



## Employment Diversification Patterns in Pakistan: Empirical Assessment Revisited

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### ABSTRACT

*Employment diversification depicts a dynamic socio-economic process where domestic workers widen the range of employment sources. Whereas, the prospect is usually based on a mix of Part-time and Full-time employment. Employment decisions significantly derive from the economic incentives such as wage differentials and the growth rates in different sub-sectors of economic activity. Research at hand summarizes and analyses Employment Diversification Patterns in Pakistan and the motives behind the labor shift. Time series data has been collected from various sources for 1990-2018. The Seemingly unrelated regression model has been applied for empirical estimations. The current analysis of employment pattern diversification concluded that part-time and full-time wages rates have a significant impact on the part and full-time employment in different sub-sectors of economic growth. Variation in wage rates in one sub-sector varies the employment level in different sectors. The estimates elaborated the significant rise in part-time employment these sub-sectors. Moreover, the dynamic interrelation between part-time and full-time employment is examined in the Agriculture, Construction, Electricity, Manufacturing, Wholesale and Retail Trade, Transport, Storage and Communication. These estimates show the quick adjustment of part-time employment within and across the sectors. Policies are needed to enhance labor mobility as one wants to diversify the employment one can do it to enhance the economic productivity.*

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### 1. Introduction

The arrangement of employment in any economy involves many social and economic aspects. These employment patterns are expected to transfer relatively towards the industry and service away

from the basic agriculture economy. Previous decades illustrate some diversification of employment towards the non-agricultural sector in Pakistan (Mottaleb & Ali, 2018). Both macro and micro-level indicators and the proportion of non-agricultural employment influence the decision of adopting a particular kind of employment (Unay-Gailhard & Bojnec, 2019). The diversification of economic activities can occur from a process of investment and the surplus generated from agriculture and non-agriculture employment. The occupational choice consists of several inter-related decisions (Su et al., 2018). The choice to participate in economic activity may involve many activities to undertake and the nature of the economic activities, e.g. agricultural/non-agricultural, self/wage employment, Full-Time/Part-Time employment (Shaheen et al., 2015). To elaborate, the basic choice of whether to participate in economic activity consists of two additional dimensions. The individual chooses the nature of the economic activity - agricultural or non-agricultural. Further, he chooses whether to specialize in one economic activity or diversify into- more than one economic activity (Khan et & Chaudhry, 2019 & Wang & Sun ,2017).

When an agriculture economy diversifies, the workers may rise in status either as self-employed workers when the worker shifting from one lower-paid occupation to another high paid occupation while vice versa indicates the distress. Moreover, occupational choice and employment diversification are complex to identify (Buchenrieder and Mollers, 2006). Economic growth is highly determined by the employment level meaning that the economy is producing more valuable products and services that was not the case before the industrial revolution where the workers had no diversification choices and mainly contribute to meat, textile, and grains (Elewa & Ezzat, 2019).

Labour allocation decisions are driven by economic incentives such as wage differentials, but also non-economic motives may play a decisive role. Research at hand summarizes theoretical insight along with presents incorporated conceptual constructions reflecting the working activities diversification, and labor shift (Chaplin et al. 2007). Möllers (2006) employment diversification is described as a dynamic socio-economic process in which domestic workers widen the range of employment sources in their portfolio. Such diversified prospect is usually based on a mix of farm and non-farm employment. Working activities diversification leads to an augmentation in the number and mix of employment sources. Thus, working activities diversification rise with the number of employment source, the equity of their allocation, and their differences. Mishra and Goodwin (1997) deal specifically with this feature that motivates domestics to become accustomed to their paid work strategies. More commonly, the suffering and demand-pull move toward allocation, with distinguishing two major inspirations of employment diversification; depends on the precise mechanism that, people may be short of diversification by adverse circumstances or pulled by the opportunity in the market of labor and high wage rate in non-farming sectors.

The labor market institutions and the policies are considered as the desired mechanism to stimulate employment generation (Westerhuis and Henrekson, 2016). Whereas the low level of employment indicates the Underutilization of the economic resources and it illustrates the space for labor absorption (Dorn & Hanson, 2019). Furthermore, the high standard of living is associated with the stable employment level that comes from the opportunities that exist in the country and from the diversification of the employment opportunities (Nelen et al., 2013). Hence, the flexibility in the labor market results in growth led the diversification of employment pattern in the workforce (Garcia, 2016; Anxo et al.,2007). Tansel & Acar (2017) examined the impact of labor mobility and economic globalization that is also investigated for Pakistan by (Shah & Soomro, 2017) as well including inclusive growth. This research reconsiders the employment diversification pattern in different sub-sectors contributing to the growth of Pakistan (Anwer, 2017). In the agricultural sector modification of crops

from low to high value and labor-intensive crops can provide a better source of income to the farmers (Abro et al., 2010). The trade sector showed that export diversification switching from low-value-added products to high-value products increased Pakistan's growth performance (Khan et al., 2018). Similarly, the service sector contributes around 54 percent to national output as being the major employment-providing sector (Amir, 2015; Siddiqui et al., 2010).

The labor demand can generate increased geographic and industrial mobility of the labor force (Lilien, 1982; Solon, 1982) coupled with significant costs of information and mobility, these shifts can generate fluctuations in equilibrium employment that are not directly related to fluctuations in aggregate demand. Furthermore, the geographic distribution of employment may be an indication of more fundamental, permanent changes in the composition of labor demand within areas (Imran & Arshad, 2017). Several recent studies have noted that the maintenance and continuous adaptation to diverse employment activities (Ellis, 1998, 2000; Barrett et al, 2001; Reardon et al, 2001; Lanjouw and Lanjouw, 2001; Bhaumik, 2007). Various theories are describing the behavior of employment diversification during cyclical variations (Treadway, 1969). The specific industrial employment diversification is claimed by (Buchenrieder et al. 2004).

Jouili and khemissi (2019) estimates the impact of graduated employment on the economic diversification in Saudi Arabia and come up with the conclusion that employment diversification had a positive impact on graduated students for their job creation. (Xiao et al., 2018; Batool & Jamil, 2019) examined the drivers of industrial diversification. Dey (2018) explained that employment diversification reduces the poverty among the small and marginal landholders that further explained by Mukhtar et al., (2018) by accommodating the impact of rural-urban migration on employment quality and household welfare. Jan et al., (2012) explained the drivers of rural employment diversification in the North region of Pakistan and the Globalization was concluded as the significant factor for economic growth, provides equal opportunities to all the nation and the basis to diversify the choice of work for inclusive growth of a country. Borah (2018) elaborated on the structure of non-farm employment and identify the trend of workers moved from farm to non-farm sector and increased workforce of women due to rise in education moved them to work from primary to other sectors. The impact of education on employment diversification was studied by Reddy (2016) that showed education, employment, and expected wages affect the employment pattern in India and the similar findings are elaborated in Pakistan by (Rahman et al., 2018). Senadza (2012) had analyzed the effect of Non-farm employment diversification on the income of rural people of Ghana and come up with that wage employment and non-farm employment positively affect the income. Many empirical studies elaborated the employment diversification pattern from the Primary Sector to the non-farm secondary sector and lead to the growth-led diversification. Therefore, the employment diversification depicts a dynamic socio-economic practice where native workers are provided with the diverse range of employment opportunities. Employment decisions significantly derive from the economic incentives such as wage differentials and the growth rates in different sub-sectors of economic activity. So, the analysis ahead will focus on the prospects of labor shift as a mix of Part-time and Full-time employment and employment Diversification Patterns in Pakistan.

## **2. Data and Methodology**

Research at hand used annual time series data of 1990-2018 for employment rate, real wage rate, GDP growth rate, and labor participation rate of six sub-sectors e.g. agriculture, construction, manufacturing, trade, and wholesale, electricity and gas distribution, and Transport, storage and communication. The analysis has been done by using the most appropriate approaches OLS and SUR (Seemingly unrelated regression) model that also bridges the gap of the previous methodologies used in

literature. The current analysis of the employment diversification pattern in Pakistan used the Sectoral employment (full-time and part-time employment) as the regressand that is followed by the list of control variables e.g. wage rate and Sectoral growth.

### 3. Model specification

#### 3.1 Theoretical Model specification

This section incorporates the key details of the theoretical and the empirical model specification. SUR (seemingly unrelated regression) or SURE (seemingly unrelated regression equation) proposed by (Zellner, 1962) consists of various linear regression equations having their dependent variable and different sets of explanatory variables. The linear regression model for  $k$  observation can be expressed as:

$$Y_{kl} = X'_{kl}\gamma_l + \varepsilon_{kl}$$

In matrix form, the SUR model is expressed as:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix} = \begin{bmatrix} X_1 & 0 & 0 & 0 \\ 0 & X_2 & 0 & 0 \\ 0 & 0 & \ddots & 0 \\ 0 & 0 & 0 & X_n \end{bmatrix} \begin{bmatrix} \gamma_1 \\ \gamma_2 \\ \vdots \\ \gamma_n \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_n \end{bmatrix}$$

The above model shows that the error term has a zero mean and homoscedastic relation among the variables. But across equations, it correlates as follows:

$$E(\varepsilon_{kl}\varepsilon_{kl}|\mathcal{X}) = \sigma_{ll'} \text{ and } \sigma_{ll'} \neq 0 \text{ where } l \neq l'$$

In this scenario, the error term  $\varepsilon_l$  assumes the following conditions:

- i. Mean of  $\varepsilon_l: E(\varepsilon_l|\mathcal{X}) = 0$
- ii. Variance of  $\varepsilon_l: E(\varepsilon_l\varepsilon'_l|\mathcal{X}) = \sigma_{ll}I_M$
- iii. Co-variance of  $\varepsilon_l$  across equations  $l$  and  $l'$ :  $E(\varepsilon_l\varepsilon'_{l'}|\mathcal{X}) = \sigma_{ll'}I_M$  where  $l \neq l'$
- iv. Overall variance-covariance matrix:  $\Omega = E(\varepsilon\varepsilon) = \Sigma \otimes I_M$

However, the estimation of the SUR model consists of two stages: In the first stage, each equation of the system is estimated by regressing using OLS. This obtains the estimator  $\hat{\gamma}_l$  with a separate residual term. These terms are used to compute  $\Sigma$  which operates in the next stage:

$$\hat{\varepsilon}_l = Y_l - X_l\hat{\gamma}_l$$

$$\hat{\gamma}_l = (X'X)^{-1}X'Y \quad \text{and} \quad \hat{\sigma}_{ll'} = \hat{\varepsilon}'_l\hat{\varepsilon}_{l'}/M$$

In the second stage, the computed value of  $\hat{\Sigma}$  is substituted into  $\Sigma$  of the GLS estimator  $\hat{\gamma}$ , which considers an optimal estimator from that estimator, yield by OLS consistent estimators of each equation. The GLS estimator and its variance can be expressed as:

$$\hat{\gamma} = \{X'(\Sigma^{-1} \otimes I_M)X\}^{-1}\{X'(\Sigma^{-1} \otimes I_M)Y\}$$

$$V(\hat{\gamma}) = \{X'(\Sigma^{-1} \otimes I_M)X\}^{-1}$$

By putting values, we get

$$\hat{\gamma} = \{X'(\hat{\Sigma}^{-1} \otimes I_M)X\}^{-1}\{X'(\hat{\Sigma}^{-1} \otimes I_M)Y\}$$

From the above GLS estimator, we acquire a SUR estimator for the model, which is given below:

$$\hat{\gamma}_{SUR} = \{X'(\hat{\Sigma} \otimes I_M)^{-1}X\}^{-1}\{X'(\hat{\Sigma} \otimes I_M)^{-1}Y\}$$

The SUR model proceeds when linear equations are correlated only through their error terms. Its parametric estimate differs from one equation to another, but the fluctuation in regressors depends on the nature of the model.

### 3.2 Empirical Model Specification

The empirical model of employment pattern diversification incorporates the following details: wage rate and share of GDP of each sub-sector are the control variables and employment (the dependent variable of each sub-sector) has two-dimension i.e. part-time and full-time employment. This model used the two time-lagged wage rates and one lagged employment rate. Full-time employment is denoted by  $em_{Ft}$  and part-time employment by  $em_{Pt}$  where the part-time and full-time wages, the share of GDP are denoted by  $w_{pt}, w_{ft}, \phi GDP$  respectively.

**Model 1:** Employment in the Agriculture sector

$$Agri\ em_{Ft} = Ag\alpha_{aa}em_{Ft-1} + Ag\alpha_{ab}em_{Pt-1} + Ag\beta_1w_{Ft-1} + Ag\beta_2w_{Ft-2} + Ag\phi GDP + \epsilon \quad (1)$$

$$Agri\ em_{Pt} = Ag\alpha_{ba}em_{Pt-1} + Ag\alpha_{bb}em_{Ft-1} + Ag\gamma_1w_{Pt-1} + Ag\gamma_2w_{Pt-2} + Ag\phi GDP + \epsilon \quad (2)$$

**Model 2:** Employment in the Manufacturing sector

$$Mn\ em_{Ft} = Mn\alpha_{aa}em_{Ft-1} + Mn\alpha_{ab}em_{Pt-1} + Mn\beta_1w_{Ft-1} + Mn\beta_2w_{Ft-2} + Mn\phi GDP + \mu \quad (3)$$

$$Mn\ em_{Pt} = Mn\alpha_{ba}em_{Pt-1} + Mn\alpha_{bb}em_{Ft-1} + Mn\gamma_1w_{Pt-1} + Mn\gamma_2w_{Pt-2} + Mn\phi GDP + \mu \quad (4)$$

**Model 3:** Employment in Construction Sector

$$Cn\ em_{Ft} = Cn\alpha_{aa}em_{Ft-1} + Cn\alpha_{ab}em_{Pt-1} + Cn\beta_1w_{Ft-1} + Cn\beta_2w_{Ft-2} + Cn\phi GDP + \sigma \quad (5)$$

$$Cn\ em_{Pt} = Cn\alpha_{ba}em_{Pt-1} + Cn\alpha_{bb}em_{Ft-1} + Cn\gamma_1w_{Pt-1} + Cn\gamma_2w_{Pt-2} + Cn\phi GDP + \sigma \quad (6)$$

**Model 4:** Employment in Wholesale and Retail Trade Sector

$$WR\ em_{Ft} = WR\alpha_{aa}em_{Ft-1} + WR\alpha_{ab}em_{Pt-1} + WR\beta_1w_{Ft-1} + WR\beta_2w_{Ft-2} + WR\phi GDP + \rho \quad (7)$$

$$WR\ em_{Pt} = WR\alpha_{ba}em_{Pt-1} + WR\alpha_{bb}em_{Ft-1} + WR\gamma_1w_{Pt-1} + WR\gamma_2w_{Pt-2} + WR\phi GDP + \rho \quad (8)$$

**Model 5:** Employment in Electricity and Gas Distribution Sector

$$EG\ em_{Ft} = EG\alpha_{aa}em_{Ft-1} + EG\alpha_{ab}em_{Pt-1} + EG\beta_1w_{Ft-1} + EG\beta_2w_{Ft-2} + EG\phi GDP + \vartheta \quad (9)$$

$$EG\ em_{Pt} = EG\alpha_{ba}em_{Pt-1} + EG\alpha_{bb}em_{Ft-1} + EG\gamma_1w_{Pt-1} + EG\gamma_2w_{Pt-2} + EG\phi GDP + \vartheta \quad (10)$$

**Model 6:** Employment in Transport, storage and communication Sector

$$Tran\ em_{Ft} = Tran\alpha_{aa}em_{Ft-1} + Tran\alpha_{ab}em_{Pt-1} + Tran\beta_1w_{Ft-1} + Tran\beta_2w_{Ft-2} + Tran\phi GDP + \tau \quad (11)$$

$$Tran\ em_{Pt} = Tran\alpha_{ba}em_{Pt-1} + Tran\alpha_{bb}em_{Ft-1} + Tran\gamma_1w_{Pt-1} + Tran\gamma_2w_{Pt-2} + Tran\phi GDP + \tau \quad (12)$$

Table 1: Descriptive Analysis of the data by Sectors

Agriculture		Electricity and Gas Distribution		Manufacturing		Construction		Wholesale and Retail Trade		Transport, storage and communication	
Mean	Std. Dev.	Mean	Std.Dev.	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev
3.547	3.660	2.829	0.918	15.686	2.121	2.859	0.767	17.353	1.100	11.145	1.397
22.907	2.294	4.305	20.141	5.300	3.980	3.632	8.311	4.070	2.859	4.111	1.977
807.083	606.644	7.452	6.128	180.488	160.243	54.428	49.044	47.246	40.366	1.011	0.695
4.912	0.309	0.053	0.103	79454.350	54916.390	69892.400	53655.510	65883.620	44196.160	93465.060	63858.430
46083.100	29723.100	147658.900	117967.200	0.579	0.113	0.349	0.075	0.322	0.133	0.090	0.039
9.267	1.147	0.416	0.120	4.828	0.339	3.282	0.389	2.979	0.254	1.197	0.472

Source: Estimation by the author using STATA 14.1

Table 2: Correlation of Employment by Sectors (Full Time and Part-Time)

<b>Agriculture</b>					
	<b>AGR</b>	<b>ASH</b>	<b>FTAE</b>	<b>PTAE</b>	<b>FTAW</b>
<b>ASH</b>	0.233				
<b>FTAE</b>	0.093	0.752			
<b>PTAE</b>	0.185	0.180	-0.032		
<b>FTAW</b>	-0.237	-0.831	-0.494	-0.287	
<b>PTAW</b>	-0.237	-0.810	-0.594	-0.281	0.906
<b>Construction</b>					
	<b>CGR</b>	<b>CSH</b>	<b>FTCE</b>	<b>PTCE</b>	<b>FTCW</b>
<b>CSH</b>	-0.014				
<b>FTCE</b>	0.022	0.203			
<b>PTCE</b>	0.236	0.205	-0.344		
<b>FTCW</b>	0.031	-0.317	0.717	-0.454	
<b>PTCW</b>	-0.017	-0.403	0.604	-0.435	0.972
<b>Electricity and gas</b>					
	<b>EGR</b>	<b>ESH</b>	<b>FTELE</b>	<b>PTELE</b>	<b>FTELW</b>
<b>ESH</b>	0.246				
<b>FTELE</b>	0.129	0.644			
<b>PTELE</b>	-0.050	-0.188	-0.468		
<b>FTELW</b>	0.027	-0.795	-0.663	0.230	
<b>PTELW</b>	0.037	-0.793	-0.658	0.240	0.997
<b>Manufacturing</b>					
	<b>MGR</b>	<b>MSH</b>	<b>FTME</b>	<b>PTME</b>	<b>FTMW</b>
<b>MSH</b>	0.466				
<b>FTME</b>	0.281	-0.255			
<b>PTME</b>	0.225	-0.112	0.720		
<b>FTMW</b>	-0.364	-0.760	0.345	0.082	
<b>PTMW</b>	-0.335	-0.771	0.362	0.124	0.975
<b>Transport</b>					
	<b>TGR</b>	<b>TSH</b>	<b>FTTE</b>	<b>PTTE</b>	<b>FTTW</b>
<b>TSH</b>	-0.029				
<b>FTTE</b>	0.358	-0.337			
<b>PTTE</b>	0.368	-0.384	0.581		
<b>FTTW</b>	-0.175	0.794	-0.560	-0.654	
<b>PTTW</b>	-0.173	0.652	-0.071	-0.315	0.722
<b>Wholesale and Retail Trade</b>					
	<b>WGR</b>	<b>WSH</b>	<b>FTWE</b>	<b>PTWE</b>	<b>FTWW</b>
<b>WSH</b>	0.359				
<b>FTWE</b>	-0.051	0.008			
<b>PTWE</b>	0.055	-0.478	-0.106		
<b>FTWW</b>	0.026	0.606	0.257	-0.638	
<b>PTWW</b>	-0.033	0.429	0.329	-0.577	0.844

Source: Estimation by the author using STATA 14.1

#### **4. Empirical Analysis**

Table 3 shows that the first lag of wage has a negative and significant impact on full-time employment in the agricultural sector. As it is observed that Wages play the most significant role in determining employment. If one is paid more he will be more motivated towards work and it enhances the productivity level (Jan et al., 2012). The second lag of wages has a positive and significant impact on full-time employment in the agricultural sector with the probability of 0.0001 units. As most of the studies reveal that if the wages rise the workers who are sitting idle at home will prefer to do jobs (Qureshi & Ghani, 1989; Card & Krueger, 1992). Part-time wages both the included lags have not a significant impact on agricultural employment due to the limited resources of rural areas. It is observed that most of the people especially women participation in rural employment gives them too much low reward in the form of pay (Jan et al., 2012). Full-time and part-time agricultural employment changes when wages changes (Ghilarducci, 2018). Lack of infrastructure, modern technology, and low level of education are the main factors for the low productivity and employment diversification (Batool & Jamil, 2019).



**Table 3: Empirical Estimates using SUR of Full Time Employment Diversification**

<b>Variables</b>	<b>Agriculture</b>	<b>Construction</b>	<b>Electricity</b>	<b>Manufacturing</b>	<b>Wholesale And Retail Trade</b>	<b>Transport, Storage, And Communication</b>
	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)
<b>Full Time Wage (-1)</b>	-39.336 (0.008)	0.308 (0.073)	0.002 (0.009)	0.532 (0.025)	0.722 (0.005)	0.001 (0.013)
<b>Full Time Wage (-2)</b>	40.493 (0.000)	-0.217 (0.006)	-4.2137 (0.018)	1.16E-06 (0.736)	-1.165 (0.000)	-0.000 (0.029)
<b>Part Time Wage (-1)</b>	2.12E-05 (0.970)	-0.003 (0.566)	12.064 (0.001)	1.76E-06 (0.488)	0.755 (0.029)	0.001 (0.037)
<b>Part Time Wage (-2)</b>	-0.000 (0.722)	0.003 (0.551)	-8.255 (0.000)	-0.967 (0.000)	-1.303 (0.001)	-0.001 (0.020)
<b>Full Time Employment (-1)</b>	0.742 (0.000)	0.503 (0.053)	0.000 (0.267)	0.001 (0.007)	0.000 (0.895)	0.000 (0.183)
<b>Part Time Employment (-1)</b>	0.132 (0.773)	-0.302 (0.703)	0.001 (0.017)	-0.001 (0.000)	-0.225 (0.728)	5.786 (0.054)
<b>Growth Rate</b>	-0.428 (0.004)	0.002 (0.754)	-0.003 (0.005)	0.527 (0.027)	-0.000 (0.972)	0.008 (0.877)
<b>C</b>	1.683 (0.624)	1.531 (0.059)	0.221 (0.077)	-0.000 (0.884)	1.746 (0.008)	0.225 (0.619)

Source: Estimation by the author using STATA 14.1.

**Table 4: Empirical Estimates using SUR of Part-Time employment diversification**

<b>Variables</b>	<b>Agriculture</b>	<b>Construction</b>	<b>Electricity</b>	<b>Manufacturing</b>	<b>Wholesale And Retail Trade</b>	<b>Transport, Storage, And Communication</b>
	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)	Coefficients (P-Value)
<b>Full Time Wage (-1)</b>	0.308 (0.073)	-5.19E-07 (0.055)	-5.19E-07 (0.055)	0.107 (0.246)	0.203 (0.053)	0.002 (0.074)
<b>Full Time Wage (-2)</b>	-0.217 (0.006)	5.459 (0.000)	5.459 (0.000)	-5.32E-06 (0.045)	-7.44E-07 (0.798)	-0.002 (0.022)
<b>Part Time Wage (-1)</b>	0.603 (0.087)	-0.000 (0.857)	-0.000 (0.857)	1.59E-06 (0.475)	-7.89E-07 (0.817)	-4.732 (0.028)
<b>Part Time Wage (-2)</b>	-0.341 (0.077)	-0.000 (0.566)	-0.000 (0.566)	0.001 (0.095)	-14.054 (0.183)	8.832 (0.013)
<b>Full Time Employment (-1)</b>	-0.306 (0.096)	0.115 (0.068)	0.115 (0.068)	0.764 (0.000)	-0.662 (0.081)	-7.219 (0.019)
<b>Part Time Employment (-1)</b>	0.315 (0.080)	27.194 (0.000)	27.194 (0.000)	-0.879 (0.000)	0.304 (0.244)	4.820 (0.034)
<b>Growth Rate</b>	0.009 (0.640)	0.001 (0.250)	0.001 (0.250)	-0.000 (0.861)	-9.53E-05 (0.988)	-2.727 (0.085)
<b>C</b>	3.871747 (0.035)	0.505 (0.011)	0.505 (0.011)	-0.006 (0.985)	-0.244 (0.309)	-0.005 (0.974)

Source: Estimation by the author using STATA 14.1

The first lag wages have a positive and significant impact on full-time employment in the construction sector. The construction sector and construction activities are considered as one of the major sources of income (Qureshi & Ghani, 1989 ; Ghilarducci, 2018 ; Philips, 1958). Part-time one and two time-lagged wages have a significant impact on construction employment because people prefer part-time jobs due to the high wage rate per hour which results in decline in part-time labor demand (Houseman & Osawa, 1995). Construction plays an important role in uplift economic development and growth it is regarded as a mechanism to generate employment opportunities for millions of unskilled, semi-skilled, and skilled labor forces. Therefore, the impact of construction employment on growth is not significant due to economic and political disturbance. In the electricity and gas distribution sector the wages have a positive and significant impact on previous full and part-time electricity employment. Electricity reform programs included privatization of state-owned enterprises played a very important role in economic development. The labor force working in electricity sectors especially in private companies get more employment benefit. Therefore, electricity sectors play a vital role in economic development (Qudrat-Ullah, 2015 ; Joskow, 2006). One lag wages have a positive and statistically significant impact on part-time and full-time employment in the manufacturing sector. Manufacturing is the third-largest sector of Pakistan most of the labor force got employment in this sector. One time lag wages have not significant impact while the second lag of wages has a significant impact on employment in the manufacturing sector. On the other hand, part-time second lag of wages has a positive and statically significant impact on employment (Sheikh et al.,1992). The lag wages have a positive and significant impact on full-time and part-time employment in the wholesale and retail sector. Two-time period lagged wages have not significant of the part-time employees in the wholesale and retail sector as found by (Ahmed et al., 2012). The transport, storage, and communication sector of Pakistan play an important role in economic development and it is also important for improving the competitiveness of the country's export. Full-time and part-time transport sector employment has a positive and significant impact. Both the one and two-time lag wages of Full time and part-time have also a positive impact on employment. Sustainable economic development is dependent on the low-cost transport and logistic sector. Modernizing the transport sector through the continuous process of reform supported by focused investment in all of its sub-sectors. But due to political instability and disturbance in internal economic affairs transport sector becomes stagnant toward economic growth (Ahmed & Ahsan, 2011).

## **5. Conclusion and Policy Recommendation**

The current analysis of employment pattern diversification concluded that part-time and full-time wages rates have a significant impact on the part and full-time employment in different sub-sectors of economic growth. Variation in wage rates in one sub-sector varies the employment level in different sectors. Workers switch from one employment sector to another sector. Part-time employment switching reduces the cost involved as well for employer's searches for seasonal demand of labor. It forecasts the quick adjustment for part-time labor instead of full-time labor, which notices fewer wages and discards from social assistance. This low-income labor helps sectors to maximize their profits as well as minimize their production costs. The estimates are relative to overall employment elaborate the significant rise in part-time work like construction, wholesale and retail trade, transport sectors. These estimates show the quick adjustment of part-time employment within and across the sectors. Moreover, the dynamic interrelation between part-time and full-time employment is examined in the construction, manufacturing wholesale and retail trade, and transport divisions. Based on these estimates, the outcome is that part-time employment acts as a challenging variable concerning full-time employment, due to its availability

on simple and manageable conditions in sectors. Employment needs to enhance the percentage of employment ratio with the growth ratio of the workforce. Policies are needed to lower the cost associated with the employment switch. Policies are needed to enhance labor mobility as one wants to diversify the employment one can do it to enhance the economic productivity. The government may revise the policies for part-time workers by introducing the minimum wage based on work hours that may protect the rights of the workforce as per their production activity.

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