

## Contribution of the Central Corridor Transport on the Tanzanian Economic Growth.

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<b>Abstract</b>	<b><i>NG-Journal of Social Development</i></b>
<p><i>This study investigates the influence of intra-trade within the Central Corridor, the effect of port cargo volume, and infrastructure expenditures on Tanzania's economy. Using quarterly data from 2001 to 2021 using the Ordinary least squares model, we found a positive relationship between cargo volume and economic growth, as well as a significant positive effect of intra-trade on the economy. However, budgetary infrastructure spending and exchange rates had insignificant impacts. The study suggests that the government should enhance regional business ties, improve port efficiency, and support corridor infrastructure development.</i></p>	<p>Vol. 13 Issue 1 (2024) ISSN(p) 0189-5958 ISSN (e) 2814-1105 Home page <a href="https://www.ajol.info/index.php/ngjsd">https://www.ajol.info/index.php/ngjsd</a> <b>ARTICLE INFO:</b>  <b>Keyword:</b> <i>Transportation, Central Corridor, economy, devilmnt, infrastructural growth</i>  <b>Article History</b>  Received 18<sup>th</sup> January 2024 Accepted: 15<sup>th</sup> March 2024 DOI: <a href="https://dx.doi.org/10.4314/ngjsd.v13i1.11">https://dx.doi.org/10.4314/ngjsd.v13i1.11</a></p>

### 1. Introduction

The transportation sector is currently considered the largest and fastest-growing sector. It comprises automobile manufacturing and distribution, as well as fuel processing and logistics, also transport service provisions (Wetwitoo et al., 2017). As a result, the origin of transportation is essentially one of technological progress, with advancements in technology allowing humans to commute further and explore extra lands, but also extend their power over ever-larger territories. In the context of the African continent, the heritage of transportation extends back to the early pre-colonial era. Throughout this time, transportation systems such as roadways, railways, as well as

air transport were virtually non-existent, with a focus on the wilderness routes using foot or animals, including horses, cattle, donkeys, as well as camels, as the means of transport (König & Axhausen, 2002). Eventually, the development of Africa's modern transportation systems started during the start of the colonial period. The railway, waterway, and road networks, which were created at the time, were designed to enhance the exports of cash crops as well as the bulk importing of manufactured consumer goods (Jedwab & Moradi, 2016). They were designed to be as cost-effective as possible, but they eventually proved to be insufficient.

In Tanzania, the transportation sector includes surface transportation such as roads and railroads, inland waterways including rivers and lakes, air transport, as well as maritime transport, which mainly involve the ocean. The sector contributed USD 3.8 billion to the country's real GDP in 2018, up from USD 2.8 billion in 2014, marking a 33% rise (Adam et al., 2018). The quantity of passenger movements and freight transported by road transportation are two major growth factors for the sector. Similarly, the government has identified the sector as one of the potential areas of interest in the country's future economy. Such that according to Tanzania's 2025 Development Vision, the government intends to massively invest in infrastructure, notably the development of transport systems and road network (URT, 2021).

The surface transport and, more especially, the road networks have been the most defining icons of the transportation sector in Tanzania. Such that as of 2018, over 90% of the passengers, as well as over 75% of the freights, used road-based transport (URT, 2019). Similarly, as of current, Tanzania has a total road network of 86,472 kilometres, with 12,786 kilometres of trunk highways, 21,105 kilometres of regional roads, and 52,581 kilometres of district, urban, and feeder roads. The responsible ministry, through the Tanzania National Roads Agency (TANROADS), is in charge of the country's 33,891 kilometres of road network, which includes 12,786 kilometres of trunk as well as 21,105 kilometres of regional roads. The President's Office Regional Administration and Local Government (PO-RALG) through the Tanzania Rural and Urban Roads Agency (TARURA) is in charge of the remaining network of around 53,460 kilometres of urban, district, and feeder highways (URT, 2021).

Through a massive continuous construction and development of the road networks, Tanzania has heavily benefited in terms of transportation, agriculture commercialization as well as trade within and beyond the borders. Furthermore, such benefits have led to massive growth of the economy and therefore made the sector more reliable to the progression of the economy (Colon, Hallegatte, & Rozenberg, (2019). On the other hand, (Rashid et al., 2016) identified that Tanzania's transportation sector makes a significant contribution to the effective implementation of economic and social activities and, most essentially, the enhancement of trade, the reduction of domestic cost of production through minimal delivery time, the improvement of economies of scale within the process of production, and the creation of economic opportunities. Opportunities such as easy market access, increased competition, trade as well as export promotion, tourism business and investment contributions to government income, as well as the creation of a significant number of job possibilities.

In terms of consolidating international trade, especially between Tanzania and its neighbouring states, it is fair to argue that the transportation sector has been an essential ingredient. This is massively highlighted by Tanzania's economic survey of 2020, which highlighted a massive improvement in trade between Tanzania and its neighbouring allies. Furthermore, the massive growth of the transit trade with its neighbouring states has proved to become an ideal indicator of

economic expansion, social welfare, and local company development (URT, 2021). Similarly, the elimination of the value-added tax (VAT) on auxiliary transportation services was one of the standouts of Tanzania's 2017 budget. Modernization of the port of Dar es Salaam through the Dar es Salaam Maritime Gateway Program (DMGP), which aimed at improving the effectiveness and efficiency of the Dar es Salaam Port and supporting the economic development of Tanzania and the land-linked countries, also increased the capacity of the Port to handle Post Panamax vessels and improve imports/exports (TPA, 2021).

The transport sector has proved to be a vital segment in the growth and development of Tanzania's economy (Imi et al., 2017). Similarly, the sector has proven to have significantly aided domestic as well as global trade, along with promoting social integration and providing employment opportunities and other critical economic services. In the case of the central transport corridor, views tend to concur with the theoretical perspectives that the corridor is highly effective at enhancing social and economic activities in the country (Perkins & Robbins, 2011). However, one of the most essential eye-catching segments of the Central Corridor is its ability to connect the East African Community (EAC) states, precisely the Democratic Republic of Congo (DRC), Rwanda, Uganda, and Burundi, which massively rely on the corridor at enhancing importation and exportation activities (Mbura, 2012). For instance, during the financial year 2018/2019, the volume of cargo through the Dar es Salaam port, which is the gate of the central corridor, climbed by 5.6% to 15.7 million metric tons from 14.8 million metric tons in the previous financial year. Such a massive rise protruded again the following year by 2.28% to 16.01 million metric tons from the 2018/19 volume of 15.7 million metric tons (URT, 2021). Such dependence on and usability of the central transport corridor has massively impacted mobility alongside cooperation with these nations. Hence, it is safe to say that the corridor is a pillar of cooperation and economic prosperity among the economies.

Despite being clear that the transport corridors have a massive effect on the economy, especially in developing economies. Scholars such as (Tong & Yu, 2018; Herzog, 2021; Malecki, 2018 and Jiang et al., 2017) have clearly stated that the presence of proper transport network corridors that connect the major cities and neighbouring states tends to enable the progress and expansion of trade across the countries and economic growth. Similarly, for the case of Kenya, (Lesutis, 2020) and (Owino, 2019) precisely declared that the Lamu Port–South Sudan–Ethiopia Transport corridor was not only influential to the movement of cargo and people but also heavily provides employment and, therefore, an essential ingredient in the economic growth. However, little has been discussed in the case of Tanzania, especially in the context of the central transport corridor that links about four neighbouring countries with Tanzania. Similarly, little has been discussed in terms of the impact of the infrastructural expenditures and the transported cargo from the ports through the corridors. Therefore, this analysis intended to make a detailed assessment of the contribution of transport corridors to the growth of Tanzania's economy, in the precise case of the Central Corridor. Through specifically investigating the influence of the intra-trade by the Central Corridor, the impact of the port cargo volume, as well as the effect of the infrastructure expenditures on the Central Corridor on the economic growth of Tanzania.

## **2. Review of Related Literature**

The literature review involved assessing and revising several previous documented literature on the scenario of transport sector effects and their overall implications for economic progress and

growth in different spheres. Furthermore, this review is based on the resulting implications for trade, employment, and infrastructure expenditures during operationalization.

## 2.1 Transportation, intra-trade and economic growth

It is evidently clear that trade tends to impact the overall economic growth of a country (Lawal & Ezeuchenne, 2017). However, it is inevitable to separate such impact of trade within countries and better transport systems and effective transport corridors since, in most cases, proper transportation means to aid a foundation for effective trade (Batta et al., 2020; Brugnoli et al., 2018). According to (Wu et al., 2020), the majority of the traders trading across neighbouring countries tend to prefer roads and railways as the best transport corridors for the facilitation of trade. As evident in the case of China, (Banerjee et al., 2020) revealed that the presence of access to transportation networks over a 20-year period has necessitated the rapid rise of the Chinese economy. Similarly, according to (Banerjee et al., 2020) the presence of proper transport networks that connect the major cities tends to enable the progress and expansion of trade across the country. Although the findings clearly identify such significance that results from the massive presence of the proper transportation corridors connecting cities, it is also evident that the impact is viewed in specific sectors but not the overall economy. Therefore, it is clearly evident that in some instances, the impact of the transport sector does not necessarily have a direct impact on the overall growth. However, in most cases, the impact of the transportation sector is more indirect to the overall economy. Transportation tends to affect numerous sectors that are equally vital for economic growth (Park et al., 2019; Tran et al., 2020; Vukić et al., 2021).

On the other hand, an empirical analysis by (Tong & Yu, 2018) revealed a tendency to have a long-run effect on freight transportation on the overall output of the country's economy. Therefore, this implies that freight transportation is a more impactful and influential means of transportation to the economy. When (Tong & Yu, 2018) clearly highlight the freight modes of transportation as the more beneficial to the economy, more needs to be discussed on the transportation of people. The presence of potential transport corridors, such as the central corridor in the case of Tanzania, does benefit the economy through freight and cargo transportation. It is essential to also pinpoint the impact of mobility of people and markets since these are the most important ingredients of trade and, therefore, economic growth. For instance, (Wang et al., 2020) insisted that the presence of railway and road infrastructures does enable massive ease in the movement of people and, therefore, indirectly impacts the accessibility of markets and products and different geographical locations. Such enhanced accessibility does indirectly boost trade within the country and across neighbouring countries, which in turn has a massive impact on economic growth.

Similarly, (Batta et al., 2020) also highlighted that the transportation sector tends to promote a diffusion of technology among different locations through the mobility of commuters, which in turn impacts the growth of technology. However, Mohmand et al., (2016) revealed that the effect of transportation development and transport corridors have no effect in the short run, especially in the case of developing economies, and a directional effect proved this through a Granger causality test. According to Herzog, (2021); Malecki, (2018); Jiang et al., (2017); and Mohmand et al., (2016), most of the impacts by the transport sectors are identified in the long run. Therefore, it is important to note that despite the presence of the impact prevailing in transport to trade and economic growth, most of these effects are in the long run rather than the short run.

Ali et al., (2018) investigated the influence of trade on Somalia's economic progress. According to this analysis, trade has a favourable influence on Somalia's economic growth. Indeed, greater

intra-trade as an outcome of market openness leads to increased GDP, indicating that Somalia is experiencing decent economic growth. In light of the aforementioned, Sulaiman & Ramli, (2019) turn to Ali et al., (2018) for a more in-depth look at the sequential effect (reliable transportation and other independent variables such as infrastructure and trade open policies) on economic growth, as well as the relevance of engaging factors to developing country growth. Without hesitation, Sulaiman & Ramli, (2019) demonstrate that trade plays a key role in the long-term growth of the economy through an empirical analysis based on Malaysia's economy. While other studies focus more on trade against GDP, Hassen et al., (2019) consider some other key determinants of international trade, including openness to trade, capital mobility, investment, as well as economic deepening, to clarify their effect on Tunisia's economic growth. Furthermore, openness to trade, capital mobility, investment, and even the monetary ratio used as a measure of financial progress all have a long-term constructive impact on economic growth. As a result of its unique and considerable contribution to technological innovation and progress, capital mobility is positively correlated with economic growth.

## **2.2 Transportation, employment and economic growth**

The transport corridors and, generally, the transportation sector tend to enhance the massive amount of employment opportunities along its self-providing employments within the country and, therefore, enhance economic progress (Dimitrios et al., 2018; Njoya & Nikitas, 2020; Zwanenburg et al., 2019). According to Njoya & Nikitas (2020), transportation in South Africa tends to contribute massively to the country's output and employment rate. According to a survey by Dalvi & Verma (2004) in India, it was revealed that India's transportation sector employs more than 20 million people, with approximately six million of them working on road transport, it being the highest component of any mechanized mode of transportation. Additionally, about 5 million people are estimated to be working in the bullock cart activity. When all roads and roadway transport-related activities, including non-mechanized transportation, are included together, it is estimated that road-based transportation provides more than 17 million employees per year in India. The railways are second in terms of job potential, with 2.6 million generated yearly. All other forms of transportation contribute insignificantly, accounting for only 0.4 million employment. Based on Njoya & Nikitas (2020), the modern and sophisticated sector diversely employs several segments, including drivers, chauffeurs, and other employees working in the transport systems. Similarly, it is also highly argued that the incomes from employment tend to have a multiplier effect on the economy. Therefore, this suggests that employment as a whole and, more precisely, employment from the transport sector can have a diverse effect on the economy.

On the other hand, the enhancement of mobility through the transport corridors tends to have a massive effect on the generation of employment. For instance, the case of Kenya's Lamu Port–South Sudan–Ethiopia Transport corridor was studied by Lesutis (2020) and Owino, (2019), the findings revealed that the corridor not only enhances a massive amount of movement of cargo and people but heavily provides employments and therefore an essential ingredient in the economic growth of Kenya. Similarly, Quium (2019) revealed that improving transportation infrastructure does have a considerable beneficial influence on economic progression, revenue generation, poverty alleviation, employment, equality enhancement, and inclusiveness. Despite such an effect, it also cautiously highlighted the possibility of significant trade-offs on the economy, people's welfare, as well as environmental responsibility, and the impact of distribution being unequal. Therefore, based on Quium (2019), it is clear that the economic transformation and the resulting impacts tend to also come with minor setbacks. This is also evident by Ali et al., (2018); Öberg et

al., (2017); Ibraeva et al., (2020), who also highlighted the setbacks of the developing transport corridors

### 2.3 Infrastructure expenditure and economic growth

The development of transport infrastructures and the continuous improvement of the infrastructure have a massive implication for the overall economy and mobilizing the growth of the economy (Maingi, 2017; Seshaiyah, Reddy & Sarma, 2018). Therefore, it is evidently clear that a massive investment in transport corridor infrastructures tends to influence the economy, as speculated by Owino, (2019) in the case of Kenya. A study by Meersman and Nazemzadeh (2017) revealed that the massive investment in port and road infrastructures has a massive multiplicity impact on the economy. In a similar perspective, a controversial result revealed by Vlahinić, Pavlić and Mirković (2018) is that there is a negative relation between road infrastructural development and economic growth, despite revealing a positive impact in the railway corridors. Therefore, in the case of central and Eastern Europe, which are the developed economies where the study was performed, the railway infrastructures are more reliable in enhancing economic growth as compared to road networks. However, in the case of developing economies, results have been opposite to those of Vlahinić et al. (2018). For instance, in the case of Nigeria, Babatunde (2018) revealed that infrastructure spending on transportation and communication has a major impact on economic growth in Nigeria, but expenditure on agriculture, as well as natural resources infrastructures, has a large negative impact. Therefore, pinpointing that transportation and communication are the most vital elements for economic growth. This can also be proved in the case of Tanzania's budget, where most of the budgetary spending by the country is made on transport and communication infrastructure development (Adam et al., 2018; Epaphra & Mwakalasya, 2017).

### 3. Methodology

For the period spanning July 2014 to June 2021, the study used time series data from a secondary source throughout a range of defined quarters. Through the use of STATA software, the data were evaluated using an Ordinary Least Squares (OLS) method to forecast the model. In this case, the GDP data was exhibited as the dependent variable. Similar to this, the model's independent variables looked at the intra-trade, cargo volume (measured in metric tonnes), infrastructure spending, and exchange rate. The relevant time series tests, such as the normality test, cointegration test, and the unit root test for stationarity, were performed on each of these variables. Following that, the following study model was suggested:

$$Y_t = \beta_0 + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + \beta_4 X_{4t-1} + \beta_5 X_{5t-1} + \mu_t$$

Whereas  $\beta_0$  is the intercept;  $\beta_1$  is the effect of  $X_1$  when other factors are held fixed;  $\beta_2$  is the effect of  $X_2$  when other factors are held fixed;  $\beta_3$  = the effect of  $X_3$  when other factors are held fixed;  $\beta_4$  = the effect of  $X_4$  when other factors are held fixed. Similarly, the  $Y$  is Economic growth;  $X_1$  is the intra-trade;  $X_2$  is the cargo volume through Tanzania's Dar es Salaam port to the Central Corridor allies;  $X_3$  is the infrastructure expenditure;  $X_4$  is the exchange rate, and  $\mu$  is the error term.

## 4. Findings and Discussions

### 4.1 Descriptive statistics

#### **Table 1: Descriptive statistics of the variables used for analysis**

Variable	Observation	Mean	Std. Dev.	Min	Max
GDP (In TZS Million)	84	18901952.4	4584550	12029496	28637181
Infrastructure expenditure (In TZS Million)	84	21436.51	6009.753	10423.42	39575.94
Volume of cargo (metric tons)	84	509296.7	110023.3	311145.9	754659
Intra-trade [Trade volume among allies (In TZS Million)]	84	144498.5	77115.23	23095.07	287466.8
Exchange rate	84	1603.233	448.1733	842.3	2310.41

**Sources:** *Ministry of Finance, Ministry of Works and Transport, TANROADS, Central Corridor Transit Transport Facilitation Agency (CCTTFA), Tanzania Ports Authority (TPA), Tanzania Truck owners Association (TATO) and Transporters Association of Tanzania (TAT).*

Based on the revealed findings, the studied variables, namely the GDP of Tanzania, were measured on a quarterly basis in the estimated Tanzanian million shillings. From the precise presented statistics, the average GDP on a quarterly basis was TZS 18,901,952.4 million, which is equivalent to TZS 18.9 trillion with a standard deviation of 4,584,550. Similarly, the maximum GDP recorded across the period was 28,637,181 million, which is equivalent to TZS. 28.6 trillion. On the other hand, the lowest ever recorded GDP was TZS 12,029,496 million, which is equivalent to TZS. 12 trillion.

The infrastructure expenditure on the Central Corridor was studied across the 84 quarters from 2001 to 2021. From the findings, it was revealed that the average infrastructure expenditure on the development and renovation of the Central Corridor routes was TZS 21,436.51 million, which is estimated as TZS 21.4 billion on a quarterly basis. Similarly, the standard deviation was TZS 6,009.75 million, whereas the maximum value of infrastructure expenditure on a quarterly basis was TZS 10,423.42 million (TZS 10.4 billion), while the maximum infrastructure expenditure on a quarterly basis was TZS 39,575.94 million (TZS 39.6 billion).

The volume of cargo through the Central Corridor to the neighbouring countries was studied in metric tons across 84 quarters from 2001 to 2021. In the findings, it was revealed that on a quarterly basis, the average volume of cargo over the studied period was 509,296.7 metric tons, with a standard deviation of 110,023.3 metric tons. Similarly, the minimum volume of cargo that was studied across the studied period was 311,145.9 metric tons, while the highest volume of cargo recorded during the specified period was 754,659 metric tons on a quarterly basis.

The volume of trade with the central corridor allies was studied in terms of monetary value, therefore in TZS millions. From the findings presented above, it was revealed that the average volume of trade was estimated to be around TZS 144,498.5 million, which can be estimated as around TZS 144.5 billion; however, the standard deviation was TZS 77,115.23 million. Similarly, the findings also revealed that the maximum volume of trade with the Central Corridor allies was estimated to be around TZS 287,466.8 million on a quarterly basis, which is equivalent to TZS

287.5 billion. Lastly, the minimum volume of trade with the Central Corridor allies was estimated to be around TZS 23,095.07 million on a quarterly basis, which is equivalent to TZS 23.1 billion.

Finally, the variable exchange rate was studied as the control variable that tends to facilitate the trade flow between the Central Corridor allies, the GDP of the country, the volume of cargo through the port and the expenditures indirectly. From the findings, it was revealed that the average exchange rate across the period was TZS 1,603.233 across the United States dollar, with a standard deviation of 448.2. Similarly, the minimum exchange rate recorded was TZS 842.3 across the United States dollar, while the maximum exchange rate recorded was TZS 2,310.41 across the United States dollar.

## 4.2 Empirical Results

Table 2: Empirical results of the OLS regression model

Variables	Coefficients (Standard Error)
Volume of cargo	0.554*** (0.130037)
Intra-trade (Trade volume among allies)	0.167*** (0.0460914)
Infrastructure expenditure	0.0176 (0.094856)
Exchange rate	0.106 (0.1121755)
Constant	7.30493*** (2.147576)
<i>Number of Observation</i>	83
<i>F (4, 78)</i>	33.37
<i>Prob &gt; F</i>	0.000
<i>R-squared</i>	0.6312
<i>Adj R-squared</i>	0.6122
<i>Root MSE</i>	0.16202

Source: Researcher findings (2022)

**Note:** \*, \*\*, \*\*\* imply significance level at  $p < 0.1$ ,  $p < 0.05$ , and  $p < 0.01$  respectively

The findings portrayed in Table 4.8 above, findings reveal that two of the studied variables were significant in impacting the growth of Tanzania's economy, while the other two variables, the control variable exchange rate, were not significant in impacting the growth of Tanzania's economy. Similarly, from the findings, it was revealed that among the 83 observations made on the variables volume of cargo, intra-trade, infrastructure expenditure and exchange rate, the R-square was 0.6312. The R-square of 0.6312 implies that the studied variables tend to explain the fluctuation of Tanzania's economy by 63.12%. Hence satisfactory to say that the studied variables tend to quite impact the fluctuation of Tanzania's economy. On the other hand, the findings revealed that the F statistic was 33.37, while the p-value of F statistic was 0.000, hence implying the revealed model is overall statistically significant. Furthermore, the variables cargo volume, intra-trade, infrastructure expenditure as well as the GDP were transformed into a natural



logarithm so as to portray the highly skewed variables into a more normalized dataset. But also, the transformation was performed to enhance the interpretation of the results in terms of percent changes.

On the relationship between the intra-trade and the economy of Tanzania, findings revealed that the intra-trade that was studied as the volume of trade between the central corridor allies and Tanzania was found to be statistically significant. Therefore, implying that the aspect of intra-trade did impact the growth of Tanzania's economy. In precise findings it was revealed that an increase in the volume of intra-trade by 1% is related to an increase in the growth of Tanzania's economy by up to 16.7%, under consideration that other factors are held constant. Consequently, despite Tanzania's economy being massively affected by a series of macroeconomic variables, the volume of trade between Tanzania and the central corridor allies proves to be ideally essential for impacting the economy.

Such a massive effect implies that Tanzania's economy is heavily affected and dependent on the commercial and trading sectors. More precisely, such dependence is majorly positively affected by the trade with neighbouring economies, especially those sharing a border with Tanzania and, more precisely, the central corridor allies. This also implies that the growth trading activities with the central corridor allies will boost the economy massively. Since most of these economies depend on Tanzania, especially in agricultural produce, hence acts as a massive market for the country's agriculture production. Similarly, through the trade among the traders of the central corridor allies, room for movement of capital, labour and other aspects for production will grow, hence making further growth of the economy.

These findings concur with those of Chen, Zhang and Wang (2022), who studied the aspect of trade openness and economic growth and revealed that the presence of trade does massively boost the growth of the economy. Similarly, the study by Farahane and Heshmati (2020) also revealed that the presence of international trade among the SADC allies tends to massively boost the growth of the economies in the member countries. From Tanzania's perspective, findings by Hamad, Mtengwa and Babiker (2014) revealed that the presence of trade liberalization and openness among trading allies tend to massively improve the growth of the economy. Therefore, based on such implications, it can be cemented that intra-trade volumes among the countries massively impact the growth of the economy.

In the effect of the volume of cargo on Tanzania's economy, findings revealed that the volume of cargo that tends to flow through the Dar es Salaam port to the Central Corridor and to and from the Central Corridor tends to massively impact Tanzania's economy. In detailed statistics, the study revealed a positive relationship with a coefficient of 0.554, hence specifying that an increase in the volume of cargo by 1% is related to an increase in the growth of Tanzania's economy by up to 55.4%, under consideration that other factors are held constant. The implication of such a tremendous effect is an indication that the economy of Tanzania is massively affected by the import and export business, especially across the neighbouring economies.

The positive significant relationship between the cargo volume through the Central Corridor and the economic growth tends to have a massive dimensional implication. Such that initially, the positive effect is an implication that the economy of Tanzania is operated based on trade openness; hence, partner states may massively benefit from Tanzania's port operations. Similarly, the findings have a massive implication that the ports that are massive sources of movement of cargo to the Central Corridor allies are crucial transportation links that make moving commodities easier.

Such that the movement of goods, as well as the delivery of freight (including components, parts, and finished consumer goods), tend to indirectly boost the economic aspects of different enterprises in nearby towns and on international markets using various forms of transportation, including rail, truck, air, and sea.

These findings on a positive significant relationship between the volume of cargo and economic growth tend to concur with those of Kahyarara (2022), who highlighted the presence of a positive significant relation between the volume of goods and services to the growth of Tanzania's economy. On a similar note, a study by Abdulrahman (2014) investigated the precise contribution of Tanzania's ports to the growth of its international trade. In the findings, it was revealed that the volume of cargo through the port in metric tons tends to massively impact the growth of the economy, through the resulting simplification of trade, especially in the importation.

In terms of the precise relationship between the budgetary expenditures on infrastructure and the prevailing economic growth of Tanzania, findings revealed a positive relationship among the concepts. Therefore, this signifies that an increase in the budgetary expenditures on infrastructure is related to an increase in economic growth. However, findings revealed that the budgetary expenditures on infrastructure could have been statistically significant at the required levels of significance. Hence, such insignificance can easily imply that the budgetary expenditures on infrastructure were not conclusively impacting the growth of Tanzania's economy. However, the presence positive effect can also be a tell-tale sign of the presence of an effect in the long-run or even a massive cumulated sample space. These findings on the positive relationship between the budgetary expenditures on infrastructure and economic growth tend to concur with those of Robinson Gaertner and Papageorgiou (2014), who revealed a positive but significant relationship between public spending and macroeconomic acceleration through the GDP. From a different perspective, findings by Kauzen, Sun and Frank (2020) also revealed the presence of a positive significant relationship between the transportation infrastructures, precisely roads and railways, the economic growth, which is quite similar to the main transportation infrastructures utilized in the central corridor.

Lastly, the currency exchange rate was investigated as one of the key control factors in the total economy, particularly in the export and import aspects of the economy. In this study, the exchange rate was examined since, in general terms, it is thought to be a key factor in fostering international trade between residents of other countries. It is further highlighted that a country is more likely to have an advantage over its competitors in importing the more the economy's currency rises. In turn, a country is more likely to increase its exports the more its currency is depreciated and devalued. The exchange rate was evaluated in the period of 21 years, thus 84 quarters from 2001 to 2021. In the findings, it was revealed that the average exchange rate across the period studied was TZS 1,603.233 across the United States dollar, with a standard deviation of 448.2. Similarly, the lowest exchange rate recorded was TZS 842.3 across the United States dollar, which was recorded in 2001, while the highest exchange rate recorded during the period was TZS 2310.41 across the United States dollar, which was recorded in 2021. The implication of such a result is that the rate of currency exchange in Tanzania is gradually depreciating.

The exchange rate, like any studied variables of this specific study, was found to have a positive effect on the economy of Tanzania. However, they revealed that the exchange rate was not quite significant in impacting the economy. Hence implying that the variable was inconclusive enough to impact the economic growth. Nevertheless, the positive relationship is an implication that in

one way or another, international trade, which is a vital aspect of economic growth through importation and exportation, is heavily influenced by the exchange rate volatilities in the economy. These findings tend to correspond to those of Rodrik (2008) alongside Rapetti, Skott and Razmi (2012), who both at different dimensions revealed a presence of a positive directional relationship between the exchange rates and economic growth.

## **5. Conclusions and Policy Implication**

### **5.1 Conclusion**

The study conducted an assessment of the contribution of transport corridors to the growth of Tanzania's economy, in the precise case of the Central Corridor. Therefore, the revealed findings were based on the aspect of transport corridor. Similarly, in the findings, it was revealed that the volume of cargo through the central corridor alongside the intra-trade volume with central corridor allies was significant in impacting economic growth. Therefore, based on such findings the study can conclude that the central corridor is quite impactful to the economy of Tanzania. Therefore, such a conclusive remark can further highlight that the presence and growth of central corridor activities tend to massively enhance the growth of the economy.

On a similar dimension, finding also reveal that the presence of trade with the central corridor allies, as well as the cargo movement through the central corridor, tends to massively relate to the GDP growth in the country. Therefore, it is fair to say that the presence of the Central Corridor tends to massively impact the flow of trade between the neighbouring. The presence of the central corridor easily simplifies the movement of commercial goods and services among the neighbouring countries and Tanzania. On the other hand, the Central Corridor's contribution is massively viewed as a result of enhancing the easy accessibility and movement of capital and labour among the allies.

Lastly, in evaluating the contribution of the central corridor, it was revealed that most neighbouring economies, especially DRC, Burundi, Rwanda as well as Uganda, tend to massively rely on Tanzania's ports, especially the Dar es Salaam port, in the daily importation and exportation. Hence, despite having a massive impact through the amount of cargo that tends to move through the central corridor infrastructures but still Tanzania's economy tends to benefit massively through other direct and indirect charges charged on the transported cargo. Such that despite the port reliefs that can result from countries' partnerships, Tanzania still benefits a huge sum of income through the port cargos that are transported to central corridor allies.

### **5.1 Policy recommendations**

The results of the study analysis massively prove the presence of the Central Corridor's contribution to the growth of Tanzania's economy. Therefore, based on the revealed findings on the presence of a positive relation between the volume of cargo and intra-trade volume to economic growth, then the study recommends the following aspects.

Initially, the study revealed that the presence of intra-trade between Tanzania and the Central Corridor allies massively boosts the country's economic growth. Therefore, policymakers, especially in the required ministries and the government as a whole, should enhance better and easier mechanisms of doing business between Tanzania and its neighbouring states since the

presence of trade between Tanzania and the Central Corridor allies would massively create economic prosperity in the country.

On the other hand, the study revealed the presence of a positive relationship between the volume of cargo through the Central Corridor and economic growth. Therefore, based on such implication of the presence of a positive effect, the study recommends enhancing a proper mechanism through the ports and transportation infrastructures so as to massively heighten the capacity of cargo volume towards the Central Corridor allies. Similarly, in the case of Dar es Salaam port, which is proven to be a major gate of the Central Corridor, the government should continue to undertake further improvements at the port, which will eventually improve efficiency and capacity to handle the massive amounts of cargo in a minimal time.

Lastly, the government of Tanzania, through the parliament and the Ministry of Works and Transport, should massively focus on supporting the Central Corridor Transport infrastructure. Since the corridor is proven to be effective for economic growth, its continuous modernization, innovation, and development will enhance the easy movement of factors of production and encourage trade, which in turn would be beneficial to the economy of Tanzania.

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