Pakistan Journal of Economic Studies

ISSN (E) 2708-1486 (P) 2708-1478
Volume 7: Issue 2 June 2024
Journal homepage: https://journals.iub.edu.pk/index.php/pjes/index

Human Capital Outflow under the Effect of Economic Misery and Institutional Quality: Empirical Evidence from Selected Developing Countries

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ARTICLE DETAILS

History:
Accepted: 30 May 2024
Available Online: 30 June 2024

Keywords:
Human Capital Outflow, Institutional Quality, Fixed Effect Model

JEL Codes:
J24, B15, C23

ABSTRACT

Objective: Broader macroeconomic, monetary, and fiscal policies require reliable variance estimates to minimize economic misery. This research aims to determine economic misery and institutional quality on human capital outflow.

Research Gap: An existing study evaluating the relationship of only one variable (economic misery) with human capital outflow. We are examining the relationship between human capital outflow and economic misery after applying the conditionality of a critical variable, the institutional quality index, another essential variable.

Design/Methodology/Approach: This study avails a fixed effect approach to assess the economic misery effect for the case of 68 developing nations from 2000 to 2019. The study uses the Hausman test technique for the reliability of the results.

The Main Findings: Our results substantiate that economic misery (a combination of inflation and unemployment) positively and significantly impacts human capital outflow in developing countries. Institutional quality further adds to human capital outflow from developing countries to the rest of the world. Our empirical estimations reveal that economic misery conditional to institutional quality matters in stimulating the outflow of human capital. It contributes positively and statistically significantly in the case of developing countries of the world. Income inequality is also a major contributor to human capital outflow.

Theoretical / Practical Implications of the Findings: Revisiting the developing nations' planning is recommended to minimize economic misery and increase institutional quality. Afterwards, the developing nations' financial conditions, trade and institutional quality will be fostered.

Originality/Value: The authors are the first to examine how economic misery and conditional institutional quality react to human capital outflow.

Recommended Citation:

Hayat, M. U., Tariq, M. A., & Jabbar, A. (2024). Human Capital Outflow under the Effect of Economic Misery and Institutional Quality: Empirical Evidence from Selected Developing Countries. *Pakistan Journal of Economic Studies, 7*(2): 96-107. Available at: https://journals.iub.edu.pk/index.php/pjes/article/view/2362

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1. Introduction

The globalization of the world's economies has enhanced the momentum of the capital flow across the economies of different countries. Human capital outflow (HCO) is one of the critical inputs and other factors required for economic growth and development. Hence, it is rightly said that human capital plays an essential role in the growth and development of economies. According to classical economists Solow &

Swan (1956) human capital is a crucial factor input in the economic growth of any country. Nevertheless, when we talk about wage rates, the poor and developing economies could not pay due to their labour class in the production process. As a result, dissatisfaction is created among the labour class in developing economies. That is why highly educated and trained people from the working labour class are induced to migrate to another part of the world to enjoy better rewards and a good working environment. The neo-classical economists believe that the leading causes of international migration are the notable differences in wage rates and working conditions. However, International migration is caused by structural changes, according to the dual labour market theory. Hence, we can rightly say that such a large-scale migration of highly skilled and educated people from poor developing countries to the rich and developed regions of the world is indicative of a loss of human capital without any formal reward (Bhagwati & Hamada, 1974; Iravani, 2011).

Capital outflow can be defined as the educated and trained persons in the country being considered human capital (Farooq, 2018). In developing countries, the population is growing fast. As a result, the working labour force is expanding day by day. Due to fewer benefits and low wage rates in developing countries compared to developed countries, exceptionally trained and skilled human capital is not satisfied with its jobs. So, people always keep busy searching for better employment opportunities. That is why they migrate from one place to another, even across the country's border.

Thus, this study evaluates capital outflow. The need to study developing nations' growth and development policies drives the research. Modern macroeconomic analysts have agreed that prior movements were migration. Jagdish Bhagwati generated the idea of migration in the 1970s. According to this framework, Bhagwati (1979) throws light on the motives behind the migration of highly skilled and trained migrants.

The shifting of Brain drain from one place to another is called human capital outflow. Diverse studies and models were conducted on brain drain, such as (VerdaZaka, 2009; Monteleone & Torrisi, 2010). Thus, some economists consider it (Human capital outflow) bad luck for developing countries as all the expenditures on higher education and training faced by poor and developing countries are lost when a highly- educated and trained person migrates to the developed countries and does not return. Economic misery index (inflation and unemployment) and Institutional quality (IQ) are always spiked in developing economies. The macro model is static. The static model is mostly estimated using pooled OLS; fixed and random effect selections are chosen using two specialized tests, the Brush and Pagan LM and the Hausman tests. Further, supply-demand gaps in the international labor market highlight the importance of studying human capital outflows. Suppose human capital outflow from developing countries is treated as brain export, facilitated, and utilised properly. In that case, it may accelerate economic activity (through attracting foreign direct investment and remittances) in developing countries.

1.1 Problem Statement

To minimize economic misery, international economics and broader macroeconomic, monetary, and fiscal policies are required to fill the gap. The gap between the marginal effects of education, health, and agricultural aids widens as institutional quality improves. We hypothesized that modelling and analysis hide massive inequities among developing countries. Assess the migration gaps and effects of economic misery and conditionality of institutional quality on the brain drain. The research aims to determine brain drain or human capital outflow.

We examined if the developing nations have brain drain phenomena, economic misery and conditionality of institutional quality pathways differ considerably. Economic misery and institutional quality are used to compute brain drain gaps, and the Interaction term is the simple product of misery index (MI) and institutional quality (IQ), Gini coefficient index, exchange rate, foreign remittance, broad money and parameters. The fixed effect estimation strategy is applied. The pragmatic approaches have been used best for the data, supported by economic theories and the Hausman test.

Thus, the policy implications will need more specific and actionable steps for brain drain policies, addressing broader macroeconomic policies and managing migration effectively. Providing concrete strategies and remedies would enhance the recommendations practically and we are using annual data.

2. Literature Review

2.1. Theoretical Background

Before studying the empirical evidence, it is worth discussing the waves of thoughts relating to the human capital outflow. The first wave in migration theory frameworks dates back to the late 1960s. According to this framework, the outflow of the human capital of skilled and trained labour was considered a brain drain. That is why it is treated as an international public good. The pace of this outflow is determined by wage differential among the countries in the world. As a result, early research on this outflow of educated and trained individuals finds that migration does not affect the source countries. As a result, the benefits of free migration to the global economy were underlined. The second wave of thoughts was generated under the ideas of Bhagwati in the 1970s.

According to this framework, Bhagwati (1979) throws light on the motives behind the migration of highly skilled and trained migrants. The study's findings comprise recommendations to the state to devise policies to overcome the harmful effects of such a type of migration on the country. The Bhagwati (1979) suggested that the world implement a mechanism of payback to the nations of the world who are facing loss due to human capital flight or loss of brain drain. For example, destination countries should redistribute income tax on the brain in the country of origin. At the end of the 1990s, the foremost researchers who added knowledge in the third wave of the theoretical and empirical literature on human capital were (Beine et al., 2011) identical situation in Pakistan (Khan, 2016; Tabassum et al., 2017).

2.1. Theoretical Literature

According to neoclassical economists, international human capital outflows are driven by wage disparities between destination and home countries and migrant expectations of better pay in destination nations (Harris & Todaro, 1970). Similarly, we are going to discuss different approaches. The first one, the utilitarian economist (Jeremy Bentham, 1748-1832, the pioneer), considered the wage and employment opportunity difference as major catalysts that affected the outflows of human capital. Hence, they considered the migrants as utility maximisers. According to the utilitarian approach, migrants evaluate different employment opportunities using the cost-benefit analysis for utilitarian (income maximization) decision-making about migration (Lewis, 1952). The second one**,** Amenities-led migration theories were pioneered by (Lowry, 1966). Metropolitan growth migration theory links the direction of migration with the wages and employment level. According to this approach, people migrate from places where wages are low and with high unemployment to places with higher wages and lower unemployment. Graves (1983) argued that people migrate to places with abundant employment opportunities. Ultimately, the cost-benefit analysis for the decision to migrate related the migration to the resource allocation framework instead of relating it to income differential and considered it an investment with both cost and benefit. Subsequently the framework of costs and benefits to investment in migration at the private and public levels was developed (Sjaastad, 1962).

The segmented and dual labor markets theory argues that native people and immigrants can access job opportunities differently. As a result, incidences of exploitation occur with immigrants from developing countries and in destination countries. The borderline for segmented and dual labor markets can be a cultural difference, rural-urban composition, gender (male-female), occupational (skilled-unskilled), demand-supply of labor, or pull-push factors involved in migration. Cultural segmentation, dual labor market, and migration are related to the Civil Rights Movement, and immigration policy reforms were at their peak during the 1960s era. Watson (1977) studied the social structure and culture of migrants in Britain in similar way, rural urban segmentation, dual labor market and migration (Meillassoux, 1981). Emmenegger et al., (2021) and Wiedner & Giesecke (2022) explained the different types of labor market segmentation in industrialized economies with the help of Industrialization, Labor Market Segmentation, and Migration. According to this research paper, opportunities in different types of labor market

segmentation influenced the migration decision. Last, pull factors in the human capital movement are good traits relating to migration-receiving countries, while push factors are negative attributes relating to the originating country (Datta, 2004).

3. Data Sources and Econometric Strategy

The balanced panel data are used in the study from 2000 to 2019. This study uses 20 years of data from 68 lower and middle-income countries. A list of countries is available in the Appendix. In a recent study, we review the effect of economic misery on capital outflow under the condition of institutional quality for the selected developing economies. The data of the countries are chosen based on the availability of data. According to theoretical literature, we include economic misery as an explanatory indicator in our list of capital outflow determinants (Ranis & Fei, 1961). In that order, the data have been sourced from the International Labor Organization (ILO), World Development Indicators (WDI) and International Consortium of Investigation Journalists (ICRJ).

Correspondingly, we used the human capital outflow function to estimate the factors that push human capital to migrate from poor developing countries to the rest of the world by adding economic hardship and using institutional quality as conditionality, as Chiswick (1978) did. Inflation and unemployment, as Walsh (1974) pointed out, are both essential and sufficient circumstances for human capital to migrate from developing countries to the rest of the world in search of better salaries and working conditions. A description of variables is available in the appendix.

3.1 Empirical Model

For empirical purposes, we used the log-linear specification as Ahmed et al. (2015) with minor modifications, and the model is as follows.

$$lnHCOit = \beta 0 + \beta 1 lnEMit + \beta 2 lnIQit + \beta 3 \ln (EMit * IQit) + \beta 4 Xit + Ui + Vt + eit \quad (1)$$

Economic misery and institutional quality are associated with Jagdish Bhagwati's ideas in the 1970s. Bhagwati (1979) highlights the motives behind the migration of highly skilled and trained migrants. The theoretical framework suggests that the world should implement a payback mechanism to the countries facing the loss due to human capital flight or loss of brain drain. For example, destination countries should redistribute income tax on the brain in the country of origin. The model reviewed the factors of human capital outflow with Bhagwati's approach. Comparably, in the above model, βz are the constant terms, 'i' represents the number of countries and 't' is for periods. □□ is the country-fixed effect, V t the time-fixed effect and □□□ is an error term. Where “HCOit” is human capital outflow to the rest of the world, our dependent variable. It is the summation of the highly qualified, highly skilled, and professional labor force. For this, we use the proxy of net migration, and we suppose that all migrants are highly qualified and skilled professionals in the labour force. Economic misery index EMit is our variable of interest, a composite index of time series panel data on inflation and unemployment in the economy. This misery index combines inflation and unemployment, and we use it by following Arthur Osun's approach (1962). “IQit" is also an index used to measure the institutional quality in countries with "i and t" subscripts. This index consists of the following variables: - Government effectiveness, Political stability and absence of violence, Control of corruption, Rule of law, Regulatory quality and Voice and accountability. Nevertheless, in a recent study, we used an index using only two indicators: government effectiveness in the countries and the rule of law in the country. Similarly, (EM*IQI) it represents the interaction between economic misery and institutional quality index with the entry of the number of countries and periods. At the end, where Xit is the vector of control variables, which comprises the following variables: The first one is 'Rit’. It represents foreign remittance sent by the labour force working abroad. Another one is 'Eit' is the symbolic representation of the exchange rate of currencies concerning the currencies of other countries. Meanwhile, the income inequality "Iit" is also part of our control variable. As income inequality cannot be measured directly, we are using the Gini coefficient to measure income inequality. Similarly, BMit is used

in the study to represent time series data of broad money of sample countries, it is the proxy used to express money supply. GDP is the time series data on sample countries' gross domestic product growth.

The estimation technique used in the study comprises both static and dynamic. This part of the study is further divided to develop a detailed methodological framework for each approach. First, Static analysis is characterized by the absence of a lag term in the dependent and independent variables. The static model is mostly estimated using pooled OLS, and fixed and random effect selections are chosen using two specialized tests, the Brush and Pagan LM and the Hausman tests. The fixed-effects model (FE) is based on the premise that the explanatory variables are associated with the omitted effects in the general model. The fixed-effect model is used to find the individuality in panel data analysis. According to the fixed effects formulation, changes in the constant term can capture differences across countries because each country's social, political, and economic structures are unique.

As a result, the fixed-effect model uses a separate dummy for each country, and the intercept for each country will be different. The random-effects model (RE) is based on the idea that individual effects are completely unrelated to the explanatory variables. The random term indicates the variation of individual intercepts from the mean value of all cross-sectional intercepts. In contrast, the common intercept represents the mean value of all cross-sectional intercepts. Similarly, the Hausman specification test determines whether the fixed effect model is more apt or the random effect model is more apt.

4. Analysis of Empirical Results

The empirical analysis estimated the impact of economic misery under institutional quality conditionality using the fixed effect method following the regression analysis of (Bhagwati, 1979). Moreover, this episode is based on two stands. The first stand is associated with summary statistics of the employed variables. You can see the summary statistics in Table. 2 in appendix. The second stand is based on empirical estimated results which are depicted in Table 1. Quite contrary, we used the Hausman test to select the fixed Effect estimation technique. The chi-square value of the test is (0.00) so we reject the null hypothesis that H0= coefficients of fixed effect estimates are not systematic. The static models are estimated by fixed effect and random effect estimation techniques alike (Ullah & Rauf, 2013).

Hence, we are going to notify that fixed effect model is used for the estimation of empirical results. The estimated impact of diverse variables on human capital by the fixed effect is shown in Table. 1. This model estimates that the Misery index, Institutional quality index, an interaction term between economic misery and institutional quality, Gini coefficient, Exchange rate, and Broad money significantly impact HCO. Likewise, the interpretation of the estimated fixed effect results is divided and explained into three different models.

4.1. Fixed Effects Results without IQ and the Interaction term (Model-I)

In the first model, we did not include the conditionality of our model, which is institutional quality. In this model, we observe the impact of economic misery only on human capital outflow. Our results confirm that economic misery alone significantly and positively impacts human capital.

In the first model of Table 1, economic misery EMit is the main determinant of our study of interest affecting the human capital outflow in sample developing countries. It is statistically significant (0.013) at a 5% significance level and has a coefficient value (0.031). Hence, based on the estimations of the first model, when the institutional quality and interaction term between economic misery and institutional quality is absent, economic misery increases by one per cent, and human capital outflow rises by 0.031 per cent. It means that economic misery alone, too, affects capital outflow. The estimated result is according to the theoretical framework of theories of migrations (Ahmad et al., 2008).

Our first control variable is the Gini coefficient (Giniit) in the first model of Table 2. It enters positively with a coefficient value (0.030) in the model, meaning it is highly significant at a given significance level.

We can interpret it as human capital outflow (HCOit) increases by (0.030) per per cent when income inequality rises by one. As a result, we can say that the Gini coefficient also greatly impacts the outflow of human capital in the first model (Fraser, 2018).

In the first model, the second control variable is the exchange rate. It has a positive expected sign (0.086) and is statistically significant (0.000) at a 5% significance level. The exchange rate positively affects the outflow with 68 selected developing countries. The outflow of human capital increases by (0.068) per cent for every one per cent increase in the exchange rate. Le Heron (2019) estimates that the exchange rate significantly impacts migration.

In Model-I of Table 1, we have taken foreign remittances (REMITit) as a third control variable. It has a negative sign (-0.062) but a significant value (0.001). It harms HCO alongside 68 sample countries. With a one per cent rise in foreign remittances, an outflow of human capital falls by 0.062 per cent. This result is consistent with (Leon-Ledesma & Piracha, 2004).

This paper's last control variable is money supply (BM). It is proxy by broad money in the first model of Table 1. It has a positive expected sign (0.005) and insignificant (0.000) at a 5% significance level. Money supply, the ultimate source of inflation, also affects the HCO. With a one per cent increase in money supply, HCO rises by 0.005 per cent.

4.2. Fixed Effects results without IQ (Model-II)

Thus, we included the conditionality in our model: IQ. In this model, we are observing the impact of economic misery on HCO in the presence of IQ. Our results confirm that economic misery alone has a significant positive impact on HCO. However, in the presence of conditionality, IQ, the impact of economic misery on HCO rises. We did not include interaction terms between EM and IQ in model II.

In model-II, Table 1, economic misery EMit is estimated which is statistically significant (0.001) at a 5 per cent level of significance and has a coefficient value (0.042) based on the estimated results of the second model; we said that when the IQ added in the model, economic misery becomes volatile with a more excellent value of the coefficient. It means that the impact of EM on HCO further strengthens in the presence of institutional quality on human capital outflow. The HCO increases by (0.042) per cent when economic misery increases by one per cent. This result is consistent with (Ahmad et al., 2008).

Our second variable is the institutional quality (IQit) in model II. It enters positively (1.183) in the model. It has a (0.000) significance level, meaning it is highly significant at a given significance level. The IQ has an impact on HCO. We can interpret it as human capital outflow (HCOit) increases by (1.183) per cent when institutional quality rises by one per cent. We can say that IQit also significantly impacts HCO in model II. Frasere (2018) also concluded that IQ played a significant role in migration.

The first control variable in a study is the Gini coefficient (GINIit) in model two. It has a positive expected sign (0.025). In the second model, it is significant (0.000) at a 5 per cent significance level. The Gini coefficient is the proxy for income inequality among the people. The result of the study indicates that the Gini coefficient triggers the HCO from the selected developing countries. With point one increase in the Gini coefficient, HCO spiked by (0.025) per cent. The second control variable in model II is the exchange rate (EX.RATE). It has a positive expected sign (0.081) and is statistically significant (0.000) at a 5% significance level. The result indicates that the exchange rate positively affects the HCO. The outflow of human capital rises by (0.081) per cent for every one per cent increase in the exchange rate. Le. Heron (2019) estimates that the exchange rate significantly impacts migration.

In Model II of Table 1, we have taken foreign remittances (REMIT it) as a third control variable. It has a negative sign of coefficient (-0.050) and statistically significant (0.006). With a one per cent rise in foreign remittances, the outflow of human capital falls by (0.050) per cent.

In a recent article, money supply (BM) is the fourth control variable. It is proxies by broad money in the second model of Table 1. It has a positive expected sign (0.004) and is statistically significant (0.00) at a 5% significance level. This result also confirms that the money supply affects the HCO. With a one per cent increase in money supply, HCO rises by (0.004) per cent.

4.3. Fixed Effects (Model-III)

In the third model, we included conditionality institutional quality and its interaction term with economic misery. In this model, we observe the impact of economic misery on HCO in the presence of IQ, along with the interaction term between EM and IQ. Our results confirm that EM alone has a significant positive impact on HCO. Nevertheless, in the presence of conditionality, institutional quality and interaction terms, the impact of economic misery on human capital outflow increases significantly. The second model did not include economic misery and institutional quality interaction term. Nevertheless, we included interaction term and intuitional quality as a variable in the third model.

In the third model of Table 1, economic misery is denoted by EMit in the model. Economic misery is highly significant (0.001) and has an expected plus sign (0.040). EM is the main determinant of our study of interest affecting the HCO in 68 developing countries. With the rise of EM, the HCO also rises. The estimated results show that if economic misery increases by one per cent, the human capital rises by (0.040) per cent. The estimated result is relevant to the theoretical framework of migration theories. This result is consistent with (Ahmad et al., 2008).

The second main independent variable is the institutional quality (IQit) in the third model. It also enters positively (1.210) in the model. It has a (0.000) significance level and is statistically highly significant. IQ has an impact on HCO. We can interpret it as human capital outflow (HCOit) increases by (1.210) per cent when institutional quality upsurges by one per cent. Hence, we can conclude that (IQit) also greatly impacts the outflow of human capital. The result is according to Quaglione and Sarra (2019), who studied the importance of human capital in migration and institutional quality across Italian provinces.

The third main variable in Model III is the interaction term denoted by (MI*IQ). It is the product of two main independent variables, economic misery and institutional quality, like other studies by (Kedir & Yasmeen, 2012; Burguellil, 2013). In our study, the interaction term has a negative sign (0.048) but is statistically significant (0.000) at a given significance level. We can conclude that interaction terms inversely affect the HCO based on the given results. The (MI*IQ) growth will reduce the human capital outflow (-0.048) in sample developing countries. The estimated outcome implies that joint improvement in the Economic misery index with the Institutional quality index will diminish the outflow of Human capital. Thus, improved institutional quality and ever-increasing economic misery in developing countries can be considered negative and significant relations with HCO.

In Table 1, the first control variable is the Gini coefficient (GINIit). It has a positive expected sign (0.027) and is highly significant (0.000) at a 5% significance level. Its estimated outcomes show that it affects the HCO positively similar to the findings by the book of Bastia (2013). The Gini coefficient is the proxy for income inequality among the people. The result of the study indicates that the Gini coefficient enhances the human capital outflow from the selected developing countries. With one unit rise in inequality, the outflow of human capital increases by (0.027) per cent. Safder and Naeem (2020) confirm that income inequality and devaluation of domestic currency cause HCO.

Accordingly, the second control variable is the exchange rate (EX.RATE) in the third model of Table 1. It has a positive expected sign (0.078) and is significant (0.001) at a 5% significance level. The results indicate that the exchange rate positively affects the HCO in terms of developing countries. With a one per cent increase in the exchange rate, HCO increased by (0.078 per cent). The results are according to Yang, D. (2008), who conducted a study on evidence from Philippine migrants' exchange rate shocks on international migration, remittances, and household investment.

In Model III of Table 1, we have incorporated foreign remittances (REMITit) as a third control variable. It has a negative coefficient (-0.049) and statistically significant (0.000) impact on human capital outflow alongside 68 sample countries. The estimated results show that human capital falls by (0.049) per cent, with a one per cent rise in foreign remittances in sample countries. The result aligns with the findings of Leon-Ledesma and Piracha (2004), who reported that foreign remittances affect human capital.

Our last control variable is the money supply (BM). Money supply is used as a proxy in terms of broad money. It has a positive sign (0.004) and is statistically significant (0.000) at a 5% significance level. The result reveals that money supply plays a noteworthy role in the HCO. With a one per cent rise in money supply, the outflow of human capital rises by (0.004) per cent. According to Garnier (1990), the results are Migration, money flows and the village economy. Hence, it can rightly be said that HCO is relatively less elastic concerning the Economic misery index than the Institutional quality index. In the light of above discussion, it is well-established that the Economic Misery Index and Institutional quality index mutually determine the HCO for 68 economies. Hence, any improvement in these two variables will minimise the outflow of precious HCO.

4.4. Empirical Findings

Table 1: Estimation Results of Human Capital Outflow (HCO)

Variable	Model-I	Model-II	Model-III
MI	0.031* (0.013)	0.042* (0.001)	0.040* (0.001)
IQ	…….	1.183* (0.000)	1.210* (0.000)
MI*IQ	…….	……..	-0.048* (0.000)
Gini	0.030* (0.000)	0.025* (0.000)	0.027* (0.000)
EX. RATE	0.086* (0.000)	0.081* (0.000)	0.078* (0.001)
REMIT.	-0.062* (0.001)	-0.050* (0.006)	-0.049* (0.006)
BM	0.005* (0.000)	0.004* (0.000)	0.004* (0.000)
GDPG	0.004 (0.226)	0.002 (0.451)	0.002 (0.430)
INTERCEPT	13.550 (0.000)	12.182 (0.000)	12.071 (0.000)

Source: Authors' Estimations

5. Conclusions and Policy Recommendations

Developing and under-developing economies' migration has been hampered by spiked inflation and unemployment index (MI), and implementation of appropriate rules is essential to correct these gaps. Also, the lack of conditional institutional quality and the implementation of appropriate rules are essential to correct the gaps. As economic activity boomed and busted, higher inflation and unemployment lowered institutional quality, foreign remittance, GDP, etc. Afterwards, broader macroeconomic policies were less effective. This study hypothesizes that sixty-eight (68) poor and underdeveloped countries' response was due to broader migration policies focus on economic misery and condition of institutional quality policies disregard. However, research is scarce, limiting knowledge.

Different approaches have been applied to achieve the goals. The first wave in migration theory frameworks dates back to the late 1960s. According to this framework, the outflow of the human capital of

skilled and trained labour was considered a brain drain. According to Bhagwati (1979), it throws light on the motives behind the migration of highly skilled and trained migrants. According to the utilitarian approach, migrants evaluate different employment opportunities using the cost-benefit analysis for utilitarian (income maximisation) decision-making about migration. The gap between the marginal effects of education, health, and agricultural aids widens as institutional quality improves after estimating the human capital equation in a fixed effect framework. The analysis covers 2000 to 2019 with annual frequency.

Our empirical estimations reveal that economic misery conditional to institutional quality matters in stimulating the outflow of human capital. It contributes positively and statistically significantly in the case of developing countries of the world. The estimated findings also supported that economic misery positively affects human capital outflow. It shows that economic misery and institutional quality should be given due attention to check this outflow of the precious and key factor of production, that is, human capital. These findings cast doubt on economic misery and institutional quality ability to manage economic growth and development. More study is needed to find better economic misery and institutional quality indicators. Without these, economic misery and institutional quality role as a policy instrument cannot be determined.

5.1. Policy Recommendations

Economic misery and institutional quality play a vital role in human capital outflow, especially in the selected developing countries. It is also evident from our research article. Economic misery (combinations of inflation and unemployment) enhances the human capital outflow in the case of selected developing countries. So, policies should be designed so that resources should be spent to lower the economic misery in countries. As a result, the induced force of migration could be minimized.

Institutional quality matters; efforts should be made to improve the institution's quality in countries through fair and just trials and the rule of law. Broad money (money supply) also causes inflation in the country. Hence, governments should carefully handle the printing of money in the country. The money supply creates inflation in the country, which ultimately causes economic misery in the country.

According to Pakistan's scenario, govt. Pakistan should take a few measures to check the outflow of human capital from Pakistan's economy. Based on the estimated outcomes, this study stresses that Pakistan must minimize economic misery and improve institutional quality to hinder the outflow of human capital from the country.

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Acknowledgments

The author is grateful for the editorial team's support and comments from two anonymous referees.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Disclaimer

The views and opinions expressed in this paper are those of the author alone and do not necessarily reflect the views of any institution.

Appendix

Table 2. Summary Statistics of the Variables

Variable	Obs	Mean	SD	Min	Max
HCO	1292	15.25	0.45	-0.22	15.72
EM	1292	0.71	0.22	0.00	3.26
IQ	1292	1.35	0.26	0.00	1.89
MI*IQ	1292	-0.10	1.37	-39.97	16.04
GINI	1292	41.42	10.12	-16.30	83.90
Ex. Rate	1292	3.28	2.46	-3.11	10.65
Remit.	1292	0.64	1.55	-10.45	3.99
BM	1292	3.45	1.14	0.00	5.10
GDPG	1292	3.94	4.12	-36.39	26.42

Source: Authors' estimation

Table 3 List of Selected Countries

Algeria	Bangladesh	Belarus	Bolivia
Botswana	Bulgaria	Central Africa	Burkina Fes
Chili	Colombia	Costa Rica	Co^ted'lvire
Czech rep.	Dominica	Ecuador	Egypt
El Salvador	Estonia	Ethiopia	Gambia
Ghana	Guatemala	Honduras	Hungry
India	Indonesia	Iran	Jamaica
Jordan	Kazakhstan	Kenya	Kyrgyz Rep.
Latvia	Lesotho	Lithuania	Madagascar
Mauritania	Mexico	Mozambique	Namibia
Nepal	Nicaragua	Pakistan	Paraguay
Philippine	Nigeria	Panama	Peru
Poland	Romania	Russia	Senegal
Sierra Leone	South Africa	Sri Lanka	Thailand
Trinidad	Tunisia	Turkey	Uganda
Ukraine	Uruguay	Venezuela	Yemen
	Turkmenistan	Uzbekistan	Zambia

Source: Compiled by Authors'

Table 4: Description of the Variables

Variables	Definition	Sources
HCO	HCO is a proxy by net migration Net migration is the number of immigrants minus the number of emigrants, including citizens and noncitizens, for five years.	WDI
MI	MI is an index comprised of a product of the rate of inflation and the rate of unemployment	WDI
IQ	IQ is also an index extract from WGI. IQI comprises only two things that are Control of Govt. and Rule of Law	WDI
MI*IQ	The interaction term is the simple product of MI and IQ	WDI
GINI Coefficient	Gini is an index to measure Income inequality among the nation	WDI
Exchange Rate	Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar).	WDI
Foreign Remittance	Foreign remittances comprise personal transfers and compensation of citizens and personal remittances, received (% of GDP) are used as a proxy.	WDI
Broad Money	Broad money is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign exchange.	WDI

Source: Authors' Description