


ORIGINAL ARTICLE**Labor supply and demographics: A case of Pakistan**

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Generally, the labor supply curve oversimplifies the dynamics behind the decision to work. This study is aimed at finding out the cross-section-based determinants of total working hours in Pakistan. The analysis is carried out by using microdata from Labor Force Survey (2010–2011). The data showed that there is a significant share of people who are working for less than 35 hours a week, between 35 and 48 hours a week, and more than 48 hours a week. There is a need to explore the determinants of work hours, because in Pakistan there are 11.9% people who are underemployed and 40.2% people who are overemployed. The econometric analyses described the determinants of total working hours by personal factors (age, gender, education, and marital status), household characteristics (household size and number of siblings), and regional characteristics (such as province and region). For this purpose, the study uses linear regression analysis. Moreover, one of the main contributions of the study is that empirical studies fail to show due interest in depicting the severity of excessive utilization of human capital for a developing country like Pakistan. The present study fills this gap by presenting a detailed descriptive and econometric analysis of total working hours.

1 | INTRODUCTION

Workers in different countries and different situations set their target to supply working hours differently. These variations exist due to the difference in their socioeconomic attributes and country regulations (Bell & Freeman, 2001). For example, during the 1980s and 1990s, the working hours increased in the United States, the United Kingdom, and Sweden. Some other countries faced a declining trend in the number of working hours during these decades (OECD, 1998). Changes in the working hours are primarily affected by labor unions that play an essential role in bargaining for compensation or conditions with the employers (Millward, Stevens, Smart, & Hawes, 1992; Görg & Strobl, 2003).

Men and women have different preferences regarding the number of working hours and in the case of the United Kingdom, 40% of men and women supply different working hours, while both wish to reduce the working hours (Stewart & Swaffield, 1997). Some studies found the workers have no preference for hours of work; they are flexible in increasing or decreasing work hours based on wages. However, there exist a few workers who are working part-time unable to find full-time work (Cohen, Stier, & Nadiv, 2000; Gerson & Jacobs, 2000).

In a developing country like Pakistan, labor laws provide certain provisions, but still there are gaps. The Constitution of Pakistan also provides provisions for labor rights. Various articles defined in the labor laws include Article 11, prohibition of slavery, forced labor and child labor; Article 17, right to form unions; Article 18, provision to enter into any lawful business or trading activity; Article 25, no gender discrimination; and Article 37(e), provision minimum humane work conditions and maternity benefits for women (International Labor Organization, 1991).¹ The Provincial Employees Social Security Ordinance 1965 (applicable to all provinces except Sindh) and Sindh Employees' Social Security Act 2016 dictate that employers must provide health care facilities, including maternity care, to all the full-time workers under their jurisdiction. Similarly, Minimum Wage Ordinance 1961 (for Islamabad, Balochistan, and Punjab) included the domestic workers also be provided minimum wages similar to other labor; unfortunately, this provision is not enforced in other provinces (Khyber Pakhtunkhwa Minimum Wages Act 2013 or Sindh Minimum Wages Act 2015).² Furthermore, there are many laws available under the umbrella of workers' compensation and sick leave, but they are not enforced uniformly in Pakistan.³ Further benefits that are unfortunately only applicable for the educated and big cities are summarized by SSPTW (2010).

According to the Doing Business (2018) report, Pakistan has progressed in attracting more businesses by making new business easier to enter, reducing the processes in property registration, protecting minority investors and opening up to trade. These changes may lead to an increase in the labor demand in coming years. According to this report, the biggest hurdle is the access to stable electricity, which has hindered the formation of long-term labor contracts. Further, GCI (2018) reports that according to labor market efficiency, Pakistan only ranks 128 out of 137, while for health and primary education, it ranks 129 out of 137, which is a major source of concern.

Based on the regulated working hours in Pakistan, all those persons who are supplying less than 35 hours a week are considered to be underemployed. Underemployment may be because of voluntary or involuntary reasons. In Pakistan, 35–48 working hours per week is considered normal working hours, which is the aggregate of workers' main occupation and any other subsidiary occupation. Those working for more than 48 hours per week are overutilizing their physical or mental capacity.

In the case of developing countries, unemployment is not a sufficient indicator to measure the potential of the nonutilized labor force⁴; furthermore, most of these countries do not provide unemployment benefits (Robinson, 1937). Because of lack of job opportunities, people have started engaging themselves in such employment where they do not work full time, do not use their potential and skills fully, and cannot earn enough income for a decent living (Arndt & Sundrum, 1980), and they may end up being poor (Brown, Sessions, & Watson, 2007; Sackey & Osei, 2006).

Participation of females in the labour force is increasing day by day. As most of them have household chores to manage, they prefer to work less than 35 hours a week. Some workers professionalize and work for more extended hours, which eventually increase their material well-being (Schor, 1998). An increase in working hours also shows employers' interest in earning more compensation or profits (Schor, 1991). Other contributing factors in the supply of long working hours include job insecurity and weak labour unions (Maume & Bellas, 2001).

High rates of income tax, wage differentials, low GDP rate, and low standard of living also force the workers to supply long working hours in different countries. Females especially face pressure from their families to meet household demand as well as from their workplaces. Nowadays, changing trends also affect their preferences regarding work, as they find it more rewarding than home.

While working long hours can give higher compensation for the workers, a study by Weston, Gray, Qu, and Stanton (2003) in Australia reviewed the implications of long working hours and concluded that long working hours could be disadvantageous for some families, but this cannot be generalized in all the cases. Further, working long hours has no association with better health, as it does not have a significant effect on infant mortality rate in the United States (Mercan, 2017). Moreover, working in excessive of 40 hours a week is linked with hypertension for the people of California (Bakotic & Babic, 2013). The impact of overtime and long working hours on occupational injuries shows a mixed kind of statistics in the case of the United States, as reported by Dembe, Erickson, Delbos, and Banks (2005). It showed that 61% of the high injury hazard rates were high overtime of which schedule has been followed; whereas, this rate is 37% and 23% where working hours is 12 per day and 60 hours per week respectively.

While empirically reviewing the pros and cons of reduction in working hours, a study by Kallis, Kalush, O'Flynn, Rossiter, and Ashford (2013) reports that, in Europe, reduction in working hours may captivate some employment, but this effect mainly lies within the short run. It is debatable in the long run. Man and Ling (2014) stated that it does not change productivity, but another survey-based study by Lai (2011) and Garnero, Kampelmann, Rycx, and La (2014) showed that if overwork is restricted, it can help to increase wage rate as well as reduce the gender wage gap (Landivar, 2015). Moreover, flexible working hours could be beneficial to the quality of people's lives' at the same time (Abid & Barech, 2017; Ahmad, Idris, & Hashim, 2013).

However, people who are in need, feel satisfied or become more motivated with the increase in working hours (Holly & Mohnen, 2012), but there is a need to balance the working hours, as over- or underwork leads to a decrease in subjective well-being (Bakotic & Babic, 2013). However, Stam and Coleman (2010) recommend that Bank of England pay attention to the working hours while setting the monetary policy, as it is directly proportional to the change in demand and output rather than focusing on the level of unemployment. This is due to the fact that firms retain most of the employees during the period of slow growth and output. Further, the capacity of the economy to absorb more working hours is a useful indicator (Walling & Clancy, 2010).

1.1 | Objective of the study

Wilkins (2007) stated that labors who have unwillingly undersupplied labor hours have many consequences, and no doubt highly populated regions like Pakistan must ensure proper policies to help labors avail desired hours of working (Felipe & Hasan, 2006). The issue of working hours is not well researched in Pakistan. Furthermore, the studies on unemployment do not comprehend the present scenario at the individual/household level, as proposed by Clogg and Shockey (1985) and Wilkins (2007). It states that solving the issue of underemployment requires an understanding of individual characteristics. The study aims to fill this gap by setting its objective to explore cross-section-based determinants of supply of labor hours for the case of Pakistan.

The rest of the article is organized as follows. Section 2 contains the literature review regarding the working hours. The data sources and preferred methodology are presented in section 3. Section 4 presents the descriptive analysis. Section 5 includes the interpretation of empirical results, while Section 6 contains the conclusions.

2 | LITERATURE REVIEW

According to supply-side theories, the supply of working hours depends on the preferences, tastes, and other activities of the labor force. According to demand-side theories, job requirements limit workers' preferences, and they are forced to work for longer hours.

According to economic theory, there is a trade-off between work and leisure. Supply of working hours can only increase by reducing the time for leisure activities. When workers get a higher income or paid overtime, then they prefer to work more. Workers are rational decision-makers, so they prefer to supply more hours when the opportunity cost of leisure is too high (Killingsworth, 1993). The workers have a dissatisfied life, supplying long working hours to avoid their family problems. By supplying more hours, they try to refrain from the stressful environment of their home (Hochschild, 1997).

While studying the role of demographic factors on the supply of work hours, studies by Lichter (1988, 1989) prompted that racial difference may explain changes in working hours if they are inter-linked with the differences in the attainment of education. Further, Zhou (1993) studied the minority racial groups. The findings suggested that minority groups provide 40% less working hours. Similar outcomes were proposed in the studies by De Anda and Sboczak (2011) and Meow (1983).

Ruiz-Quintanilla and Claes (1996), Eamets and Ukrainski (2000), and Barrett and Doiron (2001) reasoned education as the primary indicator of the labor employment hours. Julian, Hall, and Yerger (2010) stated that the increase in the education of labors makes labors more useful for the employer. Similarly, if the worker is experienced, his productivity increases, leading him to complete work faster and earn the same amount as compared to an inexperienced worker (Rosen, 1972).

Because with age and after getting married, people have the responsibility of managing the finances of the household, it is expected that they will be willing to provide more working hours (Barrett & Doiron, 2001; Caputo & Cianni, 2001; Julian et al., 2010). This is because middle-aged people have a higher capacity to work. Similarly, females tend to supply fewer hours while males supply more hours for every unit increase in the household size (Angrist & Evans, 1998).

Robinson and Abbasi (1979) studied the undersupply of work hours for the case of Pakistan and suggested that it is mostly concentrated in rural areas. This is because the labor rights regulation is not useful in rural areas. Also, there are fewer permanent job opportunities.

Shahnaz and Khalid (2008) studied the case of Pakistan for 1991–2004, during which the under-employment rate was averaging 1.75%. Flynn (2003) and Shahnaz and Khalid (2008) stated that in Pakistan, females tend to supply fewer hours.

Based on the review of previous studies, there is a dearth of studies that explore the determinants of labor supply for the case of Pakistan. Estimating determinants can help policymakers to optimize it for labor productivity and health simultaneously with the efficient designing of fiscal and monetary policies.

3 | THEORETICAL FRAMEWORK

3.1 | Hypotheses formulation

Some hypotheses were developed by an existing theory, which are mentioned as follows:

H1: With the increase in age, probability of supplying less than 35 hours a week decreases and people prefer to supply more hours.

H2: Females tend to supply less than 35 hours a week.

- H3: Married workers will prefer to supply excessive working hours.
- H4: Persons who are currently enrolled in any institution will supply less working hours.
- H5: Employees and vulnerable employed persons tend to supply excessive working hours than employers.
- H6: People having large household size with more earning members tend to supply fewer hours.
- H7: Persons having a large number of siblings in a household tend to supply excessive working hours.
- H8: Persons living in other provinces other than Punjab work for lesser hours.
- H9: People living in rural areas tend to work less than normal working hours.

3.2 | Empirical model of regression

To analyze the household-based determinants of total working hours, this study has applied a linear regression model. This model will help to empirically investigate the effect of personal, household, and regional characteristics on a worker's underutilization of potential capabilities and abilities. Linear regression is employed by using "ordinary least square" (OLS) method on total working hours (Gujarati, 2014). The form of the linear regression model is as follows:

$$Z_i = f(x_1, x_2, x_3, x_4, x_5, x_6, \dots, x_n) + \varepsilon$$

$$\hat{Z}_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \mu_i$$

where \hat{Z}_i represents the total working hours of a worker; X represents the independent variables, which are personal, household, and regional characteristics of a worker; and β represents the estimated coefficients of all the independent variables.

3.3 | Description variables

The description of dependent and independent dummy and continuous variables of the model is presented in Table 1.

3.4 | Source of data

To achieve the objectives that are mentioned in Section 1.1, the present study used microlevel data of Labor Force Survey of Pakistan (2010–2011). The survey sample size comprises 36,464 households from all over Pakistan. In the present study, after excluding Federally Administered Tribal Areas and restricted military areas, the population of 243,659 of four provinces was considered. From the population of four provinces, the sample of 69,347 employed people was selected for the analysis. The data were explored using Stata version 11.

4 | DESCRIPTIVE ANALYSIS

In this section, descriptive analysis is presented to find the association of personal and regional characteristics of working hours of employed people of Pakistan.

TABLE 1 Description of dependent and independent variables

Dependent variable		Description of dependent variables
Total working hours		Reported working hours per week
Covariates	Subgroups	Description of independent variables
Personal characteristics		
Age		Reported years of age
Experience		Age square of employed people
Gender	Female (ref)	0 = if a worker is female
	Male	1 = if a worker is male
Marital status	Otherwise (ref)	0 = if a worker is otherwise
	Married	1 = if a worker is married
Current enrolment	Currently enrolled (ref)	0 = if a worker is currently enrolled in any educational institution
	Currently not enrolled	1 = if a worker is currently not enrolled
Education level	No education or below primary	0 = otherwise 1 = if a person is illiterate or below primary education level
	Primary but below middle	0 = otherwise 1 = if a person a primary and below middle education level
	Middle but below matric	0 = otherwise 1 = if a person has a middle and below matric education level
	Matric but below intermediate	0 = otherwise 1 = if a person has a matric and below intermediate education level
	Intermediate but below graduation	0 = otherwise 1 = if a person has a matric and below intermediate education level
	Graduation or above (ref)	—
	—	—
Covariates	Subgroups	Description of the variables
Personal characteristics		
Employment status	Employees	0 = if a person is not an employee 1 = if a person is an employee
	Employer	0 = if a person is not an employer 1 = if a person is an employer
	Vulnerable employed (ref)	—
Head of household	No (ref)	0 = if a person is not a head of household
	Yes	1 = if a person is a head of household
Household characteristics		
Household size		Reported household size
Number of siblings		Reported number of siblings
Regional characteristics		
Province	Punjab (ref)	—
	Sindh	0 = if a person does not live in Sindh 1 = if a person lives in Sindh
	KPK*	0 = if a person does not live in KPK

(Continues)

TABLE 1 (Continued)

Covariates	Subgroups	Description of the variables
		1 = if a person lives in KPK
	Balochistan	0 = if a person does not live in Balochistan
		1 = if a person lives in Balochistan
Region	Rural (ref)	0 = if a person lives in a rural region
	Urban	1 = if a person lives in an urban region

* Khayber Pakhtunkhwa.

4.1 | Supply of working hours per week

Overutilization of human abilities and physical capacity is determined by analyzing the supply of working hours of employed persons. It shows the extent of unused labor resources of potential labor supply. This is also influenced by the income of other family members, household activities, and occupation (Robinson & Abbasi, 1979). Table 2 describes the relative frequency of people who are supplying less than 35 hours a week, normal working hours (35–48) and excessive working hours⁵ (greater than 48) in Pakistan. Out of 69,347 employed individuals of all four provinces, only 68,606 persons reported their working hours. The distribution of these persons in the three categories of working hours is as follows:

As Table 2 shows, 40.2% people are supplying greater than 48 hours a week. This large extent of people who are supplying excessive working hours infers overutilization of human resource in Pakistan. It may also depict the pathetic condition of people who need to work very hard to earn a living. This excess supply of working hours may have a severe impact on the mental and physical health and well-being of workers.

4.1.1 | Total working hours and worker age

Age-wise analysis of working hours is quite helpful in finding out the age group that is over- or underutilized. By age, a sample of employed people is divided into four categories.

1. Child (10–14 years)⁶
2. Youth (15–24 years)
3. Prime working age (25–54 years)
4. Aged (older than 54 years)

It is evident from Figure 1 that as age increases, the percentage of people supplying less than 35 hours a week decreases, except for the aged people. According to Employment of Children Act⁷ of 1991, “No child is allowed to work in any factory or mine or any hazardous work”. Figure 1 clearly shows that 54% of children are supplying 35–48 hours a week and 17% are supplying greater

TABLE 2 Distribution of employed persons in total working hours

Working hours	Frequency	Percent
<35	8,183	11.9
35–48	32,842	47.9
>48	27,581	40.2
Total	68,606	100

Source: Calculated from LFS, 2010–2011.

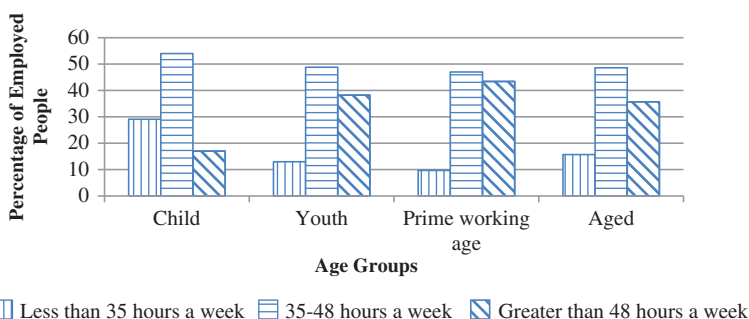


FIGURE 1 Percentage of employed people by different age groups
 Source. Self-calculated from LFS

than 48 hours a week. Aged people should tend to lower their working hours due to their old age, but still, 35.7% are overutilizing their physical or mental capacity.

4.1.2 | Total working hours and gender

An enormous difference exists between males and females about the supply of working hours. A high percentage of women in Pakistan work less than 35 hours a week and a very low percentage of them are supplying greater than 48 hours a week. Those who are supplying excessive working hours may be widows or unmarried females.

For married women, it is hard to supply excessive working hours in Pakistan, as they have responsibilities of child caring and household work. Figure 2 also shows that males are predominant in higher working hours, which can be expected in a country like Pakistan where males have to bear almost all the economic burden of a family. Most of the females work as unpaid family helpers, where they share some of the burdens, to increase savings for plans of children and family, along with managing household activities.

4.1.3 | Total working hours and marital status

Marital status does not affect hours supplied by a worker, as Figure 3 does not show any considerable difference in working hours. The very slight difference is found between percentages of the married workers and the reference group. The reference group includes unmarried, divorced, and widow-employed workers. The highest percentage of married workers and others are supplying 35–48 hours a week. The percentage of married workers supplying excessive working hours is higher than the reference group.

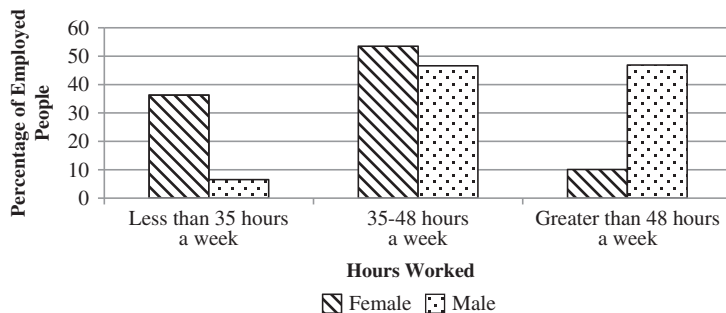


FIGURE 2 Percentage of employed people by gender
 Source. Calculated from LFS, 2010–2011

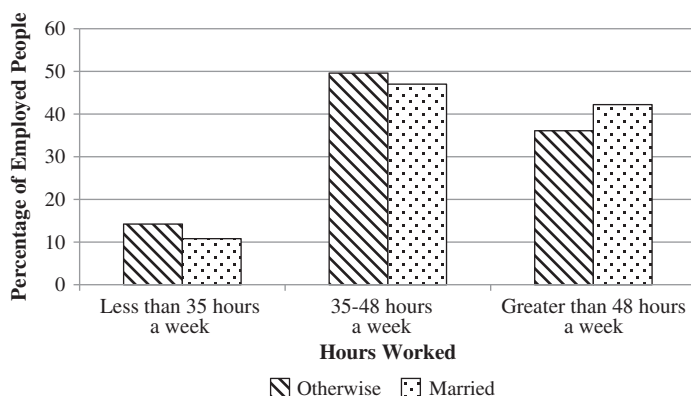


FIGURE 3 Percentage of employed people by marital status

Source. Calculated from LFS, 2010–2011

This shows that some of the married workers need to work very hard to support their family and dependents.

4.1.4 | Total working hours and education enrolment

Some individuals who are enrolled in an educational institute start their career as well. They mostly work part-time, that is, less than 35 hours a week. The percentage of these workers is very high as acquiring an education is a time-taking process. They have to manage work and education side by side. If this education process stops, then the earning potential and productivity of the employed workers will be affected in the later part of life (Beegle, Dehejia, & Gatti, 2004). Only a small percentage of workers who are currently enrolled supply greater than 48 hours. Those who are not enrolled and are supplying less than 35 hours a week could be because of being unable to find a full-time job; otherwise all the workers who are not enrolled supply excessive hours. These people are earning a living by overutilizing their physical capacity because they have not acquired enough education and skills needed for progress and development (Figure 4).

4.1.5 | Total working hours and education level

Based on the data availability, there are several thresholds that can be used to split the educated people into groups such as no education, education till primary, education till middle, education till

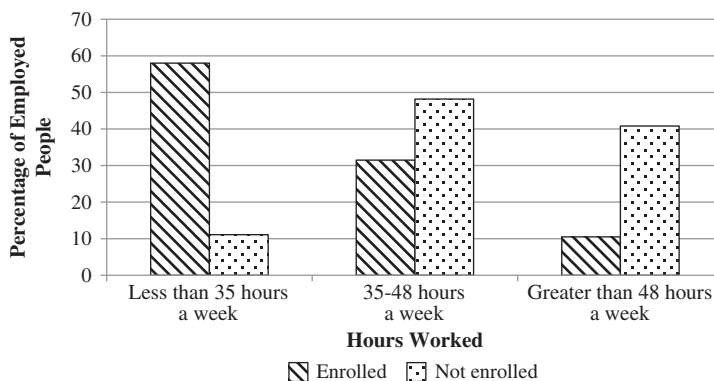


FIGURE 4 Percentage of employed people by current enrolment

Source. Calculated from LFS, 2010–2011

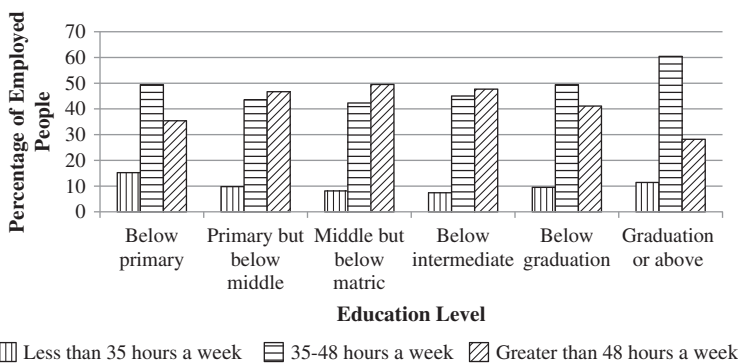


FIGURE 5 Percentage of employed people by education level

Source. Calculated from LFS, 2010–2011

matric, education till intermediate, education till graduation, and above. Figure 5 shows that people with highest education has a higher proportion of full-time workers and the lowest proportion of overtime workers.

4.1.6 | Total working hours and employment status

Job security plays a vital role in how the worker performs. The high rate of vulnerable employed workers in employment indicates their less secure jobs. It depends on the nature of the job to determine the working hours. Biddle and Hamermesh (1990) also found out that self-employed individuals work 17 hours more on average as compared to employees. Figure 6 shows that the percentage of vulnerable employed workers in overtime work is higher than that of the employees with a secure job.

4.1.7 | Total working hours and region

Significant variations are found between rural and urban region in terms of supply of working hours. Here, people, in rural areas are prone to underwork, while people in urban areas are prone to overwork. This may be because of job opportunities in the rural areas and the cost of living in the urban areas (Figure 7).

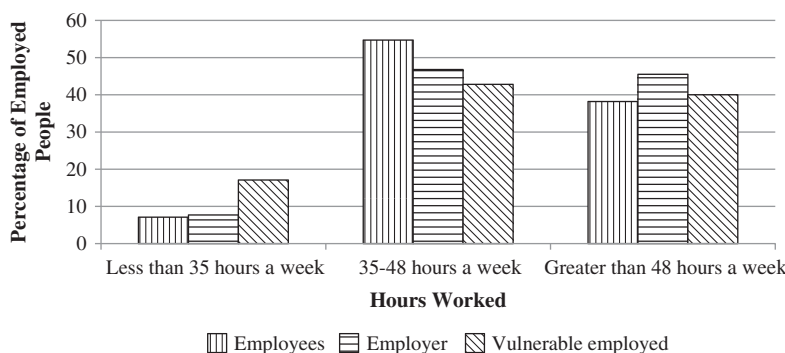


FIGURE 6 Percentage of employed people by employment status

Source. Calculated from LFS, 2010–2011

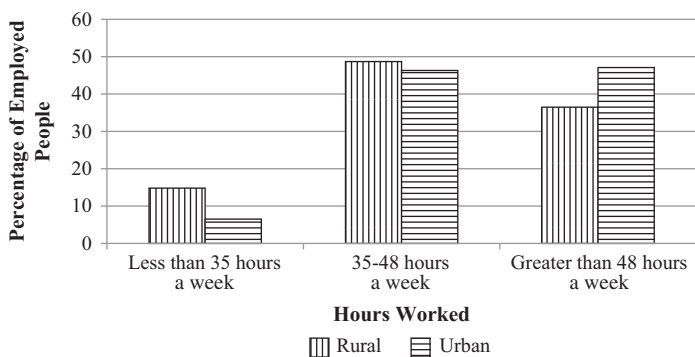


FIGURE 7 Percentage of employed people by region

Source. Calculated from LFS, 2010–2011

4.1.8 | Relationship of total working hours and region

Figure 8 reflects that even though Punjab and Sindh are more developed regions than others, still due to higher cost of living in urban areas, people are forced to work overtime. While the proportion of underemployed worker is highest in KPK, this may be because of the fact the terrain in this region does not allow easy commutation to a better or a full-time job.

5 | EMPIRICAL RESULTS

The study focused on the personal, household, and regional determinants of total working hours; this section provides the results of the estimation model. Table 3 presents the results of a multiple regression model for total working hours that workers supply. The coefficients in the model were estimated by using the OLS method. The population consists of 243,659 individuals from four provinces. The sample of employed persons, comprising 69,347 individuals, was selected from the target population. After that, the sample of employed persons who reported their working hours⁸ was selected. After dropping out missing values, the sample consisted of 67,709 individuals.

The result for the variable age in Table 3 shows that it is positively related to the supply of total working hours. It is estimated that the coefficient is found to be 0.619, which shows that as

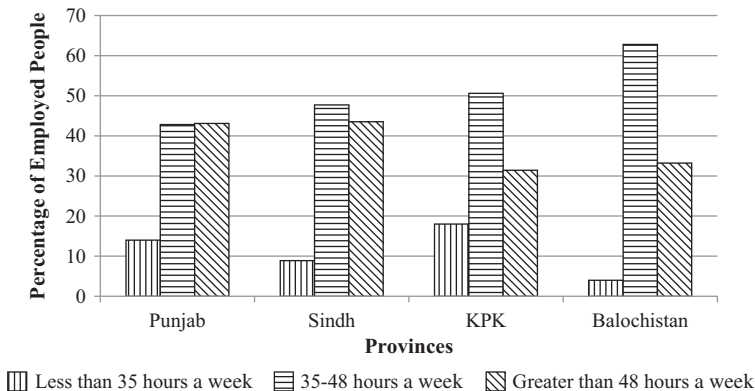


FIGURE 8 Percentage of employed people by provinces

Source. Calculated from LFS, 2010–2011

TABLE 3 Linear regression results of determinants of total working hours

Dependent variable		Description		
Total working hours		Complete working hours per week are taken		
Covariates	Subgroups	Total working hours per week		
		Coefficients	Standard error	t-values
Personal characteristics				
Age		0.619	0.020	30.06*
Experience		-0.008	0.0002	-32.84*
Gender	Female (reference category)			
	Male	14.330	0.129	110.93*
Marital status	Otherwise (ref)			
	Married	0.155	0.143	1.08
Current enrolment	Currently enrolled (ref)			
	Currently not enrolled	13.300	0.366	36.35*
Education level	No education or below primary	4.212	0.187	22.51*
	Primary but below middle	5.140	0.204	25.21*
	Middle but below matric	5.497	0.214	25.68*
	Matric but below intermediate	4.849	0.209	23.23*
	Intermediate but below graduation	3.081	0.253	12.20*
	Graduation or above (ref)			
Employment status	Vulnerable employed (ref)			
	Employees	-0.224	0.104	-2.15**
	Employer	-1.780	0.143	-12.46*
Head of household	No (ref)			
	Yes	-0.637	0.094	-6.80*
Household characteristics				
Household size		-0.159	0.021	-7.54*
Number of siblings		0.127	0.032	3.99*
Regional characteristics				
Province	Punjab (ref)			
	Sindh	-0.863	0.111	-7.76*
	KPK***	-3.948	0.136	-29.04*
	Balochistan	-3.091	0.149	-20.77*
Region	Rural (ref)			
	Urban	2.810	0.104	27.05*
Constant		10.533	0.510	20.67*

Observations = 67,709 ; F Statistic = 1,142.59; $R^2 = 0.2428$; Adjusted $R^2 = 0.2426$.

Note. * indicates significance at 1% level and ** indicates significance at 5% level, *** Khyber Pakhtunkhwa.

age increases, the supply of working hours will also increase, but at a small pace. In case of experience, it is negatively related to the supply of working hours, but its effect is quiet negligible.

Gender also affects the total working hours of a worker. The estimated coefficient for gender is 14.330, which show that males are supplying about 14 hours more as compared to females. This finding was evident as in the traditional society of Pakistan most of the women give preference to their household chores. Those who work also prefer part-time employment especially after getting married. The study of Bender and Skatun (2009) also found the same findings that females desire to work fewer hours due to marriage and children.

The study also found the positive relationship between the total hours of work and current enrollment. The estimated coefficient of current enrollment is 13.300, which shows that a worker who is not currently enrolled works more by approximately 13 hours a week with higher potential as compared to the worker who is currently enrolled in education and training, and the like.

All the categories of education are positively related to the supply of total working hours. The estimated regression coefficients in Table 3 show that an increase in education, supply of working hours is also increasing at first. After that, with a higher level of education, it starts decreasing. This highlights an important fact that after acquiring higher level of education, people need not work for excessive hours. So, they tend to lower their working hours. They can even earn a high amount of income by supplying fewer hours.

The results for the categories of employment status show that as compared to vulnerable employed persons, estimated coefficients of employees and employers are negatively related to total hours of work. This shows that they are supplying fewer hours than vulnerable employed people. The reason behind this finding could be the increased vulnerabilities in the labour market, particularly for women and children. In Pakistan, most of these vulnerable people work more hours and help in running family-owned businesses without any fixed wages and salaries.

The estimated coefficient for the head of household is also negatively related with a supply of total hours of work. This shows that the head of household will supply fewer hours than other persons in the family.

The estimated coefficient of household size is -0.159 , which shows that total hours of work are negatively related to the household size because, as the household size increases, the number of earning members will also increase, which reduces the pressure on the individual to work maximum possible hours to earn its living. In the case of developing countries like Pakistan, people prefer to live in a joint family system where they share the economic burden; that is why with the increase in household size the total number of working hours of an individual tends to decrease.

Results of some siblings are also positively related to total hours of work. The higher the number of siblings, the greater total hours a worker works to support his or her family in order to educate the children and to give them a better living standard. So, a unit increase in the number of siblings will increase the total hours of a worker by 0.127 units.

The variable province shows that estimated coefficients of all four provinces are negatively related to total hours of work. It means that as compared to Punjab, people living in the other three provinces tend to supply fewer hours. This result may be due to less availability of employment opportunities in other provinces than Punjab due to which workers work lesser hours in these provinces.

The geographical factor coefficient of the region shows that workers work more in urban areas by approximately 2 hours as compared to rural areas. This might be due to the availability of greater employment opportunities, increased demand for productive work, and the lavish urban lifestyle.

6 | CONCLUSION AND DISCUSSION

Underemployment defines employment hardship. It represents the situation of partial lack of work due to which people are forced to work in low skill jobs and for shorter hours. The present study used the microlevel data obtained from the Labor Force Survey of Pakistan (2010–2011). The study measured the determinants of total working hours. For this purpose, linear regression is applied using labor employment hours. First, the present study contributes to the previous literature

by determining the percentage of employed workers who are supplying less than 35 hours a week, normal working hours, and excessive working hours by personal and regional characteristics. This showed that there were more than 10% population who were underemployed. Secondly, the study contributes by measuring the determinants of total working hours in Pakistan. From the detailed analysis of total working hours, it is concluded that in Pakistan, 40.2% people are supplying greater than 48 hours a week out of those employed people who reported their working hours. This extent shows the overutilization of human capital in Pakistan. This high proportion of labor who is not working as full employed, led this study to explore the determinants of deviations in labor supply hours for the case of Pakistan.

While discussing the determinants of work hours, age came out to be positively related to the supply of working hours. In Pakistan, as age increases, the responsibilities of maintaining household expenditures and number of dependents increase. Hence, in order to keep up with it, labors become willing to supply more hours. But economic conditions, poverty (Nafeez, Khan, & Fatmi, 2012), and inflation create anomaly of child labor. In rural regions, 13.6% of children are supplying excessive working hours, and in urban region, 37.2% of children are supplying excessive working hours, although this age group is not allowed to work, according to Pakistan Children Act of 1991. The highest percentage of children who are supplying excessive working hours are found in Punjab, which is surprising as this region is considered the most developed. Responding to this, Government of Punjab has committed itself to reduce child labor.⁹

It is worth noting that in almost all the age groups, a high percentage of people are supplying excessive working hours. The effect of the variable experience on any of the outcome variables is almost negligible. It is because of the increase in experience that labor earns higher salary per hour; resultantly it offsets the need of working more hours.

Males are predominant in higher working hours. They are supplying 14 hours more than females do. They are less likely to be working less than 35 hours a week in both regions and all provinces. A high percentage of women are working less than 35 hours a week in Pakistan. This is expected in the social structure of Pakistan, where the responsibility of provision of financial resources is with the males of the family, while females assume responsibility of household chores and child-rearing. Marital status does not affect the hours supplied by a worker, which is evident from the fact that the joint family system is evident in Pakistan. Hence, when a new family member enters the family after marriage, its cost is evenly distributed to all earners of family. As compared to currently enrolled workers, those who are not enrolled in some institution supply approximately 13 hours more. A high percentage of these workers are supplying excessive working hours because they have higher working hours available throughout the day.

The results for the variable education level from illiteracy show that with an increase in education, the supply of working hours will increase, as an individual can tap into better job market opportunities. After that, with a higher level of education, the marginal impact on the increase in working hours tends to diminish, and thus highly educated persons tend to offset higher salary with fewer working hours. As compared to vulnerable employed workers, employees and employers are supplying fewer hours, because there is a higher sense of security in terms of future incomes. A large percentage of vulnerable employed workers supply normal and excessive working hours due to the lack of decent work, bleak job security, and social protection in Pakistan.

Heads of households are supplying fewer hours as compared to the other persons in the family. This evidence can be explained from the fact that for the case of Pakistan, usually the eldest person is appointed as the head of household, who has already passed his or her high productive years. Further, with the increase in household size, total working hours of a worker tend to decrease, because its

burden is shared among other earners. This is common in Pakistan because of joint family system. The number of siblings is positively related to total hours of work. Here the increase in the number of siblings leads to the increase in the potential workers and financial capacity of the household. In all the provinces, the participation of urban people in supplying excessive working hours is much higher than rural employed persons. Workers work more in urban areas for approximately 2 hours to meet the higher expenses.

Overall, in rural areas of all provinces, the percentage of people working less than 35 hours a week is high. As compared to Punjab, people living in other three provinces tend to supply fewer hours; this is evident from the fact that Punjab is considered the most developed region. In Punjab and Sindh, a large percentage of people are supplying normal and excessive working hours. Policy-makers can work on higher job security by improving labor work conditions, insurance, and pension facilities. The youths of Pakistan should be trained with the skills, which is the need of the hour. This will ensure rapid allocation of labor. The current government has committed itself to empower people at the grassroot level, create jobs for the youth, and increase the ease of doing business.¹⁰

Future work research in the case of Pakistan is also crucial so that the recent underemployment in different industrial sectors can also be measured, especially for the sectors in which people are linked to agriculture, fishing, and forestry, because these industries provide substandard work to the people.

ENDNOTES

¹ILO. National Labour Law Profile: Islamic Republic of Pakistan. Available at https://www.ilo.org/ifpdial/information-resources/national-labour-law-profiles/WCMS_158916/lang-en/index.htm.

²Domestic Workers in Pakistan. Available at <https://paycheck.pk/labour-laws/domestic-workers-in-pakistan>.

³Worker Compensation and Sick leave Benefits in Pakistan. Available at <https://paycheck.pk/labour-laws/illness-work/workmen-compensation-and-sickness-benefits-in-pakistan>.

⁴The ambiguity of the indicator of unemployment can be seen from the fact that average unemployment between 1991–2016 period of a developing country like Pakistan is 4.9% while for a developed country like Australia is 6.7% (WDI, 2017).

⁵In factories act of 1934, a worker is not allowed to work in a factory for more than 48 hours in a week. In a seasonal factory, only 50 hours of work in a factory is allowed. For details, see Pakistan Factories Act, 1934 as amended in 1997. Available at: <http://www.ilo.org/dyn/natlex/docs/WEBTEXT/35384/64903/E97PAK01.htm>. (International Labor Organization, 1991, 1997, 2011a, 2011b, 2012).

⁶Children 10–14 years of age have been considered for the analysis as they are a part of working age population of Pakistan. (Government of Pakistan, 2010–2011a, 2010–2011b, 2010–2011c).

⁷For details, see Pakistan Employment Children Act, 1991. Available at: <http://www.ilo.org/dyn/natlex/docs/WEBTEXT/22707/.../E91PAK01.htm>.

⁸People reported their working hours between the range of 1 and 154 hours. These are extreme values due to which the problem of heteroscedasticity comes. To overcome this problem, limit is imposed on total working hours by excluding those people who reported their working hours less than 15 and greater than 120.

⁹Staff Report. (2016). Govt committed to eliminating child labor: CM. Pakistan Today. Available at <https://www.pakistantoday.com.pk/2016/06/13/govt-committed-to-eliminating-child-labour-cm/>.

¹⁰Tracking the promises made by Prime Minister Imran Khan. Available at <https://www.khanmeter.com/>.

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