

NATURAL RESOURCES AVAILABILITY AND UNEMPLOYMENT IN
PAKISTAN: THE ROLE OF TRADE OPENNESSMuhammad Kashif Bhatti^{*1}, Khalil Ahmad², Taher Mazhar³¹Lecturer in Economics, COSIS, Minhaj University Lahore.²Assistant Professor of Economics, Govt. Islamia Graduate College
Civil Lines, Lahore, Pakistan³Lecturer, Pakturk Maarif International Schools and Colleges¹mkgenial@gmail.com, ²khalilahmad122@gmail.com, ³tahirmazhar2014@gmail.comDOI: <https://doi.org/10.5281/zenodo.15967183>**Keywords**

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Muhammad Kashif Bhatti**Abstract**

Natural resources include oil, gas, minerals, forests, water, and fertile land. Efficient utilization can boost economic growth, employment, and trade. This study investigates the empirical outcomes of natural resources utilization and population growth on unemployment of Pakistan. The time-series data from 1972 to 2023 has been consider for empirical investigation. Unemployment rises when there is underutilization of resources, economic instability, or poor trade policies. The unemployment rate taken as a dependent variable in the estimated model and the independent variable included such as financial development, population growth, trade openness, and natural resources agglomeration. For empirical inquiry, we use the autoregressive distributed lag model (ARDL) for co-integration. The outcomes show that financial developments have an inverse and significant effect on the unemployment in Pakistan. The rural population has positive, while the urban population hurts unemployment opportunities. For the open economy, trade openness has a positive effect on unemployment. Furthermore, empiric reveals that the index of natural resources has an inverse and significant relation with unemployment. For policy purpose, the government of Pakistan can reduce unemployment with the help of improvement and modernized our agro sector at first stage. This strategy may improve rural employment and it may leads to grow the agro base industries on later stage. Agro-based industrialization can potentially mitigate unemployment associated with open trade by creating new job opportunities in rural areas and diversifying the economy.

INTRODUCTION

The problem of unemployment is correspondingly dominant not only for less developed economies but also in developed countries. The higher rate of unemployment has been observed emerging and less developing economies due to the loss of absorption capacity. For developed economies, unemployment is a state, when an economic agent needs a job and he is

ready to work on given market wage rates. But he/she cannot approach any suitable job for four weeks; he/she is termed unemployed. It is a central problem and critical issue especially in less developed economies because it brings inefficiency due to the under-allocation of human resources.

Hence, statistical data associated with unemployment in the less developed economies gives the information about the unemployed labor in an informal sector in the big cities or urban areas that is visible due to stronger political awareness of the people and greater media attention in these areas. The unemployment level shows the macroeconomic presentation of a country because it reflects the overall economic performance (Stiglitz, 1997). The majority of socio-economic factors lead to a high rate of unemployment because the combinations of these determinants decide the entry-exit of workers in any organized or un-organized labor market (Canlas, 2008; Onwioduokit et al., 2009).

In the modern world, trade liberalization has so many implications for economics, social, and technological. Among others, international trade and unemployment for any nation have serious consequences. An early theory of free trade based on the ideas of the wage flexibility that decides the level of full employment among trading units. On one hand, the trade liberalization process had been faster since the late 1970s because most of the countries are removing or trying to remove the natural as well as artificial trade barriers. The reduction in tariffs and trade restrictions might be helpful to reduce the unemployment of the labor force in the countries if the countries and the nations follow the trade liberalization policy based on Comparative Advantages. Trade can reduce unemployment in labor abundant trading partners also proves the Heckscher-Ohlin model of factor endowment. On the other hand, countries worry that trade openness might lead to the losses of jobs at a substantial level; there has been rising fear about increasing unemployment and fall in standards of living of the poor (Bhagwati, 1964).

In the least developed economies, the employment in import-competing sectors is considered to be more important, whereas, in the modern economies, the basic interest is that increasing trade with the poor nations causes an adverse labor market outcome for the unskilled or semi-skilled workforce (Helpman and Oleg 2010). A mutual concern is that 'cheap labor' and the 'race to the bottom' might be the outcome of ever-increasing levels of integration. Thus, there had always been protectionist views against free trade in the developed and developing economies. For

example, (Herman, 2012; Iqbal et al., 2013) also observed the negative links between employment and trading countries during the financial global recession of 2008. During recession year most integrated nations face severe unemployment concluded by (Claessens et al., 2012; Yanikkaya 2013; shabbier et al., 2013).

The development of the financial sector has also an important factor to determine the employment level of the developing nations. The growth of the financial sector satisfies the requirements of physical capital and creates job opportunities in the country. The development of a market-oriented system to finance the industry and trade during the period of transition presented many issues. Unlike the circumstance in a less-developed economy where business firms grow over time and enlarge their sources of finance, transition economies had bigger enterprises in the place that would be cut off from the previous sources of finance if the fresh financial systems had not the capacity to function properly.

In more than two decades that have passed since the transition began in 1990, a remarkable development had been attained in designing the financial systems, but the process of generating and reshaping these systems on the basis of capitalist principles remains and the degree of reform differs widely across the countries. A large number of theoretical and empirical research examined the relationship between financial sector development and level unemployment (Barro, 2001; Pagano and Giovanni, 2012; Cojocaru et al., 2016). The study access the capital market and the accessibility of relaxed credit for business firms enhances the level of employment through economic stability (Cojocaru et al., 2016; Caporale et al., 2015; Hassan et al., 2012). World Bank (2009) pointed out that any financial disruption generates a sever threat for macroeconomic performance; hence the level of unemployment increases. The global financial crises in 2008 increased the worldwide level of unemployment to 7.4 percent.

Although the less developed economies have overcome the problem of high and increasing rates of unemployment because it had developed an absorptive capacity, the developing economies are still facing a high level of unemployment. Approximately, 8 Percent of the world labor is still unemployed.

According to the economics survey Pakistan is the 6th populated country of the world. This population growth rate is the highest one in the region of central Asia. Besides this, there are some demographic dividends for the economy of Pakistan that 61.4 percent population is in the age bracket of 15-59. It implies that there is a huge population in working age but there is about 6.0 percent of the labor force is unemployed in the economy of Pakistan.

Population growth emerged as a serious problem for developing and developing nations including Pakistan. According to Ahmad and Ali (2016), Pakistan is the 5th most populated country in the world with macroeconomic instability last forty years. High population and macroeconomic instability triggered more imperative socio-economic problems such as poverty, inequality, and unemployment among others. More unemployment generates more migration towards the advanced country for more rewards. This phenomenon called brain drain which is more harmful to poor nations because more efficient and technically skilled worker moves toward developed countries (Azadi et al., 2022). For Pakistan, during the year 2002, the unemployment rate reached 8.3 percent which is considered high unemployment rate of the decade. The adverse impact of this unemployment rate is most of the youth is unemployed in the case of Pakistan. Previous studies highlight different causes of high unemployment in Pakistan, such as sectoral imbalance, lack of job opportunities, provincial and regional discrimination, lack of job experience, demographic and geographic differences, structural mismatch, and lack of skill and education (Ahmad & Azim, 2010).

Pakistan is a dualistic economy in nature like all other developing nations. There are two main sectors one is the traditional or agricultural sectors, and the Agri sector is characterized by a large population of approximately, 60 percent population, directly and indirectly, belonging to the traditional sector and at least 40 percent of the labor force work in this sector. The more surprising fact is that most of the natural resources are available in the country in the form of Agri land, oil, gas, mountains, and water availability, and with a larger population, still this sector works with a 22 percent disguised unemployment level. This condition may produce more inefficiency in Agri production and it may cause persistent

unemployment. Over a longer period, unemployment creates social evils such as poverty, crimes, financial rigidities, better health and education opportunities, and loss of self-esteem on one hand. On the other hand, economic indicators such as production, growth, imperfect wage market, and under-utilization of natural resources Ahmad et al., (2021). Second, the modern industrial or technology advance urban sector is characterized by modern industrial development and performing better in economic and social development. It produces more income which creates more job opportunities but still, this also faces more population, a large number of rural migrants for jobs, health, and education (Ali et al., 2021).

After the emergence of the World Trade Organization WTO 1995 Pakistan tries to progress the trade position of country under the social action program SAP. The following steps follow during last thirty years to improve the comparative advantages and try to improve the employment opportunities. First, to reduce the 225 percent tariff rate on trade. Second, Pakistan always tries to create export promotion policy but unfortunately policy fails due to several factors, high cost of production and high domestic demand. Third, promote the financial opportunities for banking sectors and allows the foreign currency account. Fourth, tax holidays policy promotes imperfect institution in production. Under the process of removing income rebates on exports, the private exporter takes only interest in rice and textile items but ineffective to overcome the trade deficit (Zadi, 2015). After 2000 government tries to enhance economics growth through political and social integration without analyzing the comparative advantages of exporting industries.

Natural resources provide the foundation to enhance the agriculture, capital formation and socio-economic performance of any country. The better utilization of natural resources may be very fruitful for human being in different ways. Every object of the natural resources helpful for human such land and water use to produce food, energy and industrial raw material for further production. Natural gas, oil and coal are used to produce energy, power and heat (Weng et al, 2021). On the relationship of natural resource and economic growth and development has positive impact for different regions, time horizon and different types of natural resources availability. Some studies show that

natural resources have no significant impact on growth and development such as (Mavrotas et al., 2011; Eregha & Mesagan, 2017).

The above prose assessment shows that unemployment is an important issue in Pakistan due to higher population and inefficiency in the utilization of natural resource like all other developing nations. The four main dimensions, such as economic growth covers the overall labor market conditions, population growth is also considered the working supply, domestic investment and foreign investment captures the employment, trade liberalization is used investigate the employment and utilization of natural resources for marginal impacts on unemployment. A number of studies investigate the macroeconomics detainments of unemployment in Pakistan this study only focus on the natural resources, rural urban population and trade opportunities. Furthermore, this also investigates the impact of financial development on unemployment for an open economic environment for the case of Pakistan. The economy has the potential to explore natural resources with improvements in financial development in the future for misery unemployment.

II. Literature Review

There is comprehensive research based on theoretical and empirical frameworks that reveal the relationship between macroeconomic states and the level of unemployment in the developed and less-developed economies. In the literature review, the most recent and relevant studies are used to examine the relationship between the level of unemployment and other variables including openness and financial innovations. A strong link has been observed between the intensity of trade openness and the level of unemployment in an economy and it is the wage flexibility, utilization of natural resources, prices, and volume of the trade that determines the full employment level in an economy. The policies which are designed for housing, minimum wage laws, the labor market reforms, anti-competitive goods market parameter, legislations related to employment protection, the framework of collective bargaining, the strength of the trade unions, tax rates and unemployment benefits might be some of these factors and determinants (Calmfors, 1983). The practice of trade liberalization had boosted up since

the late 1970s because of the removal of the trade barriers which include both natural as well as artificial among the trading nations. In the less-developed economies, the basic concern is on boosting up the level of employment in import-based industries, whereas, in today's modern economies, it is considered more important to increase the trade with less-developed countries that leads to adverse outcomes in the labor market for least-skilled workers.

Philips (1958) postulates a strong discussion by probing the relationship between the level of unemployment and the rate of inflation, which is termed as Philips Curve (PC). Okun (1965) investigates the relationship between the level of unemployment and real output or aggregate economic activity, which is called Okun's Law. A greater number of studies that reinvestigated Okun's Law and Philips Curve for example; Eriksson (1997), Harris and Silverstone (2001), Tunah (2010), Mahmood, et al., (2011), Herman (2012), and Iqbal et al., (2013) analyzed the socioeconomic determinants of unemployment in developing and developed economies. The study illustrates that the changes in employment structures as workers switch their jobs. Moreover, labor laws, trade unions, and structure wages also determine employment levels.

A mutual concern is that 'low-cost labor force' and the 'race to the bottom' might be the result of rising integration level. Thus, it leads to the protectionist sentiments against the trade liberalization the less-developed and developed economies. There are a greater number of the studies discovered this link for different methods for a different region of the world; Copeland (1989), Agell and Lundborg (1995), Harrison (1996), Matusz (1996), Davidson, and Matusz (2000), Altenberg, and Brenken (2008), Egger and Kreickemeier(2009), Dutt et al., (2009) and Hasan et al., (2012). The findings of these studies show that trade liberalization generates positive and significant impacts on employment while some have an inclusive decision.

The enlargement and the growth of the financial institutions and organizations are considered to be vital for the growth of the real sector. Moreover, the possible adverse effects of the financial sector might be very severe threats to the growth of economies as a whole. In the previous literature regarding financial development and unemployment, there are wide-

ranging outcomes were reported for most significant contribution such as Arnold (2002), Wasmer and Weil (2004), Dromel et al., (2010), Cojocarui et al., (2016). There are different measures used by these studies for financial development with different data sets among regions. They originate that the availability of the domestic credit for private firms, financial assets, perfect financial markets, efficient stock market capitalization possess an adverse impact on unemployment and vice versa. Another aspect of financial development and unemployment via growth in real GDP and other control variables observed by Arestis et al., (1997) and Apergis et al., (2007).

On the relationship of trade liberalization and unemployment, the theoretical literature presented that trade improves the utilization of labor and capital among trading countries not only in perfect competition as well as in imperfect market structures in both developed and developing nations. For empirical work done by Helpman et al., (2010), Felbermayr, et al., (2011), Ali et al., (2020), Onifade et al., (2020) and Alfalih (2024) investigated the relationship between trade and its impact on different types of unemployment. They concluded that trade liberalization has different ways to improve the employment activities in more open economies of the trading world. Matusz (1996), Dutt et al., (2009), Cacciatore (2014) found that trade liberalization has ambiguous relationship with labor employment, wages and unemployment.

Previous studies mainly focus on the relationship of natural resources and level of economic development and incomes of the different region of the world. Some focus oil exporting and non-exporting countries with different data sets and various variables. Natural resources have positive and significant impact on the unemployment in the long run but ambiguous impact in the short span of time in all exporting countries (Fattah, 2017). Ogbeide et al (2016), Akinyele et al., (2022) and Güler et al., (2024) investigated this links and concluded that natural resources have positive impact on the employment opportunities over the longer period of time. On the other hand Khalid et al., (2016) concluded that abundant of natural and utilization may affect negatively competitiveness of other sectors of the economy such as GDP and domestic labor employment Akinyele, et al, 2023, Rahman,2025,

For the economy of Pakistan high level of unemployment is associated with many of the socioeconomic factors. Thus, the problem of unemployment requires vigilant demonstration at different platforms along with other important issues, for its required solutions. A large number of studies had analyzed the causes and consequences for unemployment in the economy of Pakistan. Mahmood et al., (2011), Salman and Javed (2011), Iqbal et al., (2013), Maqbool et al., (2013), Ahmad & Ahmad (2016), Ahmad & Ali (2016) and Ali & Zulfiqar (2018) investigated a large number of reasons that led unemployment in Pakistan economy. When we review the literature, it reveals that unemployment is one the greater problem in almost all developing countries including Pakistan. The studies used different determinants of unemployment, for example, literacy rate, foreign direct investment (FDI), the growth rate of real GDP, the growth of population, capital formation at domestic level or domestic investment, price level, external debt, wages rates, and role of political arrangements, labor markets and price level as a factor of unemployment in the economies. Imtiaz et al., (2020) investigate the macroeconomics determinants of youth unemployment for Pakistan. The concluded that youth unemployment is serious problem for Pakistan due to backwardness of agriculture, lack of new investment and high population growth. Ahmad (2020) also investigated the links between unemployment and inflation and reported the high inflation rate hurts the employment opportunities in Pakistan.

These variables considered as the main determinants of unemployment via the utilization of the natural resources in the economy. In the open economic environments, financial innovations and free movements of goods and services play very important for employment and natural resources. However, the studies overlooked trade openness and the innovations in the financial sector as the important factors of unemployment in Pakistan's economy. Based on these weaknesses of the previous studies, these variables are considered as the main determinants of unemployment via the utilization of the natural resources in the economy. In the open economic environments, financial innovations and free movements of goods and services play very importantly for employment and natural resources.

The study would try to bridge the gap in the literature to empirically investigate these links for Pakistan.

III. Methodology, variables and Data sources

The basic aim behind the construction of the model, it makes the complex situation very simple. The main target to construct a model is to design an investigation and provide future predictions on the estimated outcomes. With the openness of trade, rising population and lower employment opportunities may create macroeconomic challenges. Pakistan is good case study because it has dualistic approach in social setup, economic, technological and population distribution. A large number of hypothetical and experimental studies are available in the existing literature. The H-O model explains the link between unemployment and international trade. The effects of trade liberalization on employment in less developed economies contradict those obtained in the same types of studies for the modern and industrialized economies. In the lights of Eriksson (1997), Harris and Silverstone (2001), Yanikkaya (2013), Dutt et al., (2009) and Hasan et al., (2012), Iqbal et al., (2013), Cojocaru et al., (2015) and Ali and Zulfiqar, (2018) the model of this study will become as below: Equation no. 1.

$$UN_t = f(FI_t, RUL_t, URB_t, TRA_t, NRI_t) \quad (1)$$

UN = the rate of unemployment, unemployment is measure as the unemployed workers as a percentage of the total workforce, following the methodology of the Economic Survey of Pakistan. ILO (2001) mentions a person is said to be unemployed if he/she wants to work but during the last four weeks he/she unable to find a job. IMF (2008) mentions that unemployment can be measured by the annual percentage of the total workforce, which are will to work but cannot find a job. FI = financial development which is measured as credit available to the business firms in the private sector, RUL = rural population growth, URB = urban population growth, A large numbers of population belongs to rural areas which has less technological progress, less healthcare opportunity and skilled education, largely depends of seasonal employment or working with disguised unemployment and vice versa. TRA = the trade openness which is measured with the help of merchandized export plus imports divided by GDP, NRI = availability of natural resources, Natural

resources index constricted with help of arable land, the area of the forests, the output of oil, coal, etc. For this, Principle Component Analysis (PCA) analysis is used to calculate the NRI for Pakistan as measure (Ali & Zulfiqar, 2018).

$$UN_t = \alpha_0 + \beta_1 FI_t + \beta_2 RUL_t + \beta_3 URB_t + \beta_4 TRA_t + \beta_5 NRI_t + U_t \quad (2)$$

Here, α_0 = constant intercept, β = slope intercept of each variable, U_t = white noise error term. The study would examine the effect of trade liberalization along with the financial development on the rate of unemployment in the economy of Pakistan. The study has used a predictable time period from 1972 to 2020. Data of selected variables has been taken from Various Issues of the Pakistan, Economic Survey, an online database of the State Bank of Pakistan and World Development Indicators (WDI) online database by the World Bank.

For the empirical examination, we employ the co-integration ARDL approach for linear combinations among dynamic of natural resources, population growth, financial innovation and open trade. This is methods is used due to two reasons. First, this meth is normally solved the problem of different levels of stationary of the variables. The traditional method deals only level stationary data set for empirical investigation. Second, this method is more applicable for short-run dynamics simultaneously without losing long run information of variables, such as autocorrelation and endogeneity. ARDL co-integration approach was established by (Pesaran and Shin, 1999). Later, this approach is augmented by (Pesaran, Shin and Smith, 2001) for co-integration analysis. This approach has so many advantages over the previous co-integration methods. Besides, this method is more applicable to a small sample size. The estimated equation is communicated as

$$\Delta \ln Y_t = \beta_1 + \beta_2 t + \beta_3 \ln Y_{t-1} + \beta_4 \ln X_{t-1} + \beta_5 \ln Z_{t-1} + \dots$$

$$+ \sum_{h=1}^p \beta_h \Delta \ln Y_{t-h} + \sum_{j=0}^p \gamma_j \Delta \ln X_{t-j} + \sum_{k=0}^p \phi_k \Delta \ln Z_{t-k} + \dots + u_{it} \quad (3)$$

Here the dependent variable is $\ln Y_t$; time is presented with t ; the lag of dependent variable can be presented with $\ln Y_{t-1}$; first independent variable

is presented by $\ln X_t$; the second independent variable is presented by $\ln Z_t$ and so on. Rate of change can be measured with the help of Δ .

IV. The Empirical Results and Discussion

The study is heading for analysis of the influences of natural resources utilization, rural-urban population growth and the financial innovations on unemployment in Pakistan for a small open economy. This study practices the rate of unemployment as an

explained indicator and the other variables like financial development, the population growth in rural areas, the population growth in urban areas, openness of the international trade, and the agglomeration of natural resources are taken as independent variables. Table-1 depicts that all concerned specifies the projected coefficient of estimated tests of indicates that all concerned indicators have normally distributed and they have limited covariance and zero mean.

Table-1
Descriptive Statistic

	<i>Unemployment</i>	<i>Financial Development</i>	<i>Rural pop</i>	<i>Urban Pop</i>	<i>Trade</i>	<i>Natural Resources</i>
Mean	3.801255	22.74759	2.196095	3.349165	29.89978	0.360030
Median	3.970000	23.15060	2.123535	3.300711	29.96564	0.268736
Maximum	7.830000	29.78608	3.023628	4.513847	38.74397	1.429321
Minimum	0.397700	15.30549	1.501242	2.405701	19.97206	-0.654966
Std. Dev.	2.163211	3.974326	0.469556	0.708709	4.094274	0.474354
Skewness	0.157700	-0.246437	0.318845	0.218376	-0.181932	0.489928
Kurtosis	2.059676	2.158335	1.739467	1.448843	2.834373	2.769434
Jarque-Bera	2.008361	1.942286	4.074331	5.301882	0.326318	2.068773
Probability	0.366345	0.378650	0.130398	0.070585	0.849456	0.355444
Sum	186.2615	1114.632	107.6087	164.1091	1465.089	17.64147
Sum Sq. Dev.	224.6151	758.1729	10.58317	24.10890	804.6277	10.80054
Observations	50	50	50	50	50	50

The outcomes in table 2 show that the rate of unemployment has positively correlated with the development in the financial sector and the growth rate in the rural population. The results show that the unemployment rate is negatively correlated with the growth of the urban population, the openness of

international trade, and the agglomeration of the natural resources. The correlation matrix clarifies that the independent variables in the model have not any partial correlation among one another. It shows the non-existence of multicollinearity among the explanatory variables.

Table-2
Correlation

Time: 1972- 2020

Variables	<i>UN</i>	<i>FI</i>	<i>RUR</i>	<i>URB</i>	<i>TRA</i>	<i>NRI</i>
<i>Unemployment</i>	1.0000					
<i>Financial Dev</i>	0.1395	1.0000				
<i>Rural pop</i>	0.0231	0.3963	1.0000			
<i>Urban pop</i>	-0.0423	0.3156	0.9403	1.0000		
<i>Trade</i>	-0.0848	0.2647	-0.1382	-0.0833	1.0000	
<i>Natural Resources</i>	-0.1928	-0.0358	-0.6350	-0.7288	0.3783	1.0000

We can apply more modern co-integration methods the data of the above variable is stationary. On the other hand, our data set is non-stationary we cannot move with the same data for any further analysis. For unit root estimations, we used Dickey and Fuller (1979) ADF test and Phillips and Perron (1988) PP

test is more powerful against parametric observation. The outcomes of tests have been given in table-3. The overall result of both tests elucidates a diverse integration order; the situation is excellent to apply the ARDL model

Table-3
Results of Unit Root

Variabls	ADF Test		PP Test	
	t-Statistic I(0)	t-Statistic I(1)	t-Statistic I(0)	t-Statistic I(1)
UN	-2.2532**	-6.7773*	-2.3561**	-6.7773*
FI	-1.8175	-5.4816*	-2.1114**	-5.4240*
RUR	-1.2061	-2.8571**	-0.4520	-2.8013**
URB	-0.4075	-3.0384*	-0.1160	-3.0384*
TRA	-3.9643*	-7.5512*	-4.1491*	-10.245*
NRI	-1.7291	-6.1424*	-1.7070	-6.1144*

Note: *, ** indicates the level of stationary level of variables at 1% and 5% of significance

After verifying the stationarity and lag length of the variables, co-integration among the rate of unemployment with other specific variables can be initiated. The first step of ARDL estimates the F-statistic (Bounds Test). The ARDL's outcomes, F-statistic are shown in the table-4. The decision is made on the upper bound and compares this with the F-

calculated value. F-statistic has been utilized to analyze the testing of the null hypothesis of no co-integration. The estimated value of F-statistic is greater than the upper bound. Thus, the null hypothesis can be rejected and it means there are some linear combinations that exist among variables in a longer period of time.

Table-4
ARDL Bounds F-Statistics

<i>Dependent Variable UN</i>				
Critical Value	F-Statistics calculated		4.7125**	
	Lower limit	Upper limit	W-statistic F-Statistics calculated	27.9730**
95%	2.6234	3.4520	Lower limit	Upper limit
			19.2312	23.4514

Note: *, ** indicates the level 5% of significance

The output in the long run among the given dependent and independent variables is shown in the coming table-5. The results which are estimated through the given econometric technique show that the development in the financial sector has a negative and significant impact on the rate of unemployment in the economy of Pakistan.

Large numbers of deterrents of unemployment discuss in literature like prices, foreign direct investment FDI, human capital growth, the growth of the population, domestic investment, foreign debt,

wages rates, and role of political arrangements, labor market conditions. The empirical results postulate that the population in urban areas has a significant negative impact on the unemployment rate in Pakistan's economy. The empirical and theoretical investigations revealed that the urbanization is linked to the agglomeration economies and spatial economic distribution effects. For the last few decades, policy-makers, economists, and some other social scientists included the population in urban areas as an important factor of transitional variations and the rate

of employment out of the traditional agriculture sector.

Table-5
Long-run Estimates

<i>UN: Unemployment as Regressed</i>				
Variable	Coefficient	Std. Error	t-Statistic	Significance
<i>Financial Dev</i>	-0.25830	0.13985	-1.84701	10%
<i>Rural pop</i>	2.74553	3.10275	0.88487	Insignificance
<i>Urban pop</i>	-4.95886	2.44934	-2.02458	5%
<i>Trade</i>	0.31488	0.13658	2.30544	3%
<i>Natural Resources</i>	-8.0789	1.78172	-4.53436	1%
<i>C</i>	1.73094	0.70704	2.44673	2%

The short-run relationship of the variable can easily be examined by using the error-correction model (ECM) after the confirmation of the long run results in the model. The short-run outcomes as reported in table 6, demonstrate that the financial development and the urban population have a negative relation with the rate of unemployment in the economy of Pakistan. Moreover, trade openness has a positive and significant effect on the level of unemployment. The estimated outcome reveals that the agglomeration in

natural resources has a negative but significant influence on the rate of unemployment in Pakistan. The population growth in urban areas, international trade in goods and services, utilization of the national resources has the same sign with unemployment as compared to the long run. The estimated short-run outputs show that ECM had a significant coefficient (-0.622113), that is theoretically correct. Estimated outcomes in ECM clarify the velocity of the adjustments from the short run towards the long run.

Table-6
Short-run Dynamics

<i>DUN: Dependent Variable</i>				
Variable	Coefficient	Std. Error	t-Statistic	Significance
Δ <i>Financial Dev</i>	-0.034758	0.127278	-0.273089	insignificance
Δ <i>Rural pop</i>	1.708037	1.942246	0.879413	insignificance
Δ <i>Urban pop</i>	-9.067172	3.259461	-2.781801	2%
Δ <i>Trade</i>	0.195892	0.084720	2.312226	2%
Δ <i>Natural Resources</i>	-2.431905	1.146003	-2.122076	5%
<i>ECMt-1</i>	-0.622114	0.138684	-4.485850	1%

R-squared 0.8082, Adjusted R-squared 0.7314
Akaike info criterion 3.2833, Durbin-Watson stat 1.8719,
F-statistic 10.53459, Prob(F-statistic) 0.00000

The figure-1 Cumulative Sum (CUSUM) and the figure-2 the Cumulative Sum of the Squares (CUSUM sq) are applied for inspecting the stability in short-run as well as in long-run coefficients of the model. Both figures show that our coefficient in both of the periods, the short-run as well as long-run.

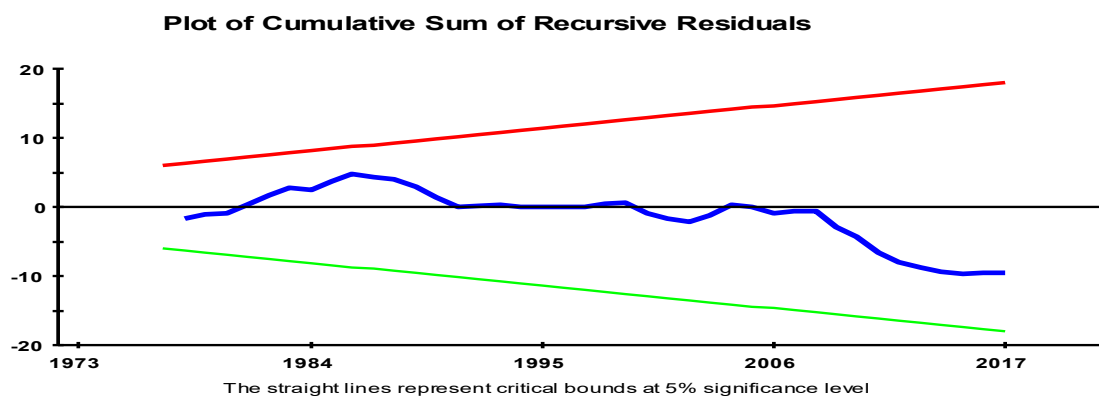


Figure-1 Sum of Recursive Residuals

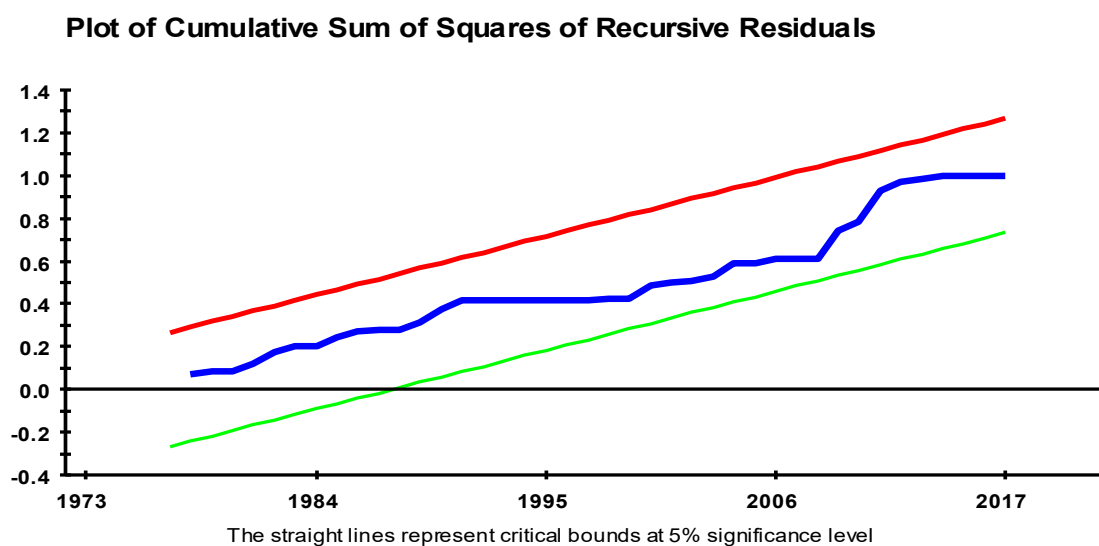


Figure-1 Sum of Squares Recursive Residual

Discussion

Results support that the developments in the financial sector offer the immediate funds to business firms and in return, those business firms generate more labor demand for the growth of their businesses (Hassan et al., 2011; Caporale et al., 2015). Results strongly support that the financial institutions have a significant contribution to the economic development and employment generation in the economy of Pakistan. For auxiliary analysis prices CPI, FDI, income level has negatively associated with unemployment as concluded by Maqbool et al., (2013) and Iqbql et al., (2013). Population growth is positively correlated with the rate of unemployment.

The study used urban as well as rural population growth and the estimated results depict that the rural population growth insignificant impact on unemployment in the economy.

The study outcomes describe that the openness of international trade has a significant positive impact on unemployment in Pakistan's economy. In case of Pakistan trade has no significant impact on unemployment as concluded by Harrison (1996), Matusz (1996), Dutt et al., (2009), Cacciatore (2014) pointed out that trade liberalization might not be as fruitful as it is for the modern and more developed economies because, in the number of cases, trade openness hurts the growth of real GDP of less-

developed countries in long run as well as in short run. Trade liberalization has no significant impact on an employment opportunity because due to several reasons. First, exports consist of primary products. Large informal Agri sector may create wage imperfection in the labor market. Second, export promotion with the devaluation of the local currency most of the time but the economy fails to enhance sustainable Agri production. Third, more than 40 percent of labor is attached to this sector. Primary exports, devaluation of the currency, and informal sector labor force may cause increased unemployment in Pakistan especially in rural areas of the country. After the Structural adjustment Program (SAP), the country fast moves towards trade liberalization without comparative advantages. Our results coincide with Helpman et al., (2010), Felbermayr, et al., (2011), Ali et al., (2020), Onifade et al., (2020) investigated and concluded that trade has positive impact on different types of unemployment.

The fast growth of the population in urban areas also takes socio-economic and the changes in the political environment of the economy, small and medium-level trading businesses and industrialist groups emerge in the Pakistan economy. These groups with their pure capitalist approaches had a significant contribution to employment generation in the economy as a whole. The population in urban areas in the Pakistan economy brings relocation of social organizations and redefines the institutions in the society to set social and cultural norms and traditions for which the organization is designed. The urban area's population is trying to moves towards more skills and professional development over time. These norms further increase job opportunities in urban areas which might bring the level of unemployment down in Pakistan. Results support the Ahmad & Azim, (2010) work because the lack of less technological progress, less healthcare opportunity and skilled education, largely depends of seasonal employment or working with disguised unemployment and vice versa.

There is an inverse but significant impact of natural resource agglomeration on the rate of unemployment in Pakistan. Our estimate supports Ali and Zulfiqar (2018) arguments. While, some empirical work concluded that use of natural resources have significant and positive impact on unemployment such as (Fattah, 2017). Ogbeide et al.,(2016), Akinyele et al., (2022). The economy of Pakistan possesses an abundant quantity of natural resources in the form of arable land, forest, coal, oil, and gas reverses among the others. About 22 percent of the workforce is directly associated with agriculture land as a source of employment and more than half the population lives in rural areas. Better and efficient use of natural resources might automatically improve the rate of employment in the economy. Pakistan also may create a comparative advantage in many of the products which are based on natural resources. In such circumstances, international trade openness along with specialization will increase the volume of the export earnings of Pakistan with more employment opportunities.

V. Conclusions

The problem of unemployment is generating difficulties in achieving the aims of economic growth and macroeconomics stability. Thus, the policies are being designed to alleviate unemployment especially during the period of recession. In the present era, a high level of unemployment has become a central problem for the economy of Pakistan. The dramatic increase in the growth of a high level of unemployment is a big headache for economists and policy-makers in Pakistan. The high unemployment level is associated with a large number of socio-economic factors. Less-developed economies like Pakistan have greater population growth, inefficient and underdeveloped financial sector, and the agglomeration of the natural resources. The study has examined the impacts of the liberalization of international trade and the development of the financial sector on the reduction of unemployment in Pakistan's economy during the period of 1972 to 2020. ARDL method has been used to explore the co-integration among the indicators which are selected. The empirical findings of the research a climax that the development in the financial sector; urban population growth has an inverse influence on the

level of unemployment in both the short and long-run. However, rural population growth has a positive impact on the level of unemployment for both periods. Trade Liberalization has a direct but significant effect on the unemployment rate. Trade liberalization has no significant impact on an employment opportunity because due to primary goods are exports. Large informal Agri sector may create wage imperfection in the labor market. Devaluation of the local currency has no significant impact on the manufacturing sector. After the Structural adjustment Program (SAP), the country fast moves towards trade liberalization without properly investigate the opportunity of comparative advantages. In the first stage, the country should improve its manufacturing. The urban area's population is trying to moves towards with emergence of industrialization, more skills and professional development over time. These norms further increase job opportunities in urban areas which might bring the level of unemployment down in Pakistan. In the rural areas, the traditional agri sector still working with over burden disguised unemployment in Pakistan.

The results describe that agglomeration of the natural resources has an inverse and significant effect on the unemployment rate in the economy of Pakistan. The study recommends trade liberalization policies to the economy of Pakistan in such a way that they cannot upset the status of employment in Pakistan. Empiric's show that. the Pakistan economy possesses a large number of natural resources still even some of them have not been either used or discovered. Thus, the government of Pakistan should use natural resources in an efficient way to ensure the unemployment alleviation in the economy. Besides this, the specialization in the use of the natural resources for the exports based on comparative advantages might be helpful to reduce the unemployment in Pakistan. First, improve and modernized our agri sector and provide the skill, education in rural segment of the society for removal of unemployment. This strategy may improve the agri base industries on first stage. On the later stage, technical and training institutions create the comparative advantages for open trade in future.

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