Available Online
Journal of Education and Social Studies
ISSN: 2789-8075 (Online), 2789-8067 (Print)
http://www.scienceimpactpub.com/jess

SINGLING OUT THE PULL FACTORS OF BRAIN GAIN IN PAKISTAN

Azizullah [1,*] Khalid Mahmood Mughal [1], Durdana Qaiser Gillani [1] and Ihsan Ullah [2]

[1] *Department of Economics, Preston University Kohat, Islamabad Campus, Pakistan*
[2] *Department of Economics, Government Post Graduate College Bannu, KPK, Pakistan*

ABSTRACT

Brain Gain is the rise in the number of highly educated foreign nationals moving to a country where there are many opportunities to survive and get a job. This study has focused on the effect of pull factors on brain gain in Pakistan. We have used data from 1990 to 2023 in this analysis. The dependent variable is the brain gain. The Johanson cointegration test result showed that investment and the real effective exchange rate had inverse significant effects on brain gain. However, political stability and wage differences influenced brain gain positively in Pakistan. It is suggested that the Government should provide a more economic and stable political environment in the country to encourage skilled, highly skilled, and highly qualified labor to migrate back to Pakistan. The government may also give them infrastructure in the form of setting up skill development centers, giving financial support, providing them tax incentives, and forming a forum that will connect the return migrants with employers in order to get jobs according to their skills. Moreover, there is a serious need to provide more employment chances to people for high growth and development.

Keywords: Brain gain; Return migration; Pull factors; Wage differential; Pakistan.
** Email: syed7892@gmail.com*

https://doi.org/10.52223/jess.2024.5221
Received: March 08, 2024; Revised: June 15, 2024; Accepted: June 26, 2024

INTRODUCTION

The idea of brain gain has received a lot of attention recently, especially in the domains of economics and migration studies. Many highly skilled people are migrating from Pakistan due to strong push factors. Due to brain drain, the country loses a skilled labor force but at the same time, it can get benefits in the form of return migration. Brain gain comes when there is a large-scale influx of technically qualified people, as well as when return migration boosts human capital in home countries. Brain gain will take the shape of employing immigrants' abilities to improve various areas of the economy at no cost to immigrants' training and skills. According to Chiswick (2005), a country benefits from the emigration of highly trained and skilled labors through remittances, technology transfers, rise in the level of human capital. The advantages, according to Gibson and McKenzie (2012), include the transmission of information and the establishment of scientific systems. This might be possible due to the existence of favorable pull factors in Pakistan. The highly skilled people consider push factors prevailing in Pakistan at the time of migration. The services, and experiences of those migrated skilled workers can be utilized by providing a favorable domestic environment. There is a need to study those pull factors responsible for brain gain in Pakistan. This work inspects the pull factors accountable for brain gain in Pakistan. Intellectual property rights enhance brain gain through human capital incentives (Beine et al., 2001), return migration (Mayr & Peri, 2009), and access to new information through trade and FDI within diaspora networks (Agrawal et al., 2011). As a patent is a type of Intellectual Property Rights, so, the current study used the Patent Application data and Pated Granted data of Pakistan as a proxy for Brain Gain.

Brain Gain is the rise in the number of highly educated foreign nationals moving to a country where there are many earning chances or Brain Gain is an increase in the number of highly skilled people who were born abroad moving to a country where there is more chances Iravani (2011). The term "brain gain" refers to the increase in the number of highly skilled foreign immigrants as well as the intellectual consequences of labor migration from that country (Rubinskaya, 2020). Specialist human resources also contribute to economic growth and development. So, important investments should be done in educating and providing these resources in all nations, since the specialist human resources are well thought-out as a nation's assets, the majority significant competitive benefit, and the rarest source in these days knowledge-based economy (Wang & Liu, 2016). Nations can get all kinds of benefits from brain drain and brain gain at the world level. A system must be planned for gain from emigration and immigration dispersed among source and host nations. Considering it, a number of policy guidelines are essential to convert vast brain drain into favorable brain gain. China and Taiwan successfully obtained benefits by doing this in appealing to their emigrant expert to return and partake in the development of their states' development (Siar, 2011).

Objectives of the Study

The major objectives of the study are given as:

1. To analyze the impacts of pull factors on brain gain in Pakistan
2. To devise policy implications depending on the outcomes of current research

Research Questions

The study addresses the following questions:

1. How do pull factors prevailing in Pakistan determine the volume of brain gain?
2. How do economic and political reasons in Pakistan such as the investment climate, unemployment, wage differences, political stability, and exchange rate movement influence brain gain in Pakistan?

The skilled labor force in Pakistan finds it very hard to get employment according to their capabilities due to adverse economic and political situations. So, they decide to migrate because of the presence of favorable circumstances in destination countries. As a result, the country has suffered in the form of human capital flight. But this results in bringing brain gain in the form of return migration, and transfer of human resources in the form of knowledge, experience, training, skills, and ideas. These depend upon the internal economic and political situation in Pakistan. Research studies on the impact of pull factors on Brain gain in Pakistan are very limited. This looks like a research gap prevailing in this field, which requires some detailed investigation. To fill this research gap, this study has examined the impact of pull factors of emigration on brain gain in Pakistan by using the Johansen cointegration and error correction approach.

REVIEW OF LITERATURE

Many of the skilled workers are migrating from Pakistan to technically advanced countries due to the existence of domestic push factors. These factors were explored by different researchers. Poor developing countries face concerns over the emigration of skilled workers, which can lead to brain drain and brain gain. Emigration could also increase education incentives, transfers of skills, and scientific knowledge as a result of return migration. The skilled workers returned with enhanced human capital led to brain gain. Recent research has shown that brain gain has intriguing ramifications for underdeveloped and underprivileged nations. According to Beine et al. (2008), brain gain has occurred when migration prospects fostered education investment at home and raised the expected return to human capital. They suggested that 'brain drain' can be offset by brain gain by promoting skilled worker emigration to rich countries.

Orthodox theory indicates that return migration, in line with the assumption of person utility maximization, was mainly found by wage differentials between receipt of and distribution in nations, jointly with migrants' hope and knowledge of pay in the host country (Cassarino, 2004, 2008). Brain drain

was beneficial for developing countries if it converted into brain gain, with 5%–10% of qualified personnel returning to low-income countries. Considering this, Docquier and Rapoport (2005) stated that positive outcomes from migration could also include the inflow of remittances, educational incentives, and return migration after acquiring conventional skills. It will aid in the source countries' economic progress. Return migration has a beneficial impact on the sending region when it is a temporary occurrence.

Haas and Czaika (2013) examined various theoretical frameworks for return migration and explored the factors that influence Moroccan migrants' decision to return to Europe. They used the original survey information. Their findings demonstrated that the decision to return was not much impacted by structural integration, which was achieved by involvement in the labor market, education, and economic and social ties to the place of origin. Return intentions, however, were positively correlated with investment and social integration. They concluded that the mechanism for return migration was consistent with return migration, which supported the current hypotheses. Yahirun (2009) looked at the factors that influenced return migration. He investigated the reasons behind people's later-life returns using longitudinal data from the German Socio-Economic Panel (GSOEP). His empirical results validated the notion that economic resources, social and familial ties, and controls all played a role in older immigrants' decision to return.

Leghari (2009) examined the social and demographic circumstances of Pakistani immigrants in Greece. His research centered on how the demographics of Pakistani immigrants in Greece were shifting from diaspora politics to transnationalism. He discovered that the number of Pakistani immigrants in Greece had grown over time and that they were working in unusual occupations like laborers, masons, and welders. They also came from rural areas and had lower needs for social services like schooling. Makina (2012) analyzed the intentions of Zimbabwean migrants' return migration using a logistic regression dataset. Six significant factors for migration, number of dependents, education level, economic activity, income, and duration of stay were found to be significant determinants of migration return. Gashi and Adnett (2015) examined return migration in Kosovo, where found high. It found a non-linear relationship between migrant age and the likelihood of returning. More educated migrants were more likely to return, while recent migrants with permanent resident status and family abroad were found less. Stronger family ties and potential business investment also increased return migration.

The study of Naveeda et al. (2017) examined the factors that influence 230 Pakistani migrants' decisions in Greece. A pre-structured questionnaire was used to gather the data. Although migrants frequently underestimate their capacity for integration, they frequently relocate in search of better pay, jobs, and permanent residency. This finding was mostly consistent with the neo-classical theory of migration. The study suggested that the potential of return migrants may be utilized by offering them job and investment opportunities. It will support economic development in their native nations. Yuan and Wen (2017) explored the factors influencing rural return migration in China. They focused on factors like employment status, income, and social security exclusion in cities and family life in villages. The study highlighted the positive effects of migration, including brain gain and increased participation in non-agricultural and entrepreneurial activities, promoting rural-urban development.

Marini and Yang (2021) explored the role of brain gain and brain circulation in explaining the migration strategies of highly skilled intra-EU migrants. They analyzed a survey of non-German EU physicians working in Germany, a popular destination for these migrants due to an acute EU labor shortage. The findings revealed that differences in migration motives and intention to permanently immigrate correlated with the economic differences between Germany and the migrants' origin regions. Reissova et al. (2021) investigated the attitudes of German and Czech university undergraduates towards labor migration and the incentive reasons influencing their management. German students expressed greater interest in working abroad, preferring temporary migration, while Czech students considered permanent relocation. The main motivators for migration were the desire to accommodate various nations and a chance to get

global work experience. Governments and regional authorities should consider these factors and encourage temporary migration while creating conditions to motivate highly qualified workers.

Enkhtaivan et al. (2021) explored the impact of immigration on brain gain in emerging nations. Nonresidents patents were used as a proxy for brain gain. It claimed that significant brain gains occur due to immigration. Despite the potential benefits, the study also revealed significant differences in brain gain between developing and developed nations, highlighting the ongoing debate on immigration's impact on human sustainability. According to the study, industrialized host countries benefit from brain gain five times more than emerging ones, with talented or creative immigrants contributing three times as much. The most innovative immigrants are drawn to the top 10 destination nations, while their home countries send them elsewhere in other countries. Seventy-five studies on cross-border skilled migration, brain gain, and brain drain were summarized in the study of Bhardwaj and Sharma (2023). The study validated beliefs concerning international migration, such as those concerning family life, higher wages, employment, and wage disparities. The review opens the door for more research by offering a conceptual framework for comprehending the results of brain gain and brain drain.

METHODOLOGY

Data Sources

This study has investigated how the pull factors (i-e favorable economic and political environments prevailing) affect brain gain in Pakistan. We have used data from 1990 to 2023 in this analysis data of brain gain was derived from Intellectual Property Organization, Government of Pakistan, Islamabad. Data for the variable, Investment came from the World Bank and IMF. Political Stability data came from the Polity V Project of Marshall and Gurr (2020). Data on the unemployment rate, real effective exchange rate, and wage differential based on GDP Per capita, were taken from World Development Indicators.

Model Specification

Considering the work of Aydas et al. (2005), Chiswick (2005), and Hina and Fareed (2021), we follow the model to estimate the pull factors of Brain Gain.

The econometric type of equation (1):

$$BG = \beta 0 + \beta 1\ INVS + \beta 2REXR + \beta 3\ PS + \beta 4WGD + \beta 5\ UNEMP + \mu \quad (1)$$

Where,

BG = Number of patents granted by Intellectual Property Organization (IPO), Pakistan.

INVES = Investment % of GDP

REXR= Real effective exchange rate index.

PST = Political stability index

WAGD = Wage Differential in percentage

UNEM = Unemployment rate

μ = error term

We have found descriptive statistics in this section. A correlation matrix was calculated to check the existence of multicollinearity among explanatory factors. Moreover, the Augmented Dickey-Fuller unit root test and Johansen cointegration test were performed to determine the long-run relation among variables. The error correction model has been estimated.

RESULTS AND DISCUSSION

The subsequent two tables show descriptive information for each variable used in the model. The model takes two forms based on patent applications and patent granted. This also talks about the normality position of each variable utilized here.

Table 1. Descriptive statistics.

Statistics	LBG	INVs	PST	REXR	UNEM	WAGD
Mean	5.769452	16.20353	4.481465	107.7900	4.298324	2.180629
Median	5.874789	15.98500	7.000000	103.7916	4.810000	2.109348
Maximum	6.664409	18.96000	14.49053	126.6346	7.830000	2.998673
Minimum	4.875197	13.71000	-6.000000	96.48692	0.398000	1.609227
Std. Dev.	0.419105	1.315184	5.962552	9.790678	2.344760	0.386678
Skewness	0.040950	0.213039	-0.740962	0.440166	-0.346113	0.479929
Kurtosis	2.545182	2.233812	2.442787	1.656294	1.924877	2.464534
Jarque-Bera	0.302553	1.088830	3.550999	3.655752	2.316345	1.711407
Probability	0.859610	0.580181	0.169399	0.160755	0.314060	0.424984
Sum	196.1614	550.9200	152.3698	3664.860	146.1430	74.14140
Sum Sq. Dev.	5.796427	57.08038	1173.217	3163.293	181.4308	4.934157
Observations	34	34	34	34	34	34

Table 1 shows summary statistics based on patent applications as a proxy for brain gain. The above table shows that all variables except PS in the model are normally distributed because the mean value of each variable is greater than its standard deviation. In Table 1, the probability values of the test for all variables are greater than 0.05, so, the null hypothesis of normal distribution is accepted and the alternative hypothesis is rejected for the said variables.

Table 2. Multicollinearity Test.

Multicollinearity	LBG	INVS	PST	REXR	UNEM	WAGD
LBG	1.000000	0.080261	-0.050897	0.206187	0.439323	-0.606424
INVS	0.080261	1.000000	0.026236	0.445653	-0.340581	-0.309994
PST	-0.050897	0.026236	1.000000	0.265729	-0.248914	0.140756
REXR	0.206187	0.445653	0.265729	1.000000	-0.040741	-0.266613
UNEM	0.439323	-0.340581	-0.248914	-0.040741	1.000000	-0.061248
WAGD	-0.606424	-0.309994	0.140756	-0.266613	-0.061248	1.000000

Table 2 indicates that correlation coefficients for every factor are less than 0.9 indicating no multicollinearity among factors being utilized.

Unit Root Results

If a variable is non-stationary, it contains a unit root. Since the majority of time series do not meet the stationarity requirement, they are referred to as non-stationary time series. Regression in this instance yields erroneous and false results. The stationarity test will be used on each research variable to avoid erroneous regression findings. This study employed the ADF test to determine whether each variable had a unit root.

Table 3. ADF Test Results at Level (α = 0.05).

Variables	Test Equation	ADF Test Statistic	Critical Values at 5%	Result
Brain Gain (LBG), Based on Patent Granted	With Intercept	-2.543492	-2.954021	Non Stationary
	With Trend & Intercept	-3.045952	-3.552973	
	With None	0.144580	-1.951332	
Political Stability (PS)	With Intercept	-0.983089	-2.954021	Non Stationary
	With Trend & Intercept	-1.375388	-3.552973	
	With None	-0.569130	-1.951332	
Unemployment Rate (UNEMP)	With Intercept	-2.029822	-2.954021	Non Stationary
	With Trend & Intercept	-2.044774	-3.552973	
	With None	-0.471240	-1.951332	
Real Effective Exchange Rate (REER)	With Intercept	-2.213202	-2.957110	Non Stationary
	With Trend & Intercept	-2.416477	-3.557759	
	With None	-1.242218	-1.951332	
Wage Rate Differential (WGD)	With Intercept	-1.693797	-2.954021	Non Stationary
	With Trend & Intercept	-2.490710	-3.552973	
	With Trend & Intercept	0.386171	-1.951332	
Investment (INVEST)	With Intercept	-1.972577	-2.954021	Non Stationary
	With Trend & Intercept	-2.661364	-3.552973	
	With Trend & Intercept	-0.751049	-1.951332	

Here, values of ADF test statistics are higher as compared to critical values in three cases. So, all factors are non-stationary at the level. The Table 4 show the ADF result at first difference.

Table 4 ADF Test Results at First Difference (α = 0.05)

Variables	Name of Test Equation	ADF Test - Statistic	Critical Values at 5%	Remarks
Brain Gain (LBG)	With Intercept	-6.661466	-2.957110	Stationary
	With Trend & Intercept	-6.612051	-3.557759	
	With None	-6.789444	-1.951687	
Political Stability (PS)	With Intercept	-5.107262	-2.957110	Stationary
	With Trend & Intercept	-5.388775	-3.557759	
	With None	-5.169113	-1.951687	
Investment as (INVEST)	With Intercept	-5.875051	-2.957110	Stationary
	With Trend & Intercept	-5.790837	-3.557759	
	With None	-85.902153	-1.951687	
Unemployment Rate (UNEMP)	With Intercept	-6.414241	-2.957110	Stationary
	With Trend & Intercept	-6.348000	-3.557759	
	With None	-6.524308	-1.951687	
Real Effective Exchange Rate (REER)	With Intercept	-4.396488	-2.957110	Stationary
	With Trend & Intercept	-5.341091	-3.557759	
	With None	-4.367964	-1.951687	
Wage Rate Differential (WGD)	With Intercept	-5.439620	-2.957110	Stationary
	With Trend & Intercept	-5.353520	-3.557759	
	With None	-5.473437	-1.951687	

Table 4 gives the unit root results after applying the ADF test at first difference with three test equations. intercept, trend, and intercept, and none. The critical value or level of significance for the unit root is one percent or 0.05. Here, all variables are stationary at the first difference at a 1 percent significance level.

Lag Length Selection Criteria

For (Brain Gain, Patent Granted) model, lag orders of 2 and 3 were tested. Results are given in Table 3. In Table 5 when the test has performed with lag three then SC is minimum at lag one, while AIC and HQ have minimum value at lag three. Table 6 shows that if the test has applied with lag two then SC, AIC, and HQ have minimum values at lag one. On the basis of SC, lag order of one has been chosen for VAR model.

Table 5. VAR Lag Order Selection Criteria with Lag 3.

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-341.8162	NA	224.2197	22.43975	22.71730	22.53023
1	-217.2202	192.9229	0.774248	16.72388	18.66670*	17.35719
2	-184.0623	38.50595	1.234457	16.90724	20.51534	18.08339
3	-112.5948	55.32966*	0.301079*	14.61902*	19.89239	16.33801*

Table 6. VAR Lag Order Selection Criteria with lag 2.

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-353.2691	NA	227.5070	22.45432	22.72915	22.54542
1	-223.9078	202.1271*	0.694260*	16.61924*	18.54302*	17.25692*
2	-192.8180	36.91918	1.217991	16.92612	20.49886	18.11038

Selection of VAR Model for Brain Gain: We carefully selected VAR model, on the basis of AIC i.e., the model of assumption number four and lag order of one has been selected for VAR.

Unrestricted Cointegration Rank Test: The Results of the Cointegration rank test using Trace Statistic and Max- Eigen statistics, are given in the following tables (7 & 8).

Table 7. Unrestricted cointegration rank test (Trace)

Hypothesized No. of CE(S)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.772471	125.1113	117.7082	0.0156
At most 1	0.656211	77.73597	88.80380	0.2403
At most 2	0.459965	43.56869	63.87610	0.7116
At most 3	0.343400	23.85282	42.91525	0.8434
At most 4	0.177594	10.39104	25.87211	0.9072
At most 5	0.121200	4.134348	12.51798	0.7226

Trace statistics shows that 1 cointegrating equation at 0.05 level.

Table 8. Unrestricted cointegration rank test (Max-Eigen).

Hypothesized No. of CE(S)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.772471	47.37530	44.49720	0.0236
At most 1	0.656211	34.16728	38.33101	0.1394
At most 2	0.459965	19.71586	32.11832	0.6744
At most 3	0.343400	13.46178	25.82321	0.7673
At most 4	0.177594	6.256691	19.38704	0.9442
At most 5	0.121200	4.134348	12.51798	0.7226

Tables 7 and 8 depict that Trace statistic and Max-Eigen statistic reveal the existence of one cointegrating equation among the model's variables at the five percent level. As a result, the study relied on a single cointegrating vector to construct a long-run link of variables.

Long-run Relationship

Johansen Cointegration test is used. Results are displayed in the following Table 9. The coefficient of investment is - 0.3212, showing that investment has a negative effect on brain gain in Pakistan. Doghri et al. (2006) explored that a good climate of investment inside a country discourages brain drain from that country and vice versa. As the volume of investment increases, employment opportunities will expand. Demand for labor increases. However, according to the result of this study, investment has a negative effect on brain gain. This might be because of the fact that Pakistan is facing a lack of investment in the skill-oriented sector, poor infrastructure, and economic and political instability. This result is supported by the findings of Mallick (2017).

Table 9. Johansen normalized estimates.

Variables	Coefficients	Standard Error	T-Ratio
INVS	- 0.321175	0.07504	- 4.28004
PST	0.136578	0.01589	8.59586
REXR	- 0.081716	0.01155	- 7.07248
UNEM	- 0.040505	0.03016	- 1.34292
WAGD	1.206535	0.34332	3.51428

The coefficient for political stability is 0.1366 showing a positive effect of political stability on brain gain. The findings of the study done by Abbas and Guriro (2018) justified the result of this study.

The slope coefficient for the variable REER is - 0.081716. It shows the negative impact of a real effective exchange rate on brain gain in Pakistan. A rise in the real effective exchange rate increases the price of exported commodities i.e. exports become expensive abroad. It declines the volume of exports and ultimately, unemployment and brain drain will increase in Pakistan. There will be a shortage of talent in the country and a fall in brain gain. A higher real effective exchange rate decreases the price of imports. It might be harmful to the domestic industries of Pakistan. Employment decreases and skilled labors feel the domestic economy is less attractive for using their experiences, ideas, and professional skills in the development of the country. And brain gain will decrease in Pakistan. This result is matched with the finding of the study by Alam et al. (2017).

The coefficient for the variable unemployment rate is - 0.04051. However, this result is statistically insignificant. Moreover, the coefficient for variable WGD is 1.206535, showing a positive impact of WGD on brain gain. This effect has been supported by economic theory and has statistically significant value. An increase in wages in the concerned economies will cause a huge brain drain from Pakistan, which will ultimately lead to an increase in remittance inflow. It can be used for investment in the core sector of the economy and will create a promising influence on brain gain in Pakistan. Furthermore, skills, training, experiences, ideas, and financial capital of return skilled workers can be used for brain gain in Pakistan. Higher-paying jobs abroad encourage the development of international networks, which in turn improves business, collaboration, and knowledge transfer opportunities for Pakistan, thereby augmenting the human capital and economic potential of the nation. The result of this coefficient matched with findings of Khan (2021).

Short Run Estimates

Table 10 illustrates that investment and the real effective exchange rate have favorable influences on brain gain in Pakistan in the short run at lag one, but political stability, unemployment, and wage disparities have negative effects. T-values are less than two, which means that all short-run estimations are not significant. The vector error correction term has a value of 0.207088 and a t-value of -1.05862. It is statistically insignificant and has the right sign.

Table 10. Error correction estimates.

S.NO.	Variables	Coefficients	Standard Error	T-Ratio
1	D(LBGG(-1))	0.428731	0.24465	1.75245
2	D(INVS(-1))	0.017335	0.12460	0.13913
3	D(PST(-1))	- 0.020705	0.03113	- 0.66507
4	D(REXR(-1))	0.012921	0.01661	0.77797
5	D(UNEM(-1))	- 0.001887	0.05060	- 0.03729
6	D(WAGD(-1))	- 0.279052	0.54206	- 0.51480
7	CointEq1	-0.207088	0.19562	-1.05862

CONCLUSIONS AND POLICY IMPLICATIONS

This study examines the pull factors causing brain gain in Pakistan by using the Johansen cointegration approach. The results of Johanson Cointegration indicated that investment has a negative effect on brain gain in Pakistan. A good and pleasant investment environment within a nation prevents brain drain from that nation and employment opportunities will grow as investment volume rises in the aforementioned nations. It was also found that a real effective exchange rate had negative impacts on brain gain in Pakistan. A rise in the real effective exchange rate increased the price of exported commodities. The decline in the volume of exports and ultimately, unemployment and brain drain will increase in Pakistan. There will be a shortage of talent in the country and a fall in brain gain. Moreover, the positive coefficient of political stability leads to macroeconomic stability, resulting in an increase in brain gain. The unemployment rate has a negative effect on brain gain in Pakistan. A rise in unemployment keeps foreign talent away from Pakistan, which diminishes the country's brain gain. Finally, an increase in wages in the destination countries will cause a huge brain drain from Pakistan, which will ultimately lead to an increase in remittance inflow. It can be used for investment in the core sector of the economy and will create a promising influence on brain gain in Pakistan. An increase in wages in concerned economies will cause a huge brain drain from Pakistan, which will ultimately lead to an increase in remittance inflow. It can be used for investment in the core sector of the economy and will create a promising influence on brain gain in Pakistan. The study recommends that the Government and policymakers devise measures to control the interest rate in the most efficient manner so that it cuts down the inflation rate and enhances the value of local currency in the international market. Policy guidelines could be implemented to encourage skilled, highly skilled, and highly qualified labor to migrate back to Pakistan. The government may give them infrastructure so that they can use their services in the market for products and services. Moreover, managing of exchange rate should be better. The government may give them infrastructure in the form of setting up skill development centers, giving financial support, providing them tax incentives, and forming a forum that will connect the return migrants with employers in order to get jobs according to their skills. Finally, since our market is not research-oriented, therefore, a handler may be developed to take care of this aspect. In this way, they will be able to use their abilities in the goods and services marketplace.

REFERENCES

Abbas, A., & Guriro, S. (2018). Brain drain of business and IT graduates in Pakistan. Journal of Business Administration and Management Sciences, 2(2), 316-326.

Agrawal, A., Kapur, D., McHale, J., & Oettl, A. (2011). Brain drain or brain bank? The impact of skilled emigration on poor-country innovation. Journal of Urban Economics, 69(1), 43-55.

Alam, S., Wasim, S. S., & Ahmad, B. (2017). Macroeconomic determinants of workers' remittances: Pakistan, a case in point. GMJACS, 7(1), 18-18.

Aydas, O. T., Metin-Ozcan, K., & Neyapti, B. (2005). Determinants of workers' remittances: the case of Turkey. Emerging Markets Finance and Trade, 41(3), 53-69.

Beine, M., Docquier, F., & Rapoport, H. (2001), "Brain drain and economic growth: theory and evidence. Journal of Development Economics, 64(1), 275-289.

Beine, M., Docquier, F., & Rapoport, H. (2008). Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers. The Economic Journal, 118, 631–652.

Bhardwaj, B., & Sharma, D. (2023). Migration of skilled professionals across the border: Brain drain or brain gain? European Management Journal, 41(6), 1021- 1033.

Cassarino, J. P. (2004). Theorising return migration: The conceptual approach to return migrants revisited. International Journal on Multicultural Societies (IJMS), 6(2), 253-279.

Cassarino, J. P. (2008). Conditions of modern return migrants–Editorial introduction. International Journal on Multicultural Societies, 10(2), 95-105.

Chiswick, B. (2005). High skilled immigration in the international arena. IZA Discussion Paper1782. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=826389.

Docquier, F., & Rapoport, H. (2005). How Does Skilled Emigration Affect Developing Countries Facts, Theory and Policy. In G-20 Workshop on Demographic Challenges and Migration (p. 115). Canberra. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=0215fd0cf0e017400b6d28cafb4d2f70e503f5ef#page=121.

Doghri, L., Khalafalla, K. Y., Diagne, M., & Jam., A. B. (2006). Converting brain drain into gain in Pakistan, in report on brain drain in IDB member countries: Trends and development impact, Islamic Development Bank, occasional paper No. 12.

Enkhtaivan, B., Brusa, J., Davaadorj, Z. (2021). A Gap in Brain Gain for Emerging Countries: Evidence of International Immigration on Non-Resident Patents. Journal of Risk and Financial Management, 14, 7.

Gashi, A., & Adnett, N. (2015). The determinants of return migration: Evidence for Kosovo. Croatian Economic Survey, 17(2), 57-81).

Gibson, J., & McKenzie, D. (2012). The economic consequences of brain drain of the best and brightest: Microeconomic evidence from five countries. The Economic Journal, 122 (560), 339–375.

Haas, H., & Czaika, M. (2013). Measuring migration policies: Some conceptual and methodological reflections. Journal of Migration and Law, 6(1), 47-65.

Hina, H., & Ullah, F. (2021). Exploring the Determinants of Worker's Remittances: An Application of LASSO Technique. Journal of Quantitative Methods, 5(2), 56-74.

Iravani, M.R. (2011). Brain drain Problem: A Review. International Journal of Business and Social Science, 2(15). 284-289.

Khan, J. (2021). European academic brain drain: A meta-synthesis. European Journal of Education, 56(2), 265-278.

Leghari, I. U. (2009). Pakistani immigrants in Greece: from changing pattern of migration to Diaspora politics and transnationalism. University of the Aegean, Greece.

Makina, D. (2012). Determinants of return migration intentions: Evidence from Zimbabwean migrants living in South Africa. Development Southern Africa, 29(3), 365-378.

Mallick, H. (2017). Determinants of workers' remittances: An empirical investigation for a panel of eleven developing Asian economies. The World Economy, 40(12), 2875-2900.

Marini, G., & Yang, L. (2021). Globally bred Chinese talents returning home: An analysis of a reverse brain-drain flagship policy. Science and Public Policy, 48(4), 541-552.

Marshall, M. G., & Gurr, T. R. (2020). Polity5: Political regime characteristics and transitions, 1800-2018. Center for Systemic Peace, 2.

Mayr, K., & Peri, G. (2009). Return migration as a channel of brain gain. Berkeley Electronic Journal of Economic Analysis & Policy, Contributions 9 (1), Article 49. https://www.nber.org/papers/w14039.

Naveeda, T. A., Bhattib, A. A., & Ullah, S. (2017). Determinants of Return Migration: A Case Study of Return from Greece. The Pakistan Journal of Social Issues, 8, 1.

Reissova, A., Simsova, J., & Ralph Sonntag, R. (2021). Moving across borders: Brain drain or brain gain? A comparative study in Czechia and Germany. GeoScape. 15(1), 30-42.

Rubinskaya, E. (2020). International labor migration in a globalizing economy: Historical dynamics and prospects of development, Book Chapter: Migration and Urbanization, 1-17. http://dx.doi.org/10.4018/978-1-7998-0111-5.ch001.

Siar, S.V. (2011). Skilled migration, knowledge and development: The case of the highly skilled Filipino migrants in New Zealand and Australia. Journal of Current Southeast Asian Affairs, 30(3), 61-94.

Wang, Y., & Liu, S. S. (2016). Education, human capital and economic growth: empirical research on 55 countries and regions (1960–2009). Theoretical Economics Letter, 06, 347–355. https://www.scirp.org/journal/PaperInformation.aspx?PaperID=66143.

Yahirun, J. (2009). Take me "home": Determinants of return migration among Germany's elderly immigrants. On-Line Working Paper Series. University of California, Los Angeles, California Center for Population Research. http://papers.ccpr.ucla.edu/index.php/pwp/article/view/844.

Yuan, R., & Wen, S. (2017). Determinants and effects of return migration in China. China Population Research, 2, 71-83.