

Gravity Model of Migration: An Examination of Pakistan's Migration Patterns to the UK, USA, and Canada

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Abstract: This study presents a comprehensive analysis of the migration patterns of the Pakistani diaspora, primarily focusing on the United Kingdom, the United States, and Canada. Employing a gravity model approach, the research predicts migration flows based on economic factors and distances between nations. Utilizing panel data from 2005 to 2020, the study employs the Pooled Ordinary Least Squares (POLS) method for estimation, aiming for consistent and unbiased results. This study sheds light on the economic push factors in Pakistan driving migration and underlines the complex interplay of economic and non-economic factors of migration dynamics. The relationship between migration and key economic indicators within Pakistan: gross nominal monthly wage, gross domestic product (GDP), inflation rate, and labor force participation reveals that these variables significantly influence migration decisions from Pakistan, highlighting the crucial role of economic conditions in the country. On the other hand, similar economic factors in the destination countries, such as wages and labor force participation, do not show a statistically significant impact on migration patterns, suggesting the predominance of other non-economic factors in the decision to migrate. Moreover, this research has implications for policy-making, particularly in formulating strategies to manage and understand migration flows, both in the origin and destination countries. Limitations of the study include its focus on economic factors, potential data constraints, and the challenges in capturing the full spectrum of motivations behind migration decisions.

Key Words: *Pakistani Diaspora, Migration Patterns, Gravity Model Approach, Push and Pull Economic Factors, Pooled Ordinary Least Squares (POLS)*

Introduction

Migration has played a pivotal role in modeling the socio-economic and political landscapes of countries around the globe. In the modern world, people migrate across national borders, leaving one country to settle in another country. People migrate for a variety of reasons, including poverty, employment, education, security, freedom from political oppression, ethnic conflict, service as ambassadors to other nations or states, and hunting for better opportunities (Kumar & Sidhu, 2005). The twentieth century witnessed mass population migration, and its impact can be seen in what has happened and is happening around the world today (McAdam, 2012).

There are numerous reasons why people leave their hometowns and travel to different locations. Some emigrated for political reasons (Schaeffer, 2010; Walther and Corbin, 2018; Mohammad & Abdul-Talib, 2020; Urbaski, 2022), while others emigrated for economic reasons (Urbaski, 2022; Khalid & Urbański 2021; Brell et al., 2020; Hajian et al., 2020; Mohamed & Abdul-Talib, 2020; Hamzah et al. al., 2020; Yang et al., 2004). Others were compelled to flee their homes because of ongoing conflict or violence (Hamzah et al., 2020; Riddle et al., 2010; Efendic, 2016). Therefore, poverty, unemployment, low income, low quality of life, lack of basic health care, and lack of basic education are usually the

driving forces behind migration. Higher wages, better living standards, better employment opportunities, better welfare standards, labor demand, and better health and education facilities are factors that attract immigrants (Khalid & Urbański 2021; Mohammad & Abdul-Talib, 2020; Hamzah et al., 2020; Hajian et al., 2020; Yang et al., 2004). In most cases, the pull factors are strong enough to encourage migration to the host country. Furthermore, push and pull factors are intertwined. Factors in one country are usually pushing factors in another (Hamzah et al., 2020). According to the most recent estimates, there are nearly 169 million migrant workers, accounting for approximately 62 % of the total global stock of 272 million international migrants (IOM, 2022). Although COVID-19 has had a significant impact on international worker migration, these estimates provide a baseline against which future effects of COVID-19 can be estimated. Migrant workers account for 68.8 % of all international migrants of working age, or those aged 15 and up 245.6 million (IOM, 2022).

Among these global migrations, the Pakistani diaspora has emerged as a prominent group, significantly impacting both their host and home countries. The Pakistani diaspora, a term used to describe the community of Pakistanis living outside of Pakistan, is a diverse and multifaceted group with significant populations in several countries worldwide. The UK, US, and Canada, given their historical ties, economic

opportunities, and liberal immigration policies, have become major destinations for Pakistani immigrants over the past few decades. The ties between Pakistan and its diaspora in the UK trace back to the colonial era, resulting in a deeply intertwined history and shared socio-cultural experiences. The UK is home to Europe's most substantial Pakistani migrant community. Ranking just after British Indians, Pakistanis form the UK's second-largest ethnic minority (ONS, 2011). The 2011 census recorded 1,174,983 individuals of Pakistani heritage, a remarkable increase from just 5,000 in 1951. Of these, approximately 69% held British nationality (ONS, 2011).

While the USA, which is known as the land of opportunities, began seeing significant Pakistani migration from the 1980s onwards, primarily it attracted skilled professionals and students from Pakistan in search of better prospects. While facing challenges related to post-9/11 perceptions, the Pakistani-American community has been influential in sectors like technology, medicine, and academia, contributing richly to the American picture. In 2021, the U.S. Census Bureau counted approximately 629,946 individuals in the U.S. with Pakistani heritage, (United States Census Bureau, 2020) rose from 409,163 in 2010 (Hoeffel, Rastogi, Kim, & Shahid, 2012). However, some research suggests even higher figures. For instance, in 2005, the Pakistani Embassy in the U.S. cited a figure surpassing 700,000 (Embassy of the United States Islamabad, Pakistan, 2010). Among nations, Pakistan stands as the 12th leading source of migrants to the U.S. Around half of Pakistani Americans communicate in Punjabi, followed by 30% in Urdu. The rest use languages like Sindhi, Pashto, Baloch, Memoni, and Kashmiri (Taus-Bolstad, 2005).

In the late 1950s and early 1960s, a modest number of Pakistanis started to move to Canada. The immigration policies of the time favored individuals with higher education and specialized skills. Canada, with its welcoming immigration policies and multicultural ethos, has been another favored destination, especially in the recent past. A significant number of Pakistanis are temporary residents, either coming to earn or as students planning to go back to Pakistan after completing their studies. Some of them returned, while many stayed, laying the foundation for the Pakistani-Canadian community. Canada's relationship with the Pakistani diaspora is marked by a unique blend of skilled and family-class immigration. Most of the Pakistanis are residing in major cities like Toronto and Vancouver. The Canadian Pakistani community is known for inter-community harmony and showcasing Pakistani culture, arts, and cuisine.

While there exists a considerable amount of literature detailing the driving forces behind Pakistani migration to developed nations (Cheung et al., 2019; Gbollie & Gong, 2019; Naqvi et al., 2017; Hossain et al., 2016; Walton-Roberts, 2015; Farooq et al., 2014; David et al., 2013), there appears to be a distinct lack of empirical

studies focusing specifically on the pull and push factors for Pakistanis to the UK, US, and Canada. This gap is evident in the scarcity of dedicated literature providing empirical insights into the nuanced push and pull factors tailored to these destinations. Thus, this study aims to fill this knowledge gap by offering empirical data analysis on this particular aspect of Pakistani migration. In the econometric examination of this study, the gravity model approach was employed to effectively address the study's objectives. The gravity model, grounded in analogies to Newton's law of gravity, is a widely recognized tool that predicts bilateral trade flows between two nations based on their respective economic sizes and distance apart. By applying this model, one can gauge the volume of international trade or migration flow between two entities. The study utilized panel data spanning a decade, from 2010 to 2020. The Pooled Ordinary Least Squares (POLS) method was the chosen technique for estimating this model. By adopting the POLS method, the study aims to obtain consistent and unbiased estimators. Through the gravity model and the application of the POLS method, the study endeavors to capture the complexities and nuances of migration patterns over the specified period. Variables used are Migration (Total number of immigrants each year from Pakistan to the UK, USA and Canada), Gross Nominal Wage, Labor force, Consumer Price Index, Gross Domestic Product and Distance.

Literature Review

Concerning migration patterns, Pakistan's unique geographical placement at the nexus of South Asia, Central Asia, and the Middle East positions it as an interconnecting bridge between the prominent civilizations of Asia and Europe. Consequently, Pakistan can be concurrently identified as a source, transit, and target nation for international migratory movements. (Pakistan Migration Snapshot , 2019)

Historical Perspective of Migration from Pakistan to the UK, US, and Canada:

Migration from Pakistan to the UK, the US, and Canada since its inception has been shaped by a combination of historical ties, economic opportunities, geopolitical events, and changing immigration policies in destination countries. Below is a historical perspective, starting from the 1950s;

Table 1.1

Phases	UK		USA		Canada	
	Primary Migration Type	Time of Arrival	Primary Migration Type	Time of Arrival	Primary Migration Type	Time of Arrival
First Phase	Labor Class	1950s-1960s	Quote based	1960s	English & French Speaking Working Class	1960s
Second Phase	Family Reunification	1970s - 2000	Green Card Lottery system	1980s - 1990s	skilled and semi-skilled workers	1970s
Third Phase	Singular points-based system	2002 onwards	Family and skilled worker	2002 onwards	Skilled, Students and Refugees	2000 Onwards

Source: Authors

1950s-1960s

Migration from Pakistan to the UK began in earnest during the post-World War II era. The 1950s and 1960s saw a significant influx of migrants from Pakistan, primarily to fill labor shortages in the UK (Luthra & Platt, 2017). The 1948 Nationality Act granted residency rights in Britain to all Commonwealth citizens, potentially allowing entry to around 600 million individuals (Somerville, 2007). While the overall migration from the Commonwealth between 1948 and 1961 remained below 1% of the total population, there was a consistent increase in Pakistani migrants, reaching approximately 25,000 by 1961 (Peach, 1996).

The onset of immigration from Pakistan to the U.S. can be traced back to the uplift of earlier restrictions established by the Immigration Act of 1917 and the 1923 Supreme Court decision. Indeed, in real terms migration patterns from Pakistan to the United States were primarily initiated following President Truman's endorsement of the Luce-Celler Bill in 1946, which allowed a quota of 100 Indians to immigrate to the United States annually (Pusey, 2014). The US witnessed limited migration from Pakistan before the 1960s. However, the Immigration and Nationality Act of 1965 removed national-origin quotas and paved the way for increased immigration from non-European countries, including Pakistan.

Similar to the US, significant migration from Pakistan to Canada began after changes in Canada's immigration policies in the late 1960s, which eliminated racial and national discrimination. In 1967 a points system was introduced in Canada to regulate immigrant eligibility with preference given to educated French and English speakers of working age (Challinor, 2011)

1970s-1990s

The trajectory of migration from Pakistan to the United Kingdom saw significant shifts in the 1970s, particularly with the enactment of the UK's 1971 Immigration Act. This legislation curtailed primary migration while facilitating family reunification (Evans, 1983). Consequently, there was a shift from labor migration to family-based migration. The 1980s-1990s decades witnessed the growth and consolidation of the Pakistani community in the UK. Migration continued primarily through family chains. This resulted in a Pakistani population of around 477,000 by 1991 (Peach, 1996) of whom around half (225,000) were Pakistan-born (Economic and Social Characteristics of the Resident Population, 2013). During this period, the Pakistani diaspora also started to play a notable role in British public life.

The amendments in the migration laws transformed the profile of Pakistanis migrating to the U.S., with annual figures rising from 673 individuals in the 1960s to

approximately 1,528 in the 1970s (Najam, 2007). In the 1980s and 1990s, the U.S. allowed the entry of agricultural laborers and introduced a green card lottery system. Consequently, by the 1980s, the number of Pakistani-origin immigrants stood at approximately 4,265, and this figure rose to 9,729 by the 1990s. (The Pakistani Diaspora in the United States, 2015). Pakistani immigrants to the US during these decades were often professionals, including doctors, engineers, and academics. Later on, the diaspora expanded to include other occupations and economic backgrounds. (Fatima, 2018)

In the 1970s, skilled and semi-skilled Pakistanis predominantly migrated to Ontario and Quebec in Canada. This wave of immigrants comprised both direct migrants from Pakistan and those who had previously resided in regions like East Africa, Britain, or the Middle East. The migration was further influenced by the 1976 Act, which prioritized family reunification and humanitarian considerations over economic interests. (Haider, 2013).

Post-9/11

The 9/11 attacks and the subsequent 'War on Terror' affected Pakistani immigrants and their families in the UK, with increasing concerns about Islamophobia and racial profiling (Katy, Ian, & Salman, 2013). In 2002 and 2005, white papers outlined definitive strategies for UK migration policy, emphasizing a more integrative naturalization approach, reduced asylum claims, enhanced border security via augmented policing, and the consolidation of previous non-E.U. visa classes into a singular points-based system. This revamped system, introduced in 2008, was structured with four distinct tiers (Luthra & Platt, 2017).

Migration dynamics were deeply affected post-9/11. The decade following September 11, 2001, witnessed notable shifts for the Pakistani diaspora and new immigrants, largely driven by stringent changes in U.S. immigration law and policy. Post-9/11, there was a decline of over forty percent in the admission of Pakistani immigrants to the U.S. (The Pakistani Diaspora in the United States, 2015). The US introduced stringent immigration and visa policies, especially for Muslim-majority countries, including Pakistan. Pakistanis in the US faced heightened scrutiny, and many underwent special registration under the National Security Entry-Exit Registration System (NSEERS). (Khan & Williams, 2002)

Following the 9/11 events, Canada, akin to the U.S., enhanced its security protocols, which included the endorsement of the Smart Border Declaration, facilitating augmented intelligence exchange and security procedures with the United States. Notably, Canada holds the distinction of being the world's first nation to embrace a multiculturalism policy, often celebrated for its successful implementation of this approach. Within global discussions on

multiculturalism, Canada stands as a testament to its success, while the experiences of Muslims often challenge this narrative. Consequently, the experiences of Muslims, including Pakistanis, in Canada can be perceived as distinct and more complex compared to other immigrant cohorts. (Nagra & Peng, 2013)

The 2000s Onwards

Migration trends continued, but the motivations diversified. Apart from economic opportunities, the reasons included educational pursuits, family reunification, and asylum-seeking due to sectarian and political violence in Pakistan. By the 2000s, a significant proportion of the Pakistani diaspora in the UK was British-born, representing the second or third generation. Starting in 2012, family migration policies became more stringent, with income thresholds implemented. This led to a significant drop in family visas, plunging from 2,900 in the last quarter of 2012 to a mere 689 in the opening quarter of 2013. (Luthra & Platt, 2017)

The US has historically been a destination for skilled workers from Pakistan, especially professionals in fields like medicine, engineering, and IT. From 2000 onwards, Pakistani immigrants in the USA faced heightened scrutiny post-9/11, leading to stringent visa policies. Despite challenges, many continued to migrate for education and work, with the community becoming more civically and politically engaged over the years (Pakistan Migration Snapshot, 2019).

By the 2000s, family reunification and refugee classes also constituted significant migration streams from Pakistan to Canada. The Pakistani Canadian community, particularly in areas like Toronto, has grown significantly since 2000, with community organizations, festivals, and businesses reflecting Pakistani culture. The Pakistani immigrant population in Canada witnessed significant growth, escalating from 79,315 in an earlier period to 156,860 by 2011, marking a 98% increase. By 2013, this number rose to 198,272, with a striking 73% residing in Ontario, predominantly in the Greater Toronto Area accounting for 97,065 individuals. It's estimated that roughly 250,000 Pakistanis resided in Canada between 2014 and 2015 (Amjad & Burki, The Economic Impact of the Pakistani-American Diaspora, 2013).

From the post-World War II era to the present day, migration from Pakistan to the UK, the US, and Canada has been shaped by a combination of push and pull factors. These include economic opportunities in the host countries, political or economic challenges in Pakistan, changes in immigration policies of the host countries, and the dynamics of family reunification. Over time, the diaspora has grown in size and influence, contributing significantly to the cultural, economic, and social landscapes of these three nations. Across all three countries, geopolitical events, notably the War on

Terror and its aftermath, played a significant role in shaping migration trends and the experiences of Pakistani immigrants post-2000. The diaspora communities in these nations have since become increasingly active in socio-cultural, economic, and political domains, reflecting their integration and contribution to their adopted homes.

Empirical & Economic Linkages

In examining the 'brain-waste' phenomenon in the US, the study argued that it detrimentally impacts both the US's economic advancement and global position while intensifying the brain drain in source countries. The study delved into data from two distinct groups; foreign-educated immigrants and legal permanent residents, further analyzing the information based on demographics, immigrant admission type, and employment trajectories both domestically and abroad (Batalova, Fix, & Creticos, 2008).

African immigrants represent one of the rapidly increasing segments of the US immigrant population, making up 4% of the total foreign-born residents. African immigrants often have higher educational attainment and participate more in the workforce compared to the overall immigrant population, they still face higher poverty rates and earn lower incomes (Nyamwange, 2014).

Migration outflows have resulted in substantial remittance inflows. Specifically, remittances as a percentage of GDP for these countries increased from 1.2% in 1990 to 1.8% in 2007 (Ahmed, Sugiyarto, & Jha, 2010). Remittances from the US to Pakistan have been on a decline, anticipated to drop further in fiscal year 2017. Contrarily, remittances from Canada are projected to rise, despite data suggesting that Pakistanis in Canada possess less economic prosperity than those in the US. This shift in remittance patterns from the US may be attributed to Pakistani workers retaining their savings in the US, possibly for investment purposes, rather than remitting them to families in Pakistan (Declining remittances: Pakistanis in US 'holding on to their savings', 2015).

The Pakistani diaspora has stimulated demand for products such as handwoven carpets, textiles, pottery, jewelry, and certain fruits. Trade with Canada, particularly in textiles, witnessed growth from 2004-2009. This surge aligns with the immigration trends, both showing an increase from 2000 onwards. The diaspora potentially aids in elevating local brands to an international platform, connecting consumers and producers. Consequently, numerous Pakistani brands, including Sana Safinaz, HSY, Junaid Jamsheed and Khaadi, have established their presence in the UK, US and Canada (Amjad & Burki, Pakistan, 2015).

The Economic Linkage of Pakistan with the UK, USA and Canada can be studied through remittance and trade flow. In the UK there exists no formal procedure

to document remittances traversing international boundaries after the UK terminated foreign exchange controls in 1979. A significant portion of these remittances is transferred through informal avenues, such as acquaintances or family visiting the UK, resulting in potential underreporting (Niaz & Nasir, 2018).

Model and Data Specification

This study used the following econometric model to evaluate its objectives based on the assumption that economic factors are the main component due to which migration rate increases.

$$MG_{it} = \alpha_0 + \alpha_1 NW_{it} + \alpha_2 LF_{it} + \alpha_3 GDP_{it} + \alpha_4 CPI_{it} + \alpha_5 DIST_{it} + \mu_{it}$$

where,

MG_{it} = Number of people migrating from Pakistan to country i in year t

NW_{it} = Nominal gross monthly minimum Wage of country i in year t

LF_{it} = Labor Force Participation Rate of country i in year t

GDP_{it} = Gross Domestic Product current US dollar of country i in year t

CPI_{it} = Consumer Price Index (2010=100) of country i in year t

$DIST_{it}$ = Weighted Distance in kilometers from Pakistan to country i in year t

μ_{it} = is the error term capturing the unobserved factors affecting the migration

Each coefficient (from α_1 to α_5) represents the change in the migration rate for a one-unit change in the respective explanatory variable, holding all else constant.

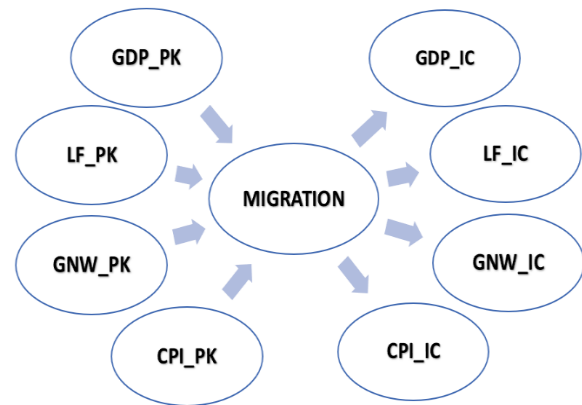
Using this model, the study aims to empirically evaluate the degree to which these economic factors influence the decision of Pakistanis to migrate to the UK, USA, and Canada.

The dataset employed for this research spans from 2005 to 2020. Data was collected from a range of reputable sources to ensure comprehensive and reliable insights. The dependent variable is the number of Pakistani migrants moving to the UK, US, and Canada in a given year and collected from the International Migration Database, International Organization for Migration, US Census Bureau, and Statistics Canada respectively while independent variables include Gross Nominal Wage, Labor force, Consumer Price Index, Gross Domestic Product and Distance variables of

Pakistan, the UK, the USA and Canada and these are collected from World Development Indicator.

This research utilizes economic push and pull factor analysis to explore the effects of Pakistani immigrants in the UK, the USA and Canada.

Fig. 4.1. Push and Pull Factor



Source: Autor's estimation

Figure 4.1 illustrates the push and pull factors of migration used in this analysis. For push factors, the study examines monthly minimum wage, labor force participation, gross domestic product, and inflation in the home country (PK). Similarly, these same variables are weighed as pull factors in the context of immigrant countries (IC). A critical question arises regarding the appropriate methodology to analyze this model. The following section will provide a comprehensive explanation of the estimation technique applied to evaluate the above model.

Research Methodology

Gravity Model of Migration

In this study, the gravity model, traditionally used in international trade, has been adapted to shape migration patterns of Pakistanis to the UK, USA and Canada. It assumes that migration between two places is directly proportional to the size of the populations and inversely proportional to the distance between them. Mathematically, the model is typically represented as:

$$F_{ij} = G \frac{M_i \times M_j}{D_{ij}^2}$$

The above-mentioned equation indicates that the gravitational force that can be anything like international trade, migration, or a simple object like an apple, etc., is directly proportional to its masses and inversely proportional to the square of the distance between them. Whereas, the Gravity model of migration can be written as:

$$M_{ij} = C \frac{P_i^{\beta_1} P_j^{\beta_2}}{D_{ij}^\alpha}$$

Where:

M_{ij} = migration from country i to country j .

P_i and P_j = size of the populations of countries i and j , respectively.

D_{ij} = distance or other barriers to migration between the two countries.

β_1 and β_2 = exponents that determine how the factors of P_i and P_j influence the interaction.

α = exponent modifies the impact of distance or difference between the countries.

C = Constant

Panel Data Estimation

To assess the gravity model of migration, this research employed the Panel Data Estimations. The study focuses on migration dynamics between Pakistan and three developed countries: the UK, the USA, and Canada, spanning the years 2005-2020.

It is crucial to acknowledge panel data as a unique blend of cross-sectional and time-series attributes. This hybrid nature highlights the need to comprehend panel data modeling thoroughly. To better understand, panel data is divided into two main types: homogeneous and heterogeneous panel data models.

Homogeneous panel data models are often referred to as pooled data. The underlying assumption in these models is individuals share identical parameters. This method processes the data collectively, overlooking variations specific to each individual. Mathematically this can be represented as follows;

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it}$$

$$\text{or } t = 1, 2, \dots, T \text{ and } i = 1, 2, \dots, N$$

In the equation mentioned earlier, it is assumed that the correlation between α_i and β_i is zero. This is inherently an assumption of homogeneity.

$$Cov(\alpha_i, x_{it}) = 0$$

This presents a significant concern; the assumption is true but still, there is a serial correlation with alpha over time. Breusch-Pagan Lagrange Multiplier test is used to test the variance across entities is zero. No difference across units. If it is significant then use either RE or FE rather than the Pooled OLS.

On the other hand, heterogeneous panel data models recognize the possibility that parameters can differ among individuals or groups. This approach allows for variability, recognizing that each entity might exhibit distinct characteristics. Heterogeneous panel data

models can be classified into the Fixed Effect and Random Effect models.

In Fixed Effect (FE) the individual effects of unobserved, independent variables as constant over time. The model treats these unobserved independent variables, along with the instrumental variables (IVs), as endogenous. It is formulated as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it}$$

$$\text{for } t = 1, 2, \dots, T \text{ and } i = 1, 2, \dots, N$$

$$Cov(\alpha_i, x_{it}) \neq 0$$

$$y_{it} - \bar{y}_i = (\alpha_i - \bar{\alpha}_i) + \beta(x_{it} - \bar{x}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

In the Random Effect (RE) model, the individual effect of unobserved variables, which vary over time, can be captured as a random variable. This model has the capability to automatically transition between Fixed Effects (FE) and Ordinary Least Squares (OLS) methodologies. It is expressed as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it}$$

$$\text{for } t = 1, 2, \dots, T \text{ and } i = 1, 2, \dots, N$$

$$Cov(\alpha_i, x_{it}) \neq 0$$

$$Cov(\alpha_i, x_{it}) = 0$$

The Hausman Test is used to find out the appropriate method between RE and FE. This test finds out that the unique errors u_i are correlated with the independent variables or not.

4. Empirical Estimation:

This section provides a discussion on the empirical results that push and pull economic factors have on migration from Pakistan to the UK, the USA and Canada. Table 4.2 presents the Pooled OLS results with robust standard errors as a remedial measure for heteroskedasticity. Before moving toward the result discussion of this study, it is worthwhile to discuss why pooled OLS is applied for this study. The insignificant value of Breusch the Pagan Lagrange Multiplier table 4.1 confirmed that Random and Fixed effect techniques are no longer suitable for this dataset. The Probability of BPLM, the test is insignificant which shows that the Pooled OLS is the most appropriate technique for estimation.

Table: 4.1: Breusch Pagan Lagrangian Multiplier Test

	Var	Sd = sqrt(Var)
Logmig	-1696134	-4118415
e	-20111	-448457
u	0	0
	chibar2(01) =	0
	Prob > chibar2 =	1

Source: Author's Estimation

Most of the variables are statistically significant in this model. The probability of chi-square shows that independent variables are combined creating an impact on dependent variables and it is economically and statistically justifiable. The R-square value of the model shows that the 22% variation in the dependent variable is observed by the independent variable within the groups, whereas in between the groups the variation is almost 98%. Overall variation is about 95% by the independent variables.

Table 4.2: Pooled OLS

MIG	Coef.	Robust Std. Err.	Z	P>z
GNWPK	-1.3057190	0.10207550	-12.79	0.0000
GDPPK	-0.2902955	0.04415760	6.57	0.0000
CPIPK	-2.9951300	0.62624490	-4.78	0.0000
LFPK	1.8034360	0.35158070	5.13	0.0000
Dist	1.5928350	1.05966900	1.5	0.1330
GNW	2.1208770	1.23087900	1.72	0.0750
GDP	4.7993500	2.04869700	2.34	0.0190
CPI	-5.7193160	3.14548200	-2.14	0.0330
LF	-2.2064940	4.08702800	-0.54	0.3890
_cons	-52.0445000	16.60679000	-3.13	0.0020
sigma_u	0.0000000	R-sq:	within	0.2258
sigma_e	0.0448457		between	0.9823
rho	0.0000000		overall	0.9566

Source: Author's Estimation

Gross nominal monthly wage, gross domestic product and Inflation of Pakistan are statistically significant at 0.05 significance level. The negative sign indicates an inverse relationship between these variables and migration. The labor force participation in Pakistan is positive and statistically significant. The gross nominal monthly wage and gross domestic product of the panel of countries are positive and statistically significant at 0.10 and 0.05 significance levels, respectively. The inflation of the panel of countries shows a negative and significant relationship with Pakistani immigrants. The labor force participation of the UK, USA and Canada is negative and statistically insignificant.

Conclusion and Policy Recommendations:

The research conclusively exhibits that the gross nominal monthly wage, gross domestic product, inflation rate, and labor force participation within Pakistan significantly influence migration dynamics. These variables are pivotal in understanding why individuals from Pakistan choose to migrate, suggesting that economic factors within the country of origin are more critical in this decision-making process than those in the destination countries (the UK, USA, and Canada).

The variables of gross nominal monthly wage, gross domestic product, inflation and labor force participation in Pakistan show statistically significant relationships with Migration, indicating their importance in explaining migration patterns from Pakistan to these countries. However, gross nominal monthly wage and labor force participation of immigrant countries show certain trends but do not provide statistically significant results at a 0.05 significance level, implying that any observed effects might be due to random variation rather than a true underlying relationship.

The Gross Nominal Monthly Wage of Pakistan shows a statistically significant relationship with migration implying that the average monthly income in Pakistan is a crucial factor influencing people's decision to migrate. A possible reason could be that individuals seek better economic opportunities abroad, especially if the wages in Pakistan are comparatively low. This motivation for migration is commonly observed in many countries where economic prospects are limited. The significance of Pakistan's GDP in the model indicates that the overall economic health and size of Pakistan's economy play a significant role in migration. A lower GDP might push individuals to seek opportunities in countries with stronger economies. Inflation is unavoidable but higher inflation rates, which often lead to increased living costs and reduced purchasing power, might be a driving factor for individuals to migrate from Pakistan. People might emigrate in search of more stable economies where their financial security is not as threatened by inflation. The participation rate of the labor force in Pakistan – essentially, the proportion of the working-age population that is employed or actively seeking employment – is a factor in migration decisions. High unemployment or underemployment in Pakistan could motivate individuals to seek jobs in countries with more robust job markets. In a nutshell these findings indicate that lower wages, economic instability as reflected in GDP, and higher inflation in Pakistan are key drivers of migration, pushing individuals to seek more favorable economic conditions abroad.

On the other hand, the economic conditions of the destination countries, particularly regarding wages and labor force participation, do not exhibit a statistically significant impact on the migration decision, hinting at the predominance of other non-economic factors or a varied influence of these economic variables. The gross nominal monthly wage and labor force participation of immigrant countries (UK, USA and Canada) did not show statistically significant results. This suggests that while these factors might exhibit certain trends or patterns concerning immigration, they are not reliably influential in this analysis. In other words, the decision to migrate from Pakistan to these countries does not strongly depend on the wage levels or labor force participation rates in the destination countries. This lack of statistical significance could

mean that other factors, possibly social, political, or personal, play a more critical role in the decision to migrate. Alternatively, it could indicate that the effects of these variables are varied or inconsistent, thus not showing a clear pattern in your analysis.

Policymakers in Pakistan should focus on economic reforms aimed at stabilizing and increasing the gross nominal monthly wage and controlling inflation to reduce the economic push factors of migration. Enhancing employment opportunities and labor force participation in Pakistan can potentially reduce the emigration rate. This could include investments in sectors that are likely to create more jobs and training programs to improve the employability of the workforce. The lack of statistical significance of economic factors in destination countries, it is essential for policymakers to consider non-economic factors such as social, political, and personal reasons that might influence migration decisions. Furthermore, programs focusing on diaspora engagement and easing the integration process in host countries could be beneficial. There should be a collaborative approach with destination countries to address issues related to migration, such as ensuring fair treatment and integration support for immigrants.

Limitations of the Study

The study primarily focuses on economic factors and may not fully capture the complexity of migration dynamics that include social, political, and personal reasons. The reliance on available data might limit the depth of analysis, especially in understanding the experiences and motivations of individual migrants. The findings, particularly regarding the insignificance of economic factors in destination countries, may not be generalizable to other migration corridors or migrant groups. Additionally, the timeframe of the study might not reflect long-term migration trends or emerging patterns, particularly in the context of rapidly changing global economic and political landscapes.

References

- Ahmed, V., Sugiyarto, G., & Jha, S. (2010). Remittances and household welfare: A case study of Pakistan. *Asian Development Bank Economics Working Paper Series*.
- Amjad, R., & Burki, S. (2015). *Pakistan*. Cambridge University Press.
- Challinor, A. (2011). Canada's Immigration Policy: a Focus on Human Capital. *Migration Information Source*, 1(8).
- David, H., Dorn, D., & Hanson, G. H. (2013). The China syndrome: Local labor market effects of import competition in the United States. *American Economic Review*, 103(6), 2121-68.
- Declining remittances: Pakistanis in US 'holding on to their savings'. (2015, December 26). Retrieved from Express Tribune: <https://tribune.com.pk/story/1016703/declining-remittances-pakistanis-in-us-holding-on-to-their-savings/>
- Economic and Social Characteristics of the Resident Population. (2013). *Office for National Statistics*.
- Efendic, A. (2016). Emigration intentions in a post-conflict environment: evidence from Bosnia and Herzegovina. *Post-Communist Economies*, 28(3), 335-352.
- Evans, J. M. (1983). *Immigration Law*. London: Sweet and Maxwell.
- Farooq, M., Tariq, S., Ghulzar, F., Mirza, F. I., & Riaz, F. (2014). Determinants of international Migration in Pakistan. *Mediterranean Journal of Social Sciences*, 5(20), 2028-2028.
- Fatima, N. (2018). *The Pakistani Diaspora in North America*. Lahore: Graduate Institute of Development Studies, Lahore School of Economics.
- Hoefel, E. M., Rastogi, S., Kim, M. O., & Shahid, H. (2012). *The Asian Population: 2010 Census Briefs*. U.S. Department of Commerce Economics and Statistics Administration, U.S. CENSUS BUREAU.
- Gbollie, C., & Gong, S. (2019). Emerging destination mobility: Exploring African and Asian international students' push-pull factors and motivations to study in China. *International Journal of Educational Management*.
- Hajian, S., Yazdani, S., Jadidfar, M., & Khoshnevisan, M. (2020). Factors influencing the migration intention of health professionals in low and middle income countries: critical review with a theoretical model. *Journal of Contemporary Medical Sciences*, 6(6), 256-261.
- Hossain, N., Shah, N., Shah, T., & Lateef, S. B. (2016). Physicians' migration: perceptions of Pakistani medical students. *J Coll Physicians Surg Pak*, 26(8), 696-701.
- <https://www.icmpd.org/file/download/56783/file/ICMPD%2520Migration%2520Outlook%25202022.pdf>
- International Organization for Migration (IOM). (2016). Study on migrants' profiles, drivers of migration and migratory trends: A research on the socioeconomic profile of migrants arriving in Italy.

- International Organization for Migration. (2003). *World migration report* (Vol. 2). International Organization for Migration.
- Katy, S., Ian, L., & Salman, S. (2013). The Media and Muslims in the UK. *Consultado a*, 15.
- Khan, M. M., & Williams, K. M. (2002). National Security Entry and Exit Registration. In M. J. Morgan, *The Impact of 9/11 and the New Legal Landscape* (pp. 103-112). New York: Palgrave Macmillan.
- Kumar, N., & Sidhu, A. (2005). Pull and push factors in labour migration: a study of brick-kiln Workers in Punjab. *Indian Journal of Industrial Relations*, 221-232.
- Luthra, R. R., & Platt, L. (2017). The changing face of Pakistani migration to the United Kingdom. *API Nexus: Policy, Practice and Community*, 15(1-2), 15-56.
- McAdam, J. (2012). *Climate change, forced migration, and international law*. Oxford University Press.
- Mohamed, M. A., & Abdul-Talib, A. N. (2020). Push-pull factors influencing international return migration intentions: a systematic literature review. *Journal of Enterprising Communities: People and Places in the Global Economy*, 14(2), 231-246.
- Mohamed, M. A., & Abdul-Talib, A. N. (2020). Push-pull factors influencing international return migration intentions: a systematic literature review. *Journal of Enterprising Communities: People and Places in the Global Economy*.
- Nagra, B., & Peng, I. (2013). Has Multiculturalism Really Failed? A Canadian Muslim Perspective. *Religions*, 603-620.
- Najam, A. (2007). *Portrait of a Giving Community: Philanthropy by the Pakistani-American Diaspora (Studies in Global Equity)*. Global Equity Initiative, Harvard University.
- Niaz, L., & Nasir, S. (2018). The Pakistani Diaspora in UK: Evolution, Integration and Challenges. *Centre on International Migration, Remittances and Diaspora Working Paper*.
- Naqvi, A. A., Zehra, F., Naqvi, S. B. S., Ahmad, R., Ahmad, N., Usmani, S., & Khan, S. J. (2017). Migration trends of pharmacy students of Pakistan: a study investigating the factors behind brain drain of pharmacy professionals from Pakistan. *Indian Journal of Pharmaceutical Education and Research*, 51(2), 192-206.
- (2019). *Pakistan Migration Snapshot*. Thailand: International Organization for Migration.
- (2019). *Pakistan Migration Snapshot*. International Organization for Migration, Regional Office for Asia and the Pacific.
- Peach, C. (1996). *Ethnicity in the 1991 Census Volume Two: The Ethnic Minority Populations of Great Britain*. HM Stationery Office.
- Pusey, G. (2014). Today in History: Luce-Celler Act Signed in 1946. *SAADA*, 20140702-3609.
- Somerville, W. (2007). *Immigration under new labour*. Policy Press.
- Taus-Bolstad, S. (2005). *Pakistanis in America*. Lerner Publications.
- Walton-Roberts, M. (2015). International migration of health professionals and the marketization and privatization of health education in India: From push-pull to global political economy. *Social Science & Medicine*, 124, 374-382.
- Yang, H., Li, X., Zhang, Y., & Zehnder, A. B. (2004). Environmental-economic interaction and forces of migration: a case study of three counties in Northern China. In *Environmental Change and Its Implications for Population Migration* (pp. 267-288). Springer, Dordrecht.
- (2015). *The Pakistani Diaspora in the United States*. Migration Policy Institute Report.
- Embassy of the United States Islamabad, Pakistan*. (2010, June 16). Retrieved from <https://web.archive.org/web/20141129082055/http://islamabad.usembassy.gov/pr-10061601.html>
- Amjad, R., & Burki, S. (2013, March 17). *The Economic Impact of the Pakistani-American Diaspora*. Retrieved from The Express Tribune: <https://tribune.com.pk/story/522240/the-economic-impact-of-the-pakistani-american-diaspora/>