alter the preferences or choice of workers and the labor supply. For example, education is relevant to the skills acquired by the individuals, experience is associated with age, and marital status and number of dependents can change the working hours of an individual, and eventually, his/her choice to be employed either in the formal or informal sector. To sum up, as outlined by the neoclassical framework, the labor supply decision of an individual is determined by two chief reasons. Firstly, his/her willingness to work in a specific sector and, secondly, by a combination of factors mentioned in the previous paragraph.

3.2. Methodology

A direct extension of the binary logit model for analysis (in our case, for instance, the employment situation in the formal and informal sectors) with various unordered forms is the multinomial logit model. The MNL model is preferred since the choice of employment in considered sectors does not depend on any sequence or order but rather on the preferences of the worker. For example, workers can join the informal sector initially while waiting for a job in the formal sector. The reverse can also happen if somebody wants to run his or her own business in replacement of the ongoing desk job. Therefore, we argue that the preference of working in the formal or informal sector does not follow any specific pattern or order. Hence, in accordance with Wamuthenya (2010), the choice of the method for the analysis of the data is justified.

In agreement with Maloney (1999), Gallaway and Bernasek (2002) and Gutierrez et al. (2019), the MNL model, by including important determinants suggested by the theory, is utilized to check the influence of socio-economic variables on these workers' participation decision. An analysis of the variables is made to look at their influence on the probability of the workers in the informal sector, formal sector, and the unemployed

workers. The individuals are organized into three labor force categories, formal (public and private formal sector), informal sector, and unemployed. The sector of employment is categorized into two values, $j = 1, 2$ and is defined as follows:

$Y_i = 1$ if an individual is working in the formal sector

$Y_i = 2$ if an individual is employed/works in the informal sector

$Y_i = 0$ if an individual is unemployed

The model is drawn as the follows:

$$Probability(Y_i = j) = \frac{e^{\beta_j X_i}}{\sum_{m=1}^J e^{\beta_m X_i}} \quad \dots \dots (1)$$

Where $i = 1 \dots N$; $j = 1 \dots J$.

Where N = Sample size,

J = Number of sector groups

X_i = The vector of exogenous variables that affects employment in each sector.

3.2.1. Model specifications

On the basis of Equation (1), we present 4 different specifications (i.e., 2 for each sector) to analyze the potential determinants of employment in the formal and informal sectors of Pakistan:

A. The formal sector employment

$$FSE_1 = \alpha_0 + \alpha_1 ED_{bm} + \alpha_2 ED_{ml} + \alpha_3 ED_{am} + \alpha_4 AGE + \alpha_5 GDR + \alpha_6 MRS + \alpha_7 ED_f + \alpha_8 ED_m + \alpha_9 NDP + \alpha_{10} FSP + \alpha_{11} PASTS + \mu_i \dots \dots (FS - 1)$$

$$FSE_2 = \beta_0 + \beta_1 ED_{cy} + \beta_2 AGE + \beta_3 GDR + \beta_4 MRS + \beta_5 ED_f + \beta_6 ED_m + \beta_7 NDP + \beta_8 FSP + \beta_9 PASTS + \mu_i \dots \dots (FS - 2)$$

B. The informal sector employment

$$ISE_1 = \alpha_0 + \alpha_1 ED_{bm} + \alpha_2 ED_{ml} + \alpha_3 ED_{am} + \alpha_4 AGE + \alpha_5 GDR + \alpha_6 MRS + \alpha_7 ED_f + \alpha_8 ED_m + \alpha_9 NDP + \alpha_{10} FSP + \alpha_{11} PASTS + \mu_i \dots \dots (IS - 3)$$

$$ISE_2 = \beta_0 + \beta_1 ED_{cy} + \beta_2 AGE + \beta_3 GDR + \beta_4 MRS + \beta_5 ED_f + \beta_6 ED_m + \beta_7 NDP + \beta_8 FSP + \beta_9 PASTS + \mu_i \dots \dots (IS - 4)$$

Where

FSE = Dependent variable in=FS-1 and FS-2 representing the formal sector employment

ISE = Dependent variable in=IS-3 and IS-4 representing the informal sector employment

ED_{bm} = Below matric level education (yes=1, no=0)

ED_{mi} = Matric level education (yes=1, no= 0)

ED_{am} = Above matric level education (yes=1, no=0)

ED_{cy} = Completed years of education

ED_f = Father's education (yes=1, no=0)

ED_m = Mother's education (yes=1, no=0)

AGE = Age of the participant

GDR = Gender of the participant (y=1 if male, otherwise, 0)

MRS = Marital status (=1 if married, 0 = otherwise)

NDP = Number of dependents

FSP = Family set-up (= 1 if joint, 0 = otherwise)

PASTS = Presence of asset (yes = 1, no = 0)

μ_i = Error term

In this study, the dependent variable has two outcomes, and average marginal effects are developed by the MNL model of being in each of the two outcomes. The independent variables include personal and household characteristics of the workers. The workers have two choices such as either to participate in the formal sector or to be involved in informal sector work. The explanatory variables are education in complete years, different levels of education, gender, marital status, and parents' education, the number of dependents, the family set up and the presence of assets.

3.3. Data

We have conducted a household survey in the urban areas of the district Lahore to collect primary data from a sample comprised of 309 participants in the urban formal and informal sectors; and unemployed workers in urban parts. Since the urban areas absorb the majority of informal workers, a comprehensive questionnaire and interviews have been conducted in these areas. In doing so, we have exercised the simple random sampling and stratified sampling techniques. A special effort has been put to obtain useful information from the maximum workers of Lahore district. However, due to certain social and economic constraints, it is not possible to collect data also from other urbanized areas such as Faisalabad, Karachi, and Peshawar.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

This study is built on statistical analysis along with an empirical examination of the factors affecting workers engaged in the urban informal and formal sector of Lahore

by utilizing the MNL model (1). Table 2 reports the basic descriptive statistics of all considered explanatory variables which affect both the formal as well as the informal sector in urban areas of the district Lahore.

The average age of the informal and formal workers is found to be around 34 and 45 years respectively. Most of the workers in the informal sector possess lower level education compared to their counterpart in the formal sector. According to gender, most of the males work in the informal sector and the mean value of married workers is 81%. The majority of workers in the formal sector in our sample have parents who are educated. On the other hand, majority of workers in the informal sector have less educated parents. The number of workers belonging to the joint family set-up is 65%. Majority of the workers own personal assets also.

Table 2. Descriptive Statistics								
(1)	(2)				(3)			
	Formal Sector Employment (FSE)				Informal Sector Employment (ISE)			
Variables	Mean	St. Dev.	Min.	Max.	Mean	St. Dev.	Min.	Max.
ED_{bm}	0.05	0.21	0	1	0.26	0.44	0	1
ED_{mi}	0.12	0.32	0	1	0.33	0.47	0	1
ED_{am}	0.81	0.40	0	1	0.17	0.37	0	1
ED_{cy}	12.96	3.27	0	16	7.09	4.64	0	16
ILLIT	0.03	0.17	0	1	0.25	0.44	0	1
AGE	45	12.52	22	64	33.99	10.50	18	64
GDR	0.84	0.38	0	1	0.88	0.33	0	1
MRS	0.90	0.31	0	1	0.81	0.39	0	1
FED	0.65	0.48	0	1	0.24	0.45	0	1
MED	0.40	0.49	0	1	0.12	0.32	0	1
NDP	3.04	2.24	0	11	2.86	1.72	0	8
FSP	0.54	0.50	0	1	0.65	0.48	0	1
PASTS	0.71	0.46	0	1	0.44	0.50	0	1
Note: Table 2 reports the descriptive statistics of all considered explanatory factors. Mean, St. Dev., Min. and Max. denote the average, standard deviation, minimum and maximum values of each variable. Column 1 describes the names of variables defined in the Methodology section. All presented values have been rounded to two decimal points.								

A significant difference can be observed with respect to the average value of ED_{bm} , which are 0.05 and 0.26 in FSE and ISE groups respectively. Another significant difference is found in the mean values of ED_{am} (i.e., 0.81 in FSE and 0.17 in ISE) variables. This difference shows that the formal sector working group mainly

belongs to the educated class. Whereas, the opposite applies to the informal working class of Lahore. A considerable differences can also be found in the educational background of the parents of the two groups in question. Also, the FSE class owns more personal assets as compared to the other. The descriptive data provides important insights to reveal that the FSE group belongs to relatively more established and educated class of the urban sector. We shall also verify these insights by an econometric analysis of the data and present the results in the next subsection. No great difference is found in dispersion and minimum and maximum values of both the groups.

4.2. Empirical Results and Discussion

The MNL model estimates regarding the informal and formal sector employment in Lahore are presented in Table 3. These are complemented by the post-estimation diagnostic and specification checks. The major columns (B) and (C) describe the findings with respect to FSE and ISE groups respectively. The sub-columns (2, 3, 4 and 5) represent the specifications of respective models specified as Equations 2-5 in the methodology section. The coefficients are rounded up to 3 decimal points. For the sake of clarity, in the column (A) and here also, we present a full description of each considered variable. To conserve our space, we elaborate and discuss only the significant variables and their coefficients. The signs of majority of the coefficient estimates are according to the underlying theory. The magnitude is also in line with the earlier literature on the topic.

The factor ‘above matric level education’ has a significant positive impact on the employment of formal sector workers with a considerable magnitude of around 0.25 (as compared to -0.34 of the ISE group). We can interpret this coefficient as follows: if the individual acquires an additional year of higher education, it positively and significantly impacts the employment ratio of the FSE group with 0.25 basis points. The opposite impact can be observed in the ISE group. An additional year of higher education reduces the level of employment in the informal sector by 0.34 basis points. The result implies that workers having high-level education are less willing to work as informal workers. On the basis of these estimates, we can economically argue that increase in the higher education of an individual can positively influence their decision to join formal sector

employment. In doing so, he/she tends to change the dynamics of the sectoral shares of both groups. This result is consistent with the findings of Gallaway and Bernasek (2002) and Adda and Corcoran-Nantes (2019). The coefficients of ED_{cy} in FS-2 and IS-4 demonstrate a positive and significant relationship with FSE and ISE to signify the positive impact of education on the determination of employment in both sectors.

The study results unveil that AGE has a direct and substantial effect on formal sector employment. The positive coefficients indicate that workers with primary education are engaged in the informal sector. The knowledgeable and qualified participants work on a permanent basis, and with increasing age, the working capacity of old age people tend to reduce in the informal sector. It can also be observed that workers in their early age prefer to work in the informal sector.

Table 3. Average Marginal Effects of Formal and Informal Sector Workers				
(A)	(B)		(C)	
	Formal Sector Workers		Informal Sector Workers	
(1)	(2)	(3)	(4)	(5)
Dependent variables	FSE_1	FSE_2	ISE_1	ISE_2
Variables	(FS-1)	(FS-2)	(IS-3)	(IS-4)
ED_{bm}	0.004 (-0.14)	--	-0.0301 (-0.49)	--
ED_{ml}	0.038 (0.51)	--	-0.021 (0.06)	--
ED_{am}	0.248** (1.93)	--	-0.342*** (-2.72)	--
ED_{cy}	--	0.035*** (3.84)	--	0.036*** (-2.09)
AGE	0.007** (2.09)	0.006** (1.65)	-0.010** (-2.26)	-0.009** (-2.13)
GDR	-0.011 (0.65)	0.023 (1.34)	0.083 (1.55)	0.065** (1.71)
MRS	-0.017 (1.46)	0.013** (1.99)	0.197*** (3.34)	0.170*** (3.28)
ED_f	0.028 (0.50)	0.038 (0.56)	-0.021 (-0.02)	-0.041 (-0.23)
ED_m	0.106* (1.73)	0.104* (1.65)	-0.074 (0.04)	-0.078 (0.03)
NDP	0.010** (2.08)	0.013** (2.36)	0.025** (2.29)	0.022** (2.25)
FSP	-0.0452 (-1.24)	-0.0417 (-1.07)	0.0101 (-0.53)	0.0149 (-0.39)

PASTS	0.078*** (3.70)	0.069*** (3.59)	0.110* (3.45)	0.117*** (3.46)
Pseudo R^2	0.31	0.29	0.31	0.29
Observations	309	309	309	309
Note: Table 3 presents the average marginal effects of formal and informal sectors in Lahore. FSE_1 , FSE_2 , ISE_1 and ISE_2 are dependent variables in all 4 regressions respectively. All regressions are estimated by the Probit regression technique. Z-values are in parenthesis, and *, ** and *** signify 1%, 5% and 10% levels of significance.				

The positive signs of MRS in FS-2, IS-3, and IS-4 demonstrate that marital status has a significant impact on employment in both models. However, the magnitude in ISE specification is greater compared to FS-2. This outcome shows that the married class of our participants tend to and are more willing to work in the informal sector by almost 0.16-0.18 more basis points than those of the formal sector group. The economic argument behind the result is that low-educated-married workers are more inclined to work in the urban informal sector to fulfill their basic needs.

The variable GDR is positively and significantly associated with the level of employment in IS-4 of the informal sector, with the coefficient having a small size. It can be concluded that more male workers participate in the urban informal sector to fulfill the financial needs of their families. Theoretically, workers having educated parents are more likely to work in the formal sector. This is also verified by our results in FS-1 and FS-2. The coefficient of MED (i.e., around 0.10 in both specifications) is positive and statistically significant. This can be interpreted as follows; an additional year of education of the mother of an individual worker causes the employment earning ability of that individual to increase by around 0.10 basis points in the formal sector.

According to the existing literature, the number of dependents of an individual worker affects acquiring employment in both sectors positively. The estimated coefficients indicate a positive impact of increased number of dependents on the employment opportunities of the individuals. The finding is in line with Hayami et al. (2003) and Kurosaki (2019). The workers, because of their families' financial pressure, tend to participate more in both formal and informal sector employment. The economic justification of this finding is that if the number of dependents of a worker increases, his/her preference for work over leisure also increases significantly. Lastly, the findings

for PASTS reveal that the coefficients of the presence of assets are positively and significantly associated with the FSE and ISE in all regressions. The magnitude of the coefficients in IS-3 and IS-4 are greater than those of FS-1 and FS-2. We can argue that effects of the presence of the assets owned by the workers tend to affect informal sector employment more.

On the basis of the empirical findings presented and discussed above, we can summarize that the urban sectors of formal and informal employment of Lahore (Pakistan) are mostly determined by the level of education (especially higher studies), age (experience) of the individuals, marital status, parents' educational background, number of dependents and the presence of assets. The noteworthy point is that these factors have more robust effects in the determination of employment in the informal sector. The only exception is that the factor age affects both sectors differently. For the older people, the opportunities for the informal sector workers tend to decrease. The opposite applies for workers in the urban formal sector of Pakistan. In accordance with Fields (2019), this study suggests that the government should support self-employment as a means of creating livelihood opportunities especially for the informal sector employees.

5. CONCLUSION

The existing literature on the formal and informal sectors of economies tells that, in developing countries, the livelihood of a larger share of the population is contingent on the informal economy. They earn either from operating small autonomous enterprises or from their businesses on the streets. They transport people and goods by motorbikes and may also sell cooked food from kiosks. The other forms of the informal sector employment could also be repair of bikes, shoes, stitching of clothes, or building of dwellings. They deliver various personal services such as hairdressing, shoe repairing, and cleaning of houses. Their operative efforts for earning are usually without safety legislations and provision of social security. Also, their earnings remain below those obtained from the formal employment. The scenario regarding the formal sectors is almost opposite the situation obtainable the informal sector.

On the basis of primary data obtained from the workers of formal and informal

urban sectors, this study reports the determinants of the employment of these sectors in Pakistan by focusing on the most urbanized district of Punjab (i.e., Lahore). As both labor markets are necessary to absorb the labor force in Pakistan economy, the findings highlight that age, higher education, the number of dependents and the presence of assets have a meaningful impact on the formal and informal sector employment situation in Lahore. In addition, the study points out that more workers with a 'married' status are employed in the urban informal labor market of district Lahore. The urban areas are the centers of growth for married workers. The results also show that highly educated workers prefer to join the formal sector. These findings indicate that higher education is important for the labor force and shows that young individuals have a greater possibility of joining the urban formal sector in the considered sample. Workers with educated mothers are less willing to work as informal workers. Employees having their own assets are more ready to work in the urban labor market. Therefore, the potential of these employees for working depends on making sure the importance of financial assets to start a new business.

In the light of reported findings, there is a need to enhance workers' education level in the labor market of the urban areas. For this purpose, more technical institutes should be developed in the urban and rural areas. A policy to reduce the dependency pressure on workers is required. The government should enhance the training and skill development plans of the employees.

A policy to enhance the formal employment opportunities in the urban labor market is seriously required to increase the growth potential of the urban formal and informal sector. In doing so, the government should also provide and improve on existing welfare programs to manage the population growth rate. Government should be committed to reducing unemployment and should increase efforts towards introducing more productive youth schemes.

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