

DELINEATING THE ROLE OF FOREIGN DIRECT INVESTMENT (FDI) AND OTHER MIGRATION DRIVERS IN AFRICA

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Abstract

The study investigates the variables that influence net migration in selected African countries. The study employed Feasible Generalized Least Squares (FGLS) estimation with quadratic terms to analyse the effects of Foreign Direct Investment, unemployment, Inflation and GDP per capita on Net Migration across selected 13 African Countries, over the period of 6 years (2017-2022). The research hinged on the Neoclassical Theory of Migration, Migration Hump Theory, The FDI-led Migration Hypothesis, and Migration Networks Theory. The results of the study revealed that FDI exerts negative impact on net migration, while FDI squared has a positive influence on net migration. This inverted U-shaped relationship indicates that an increase in FDI favours emigration at the initial stages of development, after which emigration will start to fall. The effect of unemployment on net migration is positive and significant. Inflation has a negative non-significant effect on net migration. GDP per capita exerts negative influence on significant effect on net migration. This implies an increase GDP per capita tends to encourage emigration. The study therefore suggests that governments at various levels (national, regional and international) should implement policies to reduce inflation. Instead of depending solely on FDI, the policymakers should also encourage domestic investment, and better working conditions in the domestic labour market.

Keywords: Migration, FDI, FGLS, Globalization, Africa

Introduction

Migration has become a very prominent phenomenon in the African society. The continent has witnessed high rate of migration in recent times. Africans seek to escape in order to find better quality of life in other places, which they consider better. Migration denotes the shifting of individuals from one area of residence to another. From a demographic viewpoint, migration refers to the movement that

leads to a permanent or lasting change in normal place of residence. Many schools of thought assert that the movement must be of a significant distance and bring about the individual's residence in the destination on a relatively permanent basis. However, in operational terms, migration connotes a movement that crosses a definite political boundary, or movement into a different labour market in order to establish a new place of residence (Toney & Bailey, 2014).

Many Africans have been migrating from their home countries to other countries the purpose of improving their economic situation and overall wellbeing. They migrate to other climes, which they consider safer and more enabling for economic prosperity. Migration research is at the centre of labour economics. This is as a result of the examination of the flow of labour within or across nations is pivotal to any conversation about labour market equilibrium. Workers react to 'regional differences' in economic outcomes by 'voting with their feet' (Borjas, 2001).

Foreign direct investment (FDI) and migration are notable components of globalization, and they influence each other. An in-depth knowledge of the influence and interactions of various components of globalization can yield improved policies. Several countries aim at drawing in FDI to boost domestic employment. However, these nations also seek to discourage emigration of high skilled workers, that is, they want to prevent brain drain. Nonetheless, they are faced with the finding out how these two goals be advanced individually, as well as if incentivizing inflows of FDI causes brain drain to rise or fall. Another aspect considered is the degree of the trade-off. A comprehensive evaluation of these effects will help to direct policymakers (Xu, 2016).

Migration from Africa to other continents has led to brain drain and decrease in productivity in the many African economies, as many talented, highly skilled and able-bodied men and women have left the continent in search for a better life in other countries. These individuals cut across the health, education, other sectors of the workforce. A survey conducted by Kirwin and Anderson (2018) on West-African migration revealed that Nigerians (50%) were interested in leaving Nigeria if the opportunity was presented to them. The drivers of migration are evolving over time but have gone through to limited research. (Kirwin & Anderson, 2018).

Various such as Kirwin and Anderson, 2018, addressed the push and pull factors that drive migration. However, this study addresses the influence of foreign direct investment (FDI) and push-pull factors on the decision to migrate from African countries. The main objective of this study is to identify the economic factors that influence net migration in thirteen African countries (Ethiopia, Nigeria, Uganda, Morocco, Cameroon, Benin, Burkina Faso, Burundi, Mali, Senegal, Sudan, Angola, and Niger). The reason for selecting these countries is that based on data from World Bank (2024), these countries recorded negative value of net migration between 2020 and 2022.

Moreover, according to Friebe et al (2024), among the top ten origin countries with highest emigration rates, Senegal (6.58), Morocco (1.28), Sudan (1.05), Mali (1.98), and Ghana (1.02) were identified. In the year 2012, the list included Senegal (3.49), Sudan (2.33), Ghana (2.07), Morocco (1.29) and Nigeria (1.18). This was based on the Gallup World Poll (Gallup, 2012).

Gallup (2024) also revealed the Potential Net Migration Index (PNMI) of some of these countries. This was recorded as Ethiopia (-27%), Nigeria (-46%), Uganda (-32%), Morocco (-18%), Cameroon (-24%), Benin (-30%), Burkina Faso (-25%), Mali (-15%), Senegal (-34%), and Niger (-19%). The negative PNMI of these countries as revealed by these findings, indicate that there is a serious challenge of potential brain drain.

Following this introduction, the remaining part of the paper include theoretical framework; empirical review; results and discussions; conclusions and recommendations.

Theoretical Framework

This study is pinned on the Neoclassical Theory of Migration, Migration Hump Theory, and FDI-Led Migration Hypothesis

The Neoclassical Theory of Migration

The neoclassical theory of migration is one of the earliest and most popular theories of international migration, which aimed at expounding labour migration in the course of economic development. This is asserted by Ranis and Fei (196); Harris and Todaro, (1970); Todaro, (1976), as well as Lewis, (1954). Countries blessed with huge endowment of labor when compared to capital are

characterized by a low equilibrium market wage (return). On the other hand, countries that have inadequate endowment of labor when compared to capital often have a high market wage (return). This is often presented in form of graphs, indicating the usual relationship between labor supply and demand curves. The consequential gap in wages drives workers from the country with low returns (wages) to the country with high returns (wages). (Massey et al., 1993).

Various types of costs and benefits are considered: monetary and non-monetary. These include out-of-pocket expenditure' (Bircan et al., 2020, Sjaastad, 1962), such as costs of travelling, costs incurred in the course of the journey and the period of arrival, and costs for other activities, e.g. language- learning programs. Non-monetary costs comprise opportunity costs and also psychological costs of moving away from family, friends and the familiar surroundings. In similar way, benefits can also be divided into non-monetary (e.g. climate) and monetary returns - such as wages (Bircan, et al. 2020).

Faist (2000, p. 36) as cited by Bircan et al. (2022), conceptualized the neoclassical theory as follows:

$$\sum_{j=1}^N \frac{Y_{dj} - Y_{oj}}{(1+r)^j} - T > 0$$

Given that the total sum (totaled for all periods in which impending proceeds are anticipated) of the discounted variance between the incomes in the year j at the destination place (Y_{dj}) the earnings in the period j at the origin (Y_{oj}) minus the costs of moving (T) yields a positive number (larger than zero), individuals decide to migrate. r stands for the rate of interest to discount future earnings.

The neoclassical theory provides a theoretical basis for this study because it models how the independent variables FDI, unemployment, inflation and GDP per capita influence net migration, showing that economic agents will migrate for maximizing their economic benefits.

Migration Hump Theory

The migration hump theory posits that narrowing wage gaps will influence emigration to first increase and then decrease as a nation advances and develops more (Dao, et. al, 2013). Zelinsky (1991) as cited by Dao, et al. (2013) depicted

this as the mobility transition curve. Hence, in contrast to neoclassical predictions, economic development is likely to produce additional emigration from origin countries in early stages of development (de Haas, 2007, 2010a, 2010b as cited by as cited by Dao, et al, 2013). This happens because an increase in GDP per capita or development means that individuals can now bear the financial cost of migration. This can be linked to the neoclassical theory of migration which asserts that migration involves costs.

FDI-led Migration Hypothesis

According to Radić and Bogdan (2024), FDI-led migration hypothesis posits that FDI influences the pattern of migration in two ways - by driving in skilled labour for new prospects or by driving out local labour. Therefore, FDI creates jobs that require advanced skills, leading to decrease in demand for labour intensive jobs, thereby causing emigration of workers who do not have those advanced skills.

Empirical Review

Various studies examined various factors that drive migration. Some focused on micro factors while other focused on macro variables. The methods employed include: time series, cross sectional and panel data analyses. These studies also cut across various regions.

Fendel (2014) investigated the willingness of the unemployed to migrate in search of employment. The study employed bivariate probit method. The results revealed that the probability of moving to escape unemployment far lesser in comparison to the work related probability of movement of the employed. The study also established that material and immaterial migration costs for unemployed group appeared to exceed the benefit of moving.

Nobahar (2021) examined the effect of unemployment on net immigration. The results of the study indicated that the direct effect of unemployment on net migration is negative and direct; whereas its spatial spillover effect on net migration is negative.

Lanai and Thiele (2023) investigated the effect of income per capita on emigration to OECD countries. Panel regression was employed. The results negative relationship between income per capita and emigration. However, Dao,

et al. 2018 which asserted that richer developing countries experience greater emigration rates than the poorest developing countries.

Xu and Sylwester (2016) used gravity model, PPML and tobit method to evaluate the impact of foreign direct investment on emigration in developing countries. Results from the study revealed that FDI causes rise in emigration to the FDI source country. This is in agreement with D'agosto et al. (2013) which asserted that rise in FDI triggers rise in emigration.

Li, et al. (2023) analysed the impact of FDI and exports on migration in China. The results revealed that FDI triggers internal migration. Moreover, FDI leads to long distance migration through investment in exports.

Wang, et al. (2013) estimated the effect of FDI on emigration from non-OECD countries, using data from 1990-2000. The results showed that there is no significant effect on the emigration of individuals with primary education. However, stock of former migrants in foreign countries affects the outmigration of individuals with primary education.

D'agosto, et al. (2013) employed cross sectional analysis to analyse the relationship between FDI and emigration in 91 developing countries. The results revealed that there is strong positive relationship between migration flows and FDI. FDI is a substitute for migration through direct and indirect labour demand effects; and human capital is a channel for the substitutability effect.

According to Radić and Bogdan (2024), nature of investment, economic situation of the home country and the characteristics of the labour market in the host country moderates the impact of FDI on emigration. This implies that FDI-led migration hypothesis explains that the pattern of migration can be affected by FDI by two ways- drawing in skilled labour for new prospects or by dislodging local labour. Hence, FDI creates employment opportunities that can only be taken by individuals with expert skills, leading to immigration of skilled migrations. FDI may also lead to decrease in demand for labour intensive jobs, thereby promoting emigration.

Most of the studies reviewed such Lanai and Thiele (2023) focused on developing countries. However, this study addresses the peculiarity of Africa. Moreover, in

consonance with the migration hump theory, this study accounts for the inverted U-shaped effect of FDI on emigration. Moreover, this study strategically cuts across African countries, which have negative net migration.

Methodology

Panel data on net migration, inflation, unemployment, GDP per capita, and FDI across 13 countries were collected over a period of six years (2017 to 2022). These countries include: Ethiopia, Nigeria, Uganda, Morocco, Cameroon, Benin, Burkina Faso, Burundi, Mali, Senegal, Sudan, Angola, and Niger.

Measurement of Variables

Table 1: Measurement of Variables

Variable name	Description	Source	A-priori Expectation
Net Migration (NETMIC)	Net migration defines the number of people immigrating less the number of people emigrants, including citizens and noncitizens.	World Bank (2024)	
Inflation (CPI)	Inflation as measured by the consumer price index depicts the yearly percentage variation in the cost to the regular consumer of obtaining a basket of commodities that can either be stable or modified at definite intervals, say annually.	World Bank (2024)	Negative (-)
Unemployment (UNEMP)	Unemployment defines the segment of the labor force which do not have work but are available and looking for job.	World Bank (2024)	Negative (-)
GDP per capita (GDPPCAP)	Gross Domestic Product Per Capita	World Bank (2024)	Negative (-)
Foreign Direct Investment (FDI)	Net inflows of investment to obtain a lasting management interest, that is, minimum of 10 percent of voting stock) in a business functional in an economy	World Bank (2024).	Negative (-)

different from where the investor came from.'

Source: Author's Computation (2025)

Method of Analysis

Model Specification

The models to be used in this study is specified as:

$$\text{NETMIG}_{it} = \beta_0 + \beta_1 \text{FDI}_{it} + \beta_2 \text{UNEMP}_{it} + \beta_3 \text{INFL}_{it} + \beta_4 \text{GDPPCAP}_{it} + \epsilon_{it} \quad 1$$

Where,

NETMIG = Net Migration

FDI = Foreign Direct Investment

INQ = Institutional quality indicators (Political stability and absence of violence/terrorism PSAV; Control of corruption CCOR; Regulatory quality REQ; rule of law RUL; voice and accountability VOA; and Government Effectiveness)

INFL = Inflation

UNEMP =Unemployment

GDPPCAP= GDP per capita

ϵ = Error term

$i = 1, 2, 3 \dots N$ (Cross sections), and $t = 2017, 2018, 2019, \dots, 2024$ (time periods).

Feasible Generalised Least Squares (FGLS)was selected and used as the appropriate method of analysis in this study. According to For random-effects (error component) models in which variances of the individual-specific effect and error term are not identified, (FGLS) is the efficient method of estimation. In this study, FGLS was more efficient than Pooled OLS Model and Random Effect Model, and Fixed Effects model.

Breusch –Pagan Lagrangian Multiplier (LM) Test

The Breusch-Pagan LM displays the dissimilarities between Pooled Model and Random Effect Model. The existence of the individual-specific term (λ) shows that the Random Effects model is different from Pooled model. If $\sigma_\lambda^2 = 0$, then OLS will be considered as the best linear unbiased estimator (BLUE). This is so because of the absence of autocorrelation. The result will reveal that the Pooled OLS model is the most appropriate.

$H_0: \sigma_\epsilon^2 = 0$ (Pooled OLS- Homogeneity)

$H_0: \sigma_\epsilon^2 > 0$ (Random effects- Heterogeneity).

Results and discussion

Table 1. Results of Panel Data Analysis.

Dependent Variable: NET MIGRATION

	Pooled OLS	Random Effect	Fixed Effect	FGLS	FGLS (with quadratic terms)
Constant	16293.69 (1.68)	17738.62 (1.23)	-908.7018 (-0.02)	16293.69 (1.74)*	-85317.39 (-0.78)
FDI $\times 10^{-5}$	-0.584 (-2.42)	-0.712 (-2.21)**	-1.35 (-2.09)**	-0.584 (2.51)**	-0.664 (-2.85)***
LUNEMP	24355.23 (3.11)***	27514.57 (2.69)***	47620.35 (1.53)	24355.23 (3.21)***	20960.98 (2.66)***
INFL	-181.0536 (-1.53)	-289.9086 (-2.37)**	-394.7059 (-2.86)***	-181.0536 (-1.58)	-182.5976 (-1.62)
GDPPCAP	-34.85972 (-4.52)***	-36.96083 (-3.56)***	-37.67506 (-1.24)	-34.85972 (-4.67)***	-35.90534 (-2.62)***
LFDI-squared	-	-	-	-	3511.873 (1.71)*
GDPPCAP-squared	-	-	-	-	-2509.608 (-0.25)
Breusch-Pagan LM test	4.24 (0.0197)	4.24 (0.0197)	-	-	-

Observations	78	78	78	78	78
Multicollinearity (vif)	-	-	-	-	7.48
Heteroscedasticity (χ^2 - stat)	-	-	-	-	-
Serial Correlation (F-Stat)	0.0319	0.0319	0.0319	-	-
Dubin Watson Statistic	-	-	-	-	-
R-squared	-	-	-	-	-
P value (F statistic)	-	-	-	0.0319	0.0000

Numbers in the parenthesis are t-statistics., excluding Breusch-Pagan LM test, , Heteroskedasticity test, Hausman test and Serial Correlation tests, that are p-values. ** and *** show the 5% and 1% significance levels.

Source: Author's Computation (2024).

Table 1 presents the summary of the pooled OLS Model, Random Effects Model (RE), Feasible GLS (FGLS) model, and FGLS model with quadratic terms. The heteroscedasticity and serial correlation tests indicate FGLS is the most appropriate technique because it is robust and accounts for autocorrelation and heteroscedasticity. Therefore, this results of the FGLS quadratic model is the focus of interpretation. The p value of the F statistic is 0.0000 ($p < 0.01$). This means the independent variables in the model are jointly significant.

Foreign Direct Investment has a negative effect on net migration. This result is in agreement with the FDI-led migration hypothesis, which according to Radić and Bogdan (2024) posits that FDI influences the pattern of migration in two ways - by driving in skilled labour for new prospects or by driving out local labour. Therefore, FDI creates jobs that require advanced skills, leading to decrease in demand for labour intensive jobs, thereby causing emigration of workers who do not have those advanced skills. The result is also in agreement with D'agosto, et al. (2013).

In contrast, FDI-squared has a positive effect on net migration. This result is also in agreement with the migration hump theory, which posits that economic development may lead to out migration from source countries at early development phase (de Haas 2010, Dao, et al, 2013). This implies that at a point, individuals will have more liquidity and will be able to bear the financial cost of migration, considering the fact that the neoclassical theory asserts that migration involves financial costs. Hence, FDI favours emigration in the early stages of development, after which emigration starts to fall. This implies that there is a U-shaped (non-linear) relationship between FDI and net migration, further implying that there is a hump shaped (U-shaped) effect of FDI on emigration.

GDP per capita has a negative significant effect on net migration. This implies that an increase in GDP per capita favours emigration. This can be explained by the migration hump theory, a deviation from neoclassical predictions, which posits that an increase in GDP per capita will first lead to emigration in the early stages of development (Dao, et. al, 2013). Moreover, as the neoclassical theory explains that migration involves financial costs, an increase in GDP per capita will enable individuals to withstand the financial costs involved in emigration.

Unemployment's effect on net migration is positive and significant. Therefore, a rise in unemployment favours emigration over immigration. This finding is in agreement with the aspect of the neo classical theory of migration, which asserts that migration involves financial costs, and the individual will migrate when the cost of migration is less than the benefit. This is in consonance with Fendel (2014), which further explained that the unemployed have high chances of not migrating because of the costs of migration for the unemployed exceed the benefits.

The effect of Inflation on net migration is negative and non-significant. This implies that the higher the level of inflation rate, the lower the immigration, and the higher the emigration.

Conclusion and Recommendations

The study employed FGLS model with quadratic terms to analyse the effects of Foreign Direct Investment (FDI), unemployment, inflation and GDP per capita on Net Migration across selected 13 African Countries, over the period of 6 years

(2017-2022). The research was pinned on Neoclassical Theory of Migration, FDI-led migration hypothesis, Migration Hump theory, and Migration Networks Theory. The findings of this research showed that FDI exerted negative significant influence on net migration, while FDI-square has a positive significant effect on net migration, indicating that an increase in FDI is likely to encourage emigration in the initial stages of development; however, emigration starts to drop as development reaches advanced stage. Unemployment has a positive significant influence on net migration. Inflation has a negative non-significant effect on net migration. GDP per capita has a negative significant effect on net migration. This implies an increase GDP per capita favours emigration.

Based on the finding that revealed that FDI has negative significant effect on net migration at the initial stages of development, thereby encouraging emigration at that stage. This study therefore recommends that instead of relying solely on FDI, the policymakers should also promote domestic investment, and better working conditions in the domestic labour market.

Considering the finding that indicated the negative effect of inflation on net migration, the governments at various levels should reduce inflation in these economies by implementing innovative fiscal and monetary policies to promote price stability. There must be effective control agencies and consumer protection agencies, and discouragement of wasteful spending.

Based on the result that revealed negative significant effect of GDP per capita on net migration, the various governments should create a stable economy, coupled with a just and egalitarian society for people to work, thrive and invest.

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