Macroeconomic Stability and its Impact on GDP Per Capita: Evidence from Selected African Countries

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Abstract

This study aims to investigate the macroeconomic stability factors that impact the GDP per capita in five selected African countries. These countries are Botswana, the Democratic Republic of Congo, Egypt, Nigeria and Rwanda. We used data collected from World Development Indicators from 1992 to 2022 and applied a multilinear regression model to analyze the data using SPSS 25. In Botswana, agriculture, industry, services, and total reserves, including gold and railway lines, significantly impact the GDP per capita with a P-value of 0.00 < 0.05. In DRC, services and Railways have a significant relationship with the GDP per capita with a P-value of 0.00< 0.05. In Egypt, industry and the rule of law significantly impact the GDP per capita with a P-value of 0.00 < 0.05. In Nigeria, the agriculture, industry, services, total reserves, including gold factors and the rule of law, have a significant relationship with the GDP per capita, with a P-value of 0.00 < 0.05. Finally, in Rwanda, agriculture, services and the rule of law have a significant relationship with GDP per capita, with a P-value of 0.00 < 0.05. Corruption and political instability are critical issues which hinder the selected African GDP per capita in all countries under study. Policymakers must control them.

Keywords: *Africa; Macroeconomics stability; GDP per capita; ICT; Poverty alleviation.*

Introduction

Despite its rich natural resources, including gold, forests, and water, Africa is still poor, which should positively impact the GDP per capita (Anarfo et al., 2019). OLUSEGUN AYODELE AKANBI (2015), in his article "Structural and Institutional Determinants of Poverty in Sub-Saharan African Countries," states that much of the conventional way for poverty mitigation focuses much on macro-economic factors and forgets the non-economic aspects (Akanbi, 2015). African natural resources comprise around 30 % of the world's natural resources (Tiba, 2019), Oluwaseyi Musibau et al., 2022) on top of the various agricultural products and oil(Oluwaseyi Musibau et al., 2022). Most African countries depend on raw natural resources export, and this destroys job opportunities from transformation (industry) to commercialization (services) (Bournakis et al., 2023). Currently, ten per cent (10%) of the world's population faces absolute poverty, out of which seventy per cent (70%) are found in Africa (He et al., 2023). The World Bank report indicates that absolute poverty increased in 2020 for the first time in over 20 years, with about 150 million since 2014 (Yu & Huang, 2021). Consequently, poverty remains a critical global threat to humanity(Maiorano & Manor, 2017). The SDG's first goal is to end poverty in all its forms by 2030 (Kte'pi et al., 2017), but so far, only China has achieved SGD's first goal (Puertas & Bermúdez, 2020), while others are lagging, particularly those in Africa(Vollmer & Alkire, 2022). The GDP per capita indicates any country's economic strength (Karahasanović et al., 2013) because it is easy to compare when a country's population is considered (Feyisa

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et al., 2022). The GDP per capita is calculated by a steady economic variation and the change in the active population age distribution (Asongu & Odhiambo, 2018).

The purpose of this research is to investigate the relationship between macroeconomic stability factors represented by agriculture, industry, services, and total reserve, including gold and railway lines, the rule of law, control of corruption, and political Stability and the GDP per capita in the five selected African countries and propose the way forward that African countries would apply to escape the poverty. The research study sheds light on the following research questions (RQs):

Do the macroeconomic stability factors mentioned significantly impact the GDP per capita in the selected African countries?

Is the macroeconomic stability factors' significant relationship with the GDP per capita sufficient to escape poverty in the selected African countries?

A purposive sample of five Africans represents each African continent's geographic corner. The countries are Egypt in the North, Botswana in the South, Rwanda in the East, the Democratic Republic of Congo in Central Africa and Nigeria in western Africa from 1992 to 2022. With the help of SPSS 25, we run the multilinear regression analysis to measure the relationship between the macroeconomic variables and the GDP per capita before giving way forward for African countries to escape poverty as the literature shows that countries under the study share the temporal negative or low relationship between corruption, political stability and GDP per capita (Adhikari & Whelan, 2023).

Literature Review

Africa is home to many natural resources, including gold, which makes up thirty per cent (30%) of the world's natural resources. On the contrary, it hosts more than seventy per cent (70%) of the world's poor (Lin, 2018). Africa comprises fifty-four (54) economically different countries, which share the same post-colonial features of lousy governance and poverty (Kalu, 2018). We count over 80 coups and more than 15 presidents' assassinations (Shettima et al., 2023). Secondly, the railway networks are critical. In Africa, there are sixteen (16) countries without any single railway lines. The railways in place consist primarily of single upcountry lines to the coastal seaports with few branches, and the national railway networks are mainly independent (Bouraima et al., 2023). The estimated railway network is 74,775 km on an area of 30.2 million km², equivalent to a density of 2.5 km for 1000 km². It is ten times less that of the world average of 960,111km, equivalent to 23km for 1000 km², while South Asia has 562,308km of railway, accounting for 18.8 km per 1000km² and 1,181,842km, equivalent to 46.2 km per 1000km² for developed countries (Bouraima et al., 2023). The average technical speeds of African railways are about 30 to 35 km/hr, and the commercial rates are even lower(Whitfield, 2011).

Additionally, most African countries suffer from political instability (Phogole & Yessoufou, 2022), motivated mainly by the Western powers' competition for lower prices for natural resources (Dwumfour & Ntow-Gyamfi, 2018). Africa needs an efficient political system to create trust and gain legitimacy from the public(Pinson, 2002), as the effectiveness of political decision-making helps countries solve critical issues such as poverty, hunger, public infrastructures and innovative technologies(Jakovljevic et al., 2021). That requires the rule of law and regulatory quality to pave the trust in society, attract foreign and domestic investment (Mattoo et al., 2003), and alleviate poverty due to favourable economic contribution in GDP per capita (Kandil, 2009). Similarly, the excellent rule of law enhances competitiveness, creates successful societies (Yusuf, 2020), promotes economic development, and facilitates the coordination of governmental policies (Feyisa et al., 2022).

Furthermore, corruption is a behaviour in any institution that violates formal obligations for personal benefit. It leads to the mismanagement of natural resources in most African countries and compels businesses to relocate their operations (Olaoye et al., 2021). Corruption reduces public trust in the political and judicial systems (Afrifa et al., 2022). There are clear African corruption incidents standing out, such as that of the overthrown president in 1997 under the name of Mobutu Sese Seko from the ex-Zaire, now

known as the Democratic Republic of the Congo, where he accumulated a wealth of US$5 billion, which was the total amount of the nation's external debt(Akimoto, 2021). The Goldenberg scam involves millions of dollars squandered in considerable financial aid or fraudulent shipments of gold and diamonds. It demonstrates that Daniel Arap Moi of the Kenyan Republic oversaw the vast corruption. Sani Abacha of Nigeria and Jackie Selebi of South Africa are two more famous figures in significant corruption scandals(Salahuddin et al., 2020). The Arab Spring events more recently served as a manifestation of African opposition to corruption. Among the first and most well-known revolutions were those in Tunisia and Egypt(Waziri et al., 2020). At the same time, occupied Nigeria emerged later with an unstable peace between sections of Nigerian society and the corrupt government (Munyae & Mulinge, 1999). Corruption in Africa is nonetheless widespread among the worst in the world. According to Transparency International's data, only Botswana is a little bit corrupt, and no other African nation is among the less corrupt groups in the world (Ogbuabor et al., 2020). About one billion Africans, almost ninety per cent (90%), are said to live in highly corrupt governments, a percentage higher than most other countries in the world(Warf, 2017).

As mentioned above, all these cases are significant causes of poverty in Africa. According to the World Bank Organization, poverty is malnutrition. It is the unavailability of housing. Poverty is falling ill and unable to go to the hospital (Matthew et al., 2019). Poverty is a failing access to education and literacy. Poverty is a lack of jobs, worry about the future, and daily living (Akanbi, 2015). Poverty is being unable to afford medical care for a sickness, sending kids on study trips with their classmates, celebrating birthday parties, or participating in leisure activities like others (Catalán & Gordon, 2020). Keyzer. Michiel and Isenbeeck, in their study "The Millennium Development Goals, How Realistic are they?" found that Africa is lagging with seventy (70%) per cent of the world's poverty and fifty-eight (58%) per cent undernutrition rates(Keyzer & Wesenbeeck, 2006). Poverty is a multifaced phenomenon and needs the combination of different approaches to poverty alleviation, such as participatory or community-based initiatives (Beňuš et al., 2016). Poverty alleviation changes the economic position of people experiencing poverty by allowing them access to finance and running income-generating revenue (Gao, 2021). Poverty alleviation is consistent, rapid, sustainable growth and development (Kunofiwa, 2018). McMillan found that Africa failed in industrialization and relied on commodity exports (McMillan, 2016). However, stable and satisfying macroeconomic policies are essential for attaining high rates of sustained growth and quickening poverty alleviation(Decline et al., 2001), which involves engagement in the country's economic life (Klasen, 2008).

The recent literature reveals that the performance of the macroeconomic variables of African countries under study is below the standards compared to the world GDP per capita, which stood at US dollars 12,648 in 2022(Thorn et al., 2022). A nation is poor when the GDP per capita is less than $ 1,035 (Boulhol et al., 2008). A country is called poor when it has fewer manufacturing activities, meaning that it is less industrialized, relies on agriculture, has a low income per capita, a low standard of life, and a moderate-to-low Human Development Index (HDI) (Sawleshwarkar et al., 2021).

Table 1: Differences between developing and developed countries

Developing Countries and Emerging Markets (poor)	Developed countries (rich)
Less manufacturing	More engaged with international markets
Agriculture based	Industrialized
Low-income or GDP per capita	High standard of welfare

Source: Yap, Deannie Yi Ping, 2023.

Since 1971, the United Nations (UN) has named developing a country that has failed to overcome poverty(Gaillard, 2010). A developed economy has relatively high economic growth (Kitov, 2011), high income per capita, industrialization, a high standard of living, and a high amount of technological infrastructure(Potts et al., 2021(Stanislavská et al., 2020). If gross domestic product per capita is high, but a country has poor infrastructure and income inequality, it would not be considered a developed economy

(Stanislavská et al., 2020). The developed countries start with US $12,000 GDP per capita. Africa counts only one developed country, Seychelles, with a GDP per capita of US$ 15,875 (Zheng et al., 2023).

This research study examines the relationship between macroeconomic factors and GDP per capita, representing a country's position on development strength. That will allow us to suggest to the selected African countries where to put more effort based on the findings to help Africa turn its potential natural resources into wealth. A typical example is agriculture. Despite African people suffering from food shortages, Africa has favourable land and climate for agriculture. The food security objective cannot be achieved as long as Africa generally faces repetitive political instability, corruption, weak railway networks, etc. (Dang & Dabalen, 2019).

Material and Methods

Data and Conceptual Framework

The paper uses the secondary data collected from the World Development Indicators (WDI) from the World Bank data set related to five African countries to represent each geographic African location. Nigeria stands for North East Africa, the Democratic Republic of Congo represents Central East Africa, Egypt represents North Africa, Botswana represents South Africa, and Rwanda stands for East Africa. In addition, it considers the agriculture, industry, services sectors, railway lines and total reserve, including gold, the rule of law, corruption, and political stability as independent variables, keeping the GDP per capita as a dependent variable from 1992 to 2022.
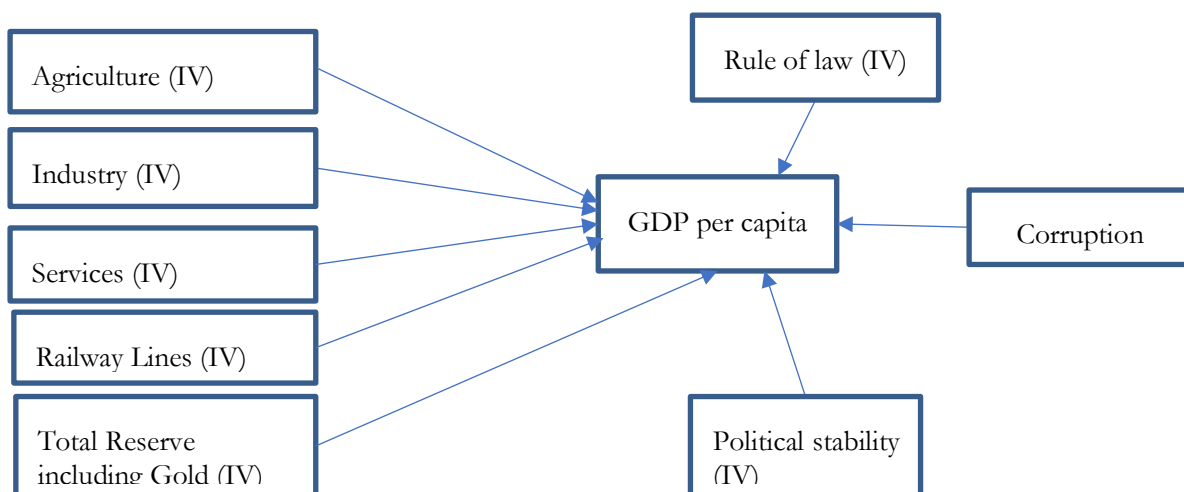
Figure 1: conceptual framework

The multistage linear regression was chosen for data analysis using SPSS Statistics version 25 software.

Table 2: Variables notation

Independent variables (IV)	Dependent variable (DV)
X_1: Agriculture (US$)	Y: Gross domestic product per capita (US$)
X2: Industry (US$)	
X3: Services (US$)	
X4: Total reserves, including Gold (US$)	
X5: Railway lines (Km)	

X6: Rule of law (%)

X7: Corruption (%)

X8: Political stability (%)

The independent variables are called predictors and have the symbol X. The dependent variable is the predicted variable, represented by Y, and the time is N.

The following is a multistage linear-regression formula

$Y = \beta_0 + \beta_1 X1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$

The β_0 is a constant, and β_1, β_2, β_3, β_4, β_5, β_6, β_7 and β_8 are the coefficient or slopes of X_1, X_2, …… X_8. The Y (GDP per capita) value equals the (constant) if X_1, X_2……. X_8 is held constant or equal to zero. It means that $Y = \beta_0$ if $X_1 = X_2 = X_3 = 0$. β_1, β_2, …… and β_8 (coefficient or slope) are called partial regression coefficients because a β_1, β_2…... and β_8 represent the contribution of X_1, X_2…. X_8 to the response variable Y after being adjusted with other predictor variables. The purpose of this study is to investigate the macroeconomic factors' impact on the growth of domestic product (GDP) per capita in the selected African countries and suggest strategies that the selected African countries can use to overcome the issues of poverty.

Results

There is evidence of significance when the p-value is less than 0.05. Table 3 below summarizes the data analysis from the five selected African countries: Botswana, the Democratic Republic of Congo, Egypt, Nigeria, and Rwanda.

Table 3: Beta values showing the relationship between macroeconomic stability factors and the GDP in Selected African countries

Model	Botswana	D R Congo	Egypt	Nigeria	Rwanda
Constant	3236.635*	-330.950*	868.347*	2329.045*	133.584*
Agriculture (X1)	0.107*	0.553	0.231	0.928*	0.432*
Industry (X2	0.548*	-0.682	0.876*	0.135*	-0.003
Services (X3)	0.365*	1.589*	-0.101	1.058*	0.448*
Total reserves, including Gold (X4)	0.061*	0.148	-0.013	0.113*	-0.065
Railway lines (X5)	-0.064*	0.410*	0.001	-0.062*	-
Rule of law (X6)	0.046	-0.278	0.047*	-1.206*	-0.044
Corruption (X7)	-0.065	-0.174	-0.013	-0.073	0.246
Political Stability (X8	0.019	-0.441	0.026	-0.020	-0.011
R	.997[a]	.846[a]	.999[a]	.999[a]	.997[a]
R-Square	0.994	0.715	0.998	0.997	0.993
Adjusted R-Square	0.992	0.611	0.998	0.996	0.991
F-Statistic	476.205*	6.897*	1691.189*	983.588*	469.617*

***Significant at 5%** confidence level, **Dependent Variable**: GDP per capita

Table 4 shows that the adjusted R-square varies from 61.1% to 99.8%, close to 100%, and the F-statistic is significant at a 95% confidence level in all countries under the study. Thus, our data set fits the model.

H1. The results of our study lead us to accept the alternative hypothesis stating that **t**he macroeconomic stability factors contribute to Poverty Alleviation (GDP per capita) in the selected African countries, though the variables contributing to GDP per capita in one country are not the same in the other.

H2. The macroeconomic stability factors' significant relationship with GDP per capita is not a sufficient sign for the selected African countries to escape poverty. The literature has revealed that whichever sector in the selected African countries performs under the standards despite its significant relationship with the GDP per capita. The world GDP per capita is US dollars 12,648 in 2022. Referring to this information, Africa counts only one developed country called Seychelles, with a GDP per capita of US $ 15,875 in 2022(Thorn et al., 2022). Generally, corruption and political stability factors have a low or negative relationship with the GDP per capita in all selected African countries under the study.

Botswana

In Botswana, the adjusted R-square value is 0.992, which is close to one, which shows that the data set fits the model correctly to predict Botswana's GDP per capita (Y). Agriculture, industry, services, and total reserves, including gold and railway lines, are significantly related to GDP per capita.

Thus, GDP (Y) = $3236.635 + 0.107X_1 + 0.548X_2 + 0.365X_3 + 0.061X_4 - 0.064 X_5$.

All macroeconomic stability factors under the study have a significant relationship with the GDP per capita as their P-value is < 0.05. On the other hand, the rule of law and political stability have a strong positive but insignificant relationship with GDP per capita. On the contrary, the control of corruption has a positive but weak relationship with the GDP per capita. It means that the BOTSWANA policymakers have to make more effort in the process of corruption control to shape the country's prosperity and allow the GDP per capita to improve more.

Democratic Republic of Congo

The Democratic Republic of Congo has a complicated past that includes times of colonization, political unrest, corruption, and violations of human rights (Forje, 2006). Over a hundred armed organizations that are active continue to commit acts of Violence, especially in the Eastern part of Congo(Abe, 2022). The Democratic Republic of Congo is rich in natural resources like gold, cobalt, copper, and diamonds but has inadequate infrastructure (Lindagato et al., 2023). Out of all microeconomic stability factors, only services have a P-value of 0.004 and Railway lines have a P-value of 0.011, all < 0.05. They have a significant relationship with the GDP per capita, and the GDP (Y) = $(330.9498) + 1.5888 X_3 + 0.410X_5$.

All remaining independent factors have a low positive or negative relationship with the GDP per capita. It is time again to accept the null hypothesis when the total reserve, including gold, doesn't contribute to GDP per capita in the Democratic Republic of Congo despite its diverse richness of natural resources globally. Moreover, the weak relationship between agricultural political stability with P-values 0.284 and 0.154 > 0.05, respectively, with the GDP per capita is motivated by the medium impact of control of corruption, as revealed by the literature and confirmed by the data analysis. Due to perpetual wars and political instability, people don't have time to cultivate. The Democratic Republic of Congo needs to devote extraordinary leadership to address the issues of GDP per capita.

Egypt

In Egypt, industry and the rule of law have a significant relationship with the GDP per capita, with a P-value of 0.00 and 0.022, respectively, both < 0.05. A part of the railway lines has a solid but insignificant relationship with the GDP per capita, and other independent variables vary from low to medium relationship with the GDP per capita. The GDP (Y) = $868.347 + 0.876X_2 + 0.0467X_6$. The Egyptian government needs to promote the services sector in addition to the railway lines, control corruption and political stability, and the absence of Violence to shift from the countries with low GDP per capita to the level of countries with the GDP per capita of developed countries. They can reach the target if the rule of

law and services sector contribute significantly to the GDP per capita. The railway roads would be a means to promote the free movement of goods and people at a large scale to boost its economy.

Nigeria

In Nigeria, the adjusted R-square for all independent variables turns around 0.9, close to one, which means they fit the multilinear regression. Nevertheless, all macroeconomic stability factors under the study, namely the agriculture sector, industry sector, services, the total reserve including gold, railways lines, and the rule of law, have a robust positive significant relationship with the GDP per capita with P-value < 0.05. The GDP $(Y) = 2329.0449 + 0.928X_1 + 0.135 X_2 + 1.058X_3 + 0.113 X_4 - 0.062 X_5 - 1.206 X_6$. In the meantime, political stability has a medium impact with a P-value equal to 0.535, which is insignificant. At the same time, control of corruption presents a weak relationship with GDP per capita, having a P-value equal to 0.206 for both, >0.05. Nigeria's oil and other minerals are resource-rich; it has an average GDP per capita of 2043US dollars, while the rich country starts at US dollars 12,000. Nigeria needs a proper policy to shift from middle-income countries to developed nations, particularly in natural resources management, control of corruption, and political stability.

Rwanda

In Rwanda, the agriculture and services sectors have a significant relationship with the GDP per capita and have a P-value equal to 0.002 and 0.003, both < 0.05, respectively. The GDP $(Y) = 133.584 + 0.432X_1 + 0.448 X_3$. In contrast, political stability, industry, and the rule of law make substantial positive contributions but are significant compared to the GDP per capita. Additionally, there is a weak contribution to the GDP per capita at the total reserve, including gold and the control of corruption, as the P-values of 0.292 and 0.090, respectively. Rwanda is a unique country under study, with no single mile of the railway line. The economy suffers significantly from lacking a railway line to transport people and goods. Similarly, the results of our study reveal that apart from Rwanda, where control of corruption has a low positive relationship with the GDP per capita having a P-value equal to 0.078, almost significant, corruption control has a low or negative impact on the GDP per capita in all other countries under the study. The same trend occurs with political stability.

On the contrary, corruption has a strong positive relationship but is not significant, with the GDP per capita having a P-value equal to 0.877>0.05. The average GDP per capita equals US dollars 536 compared to developed countries GDP per capita, starting from US $12,000. Rwanda, among other countries under the study, has a long way to go to increase its GDP per capita, in other words, to alleviate poverty. The research results reveal that each sector in every selected African country performs under the standards. The world GDP per capita is US $ 12,648 in 2022. Africa counts only one developed country, Seychelles, which has   US $15,875 GDP per capita in 2022(Thorn et al., 2022).

Discussion

The study of macroeconomic stability and its impact on GDP per capita in the selected African countries enabled us to determine the relationship between agriculture, services, industry, total reserves, including gold, railways, the rule of law, control of corruption, and political stability as independent variables with the GDP per capita as the dependent variable. The five African countries under the study, namely Botswana, the Democratic Republic of Congo, Egypt, Nigeria, and Rwanda, are the only countries with no single mile of railway line. In Botswana, the rule of law, control of corruption, and political stability have a positive relationship but are insignificant in GDP per capita. It must double the efforts to establish the rule of law, control corruption, and maintain political stability. On the contrary, the literature says that there is chronic poverty without the rule of law, political stability, or corruption (Dang & Dabalen, 2019). In the Democratic Republic of Congo, only services and railway lines significantly impact GDP per capita. The agriculture sector, industry, total reserve, including gold, control of corruption, political stability, and absence of Violence have no significant relationship with the gross domestic product (GDP) per capita. People cannot cultivate at war; no development can happen without corruption. Despite being a country rich in natural resources, the world's total reserves, including gold, have no significant relationship with the GDP per

capita due to high corruption, as seen in the literature review (Adeito Mavunda et al., 2023). In Egypt, only industry and the rule of law are significantly related to GDP per capita. The agriculture, services, political stability, absence of Violence and corruption, and total reserves, including gold, don't show any significant relationship with the GDP per capita. Despite the financial reforms that have taken place in that country, they still have few elites connected with the political class who can only get access to loans or the benefit of financial institutions, etc. (Yakubu et al., 2019). In Nigeria, only corruption and political stability remain critical. The significant abnormal increases in corruption inhibit trade openness and consequently negatively impact GDP per capita (Olufolake et al., 2022).

Finally, Rwanda is the only country under study which does not have a railway throughout its territory. The industry sector, total reserve, including gold, the rule of law, control of corruption, political stability, and absence of Violence did not have a significant relationship with the GDP per capita. We recommend that countries under the study review and adjust the sector's performance in matters related to their contribution to the GDP per capita as one of the right ways to escape poverty. Despite the significant relationship of some variables with the GDP per capita, all countries under the study have a GDP per capita below the world GDP per capita average. Only one African country, Seychelles, is developed and has a GDP per capita of US $ 15,875 Compared to the world GDP per capita average of US$12,000(Zheng et al., 2023). Africa has a critical challenge of weak railway networks estimated at 75,000 km on an area of 30.2 million km², equivalent to a density of 2.5 km for 1000 km², which is inferior to that of the world average of 23 for 1000 km²(Bouraima et al., 2023).

Conclusion

The purpose of this study is to investigate the relationship between the macroeconomic stability and the GDP per capita in the five selected African countries, Botswana, Rwanda, Nigeria, Egypt, and the Democratic Republic of Congo, from 1992 to 2022. The results from SPSS 25, using the multilinear regression analysis model, allow us to conclude that the agriculture sector has a significant relationship with the GDP per capita in Botswana, Nigeria and Rwanda, with a p-value equal to zero. Thus, agriculture is a potential sector in these three selected African countries, and they can build the foundation to alleviate poverty, starting from food safety to the transformation and export of finished agricultural products. The industrial sector has a significant relationship with the GDP per capita in Botswana, Egypt, and Nigeria, with a P-value of $0.000 \leq 0.05$. The services sector has a significant relationship with the GDP per capita in Botswana, the Democratic Republic of Congo, Nigeria and Rwanda with P-value $0.000 \leq 0.05$, respectively. On the other hand, services have a weak relationship with the GDP per capita in Egypt $0.121 > 0.05$. The alternative hypothesis (H1) states that the macroeconomic stability factors under study, namely agriculture, industry, services, total reserve including gold, railways, and the rule of law, have a significant relationship with the GDP per capita in Botswana, Egypt, Nigeria and the Democratic Republic of Congo. Rwanda, in other words, contributes to the poverty alleviation. The exceptions are corruption and political stability, which don't contribute to GDP per capita in all five selected African countries. The Democratic Republic of Congo needs to put more effort into its natural resources management as it is the world's most prosperous country in terms of natural resources, including gold and has a low positive P-value equal to $0.483 > 0.05$. At the same time, Rwanda should explore its natural resources and wealth to strengthen the industrial sector and improve the GDP per capita. Regarding the five selected countries' railway lines, Rwanda is the only country without a single mile of the railway line. At the same time, the management of the railway network in Egypt is insufficient, and its contribution to GDP per capita is insignificant. Its practical use would create jobs, promote services in the form of transport of goods and people, hotels and restaurants, and the mining and industrial sector while building the body and engines of the train, and briefly contribute to the whole country's economic growth. The rule of law proves its significant relationship with the GDP per capita only in Egypt and Nigeria.

The present research results clarify the second research question when it reveals that whichever sector performs vis a vis the GDP per capita in all selected African countries performs under the standards of the average world GDP per capita of US $12,648 in 2022. Africa counts only one developed country, Seychelles, with a US GDP per capita of 15,875 in 2022. This revelation leads to accepting the null hypothesis, stating that the significant relationship between the macroeconomic stability factors and the GDP per capita is

insufficient for the selected African countries to escape poverty. Corruption and political instability are the root causes of poverty in the selected African countries. All African countries must stand up and fight against corruption and political instability to improve their internal and external reputation, attract more investors, and build a safer environment for businesses and other services to escape poverty. Second, Africa must secure the agriculture sector for food security and promote the industrial and services sector. Thirdly, Africa must modernize its mining sector and employ the most active or unemployed workers. Lastly, Africa must strengthen its railway lines to allow the free movement of goods and people and trade among each other before importing goods and services outside the continent.

References

Abbas, M., Jam, F. A., & Khan, T. I. (2024). Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. International Journal of Educational Technology in Higher Education, 21(1), 10.

Abe, O. (2022). Between control and confrontation: The pitfalls and potential of corporate-community participatory development in Africa's energy and extractive industries. Extractive Industries and Society, 11(December 2021). https://doi.org/10.1016/j.exis.2022.101095

Adeito Mavunda, C., Kanda, M., Folega, F., Bawa, D. M. esso, Badjare, B., Katembo Mukirania, J., Dourma, M., & Akpagana, K. (2023). Kinshasa Province (Democratic Republic of Congo): Typology of Peri-Urban Ecosystems Providing Edible Insects. Sustainability (Switzerland), 15(15). https://doi.org/10.3390/su151511823

Adhikari, T., & Whelan, K. (2023). Did raising doing business scores boost GDP? Journal of Comparative Economics, 51(3), 1011–1030. https://doi.org/10.1016/j.jce.2023.04.003

Afrifa, G. A., Amankwah-Amoah, J., Acquaye, A., Yamoah, F. A., & Mwiti, F. G. (2022). Small sums, big impact: Corruption and microfinance institutions. Economic and Industrial Democracy. https://doi.org/10.1177/0143831X221140155

Ahmed, I., Farooq, W., & Khan, T. I. (2021). Customers' Perceptions and their Responses to Objectives of Islamic Banks–A Three-Wave Investigation. Asian Economic and Financial Review, 11(1), 43. al politics and job outcomes.

Akanbi, O. A. (2015). Structural and Institutional Determinants of Poverty in Sub-Saharan African Countries. Journal of Human Development and Capabilities, 16(1), 122–141. https://doi.org/10.1080/19452829.2014.985197

Akimoto, K. (2021). Corruption, mortality rates, and development: policies for escaping from the poverty trap. Journal of Economics/ Zeitschrift Fur Nationalokonomie, 133(1), 1–26. https://doi.org/10.1007/s00712-020-00719-3

Anarfo, E. B., Abor, J. Y., Osei, K. A., & Gyeke-Dako, A. (2019). Financial inclusion and financial sector development in Sub-Saharan Africa: a panel VAR approach. International Journal of Managerial Finance, 15(4), 444–463. https://doi.org/10.1108/IJMF-07-2018-0205

Asongu, S., & Odhiambo, N. (2018). Drivers of growth in fast emerging economies: A dynamic instrumental quantile approach to real output and its rates of growth in brics and mint countries, 2001-2011. Applied Econometrics and International Development, 18(1), 5–25. https://doi.org/10.2139/ssrn.3166310

Beňuš, O., Kováčik, M., & Žuffová, E. (2016). Measuring Development of Selected Poverty Risk Indicators in V4 Countries with Specific Focus on Slovak Republic and its Regions. Acta Regionalia et Environmentalica, 13(1), 22–26. https://doi.org/10.1515/aree-2016-0005

Boulhol, H., De Serres, A., & Molnar, M. (2008). The Contribution of Economic Geography to GDP per Capita. OECD Journal: Economic Studies, 2008(1), 287–323. https://doi.org/10.1787/eco_studies-v2008-art9-en

Bouraima, M. B., Alimo, P. K., Agyeman, S., Sumo, P. D., Lartey-Young, G., Ehebrecht, D., & Qiu, Y. (2023). Africa's railway renaissance and sustainability: Current knowledge, challenges, and prospects. Journal of Transport Geography, 106(April 2022). https://doi.org/10.1016/j.jtrangeo.2022.103487

Bournakis, I., Rizov, M., & Christopoulos, D. (2023). Revisiting the effect of institutions on the economic performance of SSA countries: Do legal origins matter in the context of ethnic heterogeneity? Economic Modelling, 125(March 2022). https://doi.org/10.1016/j.econmod.2023.106332

Catalán, H. E. N., & Gordon, D. (2020). The Importance of Reliability and Construct Validity in Multidimensional Poverty Measurement : An Illustration Using the Multidimensional Poverty Index for Latin America The Importance of Reliability and Construct Validity in Multidimensional Poverty Meas. The Journal of Development Studies, 56(9), 1763–1783. https://doi.org/10.1080/00220388.2019.1663176

Dang, H. A. H., & Dabalen, A. L. (2019). Is Poverty in Africa Mostly Chronic or Transient? Evidence from Synthetic Panel Data. Journal of Development Studies, 55(7), 1527–1547. https://doi.org/10.1080/00220388.2017.1417585

Dwumfour, R. A., & Ntow-Gyamfi, M. (2018). Natural resources, financial development and institutional quality in Africa: Is there a resource curse? Resources Policy, 59(November 2017), 411–426. https://doi.org/10.1016/j.resourpol.2018.08.012

Feyisa, H. L., Ayen, D. D., Abdulahi, S. M., & Tefera, F. T. (2022). the Three-Dimensional Impacts of Governance on Economic Growth: Panel Data Evidence From the Emerging Market. Corporate Governance and Organizational Behavior Review, 6(1), 42–55. https://doi.org/10.22495/cgobrv6i1p3

Forje, J. W. (2006). A political approach to building female capacity in science and technology for poverty alleviation in transitional societies in Africa. Journal of Futures Studies, 11(1), 95–114.

Gaillard, J. (2010). Measuring research and development in developing countries: Main characteristics and implications for the frascati manual. In Science, Technology and Society (Vol. 15, Issue 1). https://doi.org/10.1177/097172180901500104

Gao, F. (2021). China's poverty alleviation "miracle" from the perspective of the structural transformation of the urban–rural dual economy. China Political Economy, 4(1), 86–109. https://doi.org/10.1108/cpe-06-2021-0008

He, J., Fu, C., Li, X., Ren, F., & Dong, J. (2023). What Do We Know about Multidimensional Poverty in China : Its Dynamics , Causes , and Implications for Sustainability.

Iqbal Khan, T., Kaewsaeng-on, R., Hassan Zia, M., Ahmed, S., & Khan, A. Z. (2020). Perceived organizational politics and age, interactive effects on job outcomes. SAGE Open, 10(3), 2158244020936989.

Jakovljevic, M., Liu, Y., Cerda, A., Simonyan, M., Correia, T., Mariita, R. M., Kumara, A. S., Garcia, L., Krstic, K., Osabohien, R., Toan, T. K., Adhikari, C., Chuc, N. T. K., Khatri, R. B., Chattu, V. K., Wang, L., Wijeratne, T., Kouassi, E., Khan, H. N., & Varjacic, M. (2021). The Global South political economy of health financing and spending landscape–history and presence. Journal of Medical Economics, 24(S1), 25–33. https://doi.org/10.1080/13696998.2021.2007691

Jamil, R. A., Qayyum, U., ul Hassan, S. R., & Khan, T. I. (2023). Impact of social media influencers on consumers' well-being and purchase intention: a TikTok perspective. European Journal of Management and Business Economics, (ahead-of-print).

Kalu, K. (2018). Foreign Aid and the Future of Africa. In Foreign Aid and the Future of Africa. https://doi.org/10.1007/978-3-319-78987-3

Kandil, M. (2009). Determinants of institutional quality and their impact on economic growth in the MENA region. International Journal of Development Issues, 8(2), 134–167. https://doi.org/10.1108/14468950910997693

Keyzer, M., & Wesenbeeck, L. (2006). The Millennium Development Goals, how realistic are they? Economist, 154(3), 443–466. https://doi.org/10.1007/s10645-006-9019-9

Khan, F. A. J. T. I., Anwar, F., Sheikh, R. A., & Kaur, S. (2012). Neuroticism and job outcomes: Mediating effects of perceived organizational politics. African Journal of Business Management, 6(7), 2508.

Khan, M. T., Khan, T. I., & Khan, S. (2020). Innovation & Its Diffusion in Business: Concept, Stages & Procedural Practices. sjesr, 3(4), 174–186.

Khan, T. I., & Akbar, A. (2014). Job involvement-predictor of job satisfaction and job performance-evidence from Pakistan. World Applied Sciences Journal, 30(30), 8-14.

Khan, T. I., & Akbar, A. (2015). Impact of stressors on employee performance: Moderating role of big five traits. Islamabad: Mohammad Ali Jinnah University.

Khan, T. I., Akbar, A., Jam, F. A., & Saeed, M. M. (2016). A time-lagged study of the relationship between big five personality and ethical ideology. Ethics & Behavior, 26(6), 488-506.

Khan, T. I., Kaewsaeng-on, R., & Saeed, I. (2019). Impact of workload on innovative performance: Moderating role of extrovert. Humanities & Social Sciences Reviews, 7(5), 123-133.

Khan, T. I., Kaewsaeng-On, R., & Saeed, I. (2019). Impact of workload on innovative performance: Moderating role of extrovert. Humanities & Social Sciences Reviews, 7 (5), 123-133.

Khan, T. I., Khan, A. Z., & Khan, S. (2019). Effect of time pressure on organizational citizenship behavior: Moderating role of agreeableness. Sir Syed Journal of Education and Social Research (SJESR), 2(1), 140-156.

Khan, T. I., Khan, S., & Zia, M. H. (2019). Impact of personality traits on workplace deviance–a pakistani perspective. Global Regional Review, Humanity only, 4(2), 85-92.

Khan, T. I., Nisar, H. G., Bashir, T., & Ahmed, B. (2018). Impact of aversive leadership on job outcomes: Moderation and mediation model. NICE Research Journal, 56-73.

Kitov, I. (2011). Real GDP Per Capita in Developed Countries. SSRN Electronic Journal, 1–39. https://doi.org/10.2139/ssrn.886664

Klasen, S. (2008). Economic Growth and Poverty Reduction: Measurement Issues using Income and Non-Income Indicators. World Development, 36(3), 420–445. https://doi.org/10.1016/j.worlddev.2007.03.008

Kte'pi, B., Girón, A., Kazemikhasragh, A., Cicchiello, A. F., Panetti, E., Kalu, K., DFID, Whitfield, L., Upsall, K. C., Bolarinwa, S. T., Adegboye, A. A. A., Vo, X. V., Fombad, M., Structures, M. B., Qin, D., Xu, H., Chung, Y., Union, A., Development, A., … Chudasama, H. (2017). 2017 HLPF Thematic Review of SDG 1 : End Poverty in All its Forms. High Level Political Forum On Sustainable Development, 48(1), 1–20. https://doi.org/10.18356/96d5f6cd-en

Kunofiwa, T. (2018). The impact of remittances on poverty alleviation in selected emerging markets. Comparative Economic Research, 21(2), 51–68.

Kuo, Y. K., Khan, T. I., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsaeng-On, R. (2022). Impact of green HRM practices on environmental performance: The mediating role of green innovation. Frontiers in Psychology, 13, 916723.

Kuo, Y. K., Khan, T. I., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsaeng-On, R. (2022). Impact of green HRM practices on environmental performance: The mediating role of green innovation. Frontiers in Psychology, 13, 916723.

Li, H. X., Hassan, K., Malik, H. A., Anuar, M. M., Khan, T. I., & Yaacob, M. R. (2022). Impulsive and compulsive buying tendencies and consumer resistance to digital innovations: the moderating role of perceived threat of COVID-19. Frontiers in Psychology, 13, 912051.

Lin, O. C. C. (2018). Driver of Economic Growth. In Innovation and Entrepreneurship (Issue 29). https://doi.org/10.1142/9789813146617_0001

Lindagato, P., Li, Y., Yang, G., Weigel, J. L., Kabue Ngindu, E., Ibale, D. A., Docquier, F., Iftikhar, Z., Mora, C. J., Malik, A., Murray, J., Ferrari, S., Cerutti, P. O., Adeito Mavunda, C., Kanda, M., Folega, F., Bawa, D. M. esso, Badjare, B., Katembo Mukirania, J., … Akpagana, K. (2023). Spatial Inequality, Poverty and Informality in the Democratic Republic of the Congo. World Development, 104(15), 177–189. https://doi.org/10.1016/j.worlddev.2023.106411

Maiorano, D., & Manor, J. (2017). Poverty reduction, inequalities and human development in the BRICS: policies and outcomes. Commonwealth and Comparative Politics, 55(3), 278–302. https://doi.org/10.1080/14662043.2017.1327102

Matthew, O. A., Osabohien, R., Ogunlusi, T. O., & Edafe, O. (2019). Agriculture and social protection for poverty reduction in ECOWAS. Cogent Arts and Humanities, 6(1). https://doi.org/10.1080/23311983.2019.1682107

Mattoo, A., Roy, D., & Subramanian, A. (2003). The Africa Growth and Opportunity Act and its rules of origin: Generosity undermined? World Economy, 26(6), 829–851. https://doi.org/10.1111/1467-9701.00550

McMillan, M. (2016). Understanding African poverty over the longue durée: A review of Africa's development in historical perspective. Journal of Economic Literature, 54(3), 893–905. https://doi.org/10.1257/jel.20151293

Munyae, M. M., & Mulinge, M. M. (1999). The centrality of a historical perspective to the analysis of modern social problems in sub-Saharan Africa: A tale from two case studies. Journal of Social Development in Africa, 14(2), 51–70.

Mushtaq, R., Jabeen, R., Begum, S., Khan, A., & Khan, T. (2021). Expanded job scope model and turnover intentions: A moderated mediation model of Core-Self Evaluation and job involvement. Management Science Letters, 11(5), 1473-1480.

Ogbuabor, J. E., Orji, A., Manasseh, C. O., & Anthony-Orji, O. I. (2020). Institutional Quality and Growth in West Africa: What Happened after the Great Recession? International Advances in Economic Research, 26(4), 343–361. https://doi.org/10.1007/s11294-020-09805-0

Olaoye, O., Ibukun, C. O., Razzak, M., & Mose, N. (2021). Poverty prevalence and negative spillovers in Sub-Saharan Africa: a focus on extreme and multidimensional poverty in the region. International Journal of Emerging Markets. https://doi.org/10.1108/IJOEM-01-2021-0028

Olufolake, C. A., Osobase, A. O., Ohioze, W. F., Musa, S. O., & Ojo, T. J. (2022). Analysis of the impact of natural resources and globalization on environmental quality and economic growth: The study of SANE nations. Economics and Policy of Energy and the Environment, 2, 219–235. https://doi.org/10.3280/EFE2022-002010

Oluwaseyi Musibau, H., Olawale Shittu, W., & Yanotti, M. (2022). Natural resources endowment: What more does West Africa need in order to grow? Resources Policy, 77(March). https://doi.org/10.1016/j.resourpol.2022.102669

Phogole, B., & Yessoufou, K. (2022). Biodiversity and Economy but Not Social Factors Predict Human Population Dynamics in South Africa. Sustainability (Switzerland), 14(14). https://doi.org/10.3390/su14148668

Pinson, G. (2002). Political government and governance: Strategic planning and the reshaping of political capacity in Turin. International Journal of Urban and Regional Research, 26(3), 477–493. https://doi.org/10.1111/1468-2427.00394

Potts, M. D., Affholter, J. A., & Harless, S. (2021). Entrepreneurship Factors among Developed Countries and Emerging Regions. South East European Journal of Economics and Business, 16(2), 82–100. https://doi.org/10.2478/jeb-2021-0016

Salahuddin, M., Vink, N., Ralph, N., & Gow, J. (2020). Globalization, poverty and corruption: Retarding progress in South Africa. Development Southern Africa, 37(4), 617–643. https://doi.org/10.1080/0376835X.2019.1678460

Sarwat, N., Ali, R., & Khan, T. I. (2021). Challenging, hindering job demands and psychological well-being: The mediating role of stress-related presenteeism. Research Journal of Social Sciences and Economics Review, 2(1), 135-143.

Sawleshwarkar, S., Zodpey, S. P., & Negin, J. (2021). Indian Public Health Students' Perspectives on Global Health Education. Frontiers in Public Health, 8, 1–12. https://doi.org/10.3389/fpubh.2020.614744

Shettima, A., Elheddad, M., Bassim, M., & Alfar, A. J. K. (2023). The impact of conflict on energy poverty: Evidence from sub-Saharan Africa. Resources Policy, 86(September). https://doi.org/10.1016/j.resourpol.2023.104090

Stanislavská, L. K., Pilař, L., Margarisová, K., & Kvasnička, R. (2020). Corporate social responsibility and social media: Comparison between developing and developed countries. Sustainability (Switzerland), 12(13). https://doi.org/10.3390/su12135255

Thorn, J. P. R., Bignoli, D. J., Mwangi, B., & Marchant, R. A. (2022). The African Development Corridors Database: a new tool to assess the impacts of infrastructure investments. Scientific Data, 9(1), 1–11. https://doi.org/10.1038/s41597-022-01771-y

Tiba, S. (2019). Modeling the nexus between resources abundance and economic growth: An overview from the PSTR model. Resources Policy, 64(September). https://doi.org/10.1016/j.resourpol.2019.101503

Vollmer, F., & Alkire, S. (2022). Consolidating and improving the assets indicator in the global Multidimensional Poverty Index. World Development, 158, 105997. https://doi.org/10.1016/j.worlddev.2022.105997

Warf, B. (2017). Geographies of African corruption. PSU Research Review, 1(1), 20–38. https://doi.org/10.1108/prr-12-2016-0012

Waziri, M., Bin Ibrahim, A. Z., & Zan, Z. B. M. Z. B. M. (2020). Investigating the empirical relationship between government intervention programs and poverty alleviation: a case of Nigeria. Journal of Economic and Administrative Sciences, 36(4), 323–338. https://doi.org/10.1108/jeas-06-2019-0060

Whitfield, L. (2011). How countries become rich and reduce poverty: A review of heterodox explanations of economic development. 1–28.

Yakubu, Z., Loganathan, N., Hassan, A. A. G., Mardani, A., & Streimikiene, D. (2019). Financial and economic determinants of sustainable economic growth in Egypt, Nigeria and South Africa. Journal of International Studies, 12(4), 160–176. https://doi.org/10.14254/2071-8330.2019/12-4/11

Yu, Y., & Huang, J. (2021). Poverty Reduction of Sustainable Development Goals in the 21st Century: A Bibliometric Analysis. Frontiers in Communication, 6(October), 1–15. https://doi.org/10.3389/fcomm.2021.754181

Zheng, Z., Lisovskiy, A., Vasa, L., Strielkowski, W., & Yang, Y. (2023). Resources curse and sustainable development perspective: Fresh evidence from oil rich countries. Resources Policy, 85(April). https://doi.org/10.1016/j.resourpol.2023.103698