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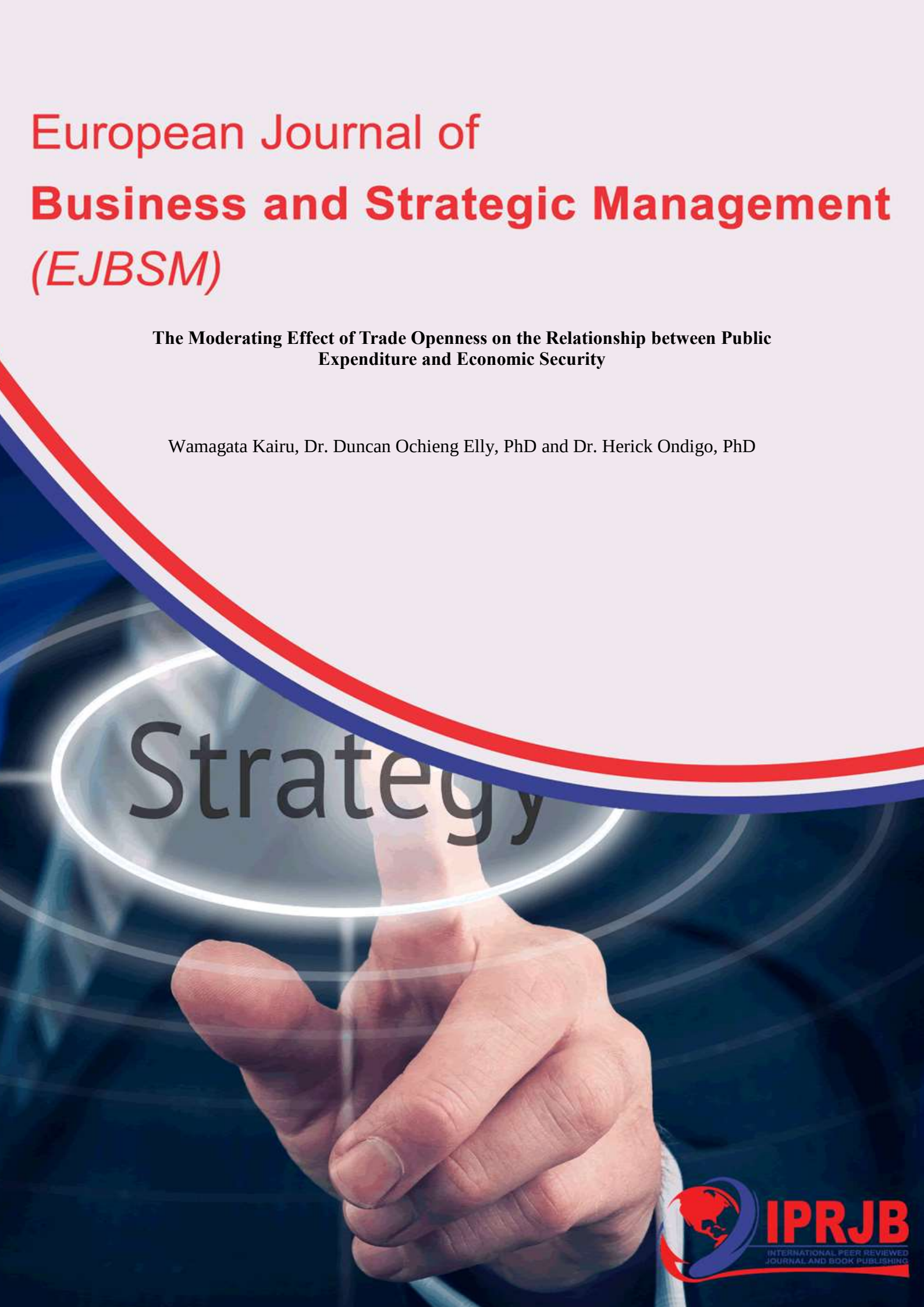

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The Moderating Effect of Trade Openness on the Relationship between Public Expenditure and Economic Security

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Abstract

Purpose: The objective of this study was to find out the relationship between public expenditure and economic security and find out whether the relationship between public expenditure and economic security is moderated by trade openness.

Methodology: The study used positivism research philosophy and adopted the descriptive and exploratory study designs in analyzing the longitudinal and cross-sectional panel data to describe and evaluate the relationship between public expenditure and economic security and examine whether trade openness had moderating influence on the relationship between public expenditure and economic security among the five selected EAC member countries that were Kenya, Uganda, Tanzania, Burundi and Rwanda. The study used secondary panel data, from year 2008 to 2022, that was sourced from the World Bank Development Indicators, for five selected countries of the East African Community. The study adopted the Broyden–Fletcher–Goldfarb–Shanno Autoregressive Moving Average Generalized Least Squares regression model to test the research hypotheses.

Findings: The study found that public expenditure had statistically significant effect on economic security. The study further found that trade openness had positive statistically insignificant moderating influence on the relationship between public expenditure and economic security with strengthening trade openness reducing the adverse effect that public expenditure has on economic security.

Unique Contribution to Theory, Practice and Policy: The study findings have contributed to new knowledge on the connection between public expenditure and economic security where public spending was shown to have a significant adverse effect on economic security. The study findings also contributed to the growing knowledge on construction and composition of economic security indices, which factors various parameters. The study findings can guide policy makers to develop trade policies that would balance between economic nationalism and trade openness in a manner to harness the favorable effect that trade openness has in weakening the adverse influence of public expenditure on economic security.

Keywords: *Public Expenditure, Trade Openness, Economic Security, Economic Insecurities, Economic Security Index*

JEL Codes: *E62, H50, F13, F43, A12, F52, C46*

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INTRODUCTION

The definition of economic security has evolved and cascaded to incorporate both the macro-level of the state and the micro-levels of individuals and their households (Griffiths, 2014). Economic security is one of the fundamental rights under the Universal Declaration of Human Rights (UDHR) for all humanity (Assembly, 1948). Economic security defined from a micro-economic well-being point of view is the ability of people to meet their needs consistently and in a sustainable manner (ICRC, 2015). Economic security is therefore the possession by individuals, households and communities of income and/or resources to provide for their respective basic and essential needs in a sustainable and a dignified manner, which includes having access to the requisite enabling environment and infrastructure (Mollenkamp, 2022).

Economic security at the macro-economic level, is a constituent of national security and provides protection to the nation's economic capacity as well as providing freedom to the state and her people to control their economic and financial matters (Kadala, Guzenko & Bondarenko, 2023). The definition of national security has also evolved from the traditional military focused safety against threats to encompass the safety of a nation from all threats and includes defence of a sovereign state against threats indicators to its citizens, economy and institutions (Brown, 1977). Economic growth provides indication of the welfare of a country and serves to guarantee economic security and translates to maintenance of national security (Belyaeva, Kosyakova, Forrester, & Ustinova, 2019). The existence and survival of a country is dependent on attainment and maintaining certain minimum conditions by that country. Key among such conditions is ensuring the economic well-being of its population who are a key ingredient to its recognition as a state in the international arena and whose protection is a key survival priority (Montevideo Convention, 1933). Economic security of a state is therefore a key determinant to its national security (Ibragimovich, Ogli, Kholikovich & Ogli, 2020).

The economic well-being measure of per capita Gross Domestic Product (GDP) has been criticized for not being a sufficient measure to capture the real economic well-being of the people (Berik, 2018). The criticism gained impetus leading to the French government to set up a commission in 2008 to develop a robust measure of the people's welfare (Stiglitz, Sen & Fitoussi, 2009). This coincided with intellectual works in the same field that led to the development of an Index of Economic Well-Being (IEWB) that incorporated four aspects namely consumption flows, equality, wealth stocks, and economic security (Osberg & Sharpe, 2010).

Economic security is measured through the presence of economic insecurities with the two having an inverse relationship. There is however no universal methodology consensus to measure economic security (Richiardi & He, 2020). Economic security can be measured by various economic insecurities such as unemployment, poverty levels, old age income coverage, social security and public healthcare coverage, which reflects the gap that individuals are required to bridge in meeting their healthcare needs (Osberg & Sharpe, 2010; Hacker, Huber, Rehm, Schlesinger & Valleta, 2010). Clause 25 of the Universal Declaration on Human Rights (UDHR) established by the United Nations (UN) provides old age, unemployment, disability, illness and widowhood as the hazards that produce economic insecurity (Assembly, 1948). Aggregation of measures of economic insecurities provides an index as a measure of economic security (Osberg, 2015). Economic Security Index (ESI) measures the magnitude of economic security that individuals experience as derived from composite measure of economic insecurities. The composition of ESI is relatively new and still in the developmental stage with various scholars adopting and developing various composites. Hacker et. al (2010) developed

an aggregated economic security index focusing on the degree of protection against hardships from large income losses for individuals in the United States of America. Osberg and Sharpe (2010) developed an Index of Economic Well-Being (IEWB) encompassing four economic hazards.

Governments are charged with the responsibilities of providing an enabling environment and requisite infrastructure and must incur expenditure, which is referred to as public expenditure. Governments raises funds for public expenditure mainly through taxation, levies, fees and raise sovereign debt to finance budget deficits (Oyewobi & Falolu, 2023). Governments are charged with running countries and their mandate include providing the necessary legal and social framework in which the country's economy operates through having quality institutions (Arora & Chong, 2018). Government are also required to provide public goods and services such as infrastructure besides ensuring there is a healthy competition within the markets and taking necessary actions to have a stable economy. Governments endeavor to provide safety nets to their citizens to cushion the less fortunate through provision of minimum protections. States that have commitment to provide elementary economic security to their populations through providing protection against market related risks such as sickness, unemployment, accidents and old age are referred to as welfare states. The concept of a welfare state developed during World War II in the United Kingdom (Weir, 2001).

Public expenditure definition has evolved over time with the generally agreed definition being the accounts aggregates from the central government, local authorities and public corporations, which are collectively referred to as the aggregates of the general government in short or in the long format as aggregates of the General Government Fiscal Operations (GGFO). This is considered the best macroeconomic definition of public expenditure (IMF, 2019). Categorization and measurement of public expenditure is diverse. The principal categorization of public expenditure relates to the level of governments that are mainly three with the first being the national or central government, the second being local authorities or federal governments and the third being public corporations or parastatals that are state owned entities that render social and welfare essential services at reasonable fees and prices (IMF, 2019). Public expenditure can also be categorized based on the purpose of the expenditure whether for current purposes or future purposes thus developmental in nature or recurrent. Recurrent expenditure, which takes a higher component of public expenditure, has less discretionary latitude and covers items such as salaries for public officers, wages, bills, sovereign debt servicing and other ongoing activities. Development expenditure on the other hand has a higher discretionary latitude and touches mainly on new programmes related to investment such as on infrastructure.

The effectiveness of government programmes implemented through incurring public expenditure is measured by the outcomes that are derived from outputs for any given level of inputs and such outcomes include the impact of public expenditure on economic security (Matos, Jorge & Moura e Sá, 2023). Governments match their expected revenues to projected expenditures as guided by development plans. In most instances, and especially in the developing economies, like within the EAC member countries, the development plans are more ambitious than the revenue base thus creating a mismatch that constitutes budget deficits (Geng & Qian, 2024). Governments results to either rescheduling the timing of some development plans or seeking alternative funding (Scharff, 2020), which leads to borrowing driven by government budget deficits (Ahmed, 2021). The outcomes from public spending reflect how public expenditure benefits the public from whom its derived from thus the effect of public

expenditure on economic security. The measurement of public expenditure varies according to definition and categorization of public spending. The measurement of public expenditure can be expressed in absolute monetary terms, either in the local currency or equivalent standard international currency principally being the United States Dollars (USD). Public expenditure can also be expressed relative to macro-economic variables.

Trade openness can be defined as the way a state participates in the international trading system and can promote economic activities, growth and production (Zhongwei & Liu, 2022). Trade openness defines a county's trade relationship with the world and is a key indicator contributor to economic growth that provides a country with the requisite goods and services to support its economic security (Raghutia, 2020; Andruseac, 2015). Trade openness reflect whether an economy is either closed or open. Closed economies experience slower growth than open economies thus making trade openness a critical factor to economic growth (Nguyen & Toan, 2021). Trade openness assists in attaining efficiency in resources allocation, which advances overall factor productivity by using knowledge dissemination and technology diffusion (Barro & Sala-i-Martin, 1997).

The dynamics of trade have continued to evolve influenced by globalization (Orgun, 2015). Trade at an international level serves to deepen economic integration and provides local business entities with new market, innovations and improved productivity that arise from the competitive markets opportunities (Ilzkovitz, Dierx, Kovacs & Sousa, 2007). International trade plays a critical role and aides with the effective utilization and allocation of resources through informing choices between imports or local production based on a cost-benefit analysis. Trade openness exposes an economy to the international community which comes with attendant benefits as trade openness has been shown to have positive influence on the economy through promoting economic growth in both the long run and the short run (Keho, 2017). However, international trade can also be counterproductive to development of local productive capacity that could impact on economic security by either increasing or reducing unemployment (Nwaka Uma & Tuna, 2015). Developing countries increase their trade openness with the expectation of enhancing economic growth (Zahonogo, 2016).

Trade openness has in the long run been proved to potentially improve economic growth through granting access to products and/or markets (Fujii, 2017). It also has a relationship with capital formation, which is critical to providing the infrastructure that contributes to economic growth and development and informs choices between imports or local production (Ay, Kursunel & Baoua, 2017). However, it can also be counterproductive to development of local productive capacity that could impact on economic security by either increasing or reducing unemployment (Nwaka, et al., 2015). The widely used measure of trade openness due to its ease of understandability and application is the ratio of trade volumes being exports and imports to GDP (Gräbner et al., 2021). There has been heterogeneity on the tools, objectivity and subjectivity of measuring trade openness (Gräbner, Heimberger, Kapeller, & Springholz, 2021).

The East African Community (EAC) is a Regional Economic Community (REC) as well as a regional inter-governmental entity made up of eight (8) member states and first formed in 1967 by Kenya, Tanzania and Uganda and headquartered in Arusha, Tanzania. Unfortunately, the first EAC collapsed in 1977 only 10 years after its formation due to ideological differences that made it impracticable for the leaders of the three countries to harmoniously work together. The current EAC became officially effective on 7th July 2000 as a culmination of efforts to re-establish EAC that had seen the signing of the EAC treaty on 30th November 1999 by Kenya,

Tanzania and Uganda. Thereafter, five other countries have joined the EAC. Burundi and Rwanda joined in June 2007, South Sudan joined in August 2016, the Democratic Republic of Congo (DRC) joined EAC in July 2022 while the Federal Republic of Somalia joined in March 2024 (EAC, 2024).

The EAC member states are classified as developing countries with the East Africa region expected to register rapid income growth though about two thirds of workers in Sub-Sahara Africa are classified as working poor (WESP, 2020). Poverty is an indicator of prevalence of economic insecurities thus majority of EAC member have lower economic security (Osberg & Sharpe, 2010). The World Development Indicators in 2021 indicated that EAC member countries are at different economic developmental stages. The GDP of Kenya was indicated as being USD 110.35 billion followed by Tanzania with a GDP of USD 67.84 billion. Democratic Republic of Congo was third with a GDP of USD 55.35 followed by Uganda with a GDP of USD 40.53 billion. Rwanda was fifth with a GDP of USD 11.07 billion, Burundi had a GDP of USD 2.78 billion while data on South Sudan related to year 2015 when it had a GDP of 12 billion (World Bank Group, 2024). The expected rapid income growth within EAC member states would be expected to enable governments aided by trade openness to raise additional revenues for their development programmes whose impact would be manifested in the outcomes experienced by the people that would translate to increased economic security. This theorization made EAC, being a REC comprised of developing countries, suitable for the study.

Statement of the Problem

There has been limited mention of the concept of economic security at micro-economic level and factors that would be indicators, affect or measures of the same (Stiglitz, et. al. 2009). Measures of economic security are segregated to various components of insecurities as opposed to composites through economic security indices. The economy influences economic security thus factors that affect the economy affect economic security (Gryshova, Kyzym, Hubarieva, Khaustova, Livinskyi, & Koroshenko, 2020; Grigoreva & Garifova, 2015). Categories of public expenditure also tend to depict heterogeneity in their impact on the economy. Capital expenditure has been shown to have positive significant impact on economic growth while recurrent expenditure has been shown to have no significant impact on economic growth (Aluthge, Jibir, & Abdu, 2021).

The impact of public expenditure on economic growth ranges from negative to positive, it tilts more towards being positive (Nyasha, & Odhiambo, 2019). Investment spending and GDP have been shown to have a bi-directional relationship that is negative in the short run and a positive in the long run (Hilton, 2021). Social speeding and subsidies on the other hand have been shown to increase inequality (Apeti, 2023). Most studies done on the effectiveness of public expenditure have mainly been on education and health (Sant´ Ana, Lopes, Miranda, Bermejo, & Demo, 2020). The ability to achieve economic security on long term basis has become a challenge to many households (Rank & Hirschl, 2014). Countries around the world have unique features of economic insecurities (Zhengyi, 2004) while factors that affect the economy do so in different manner.

Studies have found come up with various findings on the impact of public expenditure on segregated components of economic security. Abouelfarag and Qutb (2021) found out that public expenditure increases unemployment rate in Egypt in the long run while Joy, Okafor & Ohiorenuan (2021) found out that capital public expenditure had significant directly proportionate impact on poverty in Nigeria. The study findings thus negate others studies that

found public expenditure having an inverse relationship with economic insecurities such as unemployment. Saraireh (2020) found out that public expenditure is inversely related to unemployment rates both in long run and short run, Alamanda (2020) found out that components of public expenditure had both positive and negative effect on poverty and income inequality while Yusoff, Law, Mohamed, Ismail (2023) found out that capital public expenditure had no or little impact in lowering poverty levels while reduction in capital public expenditure would reduce poverty levels in the long run. Other studies have found economic growth having significant relationship with segregated components of economic insecurities. Nyamweya (2021) found a significant effect of economic growth on poverty, Mukisa, Nathan and Bulime (2020) found that sustaining economic growth among EAC would reduce unemployment rates. Mathenge and Muturi (2021) made a similar conclusion in relation to economic growth and unemployment. Studies on universal healthcare have majorly grouped the EAC among the Sub-Saharan Africa (SSA) countries.

Trade openness has also been shown to impact on the economy in varied ways depending on the success of trade policies (Silajdzic & Mehic, 2018). The EAC member states have over the years formulated and implemented social, political and economic policies geared towards development. These measures are expected to, inter alia, enhance the respective GDP of EAC member states, contribute to reducing unemployment, providing universal health care (UHC) that would reduce the out-of-pocket medical expenses, alleviate poverty through prudent public expenditure and better managed trade openness. The effectiveness of such policies would be measured based on the outcomes experienced by the people in these EAC member states and thus their economic securities. Trade openness is expected to expedite enhance economic growth that would increase government revenue to finance its programmes and minimize adverse effect of raising more taxation. There was need therefore to understand the relationship between public expenditure and economic security and whether trade openness moderates the linkages between public expenditure and economic security within the EAC and thus the objective of this study.

Opening up an economy may expose the local sectors to unhealthy international competition that may be counterproductive to the expectations of reducing the impact of raising additional revenues from the population through taxation. This may call for a balance between economic nationalism and trade openness based on understanding the impact that trade openness has on the relationship between public expenditure and economic security, which was the objective of this study.

LITERATURE REVIEW

Theoretical Review

Agency Theory

Agency theory introduced almost simultaneously by Ross (1973) and Mitnick (1973) and developed into a theory by Jensen & Meckling (1976) is used to explain and provide mechanisms to resolve agency conflicts which may arise between principals and their agents owing to asymmetrical priorities and lack of congruence between these two parties. An agency subsists whenever there are two parties involved and one party, agent, represents the other party, principal, in daily running and management of their affairs. Principals incur agency costs to manage agency conflicts, which at times may outweigh the intended benefits. Agency theory extends to the management of public expenditure in that a government acts as an agent of the people who are the contributors of revenue mainly through taxation and thus the real owners

of public resources. The efficiency of a government, as an agent of the people, is reflected by the quality and implementation of its policies, protection of property, service delivery and provision of public goods, which leads to economic development and thus economic security (Kochanova, Hasnain, & Larson, 2020). There may however be asymmetry between government's interests and those of the people giving rise to agency conflict. Mechanisms to manage agency conflict such as effective public governance that incorporate efficient risk management in utilizing public resources can be employed by a government to create an enabling environment for attainment of efficiency in public expenditure that contribute to achieving effectiveness (Mohanty & Bhanumurthy, 2021). This would contribute to eliminating bureaucratic inefficiencies and corruption that minimize the outcomes from public spending and therefore improve economic security experienced by the population.

Realism Theory

Realism theory advanced by Morgenthau (1948) holds that states are the solo actors in the international arena and are driven by pursuit of national interests and power politics to ensure their survival (Tilly, 1985). The state is considered as acting for the whole society as a unitary decision-making organ (Buchanan, 1949). From when World War II ended to the time when Cold War ended, the realist school of thought has contributed greatly to security studies (Hama, 2017). Economic security is an integral part of national security. States will therefore engage and strategize themselves to acquire as much power as they can to improve their dominance in the international arena. The principal underlying foundation of realism theory is therefore survival of a state through power dominance (Morgenthau, 1946). Realism theory extends to management of public expenditure, trade openness and economic security by requiring states to have measures to economically empower their populations. Excessive external sovereign debt, whose servicing and repayment constitutes public expenditure, portends a threat to sovereignty while favorable trade openness provides resources that strengthen sovereignty. The actions of the government depicted through public spending must therefore be critically aligned to the ultimate goal of protection of the people and ensuring their economic security, which contributes to maintenance of sovereignty.

Financial Theory

The financial theory developed by Minsky (1974) postulates that the financial system experiences swings arising from surpluses that lead to borrowing with some of the borrowing not being commensurate with ability to pay thus causing financial crisis (Minsky, 1974). The theory is thus also referred to as the theory of financial crises. Minsky (1974) argued that economically prosperous times leads to an organization seeking higher debt levels to be financed by the economic surpluses and this tendency could lead to taking higher debt than the borrowing capacity thus leading to a financial crisis. Accumulation of debts is therefore one of the factors pushing an economy into a financial crisis like was witnessed in the late 2000s (Minsky, 2008). Repayment and servicing of sovereign debt constitutes public expenditure. The financial theory extends to public expenditure, trade openness and economic security by requiring a government to objectively evaluate its population's capacity to finance its programs, from all sources of financing whether from taxation or borrowing, as well as strategize its trade policies all in a manner that does not jeopardize the economy and expose it to a financial crisis, whose impact would be detrimental to economic security.

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Conceptual Framework

Figure 1 conceptualized a linkage between the independent variable, public expenditure to economic security as the dependent variable and hypothesized that public expenditure had no significant influence on economic security among EAC member countries. If further conceptualized trade openness as a moderating variable to association between the public expenditure and economic security and hypothesized that the moderating variables had no significant effect to the association between public expenditure and economic security

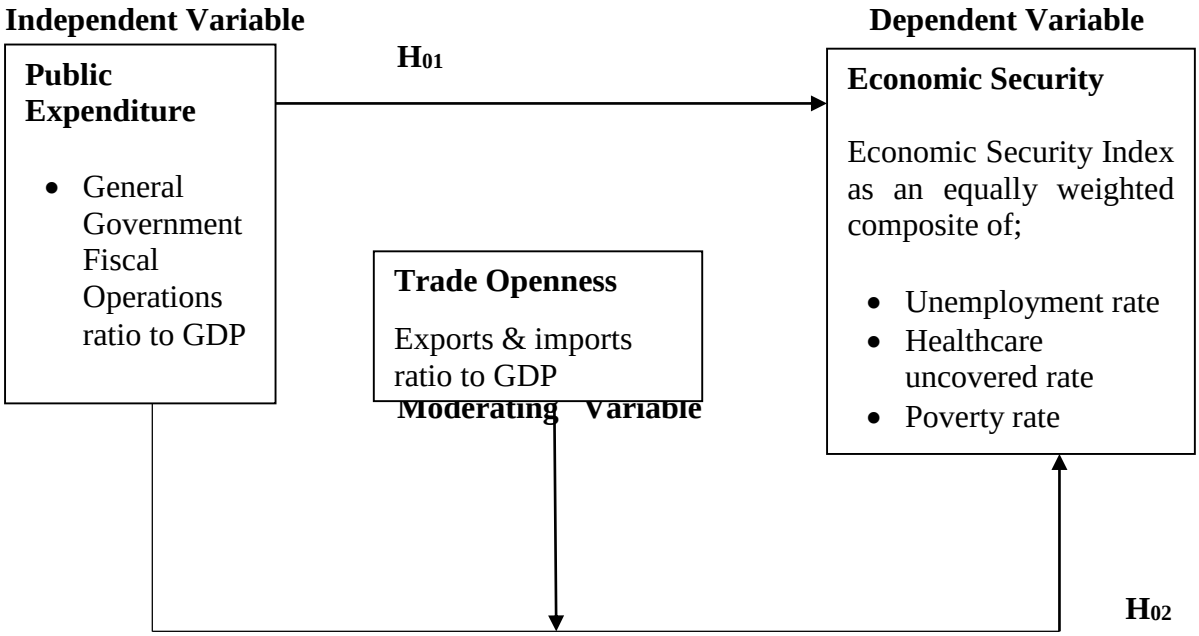

Figure 1: Conceptual Framework

Empirical Review

Public expenditure reduces the disposable income arising from raising of taxes to finance public spending and this reduces the ability of individuals and households to meet their basic and essential needs in a sustainable manner. This ability is at the core of the micro-economic component of economic security. The level of trade openness reflects whether an economy is closed or open through the level of interaction with the outside world. The impact and outcome of public expenditure to various parameters of economy security and similarly the impact of trade openness on the economy and various components of economic security have been studied with varied findings.

Saraireh (2020) evaluated data covering the period 1990 to 2019 to estimate impact of state expenditure on unemployment in Jordan. He established that public expenditure is inversely related to unemployment in the long and short runs with an increases in public spending measured as a fraction of GDP reducing unemployment by 0.43%. Unemployment is an indicator of economic security. His studies however did not study the association between public expenditure and a composite of economic insecurities modelled into an economic security index, which was the study gap that this study addressed.

Alamanda (2020) analyzed panel data from 33 provinces in Indonesia from the period 2005 to 2017 to investigate the effect on income inequality and poverty by various categories of public expenditure. He aimed to evaluate the claim that the structure and types of government spending affects income disparity and poverty. He found out that grant expenditure, social

assistance and subsidy have no significant influence on income inequality and reducing poverty. He further found out that investment expenditure and income inequality are negatively correlated in both urban and rural parts of Indonesia. He also found out investment expenditure was adversely correlated with poverty in both urban areas and rural zones with the impact being higher in rural areas. Poverty is one of the economic insecurity factored in the economic security index adopted by this study. Alamanda did not however incorporate other economic insecurities in his study, which was the study gap that this study addressed by incorporating three economic insecurities into an economic security index.

Obisike, Okoli, Onwuka, & Mba (2020) using secondary data from 1981 to 2016 studied the effect of public social expenditure on unemployment rates in Nigeria. They analyzed the data using ordinary least square (OLS) and found out recurrent spending did not have a significant influence on unemployment as did capital expenditure. They further found out that both capital and recurrent spending on health and education had a significant bearing on unemployment. Their study's conclusion showed that a government should focus its expenditure on health, education and other social activities to reduce unemployment in Nigeria. Though their study looked at the breakdown of public expenditure on unemployment rates, it did not make comparative analysis with other types of economic insecurities. This was the study gap addressed by this study.

Abouelfarag & Qutb (2021) studied the effect of public expenditure on unemployment rate in Egypt. They analyzed data for the duration from 1980 to 2017 using vector error correction model (VECM) and Johansen cointegration test. They further examined whether discretionary and non-discretionary expenditure items had different impact on unemployment. They found out that in the long run marginal increases in public expenditure results in increased unemployment rate and there was approximately similar effect of increasing unemployment by both discretionary and non-discretionary expenditures. Investment spending however had insignificant impact owing to its minimal percentage in public expenses. The study looked at only one aspect of economic insecurity and did not factor a composite of insecurities that was the gap that this study addressed.

Joy et. al., (2021) carried out a study on the impact of capital public expenditure on poverty in Nigeria. They used secondary panel data from Central Bank of Nigeria as well as from the Nigeria Bureau of Statistics for the duration from year 1981 to 2015. They analyzed the data using Autoregressive Distributed Lag model (ARDL) and discovered a positive significant influence on poverty by capital public expenditure. Their study findings reflected that increases in capital public expenditure resulted in increased poverty. These findings suggest it would be counterproductive to increase public expenditure as it would be tantamount to increasing poverty. The study finding can therefore be extended to the influence of public expenditure to other economic insecurities or composite of economic insecurities to means increasing public expenditure results into increased composite economic insecurities. The study sought to test this theorized extension.

Yusoff et. al., (2023) studied the impact of capital public spending in alleviating of poverty in Malaysia. They analyzed time series data for the years 1970 to 2019 using a Non-Linear Autoregressive Distributed Lag (NARDL) model. They discovered that increase in public development expenditure had insignificant impact in lowering poverty levels in Malaysia both in the long and short runs. They also found a positive significant effect on poverty by reducing capital public expenditure in the long run. The study finding support reduction of all forms of capital public expenditure whose effect would be to reduce poverty. It can also be argued that

since increasing capital public expenditure does not significantly adversely affect poverty, governments may consider increasing capital public expenditure in areas that would have a higher multiplier effect in improving the quality of lives in poverty stricken areas. The study sought to ascertain whether these findings would hold on composite economic insecurities.

Gozgor (2014) investigated the impact of different measures of trade openness and globalization of unemployment rates of the G7 countries being United Kingdom (UK), Italy, Germany, France, Japan, Canada and the United States of America (USA). He analyzed data for the period 1993 to 2008 using an unbalanced panel framework. He found out that all quantification of trade openness and globalization were significantly associated with unemployment rates in a negative manner. The conclusion from the study therefore was the continuation of globalization by developed economies as opposed to protectionism played a key role in reducing their unemployment rates. However, they didn't study the relationship that trade openness has with composite of economic insecurities, which was the gap addressed by this study.

Byaro, Nkonoki & Mayaya (2021) using a two-step system Generalized Methods of Moments (GMM) estimator analyzed data from 33 Sub-Saharan countries over the period 2000 to 2016 to study the influence of trade openness on under-five mortality and life expectancy. They found out that trade openness statistically significantly contributed to improvement of health while health financing, GPD per capita and trade openness contributed to longer life expectancy. The study did not however consider the effect that trade openness has on other forms of insecurities which was a gap that this study looked at.

Nguyen & Toan (2021) used an estimated model of the fixed-effect panel threshold to examine the non-linear effect of trade openness to economic growth of the Asean-6 nations. These nations are Malaysia, Singapore, Vietnam, Indonesia, Thailand and Philippines. Their findings contrasted previously empirical findings as they found that open trading had a non-linear influence on the growth of the economy. Their study findings demonstrated the positive influence on the growth of economy by trade openness broken into two threshold levels with open trading having a substantial function in promoting the growth of the economy before the first threshold level. When trade openness exceeds this level, the significance of its influence on economic growth is gradually decreased. After the second threshold level, though the effect that open trading on the growth of the economy remained positive, it has low value relatively. They resolved that trade openness required complementary policies of high efficiency to encourage the economy to grow and that financial crisis have adversarial consequence on the growth of the economy with domestic investment having a progressive influence on economic growth. They however did not study the effect of trade openness on economic security, which was a gap studied by this study.

Ali, Yusop, Kaliappan, Chin, & Meo (2022) studied the influence that trade openness, performance of institutions, public spending and human capital had on unemployment in numerous income clusters within the Organization of Islamic Cooperation (OIC) countries. They used the Dynamic Common Correlated Effects (DCCE) and established that trade openness had an adverse significant effect on unemployment rate in the long run in global OIC countries and the lower earnings OIC countries but a positive impact in higher revenue OIC countries. Human capital and public spending were equally found to reduce unemployment rates. Their study findings support continuous trade openness policies, improved institutional performance and efficient use of public expenditure to reduce unemployment rates. They

however did not study the impact of trade openness of other types of economic insecurities which formed the study gap examined by this study.

The reviewed studies have mainly focused on the relationship between public expenditure and individual components of micro-economic security being measured by the presence of economic insecurities and the influence of trade openness on the economy. The current study focuses on the relationship of public expenditure and three components of economic insecurities captured in an equally weighted composite economic security index as well as testing the moderating effect on that relationship. Future studies may consider incorporating a wider composite economic security index, could undertake comparative studies on effect of trade openness between developed and developing economies, may test effect of trade openness on relationship of segregated public expenditure components and macro-economic security.

METHODOLOGY

The study used positivism research philosophy and adopted the descriptive and exploratory study designs in analyzing the longitudinal and cross-sectional panel data to describe and evaluate whether trade openness had moderating influence on the relationship between public expenditure and economic security among the five selected EAC member countries that were Kenya, Uganda, Tanzania, Burundi and Rwanda. The data considered was for a fifteen-year period from year 2008 to 2022. The analysis was done using E-Views Version 12 with the Broyden–Fletcher–Goldfarb–Shanno (BFGS) Autoregressive Moving Average (ARMA) Generalized Least Squares (GLS) being utilized as some of the data failed to meet the classical regression assumptions. Public expenditure was operationalized as being the general government final consumption expenditure and expressed as a percentage of the GDP. Economic security was operationalized as the level of economic insecurity in a country and measured using a customized economic security index developed as a composite using equal weights of unemployment rate, universal healthcare uncovered rate and poverty rate. The composition of the ESI was informed by the primary three components of economic security being income component, out-of-pocket medical expenses component and financial wealth component. Unemployment rate represented the income component, universal healthcare uncovered rate represented the out-of-pocket medical expenses component while poverty rate represented the financial wealth component. Trade openness was operationalized as the proportion of annual imports plus annual exports to GDP.

The stepwise linear regression models (Baron & Kenny, 1986) adopted and developed by the study to test the research hypotheses the first (H_{01}) being that public expenditure had no significant impact on economic security among EAC member countries and with the second (H_{01}) being that trade openness had no significant moderating effect on the relationship between public expenditure and economic security in EAC member countries, were as indicated below.

$$ESjt = \alpha + \beta 1Pjt + \acute{\varepsilon} \ldots\ldots (1)$$

Where;

ESjt = economic security

Pjt = public expenditure

α = intercept/constant

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β_1 = coefficient for public expenditure

t = time period

j = country (1,2,3,4,5)

ε = error term

$ESjt = \alpha + \beta 1Pjt + \beta 3Vjt + \varepsilon$……..….. (2)

Where;

ESjt = economic security

Pjt = public expenditure

Vjt = trade openness

α = intercept/constant

β_1 = coefficient for public expenditure

β_3 = coefficient for trade openness

t = time period

j = country (1,2,3,4,5)

ε = error term

$ESjt = \alpha + \beta_1 Pjt + \beta_3 Vjt + \beta_4 Pjt\ .Vjt\ + \varepsilon$……... (3)

Where;

ESjt = economic security

Pjt = public expenditure

Vjt = trade openness

α = intercept/constant

β_1 = coefficient for public expenditure

β_3 = coefficient for trade openness

β_4 = coefficient for product of public expenditure and trade openness

t = time period

j = country (1,2,3,4,5)

ε = error term

The study hypotheses were tested using a 0.05 level of significance. Trend analysis of the study variables was done. Descriptive analysis of the data in terms of the mean, standard deviation of the data, being the measures of central tendency and the minimum and maximum values associated with the study variables of public expenditure and economic security were also done.

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Vol.10, Issue 4, No.4. pp 50 - 73, 2025
www.iprjb.org

RESULTS

Trend Analysis

The study undertook a trend analysis of public expenditure, trade openness and economic security in the five member countries selected for the study from the East Africa Community with the results being presented in Figures 2, 3 and 4 below.

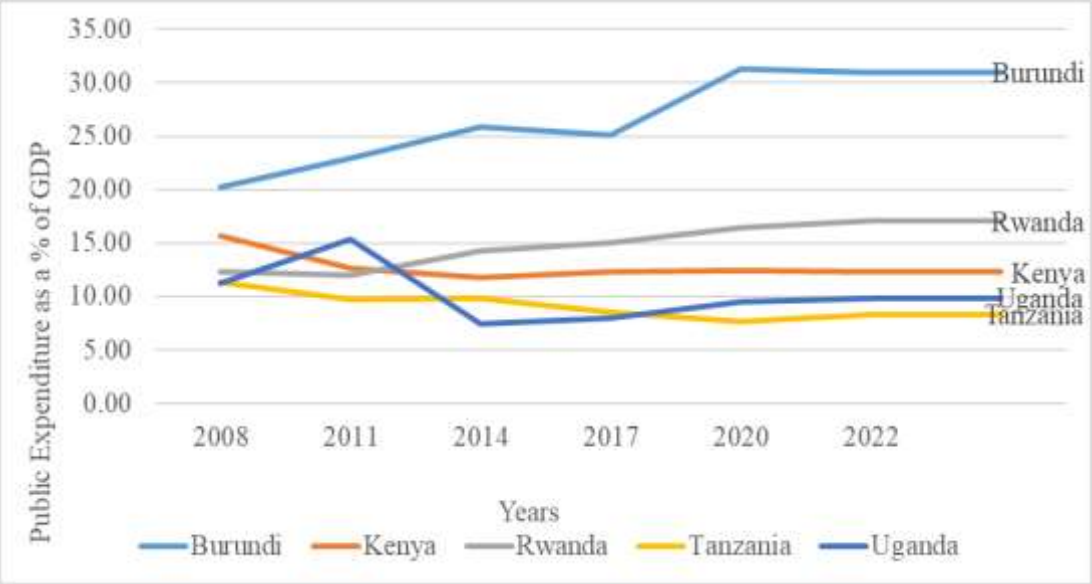

Figure 2: Trend Movement of Public Expenditure within East African Community

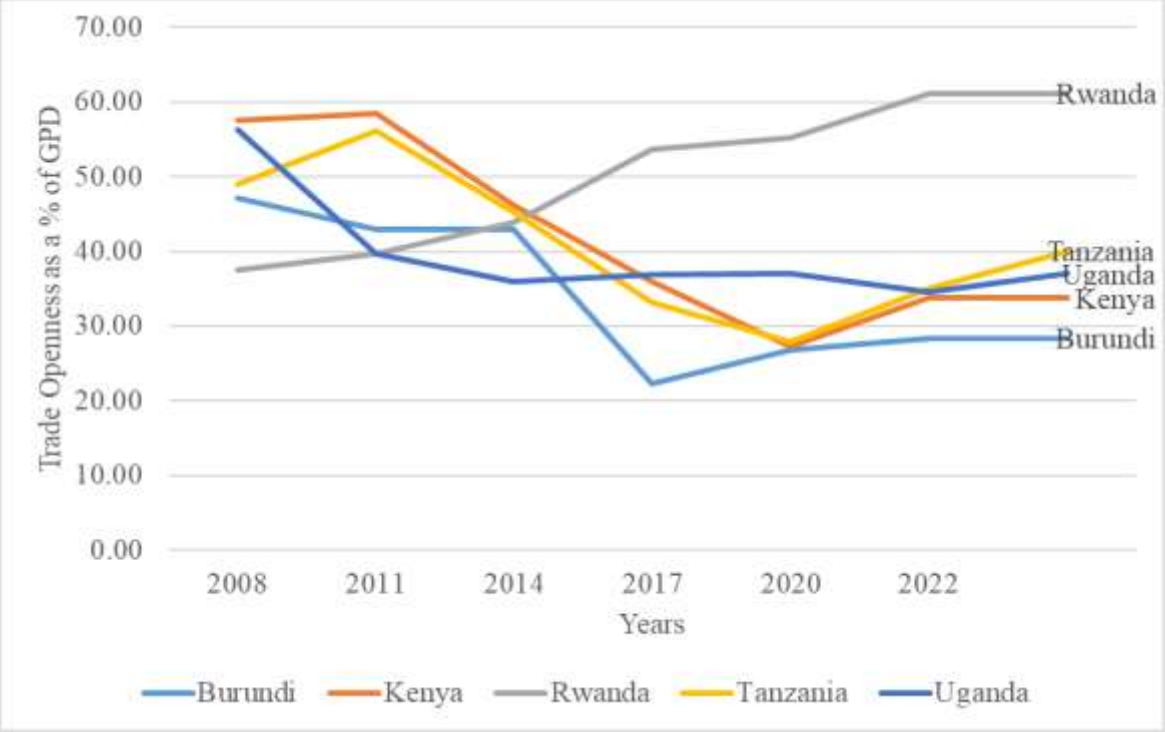

Figure 3: Trend Movement of Trade Openness within East African Community

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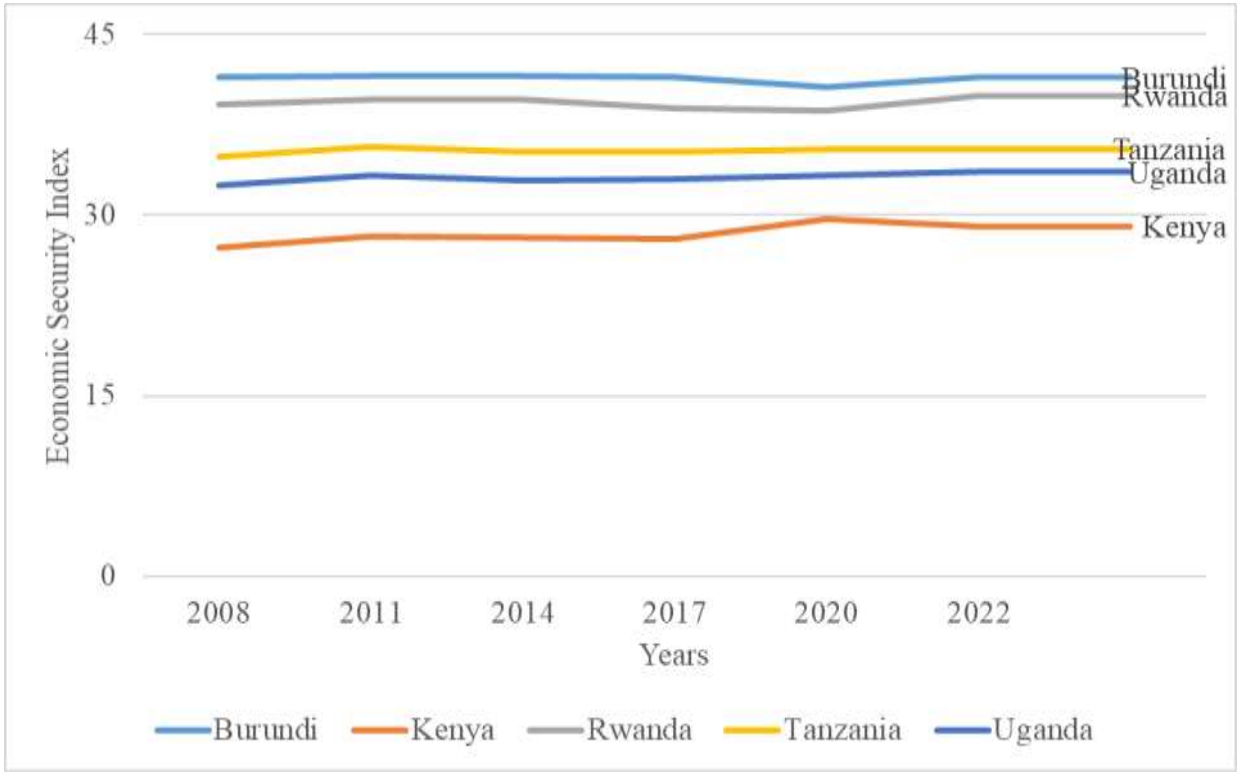

Figure 4: Trend Movement of Economic Security within East African Community

Descriptive Analysis

The summary of the descriptive statistics of the data variables were presented in Table 1 below while the results of the regression analysis were presented in Table 2, Table 3 and Table 4 below.

Table 1: Summary of Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Public Expenditure as a % of GDP	75	6.59	31.34	14.0941	6.2591
Trade Openness	75	22.24	61.17	40.7509	9.4967
Economic Security represented by Economic Security Index (ESI)	75	27.12	44.75	35.6400	4.7917

Table 1 shows the mean for public expenditure was 14.09% implying that on average the EAC member countries had public expenditure of 14.09% of the Gross Domestic Product (GDP). The mean for trade openness was 22.24 which showed below average openness of the economies within the East Africa Community. The mean for economic security was 35.64% implying that on average 35.64% of the population among the EAC region experienced economic insecurities. A higher value of the economic security index reflected a lower level of economic security.

European Journal of Business and Strategic Management
ISSN 2518-265X (Online)
Vol.10, Issue 4, No.4. pp 50 - 73, 2025

Table 2: Regression Analysis on the Influence of Trade Openness on the Relationship between Public Expenditure on Economic Security in East Africa Community, Step One.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.31728	2.026748	14.46519	0.0000
PUBLIC EXPENDITURE	0.461352	0.098715	4.673576	0.0000
AR(1)	0.839834	0.065652	12.79222	0.0000
R-squared	0.804303	Mean dependent var		35.64000
Adjusted R-squared	0.798867	Durbin-Watson stat		2.318156
Prob(F-statistic)	0.000000			

Table 2 shows the coefficient of determination (R^2) value of 0.804) that indicates that public expenditure explains 80.4% of the magnitude of variation in economic security index thus economic insecurity among EAC member countries. The overall computed p (0.000) value was lower than 0.05 indicating that public expenditure had a significant effect on economic security among EAC member countries. This led to rejection of the first hypothesis that public expenditure had no significant impact on economic security. Further, the p (0.000) value allied with public expenditure was less than the 0.05. Arising from the regression results that showed the coefficient associated with public expenditure was less than the 0.05, the first condition for rejecting the second hypothesis was satisfied. The intercept of 29.317 gives the level of economic insecurity holding public expenditure at constant zero. The positive coefficient of public expenditure of 0.461 means that a unit increase in public expenditure would result in an increase of 0.461 units in economic security index thus increase in economic insecurity among EAC member countries. The regression results were fitted in equation 1 below as follows:

$ESj_t = 29.317 + 0.461P_{jt} + έ$…………………………………………………………………..… (1)

European Journal of Business and Strategic Management
ISSN 2518-265X (Online)
Vol.10, Issue 4, No.4. pp 50 - 73, 2025
www.iprjb.org

Table 3: Regression Analysis on the Influence of Trade Openness on the Relationship between Public Expenditure on Economic Security in East Africa Community, Step Two

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.00437	2.834637	12.34880	0.0000
PUBLIC EXPENDITURE	0.414845	0.094994	4.367056	0.0000
TRADE OPENNESS	-0.121862	0.037689	-3.233374	0.0019
AR(1)	0.878359	0.058960	14.89749	0.0000
R-squared	0.828795	Mean dependent var		35.64000
Adjusted R-squared	0.821561	Durbin-Watson stat		2.282467
Prob(F-statistic)	0.000000			

Table 3 shows R^2 (0.829) value that indicates that, in the regression model, public expenditure and trade openness explains 82.9% of the magnitude of variation in economic security index thus economic insecurity among EAC member countries. The overall computed p (0.000) value was lower than 0.05 revealing that both public expenditure and trade openness have significant effect on economic security among EAC member countries. Further, the p (0.000) value connected with public expenditure was lower than 0.05 showing that public expenditure had a direct significant impact on economic security among EAC member countries even in the presence of trade openness. Additionally, the p (0.002) value related with trade openness was lower than 0.05 indicating trade openness has significant moderating effect on the association between public expenditure and economic security among EAC member countries. This satisfied the second condition for rejecting the second hypothesis. The intercept of 35.004 shows the level of economic security index thus economic insecurity holding public expenditure and trade openness at constant zero. The positive coefficient of public expenditure of 0.415 means that a unit increment in public expenditure is associated with growth by 0.415 units in economic security index thus increase in economic insecurities among EAC member countries. The negative coefficient of trade openness of -0.122 implies that a unit increment in trade openness would result in a decrease by 0.122 units in economic security index thus decrease in economic insecurities among EAC member countries. The regression model was fixed in equation 2 as follows:

$$ESjt = 35.004 + 0.415Pjt - 0.122\ \beta_5 Vjt + \acute{\varepsilon} \quad \ldots\ldots (2)$$

European Journal of Business and Strategic Management
ISSN 2518-265X (Online)
Vol.10, Issue 4, No.4. pp 50 - 73, 2025

Table 4: Regression Analysis on the Influence of Trade Openness on the Relationship Between Public Expenditure on Economic Security in East Africa Community, Step Three.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.27577	4.819403	6.904543	0.0000
PUBLIC EXPENDITURE	0.518579	0.249697	2.076831	0.0415
TRADE OPENNESS	-0.074456	0.112102	-0.664176	0.5088
PUBLIC EXPENDITURExTRADE OPENNESS	-0.002912	0.006452	-0.451362	0.6531
AR(1)	0.880244	0.059102	14.89372	0.0000
R-squared	0.829289	Mean dependent var		35.64000
Adjusted R-squared	0.819535	Durbin-Watson stat		2.297850
Prob(F-statistic)	0.000000			

Table 4 shows R2 (0.829) value that indicates that, in the regression model, public expenditure, trade openness and the product of public expenditure and trade openness (interaction term) explains 82.9% of the magnitude of variation in economic security index thus economic insecurity among EAC member countries. The overall computed p (0.000) value was lower than 0.05 implying that public expenditure, trade openness and the interaction term had significant impact on economic security among EAC member countries. The p (0.042) value connected with public expenditure was greater than the 0.05 implying that in the presence of trade openness, public expenditure had no direct significant effect on economic security among EAC member countries. Further, the p (0.509) value allied with trade openness and the p (0.653) value connected with the interaction term were more than 0.05 revealing that trade openness and the interaction term had no significant moderating impact on the affiliation of public expenditure and economic security among EAC member countries. These results failed to meet the third condition for rejecting the second hypothesis. The intercept of 33.276 gives the level of economic security index thus economic insecurity holding public expenditure, trade openness and the interaction term at constant zero. The positive coefficient of public expenditure (0.519) means that public expenditure is associated with increase in economic security index thus increase in economic insecurity holding other factors constant. The negative coefficient of trade openness (0.075) means that trade openness is associated with decrease in economic security index thus decrease in economic insecurity holding other factors constant. The negative coefficient of the interaction term (-0.003) between public expenditure and trade openness means that trade openness weakens the association of public expenditure and economic security index thus economic insecurity among EAC member countries. The regression model in equation 3 was fitted as follows:

ESjt = 33.276 + 0.519Pjt – 0.075Vjt – 0.003Pjt. Vjt + έ ………………………………... (3)

In view of the regression results not satisfying all the three conditions for rejecting the second hypothesis, the research failed to reject the second hypothesis that trade openness had no significant moderating effect on the relationship between public expenditure and economic security in EAC member countries. However, two conditions were satisfied meaning that trade openness had partial moderating impact on the relationship between public expenditure and economic security in EAC member countries. The study therefore concluded that public expenditure had an adverse effect on economic security while trade openness is a partial

moderator without significant moderating effect on the relationship between public expenditure and economic security in EAC member countries.

CONCLUSION AND RECOMMENDATIONS

Summary

The study found the overall p value was lower than the significance level of 0.05 and the coefficient of public expenditure was positive meaning that public expenditure had a significant adverse effect on economic security where an increment in public expenditure results in growth in economic insecurities. There were three regression moderating conditions tested in three steps for rejecting the second hypothesis that was tested using a 0.05 level of significance. The first step generated an overall p value lower than 0.05. The p value for public expenditure and trade openness generated in the second step were less than 0.05. The p value for public expenditure generated in the third step was less than 0.05 while the p values for trade openness and the product of public expenditure and governance (interaction term) generated in the third step were more than 0.05. The three moderating regression conditions were not met thus the study did not reject the second hypothesis that trade openness had no significant moderating influence on the relationship of public expenditure and economic security among EAC member countries.

Trade openness may not have a significant moderating effect on the relationship between public expenditure and economic security among EAC member countries due to limited intra-EAC trade leading to heavy reliance on global markets as well as the nature of trade within EAC being commodities exports. EAC region has its infrastructure at the developmental stage thus comparatively poor to other developed regions and this contributes to hampering realization of the full benefits of trade openness. Though EAC launched a common market in 2010, there has been limited progress towards greater trade integration within EAC member countries. Non-tariff barriers such as non-harmonized lengthy bureaucratic procedures also serve as hindrances to effective trade openness (Ben, Ltaifa & Williams, 2015). The complexity of economic security that encompasses various subsets of security such as energy security and food security, that contribute to economic stability, are affected by other economic factors and governance challenges, which tend to diminish the moderating effect of trade openness.

Conclusion

The study concluded that public expenditure had a significant adverse impact on economic security among EAC member countries. These study results meant that public expenditure, holding other factors constant, was associated with decrease in economic security thus increase in economic insecurities while trade openness in that combination was associated with increase in economic security thus decrease in economic insecurities though not statistically significant. The ultimate conclusion was that strengthening trade openness among EAC member countries weakened the adverse impact of public expenditure on economic security. The study findings have contributed to the growing knowledge on construction and composition of economic security indices, which factors various parameters.

Recommendations

The study recommends that policy makers can adopt the study findings as a guide when formulating policies to ensure maintenance of public expenditure increments within sustainable economically productive limits such as being the avoidance of increasing financing of public expenditure without commensurate expansion of an enabling environment for economic

opportunities and growth to equally increase disposable incomes. Increment limits for public expenditure would therefore be expected to be below the growth in the economy and its opportunities as reflecting in growth in disposable incomes to avoid escalating the negative effect that public expenditure has on economic security arising from its financing reducing disposable incomes where the disposable incomes remain constant. Policy makers may also want to develop trade policies that would balance between economic nationalism and trade openness in a manner to harness the favorable effect that trade openness has in weakening the adverse influence of public expenditure on economic security among EAC Member countries. This could be done by having policies on engaging in economic nationalism in cases where trade openness does not have positive economic effects and vice versa where trade openness has positive economic effects. This would call for EAC to implement mechanisms that promote regional integration, enhance trade processes, reduce trade barriers and promote effective integration of Small and Medium Enterprises (SMEs) into regional trade. Such mechanisms include enhancement of tariff schedules as captured in the Common External Tariff (CET), improvement of transport infrastructure, building institutional capacities, improving communication, simplification and automation of customs procedures all geared towards trade facilitation.

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