

Impact of Urban Occupational Employment and Unemployed Labor Force on Economic Growth of Pakistan: A time Series Analysis

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Abstract

Employment intensity of economic growth is known as a linkage between employment and growth (also called employment elasticity). Which always vary between developing countries. Increasing the employability of poor people specifically women and youth enhances their contribution and benefit from the economic growth. This study aims to bridge some of the gap between a perceptive understandings that investment in urban employment is crucial for unemployment reduction and accelerate the economic growth. This study is an attempt to estimate the relationship between percentage of employed Persons by major urban Occupations, unemployed labor force and economic growth of Pakistan. Gross Domestic Product in million rupees is taken as a proxy for economic growth of Pakistan as an independent variable. Data of unemployed labor force and data of employed persons by major occupations in urban areas like (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers) is utilized for the span of 1973-2007. Johnson's Cointegration, long run analysis, short run Error Correction model (ECM), and Granger Causality technique is applied for estimation. Result shows that percentage of employed Persons by major urban Occupations have significant impact on economic growth of Pakistan. Moreover, unemployed labor force is found to be negatively correlated with economic growth and leads to significantly decline in growth. Study purposes that the Government should promote urban occupational employment level to reduce unemployment and bring multinational companies in the country and also encourage entrepreneurial activities in the country for extensive urban employment opportunities.

Keywords: Urban Employment, Unemployed Labor Force, Economic Growth, Time Series Analysis

Introduction

Every nation in world either its developed or developing want to speed up their GDP because GDP is important indicator of economy. In 1960 average annual growth rate of Pakistan was 6.8%. So 1960 economy was role model for world but in 1970 due to political instability and East Pakistan separation Pakistan's GDP decreased to 4.8%.

According to National Accounts Committee the resumption of Growth rate has been started in 2013 and increased in 2014-15. The reason of this acceleration in Growth is considered to be the result of different factors like fiscal and monetary management, rural-urban employment level and overall improvement in macroeconomic situation [1].

The total labor force of Pakistan is 54.92 million, 33 percent of total population is connected with labor work. This makes Pakistan's 9th chief nation in the globe in terms of the capacity of its work force in 2010. In Pakistan, about 3.05 million labor force was expected as jobless in 2009-2010, having the unemployment rate of 5.6 percent [2].

Table 1

Pakistan labor force share in South Asian labor market

Size of labor force		Labor force
Rank	Country	(millions)
1	China	812.7
2	India	46.7
8	Bangladesh	72.5
9	Pakistan	54.92
33	Nepal	18
56	Srilanka	8.1

Source: Pakistan Economic survey (2009-2010)

For any country to develop and progress, the role of urbanization cannot be refuted. Because of the rise in the rate of general population, cities are expanding and thus they are also affecting the social, demographic and economic factors such as merging suburban areas to cities, migration within the country and the increase in the rate of birth as compared to the rate of deaths. The migration to larger cities is increasing because of the several job and better living facilities available in such localities. Pakistan's urbanization is taking place at a faster rate in South Asia and urban population is increasing drastically. The rate of population in villages and rural areas has diminished from around 61% to around 60% in 2014 to 2015. The population in the cities has also increased from 38.5% in 2014 to 39.2% in 2015. The population in the rural areas finds it a great opportunity to move to cities for better jobs, technology and better living standards. Therefore, the cities are developing as hubs of trade and development. It is important to note that now Pakistan stands 10th in having the largest labor force in the world. The total labor force in Pakistan is around 61 million as per the labor force survey 2013-14. However, around 4 million labor is unemployed and around 57 million people are currently on jobs. The increasing population is also triggering the labor force of the country [1].

Pakistan is a developing country and employment is a significant determinant of growth here. Majority of the population in Pakistan belong to middle and lower class. Pakistan is a labor intensive country so its labor is abundant and cheap and can be used for the betterment of the economy. Labor force is essential for every nation without this any nation cannot accomplish its goal and labor is also considered as a principle way to overcome the poverty and achieve sustained economic growth. In this study we examined the impact of employed persons in some of the major urban occupations on the economic growth of the country.

This study also highlights the importance of the employment level in major occupations and how it can affect the economy of Pakistan. There is huge literature on this area of study is available around the globe and many studies are done in this regard which shows the

importance of this study. In Nigeria [3] examined that employment generation is a significant drive of the growth rate of GDP in Nigeria. Review of the existing studies in this field is undertaken presents the framework for the current study and provides the authentication of this relation. So this study also focusing on the importance of urban employment level and persuading the Government to play its role in this regard. This study also highlights that there is a need of better and skilled labor. As Pakistan is a developing country people are less educated poor and un skilled, need of the hour is that labor should be trained and efficient which will lead the country to the better levels of the economic growth. Education should be promoted in the country so that labor would be educated and efficient and more employment opportunities should be provided by Government.

Objectives of the Study

Specifically, it aims to address the following questions: – How do the urban sector's employed persons at different occupations affects Growth rate of Pakistan? – Is percentage of urban employed persons in five major occupations groups (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers) important for economic growth? – Is unemployed labor force causing a significant decline in economic growth of Pakistan? What policies may be help full to reduce unemployment and enhance the employment opportunities in urban areas.

Significance/contribution of the Study

Many instigators have studied the elasticities of occupation, which is a measure of the link between employment level and economic development for several republics.

According to [4] many substantial modifications in occupation elasticities between diverse nations were spotted with an elasticity of roughly 0.5 for USA and Canada while elasticities for Germany, Japan, France, , Italy, and the UK were close to zero.

This study is an addition to the literature by estimating the relationship between percentage of employed Persons by major urban Occupations, unemployed labor force and economic growth of Pakistan. Data of unemployed labor force and data of employed persons by major occupations in urban areas like (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers) is utilized for the span of 1973-2007.

Review of Literature

According to [5] the occupation and work elasticities in Japan and Germany increased during the time span of 1979-95 compared to 1960-79.while it dropped in Sweden and France which flaunted diminutive variation in USA, Italy and UK. He also found deleterious occupation elasticities in Sweden and Italy for the years 1990-95.

[6] study investigated the linkage between economic growth, employment and poverty reduction. Time series data is used of many countries and some diversified techniques are applied to fetch the results. The study provides tools to assess the effects of employment - intensive and productivity- intensive growth under segmented labor market circumstances, and offers the policy makers shift from research to policy outcomes.

[7] examined the linkage between rate of employment and real GDP per capita. Time series and cross sectional data was used author considered the data of developed countries: USA,

UK, France, Australia, Canada and Japan with the time span of 1970-2011. Study required structural break between 1975-1995 due to revision of monetary policy and change in unit of measurement. Modified version of Okun's Law was applied to find the results. A statistical result of the study indicated that there is a significant relation between real GDP per capita and employment. Current low rate of the employment is caused by the current lower rate of the real economic growth.

[8] studied the compared performance, convergence and relationship of per capita GDP and the employment rate. Time series data of the period 1995-2003 was used source of the data is Euro- stat. European Countries were compared at regional levels. Some major findings of the study shows high heterogeneity in European performance, presence of complex club divergence/convergence throughout the EU regions and significant differences in the correlation between the employment intensity of the growth.

[9] examined the employment level and economic growth of Nigeria. Secondary data from 1985 to 2012 was taken, data sources were Central Bank of Nigeria and National Bureau of Statistics which were used in this study. The study found that there is a significant relation between employment level and GDP and rate of interest. This implies that GDP, FDI, Inflation and Interest rate are significant variables that contributed to employment level in Nigeria. In the same way study concluded that there exist uni- directional linkage between employment and economic growth. Study recommends that the govt. should maintain stable macroeconomic policies, evolve appropriate policy to reduce issues of interest rate and low output production. Government should also reduce interest rate to increase the levels of investment. Human capital development should be considered.

Another study [10] examined the economic growth and employment relations in the context of Nigeria. Simple model of employment was generated and estimated using OLS method and time series data which is used is corrected for non-stationary using Hodrick-Prescott filter. Results show a positive and significant relation exists between the level of employment and economic growth while the negative relation was observed employment growth rate and GDP growth rate in the country. There is a need to increased labor-promoting investment strategies that will assist to minimize the high current open unemployment. Findings suggest that government stability, government consumption and high R&D expenditures required promoting entrepreneurship.

Study [11] examined the direction of causality between employment and economic growth in South Africa. Quarterly data from 2000Q1 to 2012Q3 was taken. In this paper Toda-Yamamoto technique of causality was applied on the data. Results indicated that causality does not run from employment to economic growth however Keynes General Theory holds for South Africa where empirical findings depicts that growth leads to employment.

Methodology

Sample Selection and Data Sources

In order to examine the impact of urban employment and unemployed labor force on economic growth of the country, five major occupations in urban areas are taken into account i.e. (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers). Employment by occupation shows the percentage of employed people in particular occupation. The annual time series data from "Handbook of Statistics on Pakistan Economy"

published by State Bank of Pakistan and economic survey of Pakistan for the period 1973 to 2007 is used.

Model Description

Following model is developed

$$Y(GDP) = \beta + \beta_1 \ln(amU) + \beta_2 \ln(afwU) + \beta_3 \ln(cwU) + \beta_4 \ln(ptwU) + \beta_5 \ln(srwU) + \beta_6 \ln(un. lab) + \epsilon$$

Model is converted into log form.

$$\ln GDP = \beta + \beta_1 \ln(amU) + \beta_2 \ln(afwU) + \beta_3 \ln(cwU) + \beta_4 \ln(ptwU) + \beta_5 \ln(srwU) + \beta_6 \ln(un. lab) + \epsilon$$

Where:

Ln = Natural Logarithm

lnGDP = GDP as a proxy for economic growth of Pakistan.

ln(amU) = Percentage of employed persons (Administrative and Managerial workers) in Urban areas of Pakistan.

ln(afwU) = Percentage of employed persons (Agriculture and Fishery workers) in Urban areas of Pakistan.

ln(cwU) = Percentage of employed persons (Clerical workers) in urban area of Pakistan .

ln(ptwU) = Percentage of employed persons (Professionals and Technical related workers) in Urban areas of Pakistan.

ln(srwU) = Percentage of employed persons (Services workers) in Urban areas of Pakistan.

Ln(un-lab)= Percentage of unemployed labor force in Pakistan

$$\beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 =$$

Parameters to be estimated for each Independent variable

B1 is the elasticity of GDP regarding Administrative, and Managerial workers in urban areas. It computes the percentage change in GDP deflator for 1% change in employment in Administrative and Managerial workers in urban areas of Pakistan.

B2 is the elasticity of GDP with regard to Agriculture and Fishery workers in urban areas. It calculates the percentage change in GDP deflator for 1% change in employment in Agriculture and Fishery workers in urban areas, holding other factors constant.

B3 is the elasticity of GDP as regards Clerical workers in urban areas. It assesses the percentage change in GDP for 1% change in employment in Clerical workers in urban areas of Pakistan.

B4 is the elasticity of GDP regarding Professionals and Technical related workers in urban areas. It evaluates the percentage change in GDP for 1% change in employment in Professionals and Technical related workers in urban areas of Pakistan.

B5 is the elasticity of GDP relating to Services workers in urban areas. It determines the percentage change in GDP for 1% change in employment in Services workers in urban areas of Pakistan.

In the last B6 is also the elasticity of GDP regarding unemployed labor force. It found the percentage change in GDP for 1% change in unemployed labor force Pakistan

Results and Discussion

Unit root test

It is necessary to find out that the series are univariate or not. To find out the order of stationary Unit root test is applied. Augmented Dickey Fuller (ADF) test is the most used techniques to test the Unit root. At first difference null hypothesis of unit root is rejected for all the variables and therefore, all are 1(1). As all variables are 1(1) so the most appropriate technique for the analysis is co-integration.

Table 2

Results of ADF Test

Variables	Level			1 st Difference		
	C	C&T	None	C	C&T	None
GDP	2.2157 (0.9999)	3.5066 (1.0000)	15.6641 (1.0000)	1.9030 (0.0497)	-1.9802 (0.0503)	-3.1095 (0.0291)
Administrative, and Manag erial workers	-1.8069 (0.3710)	-1.3237 (0.8647)	-0.7812 (0.3702)	-4.3897 (0.0015)	-4.5045 (0.0055)	-4.4686 (0.0001)
Agricultural and Fishery Workers	-0.2626 (0.9204)	1.1132 (0.9999)	0.9242 (0.9015)	-0.0284 (0.0091)	-0.1361 (0.0619)	-0.0865 (0.061)
Clerical workers	0.2221 (0.9700)	-1.1796 (0.8984)	-1.0304 (0.2664)	-2.2699 (0.0572)	-2.6072 (0.0797)	-2.0312 (0.0420)
Professional and technical related workers	-1.8990 (0.3287)	-1.2008 (0.8939)	-1.5056 (0.1218)	-0.7082 (0.0010)	-0.4396 (0.0316)	-1.0098 (0.0444)
Service Workers	-1.9035 (0.3268)	-1.6144 (0.7661)	-0.8788 (0.3281)	-3.7140 (0.0084)	-3.7176 (0.0351)	-3.7455 (0.0005)
Unemployed Laborforce	-1.0367 (0.7295)	-7.6724 (0.000)	-1.9297 (0.0522)	-4.0738 (0.0033)	-3.4338 (0.0641)	-4.7203 (0.000)

Vector Auto Regression (VAR)

Selection of the order of Vector Auto Regressive (VAR) is done before the Johnson's technique and lag length of two for the model is determined.

Table 3

Vector Auto Regression (VAR)

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-279.0521	NA	1.282398	17.27588	17.54798	17.36743
1	-55.75522	351.8617*	1.57e-05*	5.824559	7.829205*	6.565414*
2	-18.52350	45.12936	1.83e-05	5.949909*	9.387109	7.040069

Johnson Co-integration

After finding the lag length of model by applying the VAR method, next step is to find the number of cointegration vectors. Trace test shows that there are 5 co-integration equations are present at 5% level of significance and this is also supported by the maximum Eigen value test. Results of both tests are given in the following table.

Table 4

Johnson Co-integration

Hypothesis	Trace Statistics	Max-Eigen Statistic
$R = 0$	144.4973*	50.70381*
$R \leq 1$	93.79347*	31.11983*
$R \leq 2$	62.67364*	24.09606*
$R \leq 3$	38.57757*	14.29423*
$R \leq 4$	24.28334*	13.38087*
$R \leq 5$	10.90247	10.90247

Long Run Regression Analysis

Regression analysis is applied to examine how independent variables, have an effect on the dependent variable i.e. investigate the impact of employment of major employed persons by major urban occupation groups in Pakistan on economic growth of Pakistan. GDP is used as dependent variable and five occupations of urban areas are taken as independent variables are used in model.

Independent Variables

1. Administrative, managerial workers
2. Agricultural and fishery workers
3. Clerical workers
4. Professional and technical related workers
5. Services workers
6. Unemployed labor force

$$\ln GDP = \beta + \beta_1 \ln(aemU) + \beta_2 \ln(afwU) + \beta_3 \ln(cwU) + \beta_4 \ln(ptwU) + \beta_5 \ln(srwU) + \beta_6 \ln(un. lab) + \epsilon$$

Table 5

Long Run Regression Analysis

Dependent Variable = ln GDP			
Variable	Coefficient	Std. Error	T- Statistics
Constant	0.420152	0.134231	3.130060
ln(amU)	-0.031813**	0.015579	-2.042040
ln(afwU)	0.015639**	0.001915	8.166163
ln(cwU)	0.027248**	0.007349	3.707897
ln(ptwU)	0.033409**	0.002867	11.65154
ln(srwU)	0.005304*	0.012731	0.416610
ln(un.lab)	-0.610609**	0.366039	-1.6681
R- Squared	0.915554	Adjusted R- Squared	0.900994
F- Statistics	62.88262	Prob. Value	0.000000
Durbin Watson stat	0.641991	S.D. Dependent Var.	0.161820

Empirical model given below is derived on the basis of observed results obtained from table:
 $\ln GDD = 0.4202 - 0.0318(aemU) + 0.015(afwU) + 0.027(cwU) + 0.03(ptwU) + 0.005(srwU) + -0.61(unempl.lab) + \epsilon$

The estimated coefficients provide a measure of the employment intensity of economic growth. Results show that there are significant impact of Percentage of employed Persons by Major urban Occupation on economic growth of Pakistan. Administrative , Managerial workers, Agriculture ,Fishery workers, Clerical workers, Professionals and Technical related workers have significant impact on growth at the 5% level of significance while and Services workers have highly significant impact on growth at the 1% level of significance. So Government should provide more employment opportunities in urban areas to accelerate the economic growth because according to Pakistan economic survey 2014-2015 ,Pakistan's urbanization is taking place at a faster rate in South Asia and urban population is increasing drastically. The rate of population in villages and rural areas has diminished from around 61%

to around 60% in 2014 to 2015. The population in the cities has also increased from 38.5% in 2014 to 39.2% in 2015. The population in the rural areas finds it a great opportunity to move to cities for better jobs, technology and better living standards. Therefore, the cities are developing as hubs of trade and development.

In particular, the degree of unemployed labor force appeared to be negatively correlated with economic growth and leads to significantly decline in growth. Result shows one unit increase in unemployed labor force lead to decrease in 0.61% in GDP. Unemployment is one of the major obstacle of economic growth and this un employed labor force is also human capital and human asset for Pakistan's labor market, and if it is successfully employed it could accelerate economic development in the country, and exterminate tremendous poverty and hunger. Results depict that there is a need to be concerned about the employment of young people. There are many hurdles faced by youth for searching better jobs that include a disparity between the level of education, hopes and employers' requirements.

Short run analysis (Error Correction model)

The speed of modification is depicted towards the long run equilibrium after a short run shock. The equation is build to check the error correction.

$$\Delta GDD = \beta + \beta_1 \Delta(aemU) + \beta_2 \Delta(afwU) + \beta_3 \Delta(cwU) + \beta_4 \Delta(ptwU) + \beta_5 \Delta(srwU) + \beta_6 \Delta(un - lab) + ECM(-1) + \varepsilon$$

The results indicate that the estimated lagged error correction term is negative. which means error correction is present in this model. The value of ECM is -0.8431 shows 84% of disequilibrium in a previous year is corrected in the current year. All other coefficients have significant impact on economic growth in the short run also. Administrative managerial workers and Unemployed labor force has negative impact on Economic Growth of Pakistan in short run also.

Table 6

Short run analysis

Dependent Variable = ln Y(GDP)			
Variables	Coefficient	Std. Error	T-Statistics
Constant	0.48572	0.16606	2.92499
Δamu	-0.007*	0.01201	-0.6384
$\Delta(afwl)$	0.0244**	0.0134	1.8122
$\Delta(cwl)$	0.0226**	0.0073	3.0822

$\Delta(ptwl)$	0.0306**	0.0030	10.1767
$\Delta(srwu)$	0.0050*	0.0088	0.5687
$\Delta(un.lab)$	-0.599**	0.472354	-1.269348
ECM1	- 0.843**	0.1661	-2.9250
R-squared	0.962048	Mean dependent var.	0.206194
F-Statistics	114.0704	Prob.(F-statistic)	0.000000
Durbin- Watson stat	1.323131	S.D. dependent var.	0.161982

Granger Causality Test

Granger Causality method is applied on the given set of variables (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers) to check the direction of the causality. Following table reports the empirical findings of the granger causality test. We can make decisions on the basis of the probability values. Long and short run tests only show the impact independent variables on dependent variables and give no information about the direction of causal relation so, we applied granger causality test to find the direction of the relationship. We considered only first lag $K=1$ here.

The results indicate that at 1% significance level and first lag ($K=1$) GDP granger cause Agriculture and fishery workers (AFWU) also it cause Clerical workers (CWU). It is found that

at 5% significance level and first lag unemployed labor force, Administrative and managerial workers (AMU), Professional and technical workers (PTWU), and Services related workers (SRWU) granger cause GDP. Also at 5% significance level Clerical workers (CWU) granger cause Administrative executive and managerial workers (AMU) and Professional and technical workers (PTWU) cause Agriculture and fishery workers (AFWU).

Table 7

Granger Causality Test

Null Hypothesis	K=1	
	F – Statistics	Probability
AMU does not Granger Cause GDP	3.45036	0.0458**
GDP does not Granger Cause AMU	0.44761	0.6436
AFWU does not Granger Cause GDP	3.251	0.0358**
GDP does not Granger Cause AFWU	6.97514	0.0035*
CWU does not Granger Cause GDP	2.38817	0.1102

GDP does not Granger Cause CWU	6.00225	0.0068*
PTWU does not Granger Cause GDP	3.40536	0.0474**
GDP does not Granger Cause PTWU	1.33895	0.2784
SRWU does not Granger Cause GDP	3.68274	0.0380**
Un.lab does not granger cause GDP	2.35036	0.0358**
GDP does not granger cause un.lab		0.5436

	0.3211	
Un.lab does not granger cause AMU	1.39887	0.2636
AMU does not granger cause Un.lab	2.34206	0.1147
Un.lab does not granger cause GDP	2.35036	0.0358**
GDP does not granger cause un.lab	0.3211	0.5436

Notes: *, **, *** indicates rejection of the null hypothesis (no Granger Causality) at 10%, 5%, 1% Significance level respectively and, K indicates the number of lag length used in the granger causality Test.

Conclusion and Recommendations

Sector wise employment is basically thought to be a core determinant of economic growth. Employment in different sectors of economy is closely related with economic growth of country [12]. This study is an attempt to estimate the relationship between percentage of employed Persons by major urban Occupations, unemployed labor force and economic

growth of Pakistan. Gross Domestic Product is taken as a proxy for economic growth of Pakistan as an independent variable. Data of unemployed labor force and data of employed persons by major occupations in urban areas like (Administrative and Managerial workers, Agriculture and Fishery workers, Clerical workers, Professionals and Technical related workers and Services workers) is utilized for the span of 1973-2007. Findings of the study disclosed that increase in employment in all major urban occupations of economy would have significant impact on Pakistan's economy. Moreover, unemployed labor force is found to be negatively correlated with economic growth and leads to significantly decline in growth. Pakistan is a developing country and employment is a significant determinant of growth here. Majority of the population in Pakistan belong to middle and lower class. Pakistan is a labor intensive country so its labor is abundant and cheap and can be used for the betterment of the economy. Labor force is essential for every nation without this any nation cannot accomplish its goal and labor is also considered as a principle way to overcome the poverty and achieve sustained economic growth. Around 4 million labor is unemployed [1]. Study proposes that Govt. should take steps to increase the employment in these major occupations to reduce the unemployment and should take steps to bring multinational companies in the country also encourage entrepreneurial activities in the country for extensive employment opportunities. Education must be promoted and should be cheap poor population of the country.

Policy Implications

The analysis of this study has some policy implications.

- Human capital plays a vital role in the efficiency of the labor. It affects the labor's productivity and efficiency positively and in very significant manner which lead to the betterment of the economic growth. So, government should introduce different on job and off job training programs to enhance the capabilities of the labor force and to reduce the unemployment.
- Unemployment must reduce by launching employment opportunities according to skill of people. If Government reduce energy crises then people have opportunity to adopt domestic business.
- There is a need to build new training institutes that provide the trained labor, that

Will be helpful to increase the economic growth of Pakistan.

- Government should open education sector according to the international standards and education should be cheap and subsidized so that, the people in Pakistan can get better and higher education this will improve the quality of the labor in Pakistan.
- Government should encourage the multinational corporations to invest in the Pakistan for this purpose government has to eradicate the energy crises so the foreign investors can invest in our country.
- Entrepreneurial activities should be promoted by the government.
- Health sector also need development and more investment by the government. Better health sector means healthy people leading to more productivity with enhanced efficiency. This will ultimately boost the economy of Pakistan.

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