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UNEMPLOYMENT, GOVERNANCE AND MIGRATION FLOWS IN PAKISTAN

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ABSTRACT

The extant study is an endeavor to evaluate the impact of unemployment, per capita GDP and governance on migration outflows utilizing the data from 1990 to 2016 for Pakistan. The results of the study estimated with ARDL approach corroborate that unemployment and governance index are major determinants of the migration. Specifically, the findings indicate that the GDP per capita and governance quality have negative and significant effects on migration while unemployment lead towards more migration, ceteris paribus. The study highlights the role of good governance in reducing both the brain drain of human capital and abstruse levels of unemployment in the country. The study recommends for the concerted endeavor by the extant government apparatus to optimize the migration levels and therein maximizing the socio-economic development in Pakistan.

Keywords: Unemployment, Migration, Governance index, Per capita GDP, Human capital
JEL Codes: J64, O15, H24

I. INTRODUCTION

Migration is the process of movement of inhabitants from extant place to a new place for permanent or semi-permanent residence and employment, generally across a political periphery. One of the most important migration patterns has been inter alia, rural to urban migration which brings in its wake the movement of inhabitants from rural countryside towards metropolitan areas for seeking jobs and opportunities. Migration brings about population redistribution, socio-economic, political, and cultural variations in a given part of the world (Narayan and Symth, 2006; Ramirez et al., 2014). In present era, the migration process is greatly accelerated owing to the growing transportation services and rising set-up of communication all over the globe. Caplow (1954) highlighted the professional requisites as a key feature of migration. Lee (1975) found that variations in residence due to sake of better environment are a basic feature of migration. In addition, migration is viewed differently by different scholars but, migration is an economic phenomenon for large number of scholars. Representing this point of view, Safa (1975) stated that human migration occurs due to the economic requisites, albeit non-economic determinants also have some key bearing in this concern. Internal migration is the movement towards a new residence therein the boundaries of a specific country like from one city another or one state to another etcetera. Conversely, external migration is movement towards a new residence in a poles a-part state, country, or continent. Emigrations are exiting of one country to move to another while immigrations are moving into a new country. Individuals are not forced out of their country, but migrate because of unfavorable situations such as warfare, political problems, or religious discrimination aka impelled migration. Step Migration, chain migration, circular migration and seasonal migrations are also evident into the extant world with diversified needs and their caterings.

People decide to migrate because of push factors and pull factors, and nevertheless these so-called factors are the key causes that make someone decide to move. Often push factors are pessimistic effects such as unemployment, flooding, poor education opportunities, high crime rates, poverty and lack of employment opportunities, among others, in the extant places of residence (Sajid and Ali, 2018; Senturk and Ali, 2021). Alternatively, pull factors are the expectations attracting the inhabitants to the new place and these pull factors are inter alia favorable factors like employment opportunities, better education & health care, favorable climate, public order & freedom, and better standard of livings; among others. Major push and pull factors may influence migration; inter-alia includes

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environmental, economic, cultural, religious, and political aspects as mentioned earlier. Notwithstanding, Pakistan is known for its huge demographic potential aka population dividend. Most of the young cohort is quite efficient, computer savvy, technical/vocationally trained and educated and conforms to the requisites of promoting socio-economic development (Ali and Zulfiqar, 2018; Ali et al., 2016; Ali et al., 2021; Ali et al., 2021; Ali et al., 2015; Arshad and Ali, 2016; Ashraf and Ali, 2018; Audi and Ali, 2017; Audi and Ali, 2017). Therefore, foreign firms/investors attract Pakistani skilled labors force by offering profitable packages. On the other hand, government fails to provide good working or job opportunities to this huge population. The consequences of these failures cause migration of skilled labors aka brain drain due to the extant persistent unemployment and therein implies for the positive role of governance, ceteris paribus. The employment system of the country has been affected by the bureaucratic policies and particularly frameworks at the government or public sector openings leading towards migration of qualified people. Good quality of governance has negative impact on migration via improving the welfare of public, reducing the corruption, and inter alia generating the employment opportunities for the nation (Ali and Naeem, 2017; Ali, 2011; Ali, 2015; Ali, 2018; Ali and Bibi, 2017; Ali and Ahmad, 2014; Ali and Audi, 2016; Ali and Audi, 2018; Ali and Rehman, 2015; Ali and Senturk, 2019). It is obvious that the country needs a culture of cultivating a system of good governance to reduce brain drain, fostering the GDP growth, and lowering the extant high levels of unemployment. Considering the discussion, the present reading adds to the literature by providing the long run and short run aspect of migration and inter alia role of good governance, unemployment, and GDP per capita in the socio-economic progress of Pakistan. The prime motives of the study are:

- To analyse the level of migration and examine the impact of unemployment, human capital and per capital income on emigration.
- To analyse the impact of governance quality on emigration.
- To suggest some recommendation for reducing brain drain of human capital and extant unemployment based on empirical counts.

Furthermore, it is evaluated that does the governance quality complements the role of human capital positively in migration flows or not.

I.I. MIGRATION TREND IN PAKISTAN

Migration into areas that now constitute Pakistan is a significant, and since national borders have only been recently drawn, these movements firstly constituted part of the internal migration flow within the Indian subcontinent. Pakistan is a labor surplus country. Pakistan is amidst first ten main emigration countries of the globe. Export of labor increases wages in domestic country; lessens the extant unemployment and remittances from foreigners adds to the balance of payment woes and therein improves overall welfare of the nation. According to the Pakistan Labor Force Survey reports migration trend in Pakistan from 1990 to 2016.

Figure-1

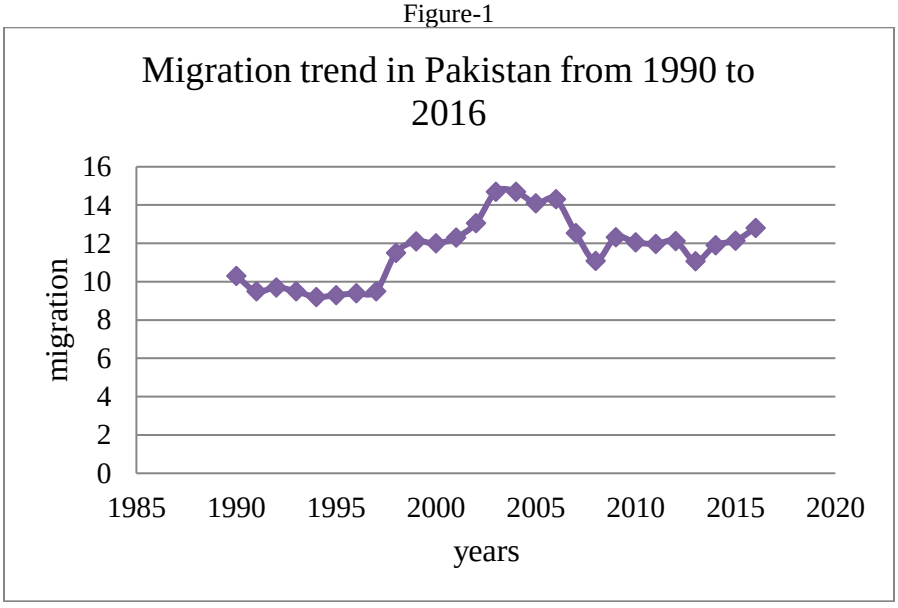

Figure 1 explains the migration trend in Pakistan from 1990 to 2016. Migration initially 10.3 in 1990 and migration decrease after 1990. Migration was 9.5 in 1991 and migration becomes lowest 9.2 in 1994. After the period of 1994

the migration was increase from 1995 to 1997 but at decreasing rates. Figure show that migration trend increasing high level after 1998. Migration was 14.7 at highest level in 2003 and 2004. The reasons of increasing migration from 2000 to 2004 were wrong policies of governance, crimes, inflation, high unemployment to mention a few. Hence, people migrate from Pakistan to other high-income countries for seeking jobs opportunities and for better living standard. Likely, 12.8 percent migration recorded in 2016. GDP per capita is low in Pakistan it is the main reason for migration increase. Human capital is useful and competent part of population of any country. Population and unemployment have positive impact on migration flow, unequal incomes, resource distribution, rising trends of poverty and inflation. Migration into areas that now constitute Pakistan is a historic experience, and while national boundaries have only been recently drawn, these movements firstly constitute part of the internal migration flow within the India sub-continent. The history of migration is on the other hand noticeable by certain periods of mass migration, which have important influenced the level and nature of future flows. In the late 19th century and earlier decades of the 20th century for example, a large migration flow generated as reaction to the establishment of agricultural colonies and construction of canal networks for irrigation in the region. However, proved a watershed and it is estimated that net inflows into Pakistan in 1947, mostly into Punjab and Sindh, were as high as two million. The 2nd migration landmark was the separation of East and West Pakistan in 1971, when former citizens became irregular migrants. The 3rd wave of cross border migration occurred in 1978 with the Afghan crises.

II. LITERATURE REVIEW

This section discusses some major hallmarks of literature concerning to the migration and its socio-economic determinants as well as the methodologies applied for different regions of the world. Notwithstanding, these studies provide guidance concerning the development of model of the study and covering the literature gap in Pakistan (See Table 1).

Table-1 Summary of Literature Review

Sr. No.	**Study**	**Purpose**	**Sample Data**	**Technique**	**Findings/Conclusions**
1	Pedersen et al. (2004)	To examine the growing migration flows in to 27 OECD countries.	Countries: 27 OECD Time: 1990-2000	Pooled OLS	Traditional factors as cultural differences and network effect were very strong but change in different countries.
2	Fleischmann and Dronkers (2010)	Analyzed the starting point and end point of effect of unemployment among immigrants in case of European labor market.	Countries: 13 destination countries of EU Time: 2004-2005	European Social Survey	The study found that the unemployment rate were lower in countries with a great part of low status-employment, with high immigration rate and with greater GDP per capita.
3	Mayda (2010)	To examine the factors of migration inflows into 14 OECD economies by country of origin.	Countries: 14 OECD Time: 1980 -1995	Panel data analysis method	The result show that the effect of geographic, cultural, demographic, and income distribution cause along with the part played by variation in end point countries migration policies.
4	Boubtane et al.(2013)	To analyze the relationship between unemployment and emigration.	Countries: 22 OECD Time: 1987-2009	Panel vector auto regressive technique	Migration reacted positively to GDP per capita and negatively to whole unemployment.
5	Ezto (2010)	To examine the determinants of interregional migration	Countries: Italy Time: 1996-2005	Fixed effect vector decomposition estimator (FEVD)	The result indicated that increase in population size leads to more migration and distances discourage migration flows.
6	Narayan and Smyth (2006)	To investigate the short run and long run	Countries: Fiji-United States	Autoregressive distributive lag	Variations in income levels, disparities in numbers of

		determining factor of migration flows	Time: 1972-2001	(ARDL) approach Human capital framework	doctors, cost of moving, political instability and police strength was leading determinants of migration in Fiji-United States.
7	Ramirez et al. (2014)	Evaluated the impact of unemployment and earnings on migration flows of European economy.	Countries: European economy Time: decade of 2000	Correlation analysis	Explored that the transformation of the level of unemployment and earnings cause changes of migration flows. Increase in the level of unemployment lead to more migration flow.
8	Bonasia and Napolitano (2012)	Explored the role of environmental factors that determined the international migration flows in case of Italy.	Countries: Italy Time: 1985-2006	Dynamic two-step panel generalized method	Crime had negative impact on migration while carbon dioxide positively impacts the international migration flows.
9	Ariu et al. (2016)	To evaluate the governance quality on net flow of skilled migrants.	Time: 1990-200	Random utility model of migration	governance affected the migration flows.
10	Heid and Larch (2012)	To examine the negative impact of migration and trade on unemployment.	Countries: 24 OECD Time: 1997-2007	Fixed effect model Dynamic panel estimator	The study showed that the impact of migration was not large on unemployment averagely.
11	Ullah (2012)	To empirically investigate the causes of international migration from the viewpoint of the source country like Bangladesh.	Countries: Bangladesh-23 destination countries Time: 1995-2009	Gravity model	Result indicated that the demographic, economic and cultural factors had major effect on emigration flows. Furthermore, the marginal effect of traditional elements like official language and religion were stronger than other factors.
12	Kim and Cohen (2010)	To analyze the determining factors of migratory inflow	Countries: 17 western countries Time: 1950-2007	Various techniques like GMM, GEE and OLS	The study indicated that the number of migrants depend on demographic, geographic and social factors. Moreover, Infant Mortality Rate (IMR) affected inflow and outflow significant but oppositely.
13	Chort and Rupelle (2016)	Focused on the factors of regional patterns of migration in Mexico-US.	Countries: Mexico-US Time: 1995-2012	PPML Method	The result of this study proposed that contribute to the regional migration patterns in conjunction with the conventional economic factors of immigration, environmental and social factors.
14	Coorey and Schneider (2014)	To examine the impact of corruption on emigration of those with high, medium, and low	Time: 1995-2010	Panel fixed effect model	The findings indicate that as corruption increase the emigration rate than educational attainment also

		level of educational achievement.			high. Moreover, increase the educational attainment level and similarly lead to fall inequality for reduce the emigration flow.
15	Stark et al. (2009)	To evaluate the relationship between aggregate relative poverty and migration.	Time: 1999-2005	Fixed effect estimation	The study explored that the migration and Gini-coefficient was positively correlated, holding the per capita income of population constant.
16	Basile et al. (2012)	To analyze the regional unemployment and migration flows in case of Italy.	Country: Italy Time: 1995-2006	System-GMM estimator	The result indicated that the migration flow was likely to enlarge longitudinal gaps in unemployment rates rather than mitigate them.
17	Rabe and Taylor (2012)	To highlight the impact of wage, house price and unemployment on migration	Time: 1992-2007	British household panel survey (BHPS)	The study indicates that the difference in household, wage and unemployment were important factors of migration. Furthermore, the employment spouse risks appear to discourage the migration more than wage disparities.
18	Cornwell and inder (2004)	To evaluate the relationship between unemployment and internal migration flows in case of Africa	Country: Africa Time: 1993-1994	Standard Harris Todaro model	The study found that compared search for job non-migrants, current migrants prepare well at outcome official employment and were greatly a smaller amount like to be unemployed.
19	Cattaneo (2008)	To examine the cause of migration and role of unemployment in case of Albania.	Country: Africa Time: April to September 2000	Living Standard Measurement Survey (LSMS)	The paper found that the wage rate and unemployment were main factors of migration in Albania.
20	Ledesma and Piracha (2001)	Investigate the role of remittances and international migration in Eastern Europe.	Countries: 11 transition countries of Eastern Europe Time: 1990-1999	GMM technique	Remittances had positive effect on employment level and discourage the emigration.
21	Vojtovic and Kordos (2016)	To examine that trend in unemployment and emigration of labor force in Europe.	Time: 2001-2014	Correlation analysis	The study found the result that show the fundamental dependency between economic growth, reduction in unemployment rate and migration flows.
22	Hix and Noury (2007)	Investigated the role of governance in migration policies and determinants of migration in European Union.	Time: 1999 -2004	Regression analysis	The study found that preferences of European Union policymakers were strongest causes of policy results on migration issues.
23	Lucchino et al.	To explore	Time: 2002/03 -	Fixed effects	The results showed that

	(2012)	unemployment and migration	2010/11	and random effect techniques	different stages of geographic combination and to numbers of tests appear to approve the lack of any impact of migration on unemployment in combined.
24	Mau and Burkhardt (2009)	To highlight the relationship between migration welfare state solidarity in Western Europe.	Time: 2002-2003	Multilevel regression model	The study found, the welfare state and approaches to the legal presence of immigrants for instance dependent variables actually reveal a negative effect of cultural mixture.
25	Heitmueller (2005)	Analyzed the relationship between unemployment benefits, risk aversion and migration incentives.	Time: 1990-1999	Pooled OLS approach	The result suggested that increase migration incentive free of taste and a strong range of risk neutral individuals.
26	Pekkala and Tervo (2002)	To evaluate the relationship between unemployment and migration	Time: 1980-1998	IV approach and so-called treatment effect method	Author found the positive impact of touching reduces once other personal features were liable for. Furthermore, when endogenous migrant selectively organized for, an irrelevant or even a negative effect on employment status arises.
27	Rotte and Vogler (1998)	To examine the determinants that cause to international migration from developing to developed countries.	Countries: 86 African and Asian countries Time: 1981-1995	Pooled OLS test	The paper found that no effect of industrial change and the consistent migration from rural area to the urban areas. Moreover, the strong laws in developed countries had been the normal influence on immigration

The reviews highlighted the importance of GDP, human capital, unemployment, and good governance upon the migration flows of different countries therein numerous applied methodologies. The extant reading covers the gap employing the modeling framework with the said variables to uncover the migration determinants and important bearings in Pakistan.

III. METHODOLOGY AND DATA

III.I. ECONOMETRIC MODEL

We evaluated the utility maximizing of potential migrants behavior with another potential destination countries and choose the countries which provide the same best opportunities to everyone. Migration depends on many factors, and we explore the major determinants and causes of migration in Pakistan. This study observes the impacts of GDP per capita, population, human capital, unemployment, and governance quality on emigration. So, we assumed a linear form of variables that influence the migration hence we have,

Model 1

$$M_t = \alpha_t + \beta_1 POP_t + \beta_2 HC_t + \beta_3 GDPc_t + \beta_4 Unem_t + \mu_t \quad (1)$$

Where t is time period and $\mu_t$show the error term. α_tIntercept of the equation and $\beta's$ are the slope or coefficient of equation. M_t denotes the number of migrants that moving from Pakistan to other countries at time t. $GDPc_t$ denotes GDP per capita and Real GDP per capita shows the ratio of real GDP to total population. POP_tDenote population level Population is measured as total residents of country of legal status, except refugees at t time. HC_t denotes the human capital and human capital is productive and efficient part of population of any country. $Unem_t$ denotes the unemployment level in Pakistan at time t.

Model 2

$M_{t=}\alpha_t + \beta_1 GDPc_t + \beta_2 HC_t + \beta_3 POP_t + \beta_4 Unem_t + \beta_5 G_t + \mu_t$ (2)

M_t Denote the number of migrants that moving from Pakistan or home country to other high-income countries at time t. G_t denotes the role and quality of governance of destination country at time t. All the variables are as alluded earlier except for governance variable added into Model 1. Empirical estimation of study uses the data of 1990-2016 for Pakistan. Data on GDP per capita, literacy rate and population has been collected from World Bank (WDI, 2018). Human capital index is taken from Penn World Table (2018). Data on migration is taken Labor Force Survey of Pakistan annual reports. Data on control over corruption, regulatory quality, rule of law, voice and accountability, governance index and government effectiveness has been collected from Worldwide Governance Indicators (2018).

III.II. INDEX OF INSTITUTIONAL GOVERNANCE

We have developed an index of institutional governance by taking simple average of six institutional governance indicators as alluded earlier. This index captures the over-all aspects and quality of institutional governance. Descriptive statistic is the subdivision of stats which deals with techniques of summarization and description of significant aspects of numerical and statistical data. Summary statistics shows total amount of observations available for each variable, mean, standard deviation, minimum and maximum values. Total observations for migration are 27 and its mean is 11.67. Governance index is measured by average of institutional indicators of government effectiveness as described earlier. These observations show that the log of real GDP per capita has mean value of 25.63 and its standard deviation is 0.31. Minimum value of GDP per capita is 25.10 and maximum value is 26.15 (Table 2).

Table-2. Summary Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Migration	27	11.67252	1.692578	9.200000	14.70000
Log(GDP per capita)	27	25.62853	0.313687	25.10374	26.15151
Government effectiveness	27	31.74875	6.622723	22.27488	41.32653
Control of corruption	27	17.44057	4.935461	7.526882	25.75758
Log(population)	27	18.80201	0.175598	18.49466	19.07925
Unemployment	27	6.242370	1.024581	4.689000	8.270000

III.III. ECONOMETRIC TECHNIQUE

First, we used non-stationarity test to ensure the order of integration of the variables. After checking the stationary of the variables, we used ARDL bond test approach to examine short and long run parameters.

III.III.I. UNIT ROOT TEST

The rationale of unit root analysis is that to verify that whether the time series variables are stationary or not. Invariant hallmarks of mean, variance and covariance indicates that data under analysis is stationary. Conversely, variation in the hallmarks of the mean/variance over time indicates that the data under analysis has a unit root process or non-stationary. Augment Dickey Fuller (1979) test has been applied in the analysis.

III.III.II. ARDL APPROACH TO CO-INTEGRATION

The empirical approach is founded on ARLD model of migration, which offers a justification for an elimination constraint to manage for the selection of migrants. There are some qualities of ARDL approach that are discuss under: The proposed ARDL based technique of modeling will be used only to compute the LR (long run) and SR (short run) impact of the models simultaneously. The ARDL /Bound testing method of Persaran and shin (1999) and Persaran et al. (2001) has been variegated with numerous advantages that a lot of scholars feel and offer some preference over conventional co integration testing. For example, ARDL is applicable even if there is difference in the order of integration like a mixture of I (0) and I (1) data. It also rivets only one set-up of empirical

computations, making it uncomplicated to execute and interpret. Moreover, the time series variable may be assigned dissimilar order of lag intervals to be incorporated in the models. ARDL requires a pre-requisite of ensuring that no time series data under the analysis has second order of integration i.e. I (2), as such data overthrows the entire methodology. Formulation of an unequivocal error-correction model (ECM) is the hallmark of the approach. ECM demonstrates the adjustment mechanism towards equilibrium levels among the variables.

III.III.III. BOUNDS TESTING TECHNIQUE

To estimate the long run coefficients and error correction model, first to check the whether the co integration exist or not. Null hypothesis and alternative hypothesis used to measure the impact GDP per capita, population, human capital, unemployment, education level and governance on migration. Wald test is written as under:

$H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (There is no Co-integration)

$H_0 = \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ (There is Co-integration)

The decision of accepting or rejecting the null hypothesis or alternative hypothesis depends on Wald test. Wald test conduct on variables and compute F- statistics. The calculated value of F statistics is compared with the critical values of F-statistics developed by Persaran et al. (1996). Values of F-statistics has two critical bound, upper bound I(0) and lower bound I(1). If calculated F-statistics is greater than upper bound I(0) then null hypothesis is rejected, so there is co- integration among the variables. If F-statistics exists below the lower bound critical values, the null hypothesis Ho is accepted showing there is lack of co integration among the variables, the alternative hypothesis is rejected.

IV. EMPIRICAL RESULTS AND INTERPRETATIONS

We have estimated two basic models. The empirical outcomes of the present reading are given below.

Model 1: $M_t = \alpha_t + \beta_1 POP_t + \beta_2 HC_t + \beta_3 GDPc_t + \beta_4 Unem_t + \mu_t$ (1)

Table-3: ARDL Bounds Test

ARDL Bounds Test		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	7.83	3
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.72	3.77
5%	3.23	4.35
2.50%	3.69	4.89
1%	4.29	5.61

The results illustrate that F- statistic calculated is 7.83 and greater than upper bounds value (Table 3). These results corroborate the rejection of the null hypothesis. It is found that there exist long-term associations among the variables. ARDL approach used to measures the long run coefficients by estimating equation show the impact of GDP per capita, unemployment, population, and human capital on migration. We have applied ARDL approach for estimating model on different lags and taking different variables, but results of some variables are insignificant, so we dropped these variables.

Table-4: Long run results

Dependent Variable: Migration				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGDPC	-15.03	8.56	-1.76	0.09
HC	-18.88	17.95	-1.05	0.31
LNPOP	15.94	9.07	1.76	0.09
Unem	12.34	4.67	2.64	0.05
C	-109.55	119.46	-0.92	0.37

Table 4 shows that population, unemployment, and GDP per capita are the main determinant of migration at 10 percent level of significance in the country.

Table-5: Short run results

Dependent Variable: Migration				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGDPPC)	11.6588	8.3128	1.4025	0.1769
D(HC)	-13.7565	13.8101	-0.9961	0.3317
D(LNPOP)	7.62	330.165	-2.373	0.028
D(Unem)	15.56	5.73	2.71	0.020
CointEq(-1)	-0.7286	0.1735	-4.1971	0.0005
F-statistic	1.3088		Prob. F(2,17)	0.2960
Obs*R-squared	3.4692		Prob. Chi-square(2)	0.1765

We have estimated the impact of log of GDP per capita, human capital, unemployment, and log of population. GDP per capita has adversely related to and have noteworthy impact on migration. Its coefficient is -15.03. It corroborates that 1 percent boost in GDP leads to 15.03 units decline in migration of Pakistan. Because unemployment may increase due to low incomes therefore, people leave domestic country and migrate to other high-income countries for seeking jobs and high per capita income. Human capital has insignificant impact on migration. Human capital is productive and efficient part of population of any country. Unemployment has significant positive impact on migration. Its coefficient is 12.34 indicating 1 unit increase in unemployment leads to 12.34 percent more migration. There is lack of opportunities for job and high unemployment in Pakistan. This also leads to migration of qualified people. Population corroborates positive and significant impact on migration flow. Its coefficient is 15.94. It shows that 1 percent increase in population leads to 15.94 percent cut in migration level in long run (See Table 4). The short run coefficients indicate that population and unemployment are positively impacting the migration from the country in the short run while per capita GDP and human capital are insignificant in the short run. The error correction mechanism exists for the Model 1 and demonstrates that there is dynamic adjustment process leadings from the independent variables towards the long run equilibrium level of migration variable (Table 5). We also apply Serial Correlation LM Test for checking the no autocorrelation and serial correlation for test equation and the results of the study are below Table 5. We find that the p-value 0.29 is greater than significance level and we fail to reject the null indicating no autocorrelation amid the variables of the Model 1.

Table-6: Ramsey Reset Test

Test Statistic	Value	Df	Probability
t-statistic	0.7041	18	0.4904
F-statistic	0.4957	(1, 18)	0.4904
F-test summary	Sum of Sq.	Df	Mean Squares
Test SSR	0.1802	1	0.1802
Restricted SSR	6.7215	19	0.3538
Unrestricted SSR	6.5413	18	0.3634

The estimate of Ramsey Reset Test indicated that the null hypothesis of correct model specification of functional form is accepted because the P- value 0.49 is greater than 5% level of significance for Model 1 (Table 6)**.**

Results of Model 2: $M_{t\,=}\alpha_t + \beta_1 GDPc_t + \beta_2 HC_t + \beta_3 POP_t + \beta_4 Unem_t + \beta_5 G_t + \mu_{ijt}$ (2)

The outcome corroborates that F- statistic calculated 5.57 is greater than upper bounds value 10% ,5% and 1% (See Table 7). These results show that null hypothesis is rejected, and we fail to reject the null hypothesis of co-integration. It is show that there exists a long run association among the variables.

We have estimated above migration equations by applying ARDL (Table 8). We have estimated the impact of human capital, log of GDP per capita, log of population, unemployment, and governance qualities on migration and all of these are statistically significant determinants to migration in Pakistan. Specifically, GDP per capita has

significant negative impact on migration. Its coefficient is -25.49. It corroborates that 1 percent boost in GDP leads to 25.49 percent decrease in migration in case of Pakistan.

Table-7: ARDL Bounds Test

ARDL Bounds Test		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	5.5765	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Human capital has significant positive impact on migration. Human capital is productive and efficient part of population of any country. Its coefficient is 89.88 which show 1 percent increase in HC leads to 89.88 percent increase in migration. Unemployment has noteworthy affirmative impact on migration flows. Population has significant impact on migration flow too. Its coefficient is 27.25. It shows that 1 percent increase in population leads to 27.25 percent more migration. Good quality governance has negative significant impact on migration. Its coefficient is -1.03 which show that 1 percent increase in governance quality leads to 1.03 percent decrease in migration levels. Low quality of governance, corruption and crime leads to more migration vis-a-vis good governance which improves the welfare of public, control the corruption, and generates the employment opportunities see (Table 8).

Table-8: Long Run Results

Dependent Variable: Migration				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGDPC	-25.49	3.75	-6.79	0.0003
HC	89.88	25.15	3.57	0.0091
LNPOP	27.25	10.79	2.52	0.0396
Unem	13.84	5.21	2.65	0.035
GI	-1.03	0.35	-2.95	0.0213
C	466.66	142.08	3.28	0.0134

The short run coefficients indicates that GDP per capita, human capital formation and unemployment are positively impacting the migration from the country while good governance and population are adversely impacting the outflow of people in the short run. The error correction mechanism exists for the Model 2 with a value of -2.19 and demonstrates that there exists dynamic adjustment process with oscillation leadings towards the long run equilibrium level of migration in the country (Table 9). We also apply Serial Correlation LM Test for checking the no autocorrelation and serial correlation for test equation and the results of the study are in last two rows of Table 9. We find that the p-value 0.17 is greater than significance level and we fail to reject the null indicating no autocorrelation amid the variables of the Model 2.

The estimate of Ramsey Reset Test indicated that the null hypothesis of correct model specification of functional form of Model 2 is accepted because the P- value 0.55 is greater than 5% level of significance (See Table 10).

Table-9: Short Run Results

Dependent Variable: Migration				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGDPC)	36.7521	12.4032	2.9631	0.0210
D(LNGDPC(-1))	63.5771	20.1614	3.1534	0.0161
D(HC)	197.0025	62.5611	3.14489	0.0162
D(LNPOP)	-36.0409	1674.5310	-2.1558	0.0680
D(LNPOP(-1))	43.3941	2173.0196	2.0190	0.0832
D(Unem)	17.65	6.18	2.85	0.054
D(GI)	-4.0257	1.0177	-3.9556	0.0055
D(GI(-1))	2.2119	0.7613	2.9055	0.0228
CointEq(-1)	-2.1917	0.3095	-7.0827	0.0002
F-statistic	2.5276		Prob. F(2, 5)	0.1744
Obs*R-squared	9.5522		Prob.Chi square(2)	0.0084

Table-10: Ramsey Reset Test

Test Statistic	Value	Df	Probability
t-statistic	0.6242	6	0.5555
F-statistic	0.3896	(1, 6)	0.5555
F-test summary	Sum of Sq.	Df	Mean Squares
Test SSR	0.0444	1	0.0444
Restricted SSR	0.7287	7	0.1041
Unrestricted SSR	0.6843	6	0.1140

The findings of both the models highlighted the determinant of flow of migration in the country and estimates produced by the Model 2 are found more robust due to significance of the model. These results corroborate that governance quality causes to reduce unnecessary migration of talented labors aka brain drain. Also per capita incomes are noteworthy in explaining the migration flows. Similarly, unemployment, human capital formation and high population growth causes more migration provided the extant set-up of governance quality and per capita income in the country.

V. CONCLUSION AND POLICY RECOMMENDATION

The present study assessed the major determinants of migration over the annual time series data of Pakistan. The estimated findings corroborate that good governance and GDP per capita are two of the major factors which affect the migration pattern and helps to reduce the brain drain, ceteris paribus. Notwithstanding, good governance inter alia improves the welfare of public, generate employment opportunities, provides facilities, and control over corruption in an economy. Based upon empirical findings of this study governance quality, per capita GDP has corroborated adverse noteworthy impacts on migration. Pakistan is overpopulated country caught up with unemployment, despondent poverty, and hyperinflation. The findings indicated that unemployment has positive and significant impact on migration and leads towards brain drain, ceteris paribus. Likely, GDP per capita and human capital formation is pivotal parameters for formulating migration policies concerning the unnecessary outflow. Moreover, serious endeavors to reduce extant unemployment may help to provide efficient level of migration instead of brain draining as depicted by the positive impact of human capital on outward migration. There is an immense need of policy change to control brain drain via promoting GDP and employment opportunities. Notwithstanding, these kinds of concerted policies will only be available under the proviso of good-quality governance which is a sin-qua-non for socio-economic progress of Pakistan.

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