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Causality between Manufactured Exports and Economic Growth in Kenya (1990-2023)

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ABSTRACT: According to Kenya's Vision 2030, the manufacturing sector is a major engine of economic expansion, yet the sector's contribution to the country's GDP has been below expectations. Manufacturing exports are particularly critical, as they have the potential to drive industrialization, create jobs, and improve Kenya's global competitiveness. Despite this potential, the sector continues to underperform, limiting Kenya's broader economic ambitions. This study analyzed the influence of manufacturing exports on Kenya's economic growth from 1990 to 2023. Drawing inspiration from China's manufacturing success, the research assessed whether manufacturing exports could serve as a sustainable growth engine for Kenya. The study utilized annual time series data from the Kenya National Bureau of Statistics and the World Bank, employing an Autoregressive Distributed Lag (ARDL) model to capture both short- and long-term dynamics between manufacturing exports and GDP growth. Key objectives included evaluating the relationship between manufacturing exports and economic performance and exploring the potential for policy reforms to strengthen the sector. The results indicate a statistically significant long-run relationship between manufacturing exports (coefficient = 9.691, p = 0.009) and GDP. However, the impact of manufacturing on growth is delayed, which reflects the time lag required for policy interventions to stimulate economic activity under ELG hypothesis. To attain sustainable growth from manufactured exports, Kenya should strengthen its manufacturing sector through export-oriented policies and address structural constraints such as infrastructure, financing, and trade logistics.

KEYWORDS: Manufactured Exports, Economic Growth**,** Export Led Growth, GDP, Competitiveness, Policy, Export Potential

I. INTRODUCTION

1.1 Exports and Economic Growth

A nation's ability to maximize its export potential is crucial for achieving its development objectives, especially in today's increasingly globalized economy. As a result, governments have made it a priority to enhance exports to international markets, recognizing this as a key strategy for advancing their development goals (Dooranov et al., 2022). The literature on economics claims that there are several connections where exporting promotes development and growth.

First, trade enhances economic productivity by facilitating knowledge exchange between countries, a phenomenon referred to in the literature as the "learning by exporting effect." Secondly, by adopting advanced technologies, export activities improve the efficiency of resource utilization. Additionally, companies engaged in exporting benefit from economies of scale due to their access to larger markets. Most importantly, through their forward and backward linkages with other sectors, exporting companies significantly contribute to job creation across various areas of the economy (Basu, 2000).

The relationship between exports and economic growth has long been a key focus in economic development literature. When exports contribute positively to economic expansion, the phenomenon is often referred to as export-led growth. Studies indicate that this growth model is strongly connected to increased factor production. Exports can boost productivity by widening a country's market access, encouraging learning through international trade, and enabling the transfer of advanced technologies to the exporting nation. Moreover, exports generate vital foreign exchange, which is necessary for financing the import of intermediate goods and capital equipment—both critical to productivity gains. Export activities may also lead nations to identify and capitalize on their comparative advantages, reallocating resources from less productive sectors to those with greater potential in export markets. However, it is important to acknowledge that the influence of exports on economic growth can vary considerably based on the nature of the exported commodities.

1.2 Manufacturing Exports: A Global Perspective

Developing nations are taking an interest in the East Asian tigers' success story, whose growth is almost equated with the export of manufactured goods. From producing low-tech textiles and basic goods in the 1970s and 1980s to producing high-tech electronics in the 2000s, East Asian nations underwent a gradual transformation. East Asian nations have progressively grown their manufactured export percentage of overall goods exports. According to (UNCTAD, 2013) in 2012, for example, Malaysia, Singapore, and South Korea had respective shares of 61.6, 69.1, and 84.5 percent of total merchandise exports. These economies have subsequently experienced extraordinary growth, with extremely high employment rates and per capita income.

The relationship between exports and economic growth has been a topic of discussion in both emerging and advanced economies for some time. Numerous studies, particularly in emerging markets, support the export-led growth (ELG) theory. A good example is (Ahmad et al., 2017) who studied the Impact of Exports on Economic Growth in Pakistan. The findings of this study postulated that exports positively affect Economic Growth in Pakistan. Given that the ELG hypothesis has been validated in various countries, it is important to investigate whether manufacturing exports have similarly driven economic growth. Economists, international organizations, and researchers widely agree that manufacturing exports serve as a key growth engine, especially in developed economies where they are a major source of foreign exchange and national income.

1.3 Manufacturing Exports: An African Perspective

Africa aims to define its own future and position itself as a significant force in global affairs, with the ultimate aim of achieving a peaceful, prosperous, and integrated continent by 2063. (Agenda 2063: The Africa We Want. | African Union, n.d.) represents Africa's collective determination to achieve this. Agenda 2063 presents an ambitious vision which aims to open up numerous opportunities, including fostering intra-African trade through initiatives like the African Continental Free Trade Area (AfCFTA), harnessing the continent's youthful population, and capitalizing on Africa's rich natural resources. It is a blueprint for sustainable development, economic growth, and political stability across the continent over a 50-year period.

Agenda 2063 places significant emphasis on the manufacturing sector as a key driver for economic transformation and sustainable development across Africa. Recognizing the potential of the manufacturing industry to create jobs, add value to raw materials, and reduce dependency on imports, the agenda sets ambitious goals to boost manufacturing and manufacturing exports as part of its broader vision for a prosperous and integrated continent. Among Key Priorities of Agenda 2063 on Manufacturing Sector and Manufacturing Exports that align with this study include:

1. Industrialization and Diversification: Agenda 2063 aims to transform Africa from a primarily raw material exporter into a continent that processes and adds value to its resources.
2. Increased Manufacturing Exports: Boosting manufacturing exports is a critical component of Agenda 2063's strategy to enhance Africa's global trade position.
3. Infrastructure Development: Develop the necessary infrastructure to support industrialization, including energy, transportation, and digital infrastructure, which are crucial for a thriving manufacturing sector.

By focusing on the development of the manufacturing sector, Agenda 2063 aims to significantly increase the export of manufactured goods from Africa. This shift will not only improve the continent's trade balance but also create more stable and diversified economies that are less reliant on volatile global commodity markets. The long-term vision is to establish Africa as a major player in global manufacturing, capable of exporting competitive, high-value products to markets around the world (Agenda 2063: The Africa We Want. | African Union, n.d.). My study on the influence of Manufactured Exports on Economic Growth will enable Kenya as an African Nation to know what to improve in the Manufacturing Sector in support of Agenda 2063 in order to bolster economic growth.

1.4 Manufacturing Exports: A Kenyan Perspective

Kenya, like other developing nations, is committed to strategically advancing toward the United Nations' Sustainable Development Goals (SDGs) for 2030 (17 Sustainable Development Goals (SDGs), n.d.). These goals, which align with the timeline of the national development blueprint—(Kenya Vision 2030, 2007)—have become a central focus for the country. Key areas of concern have been identified as strategic priorities to ensure the successful realization of both Vision 2030 and the SDGs. These priorities, known as the "Big Four Agenda include Manufacturing, Food and Nutrition Security, Universal Health, and Affordable Housing. Over the past ten years, agricultural items have dominated Africa's exports; for Kenya, the primary exports have been horticulture, coffee, and tea. The objectives of Vision 2030 are to increase market share in the regional market, decrease imports in important local industries, and draw in at least ten significant strategic investors in important agro-processing sectors in order to boost manufacturing. Additionally, Kenya wants to strategically increase the amount of value added in specialized exports by further processing domestic agricultural products. (Republic of Kenya, 2007).

The Manufacturing Priority Agenda (MPA) 2024 outlines key advocacy priorities that the Kenya Association of Manufacturers (KAM) considers vital for advancing the industrialization agenda, with the goal of increasing the manufacturing sector's contribution to GDP to 20% by 2030. "Steering Economic Growth Through the Manufacturing Sector for Common Good," the MPA 2024 topic, emphasizes the vital role that industrialization plays in tackling Kenya's developmental issues. One of these issues is maintaining economic growth to combat poverty and generate employment, especially for the 800,000+ young people who enter the workforce each year and need steady, respectable jobs. In addition, increasing exports is necessary to generate foreign cash and maintain the value of the Kenyan shilling relative to other major world currencies, such as the US dollar (Manufacturing Priority Agenda, 2024). This study wants to support the objectives of Vision 2030 whose objective is to increase market share in the regional market, decrease imports in important local industries, and draw in at least ten significant strategic investors in important agro-processing sectors to boost manufacturing. Additionally, Kenya wants to strategically increase the amount of value added in specialized exports by further processing domestic agricultural products. The main goal of Vision 2030 is to promote exports and reduce imports by promoting agro processing (Kenya Vision 2030, 2007). It is important to highlight that manufacturing is recognized as a critical sector within the Economic and Macro Pillar of Kenya's Vision 2030. To accelerate the achievement of this long-term development blueprint, the Government introduced the Big Four Agenda, which outlines four strategic priority areas for the 2018–2022 implementation period: manufacturing, food and nutrition security, universal health coverage, and affordable housing. Within this framework, one of the primary goals is to increase the manufacturing sector's contribution to the national GDP from 8.5% to 15%, thereby enhancing industrial output and supporting inclusive economic growth.

The data provided in Appendices I, II and III outlines the trends in Kenya's manufacturing sector from 2018 to 2022, focusing on the value of manufacturing output, value added, and the sector's percentage contribution to GDP. One key highlight is that the value of manufacturing output in Kenya has shown consistent growth over the five-year period, increasing from $ 2,216,547 in 2018 to $ 3,175,340 in 2022. This indicates that Kenya's manufacturing sector has great potential for expanding in terms of production capacity and output. The value added by the manufacturing sector has also grown from $ 785,369 in 2018 to $ 1,046,289 in 2022. This indicates that Kenya is producing more high-value products is critical for export competitiveness. Lastly, the percentage contribution of manufacturing to Kenya's GDP has shown a declining trend from 8.4% in 2018 to a low of 7.4% in 2021, before slightly rebounding to 7.8% in 2022. This suggests that other sectors of the economy might be growing faster than manufacturing. This study wants to take a deep dive in the influence of Manufacturing Exports on Economic Growth to come up with conclusive findings whether this sector has potential of growth thus contributing much better to Kenya's Economic Growth.

1.5 Statement of the Problem

Kenya's Vision 2030, launched in 2008, aims to transform the country into a newly industrializing, middle-income economy by 2030, improving the quality of life for all its citizens. A key component of this vision is the Economic Pillar, which emphasizes the development of the manufacturing sector as essential for driving rapid and sustainable growth (Kenya Vision 2030, 2007). The importance of manufacturing was further reinforced by the third Medium-Term Plan (MTP) unveiled in 2017, which sought to increase the share of manufacturing and industrial sectors in Kenya's GDP, with a specific focus on boosting manufacturing exports to drive inclusive economic growth, create jobs, and improve the country's balance of payments (REPUBLIC OF KENYA, 2018)

Despite these initiatives, Kenya's manufacturing sector has struggled to achieve the desired level of growth. The contribution of manufacturing exports to Kenya's economic development remains below expectations, hindering efforts to meet Vision 2030 targets. This research seeks to critically examine the relationship between manufacturing exports and Kenya's economic growth, aiming to provide evidence-based insights for improving the sector's performance.

If the challenges facing Kenya's manufacturing sector were resolved, the country would experience faster economic growth, leading to higher job creation, increased foreign exchange earnings, and enhanced competitiveness in global markets. Manufacturing exports are a crucial driver of economic growth as they stimulate industrialization, improve productivity, and create opportunities for value addition. Failure to address the underperformance of this sector jeopardizes Kenya's ambition of becoming a competitive industrial hub in Africa by 2030.

Several studies have examined the role of exports in fostering economic growth in developing countries. In particular, research by (Fosu, 1996) and (Kalaitzi & Chamberlain, 2020) demonstrates the positive impact of export-led growth strategies on economic performance. Other scholars, such as (Mosikari et al., 2016) and (Torayeh, 2011), have specifically investigated the role of manufactured exports in economic development, highlighting the sector's potential but also noting structural bottlenecks, including limited diversification, low technology adoption, and global competitiveness challenges.

While existing research has contributed valuable insights, there remains a need for a more detailed understanding of the specific channels through which manufacturing exports influence Kenya's economic growth. Key questions about the role of government policies, trade agreements, and technological innovations in enhancing the competitiveness of Kenya's manufacturing exports are

yet to be fully answered. This study will build on existing knowledge by investigating these gaps, providing actionable recommendations to strengthen the contribution of manufacturing exports to Kenya's Vision 2030.

II. LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1 Export Base Theory

This study is based on the Export Base Theory and David Ricardo's Theory of Comparative Advantage. (North, 1961) who was among the first researchers to develop this Export Base Theory conclusively, argued that understanding regional growth necessitates a focus on the expansion of the export base. He highlighted that a region's export base is a key determinant of both its total and per capita income levels. According to North, the prosperity of regions has been closely tied to their export activities. While the returns from factors of production in export industries directly impact a region's economic health, the indirect effects of these industries are even more substantial.

On the other hand, according to David Ricardo's Theory of Comparative Advantage (Ricardo, 2015), a country tends to focus on and export those commodities in the production of which it has maximum comparative cost advantage or minimum comparative disadvantage. Similarly, the country's imports will be goods with a relatively less comparative cost advantage or more noteworthy disadvantage. This theory is supported by (Rahman, 2023) who supports the assertion that David Ricardo's Theory of Comparative Advantage inspires International Trade and recommends that countries should trade with one another, exporting the goods they have a relative advantage in.

This study examines the impact of manufacturing exports on Kenya's economic growth, drawing insights from established theories. The research seeks to determine whether manufacturing exports have positively contributed to Kenya's economic development. Numerous studies, including those by (Mosikari et al., 2016; Torayeh, 2011), have supported the view that manufacturing exports should play a significant role in fostering economic growth.

2.2 Empirical Literature

Following World War II, Japan transitioned from being a labor-abundant economy to becoming a leading exporter of capital-intensive goods, reflecting a significant shift in its industrial structure and trade patterns (World Trade Report, 2013). (Heller, 1976) attributes Japan's post-war economic transformation to elevated investment levels, primarily supported by strong domestic savings and significant financial assistance from the United States. These factors collectively contributed to Japan's emergence as a relatively capital-abundant economy during the period between 1956 and 1969. Through an analysis of commodity trade patterns, Heller observes a clear shift in Japan's comparative advantage, marked by a growing dominance of capital-intensive exports. Building on these insights, the present study explores whether similar industrial transformation and export-led growth trajectories can be realized in developing countries such as Kenya.

(Isaiah Zayone et al., 2020) conducted an empirical investigation into the relationship between Angola's sectoral exports—specifically in agriculture, manufacturing, and minerals—and the country's economic growth over the period 1980 to 2017. Utilizing the Autoregressive Distributed Lag (ARDL) model, the study assessed the extent to which exports from these key sectors contributed to overall economic performance. The findings indicate that Angola's economic growth has been predominantly driven by mineral exports. Additionally, manufacturing exports play a significant role in fostering economic growth, particularly when total exports are factored into Angola's GDP. In the short term, agricultural exports also contribute notably to the growth of non-export GDP. Furthermore, this study revealed that a combined increase in agricultural and manufacturing exports positively influences Angola's economic growth when exports are included in GDP calculations, but has a negative impact when exports are excluded from GDP.

(Kalaitzi & Cleeve, 2018) investigated Export-Led Growth in the United Arab Emirates (UAE) from 1981 to 2012, focusing on the causal relationships between primary exports, manufactured exports, and economic growth. Their cointegration analysis revealed that, in the long run, manufactured exports have a greater impact on economic growth than primary exports. Additionally, the study provided evidence of a bi-directional causality between manufactured exports and economic growth in the short run, while supporting the validity of the Growth-Led Exports (GLE) hypothesis in the long run for the UAE.

In their analysis of the impact of various categories of exports and imports on economic growth, (Kılavuz & Topcu, 2012) found that high-technology manufacturing exports and investment exert a positive and statistically significant influence on economic growth. Their results further indicate that, in addition to these factors, imports of low-technology manufactured goods also contribute positively and significantly to growth. (Sheridan, 2014) argues that the transition from primary commodity exports to manufacturing-based exports becomes economically advantageous only after a country attains a certain threshold of human capital development.

(Kabaklarli et al., 2018) conducted a study examining the relationship between high-technology exports and economic growth in selected OECD countries over the period from 1989 to 2015. Utilizing a panel cointegration model, their analysis focused on identifying the long-term dynamics between these variables. The empirical findings of their study confirmed the existence of a significant long-term relationship between high-technology exports and economic growth in the selected OECD countries.

III. QUANTITATIVE STUDY

Yearly data between 1990 to 2023 was obtained from World Bank. Our purpose in this paper was to investigate the causal relationship between manufactured exports and economic growth. In previous studies (e.g., (Bahmani-Oskooee et al., 1991), (Sharma et al., 1991), the export-output relationship is tested by including other control variables output (Y), capital (K), exports (EX), imports (IM), and the labor force (L). The study employed a multivariate Granger causality framework, allowing for the inclusion of control variables to enhance the model's precision. By incorporating these additional variables, the analysis more effectively accounts for potential confounding factors when examining the causal relationship between manufactured exports and economic growth (Wooldridge, 2013). In this case, the study explored growth (GDP) and manufactured exports with imports and exchange rates as controls. Imports were added due to the potential to have a mediating or incumbering on exports while exchange rate mediated for the impacts of currency exchange as all the variables are expressed in terms of USD (US dollars).

In line with standard procedures in time series analysis, the Augmented Dickey-Fuller (ADF) test was initially conducted to assess the presence of unit roots in the variables, thereby determining their stationarity. If all variables are found to exhibit unit roots, the Johansen (1991) cointegration technique is subsequently employed to evaluate the existence of long-run equilibrium relationships within a multivariate context, (Johansen, 1995). The following is a mathematical description of the ARDL framework used in this analysis.

$$\Delta \ln \mathrm{GDP}_t = \alpha_0 + \sum_{i=1}^{p} \gamma\ \Delta \ln \mathrm{GDP}_{t-1} + \sum_{i=1}^{p1} \Phi_i \Delta \ln \mathrm{MEX}_{t-1} + \sum_{i=1}^{p2} ¥_i \Delta \ln \mathrm{IMP}_{t-1} + \sum_{i=1}^{p3} \Gamma_i \Delta \ln \mathrm{EXR}_{t-1} + \beta_1 \ln \mathrm{GDP}_{t-1} + \beta_2 \ln \mathrm{MEX}_{t-1} + \beta_3 \ln \mathrm{IMP}_{t-1} + \beta_4 \ln \mathrm{EXR}_{t-1} + e \ldots\ldots\ldots\ldots (1)$$

Where:

GDP represents current Gross Domestic Product (a proxy for economic growth),

MEX represents manufactured exports,

IMP represents imports,

EXR represents the exchange rate,

γ_1, ϕ_i, ψ_i, ρ_i are short-run dynamic coefficients,

β_1 to β_4 represent long-run coefficients,

ε_t is the white noise error term.

IV. RESULTS

ADF Test and Lag Length Selection Summary

The Augmented Dickey-Fuller (ADF) test was performed on all variables in their level and differenced forms to determine the presence of unit roots. Based on the analysis, all the variables were non-stationary at levels, which implies that their means and variances changed over time. This indicates the time series data violates the assumptions required for reliable regression analysis on level data (Neusser, 2016). At first differencing, all variables became stationary. This means that the variables are integrated of order one, I(1). This means that the variables exhibit a stable mean and variance after removing trends and long-term components (Johansen, 1995). According to Pesaran (2015), the time series data satisfies the precondition for using the ARDL bounds testing approach and modelling relationships among I(1) variables (Pesaran, 2015). 2. After establishing stationarity at first difference, the next step was determining the appropriate number of lags for each variable in the ARDL model. The optimal lags based on Akaike Information Criterion (AIC) selected were ARDL (1,2,3,4) for GDP, manufacturing export, imports and exchange rate respectively.

ARDL Model

An Autoregressive Distributed Lag (ARDL) model was estimated to analyse the short- and long-run relationships between Kenya's economic growth, measured by GDP at current prices and manufacturing exports, imports, and the exchange rate. The model used time series data for the period 1990 to 2023 from World Bank. The table below summarises the key results:

Causality between Manufactured Exports and Economic Growth in Kenya (1990-2023)

Table 1:

Variable	Lag(s)	Coefficient	p-value	Interpretation
GDP	1	0.967	0.000	Strong positive and significant
Manufacturing Exports	0	0.861	0.672	Weak and not significant
	1	9.691	0.009	Significant positive effect
	2	-5.143	0.118	Negative but not significant
Imports	0	-1.131	0.019	Significant negative effect
	1	0.169	0.679	Not significant
	2	-0.162	0.640	Not significant
	3	1.469	0.001	Strong positive effect
Exchange Rate	0	23.509	0.731	Not significant
	1	-472.914	0.000	Strong negative effect
	2	205.209	0.074	Moderately positive (marginal)
	3	-39.828	0.607	Not significant
	4	152.693	0.013	Significant positive effect
Constant	—	8960.460	0.037	Significant positive baseline

Source: Author

The ARDL model demonstrates an excellent fit with an R-squared of 0.9989 and an adjusted R-squared of 0.9979. The R-Squared results indicate that the changes in GDP are strongly correlated to changes in exports, imports, and exchange rates (Pesaran, 2015; Johansen, 1995). The assumption is further supported by an F-statistic of 1075.15 with p value greater 0.001, which confirms that the explanatory variables collectively have a statistically significant impact on GDP. Further, the lagged value of GDP has a coefficient of 0.967 and is highly significant with a p value less than 0.001. This suggests strong GDP persistence over time (Johansen, 1995). This is essentially expected due to inertia in economic growth (Tanaka, 2017). Among the explanatory variables, manufacturing exports show significant lagged effects. The contemporaneous coefficient is positive but statistically insignificant (0.861, p = 0.672). However, the first lag is positive and significant (9.691, p = 0.009). The results indicate that the effect of export activities on GDP are not immediate, but rather becomes pronounced after one period (Pesaran, 2015). The results align with the proposition of the export-led growth hypothesis where export expansion is correlated with economic growth (Giles, 2000). The second lag, however, is negative and not significant (-5.143, p = 0.118) and suggest diminishing or delayed adjustment effects in the export sector.

The effects of imports on Kenya's GDP growth are mixed at different lags. The current period coefficient is negative and significant (-1.131, p = 0.019). This implies that high import levels suppress GDP growth. The negative correlation is potentially due to outflows of domestic capital or competition with local production, both of which would diminish growth in the short run. However, the third lag is positive and significant (1.469, p = 0.001). According to the Import Led Growth model (Giles, 2000), importation of capital goods is expected to contribute positively to GDP by supporting consumption or investment in productive activities in the medium to long term (Reham and Wahab, 2024).

The exchange rate also shows lag-dependent effects. The first lag is strongly negative and significant (-472.91, p < 0.001), which reflect inflationary pressures or capital flight following a depreciation. However, the fourth lag is positive and significant (152.69, p = 0.013) and suggest that a weaker currency might eventually boost GDP through improved export competitiveness. This dynamic is consistent with the J-curve effect (Bahmani-Oskooee, 2020). Finally, the constant term is positive and significant (8960.46, p = 0.037). The constant term represents the average baseline GDP when other variables are held constant. A positive and significant outcome suggests that the model predicts a positive level of GDP even in the absence of changes in exports, imports, or exchange rate. This reflects Kenya's continued GDP growth and is likely influenced by structural factors such as population growth, technological progress, or increasing government expenditure (Giles, 2000).

Bounds Testing

A bounds test was then run to assess cointegration among variables in the ARDL model. Bounds testing is useful when variables are a mix of I(0) and I(1) and tests the null hypothesis (no long-run relationship between the variables) by comparing the computed F- and t-statistics against critical bounds. In this case, the bounds test results using the Pesaran (2015) approach and critical values by Kripfganz and Schneider (2020) provide strong evidence of a long-run relationship among GDP, manufacturing exports, imports, and exchange rate as shown in the summary below (Pesaran, 2015; Kripfganz, 2020).

The computed F-statistic is 17.313 is significantly higher than the upper bound (I(1)) critical values at the 10%, 5%, and 1% significance levels (4.396, 5.418, and 8.028 respectively). Therefore, we reject the null hypothesis of no cointegration at all

conventional significance levels since the F-statistic strongly exceeds all critical thresholds. This implies that there is a statistically significant long-run equilibrium relationship between Kenya's GDP and the three explanatory variables. Therefore, it is appropriate to proceed with estimating the long-run coefficients and the short-run error correction model (ECM). This result supports the economic theory that trade-related variables have long-term effects on GDP.

ECM Test

The Error Correction Model (ECM) is used to capture both the short-run dynamics and long-run equilibrium relationships among time series variables. The key feature is the error correction term, which measures the speed at which deviations from the long-run equilibrium are corrected. The ECM should be negative and statistically significant if the variables are cointegrated, meaning there is a stable long-run relationship exists. The following is a brief summary of the ECM regression.

Table: Summary of ECM Regression

Variable	Coefficient	Std. Error	t-value	p-value	Interpretation
L.ec	0.158	0.124	1.27	0.222	Error correction term, positive but insignificant
D1.man_exp	-3.46	3.69	-0.94	0.362	Short-run change in manufacturing exports, insignificant
LD.man_exp	4.07	4.66	0.87	0.396	Lagged short-run manufacturing exports, insignificant
D1.imp_cur	-0.51	0.63	-0.81	0.429	Short-run change in imports, insignificant
LD.imp_cur	0.39	0.51	0.77	0.455	Lagged imports, insignificant
L3D.imp_cur	1.58	0.67	2.38	0.030	3rd lag imports, significant positive short-run effect
LD.exc_cur	-499.60	137.69	-3.63	0.002	Lagged exchange rate, significant negative short-run effect
_cons	4203.33	1369.89	3.07	0.007	Intercept

From the summary above, the error correction term is positive (0.158) and statistically insignificant ($p = 0.222$). This contradicts the expected negative and significant sign and suggests that deviations from the long-run equilibrium are not corrected in the short run. It indicates no meaningful evidence of a stable long-run adjustment. However, short-run coefficients reveal mixed significance. For instance, the third lag of imports shows a significant positive effect on GDP growth while the lagged exchange rate has a significant negative impact. Other short-run effects are mostly insignificant. The overall ECM model explains about 57% of the variation in GDP growth ($R^2 = 0.57$). The low adjusted R^2 (0.25) and non-significant overall F-test ($p = 0.14$) further suggest limited explanatory power in the short run. The implication of the short-run model with mostly insignificant coefficients is that the model still holds but should be interpreted with caution.

DISCUSSION

The main objective of this study was to investigate the causal relationship between manufactured exports and economic growth (GDP) in Kenya using time series data from 1990 to 2023. To do this, an ARDL model with GDP current as the dependent variable, manufactured exports as the independent and imports and exchange rates as controls was developed. The model presented a nuanced view that aligns with theory and extant literature. The results show a strong causality between manufactured goods and economic growth. The long-run relationship confirms the centrality of manufacturing. However, the short-run dynamics and ECM adjustment suggest that shocks and lags affect the speed of adjustment. Theoretical and extant literature shows that manufactured exports can drive growth by improving resource allocation, enhancing productivity, and enabling economies of scale.

The results support the proposition made under relevant economic and extant literature. For instance, the Export-Led Growth (ELG) hypothesis provides a foundation for understanding how increased exports stimulate economic growth (Kollie, 2020). The ELG hypothesis posits that export expansion leads to higher economic growth by increasing foreign exchange earnings, improving resource allocation, and encouraging technology spillovers (Lee, 2023). From the results, manufactured exports demonstrate a long-run impact on GDP as derived from the hypothesis. The results further align with structuralist perspectives. According to Fox (2020), stronger growth is achieved where structural transformation reallocates resources from low-productivity sectors like subsistence agriculture to higher-productivity sectors like manufacturing (Fox, 2020). In this case, the efforts by the Kenyan government to shift focus from primary commodities to value-added exports under the Vision 2030 may be attributed economic expansion as shown in the model (Gogo, 2021). The results hence shows that Kenya can attain sustainable growth by implementing measures and policies that further support manufacturing. Making Kenyan manufactured goods more competitive in the international market and reducing external vulnerability is central to Kenya's growth strategy.

There is adequate evidence from extant literature that support the theoretical proposition and results of this study. Research in countries such as China, South Korea and Taiwan shows that export-oriented manufacturing was a key driver of the countries' rapid industrialization (Lee J. K., 2016). Regionally, South Africa and Mauritius provide great examples where industrial policy and manufactured exports have positively influenced GDP (Moyo, 2016). In the Kenyan context, studies by Were (2019), and Mantinkoi (2018) demonstrate that growth in manufactured exports has a positive impact on Kenyan GDP (Were, 2016). Were (2016) study used a Vector Error Correction Model (VECM) and found that manufacturing exports positively influence Kenya's long-run economic growth (Were, 2016). Similarly, Matinkoi (2018) used time series techniques to show that manufactured exports are statistically significant in explaining GDP growth, especially in the context of trade openness and regional integration (Matinkoi, 2020).

However, there are a few lessons that can be drawn from the results. The results show a lagged transition between growth in manufactured exports and growth. This suggest that the translation of manufacturing export expansion to growth takes time. As such, Kenya may need to address deeper structural constraints to fully benefit from such expansion. In Kenya, the constraints that must be addressed include improving trade logistics, investing in energy and transport infrastructure, enhancing access to finance for manufacturers, and reducing the cost of imported inputs used in the production of export goods (Were, 2016; Matinkoi, 2020). Challenges such as limited industrial capacity, infrastructural bottlenecks, and dependence on imported inputs continue to limit the full potential of manufactured exports.

Imports and exchange rates may influence growth by amplifying or mitigating the effects of export-driven growth in the long term. In this case, therefore, the inclusion of imports and the exchange rate as control variables was critical to understanding the export and GDP nexus. Their inclusion in the model helped isolate the effect of manufactured exports and provided a clearer picture of causality between manufactured export and economic growth. According to Maina (2015), importation dominated by capital and intermediate goods like is the case for Kenya may support industrial production while a stable exchange rate ensures export competitiveness in the long-term (Maina, 2015). This proposition explains the positive correlation between imports and exchange rates on growth as shown in the model. This, therefore, reinforces the need for Kenya to adopt a balanced approach to economic growth.

CONCLUSION

This study aimed to examine the causal relationship between manufactured exports and economic growth in Kenya using the Autoregressive Distributed Lag (ARDL) model. The findings confirm a significant long-run relationship between GDP and manufactured exports, imports and exchange rate. Specifically, the results revealed that manufacturing exports have a delayed but positive and statistically significant impact on GDP, which is in line with the propositions of the export-led growth (ELG) hypothesis. Imports and exchange rate variables also demonstrated complex lagged effects. To illustrate, the results suggest that high imports may suppress growth in the short term but promoted economic expansion in the long run. This is especially because Kenya's exports were linked to capital or intermediate goods. Similarly, exchange rate fluctuations exert a negative effect on GDP in the short run but yield longer-term benefits due to increased export competitiveness. This aligns with the expectations of the J-curve theory. The overall explanatory power of the short-run model was modest with a relatively low adjusted R-squared. This indicates that short-term shocks and volatility are not well captured in the current model.

RECOMMENDATIONS

A number of key policy actions should be prioritized to strengthen the performance of Kenya's manufacturing exports. The following is a brief exploration of the critical recommendations:

Enhancing Export Competitiveness

The government should implement measures to support local manufacturers to be globally competitive. Currently, most of Kenyan manufactured exports are to regional countries within the EAC and to a few jurisdictions with trade agreements. Kenya's manufactured products are otherwise not very competitive in the global context. To abet this, the government boost local manufacturer's capability to continually improve product quality to meet international standards. This can be achieved through support for industrial certification programs, funding for technology upgrades, and implementing measures that lower the cost of producing in Kenya (Porter, 2023). The multipronged approach will ensure Kenya products are attain highest quality standards and are accepted in the international market. Kenya should also diversify its export products and destinations. To do this, the government should seek to expand the scope of existing trade agreements such as the African Growth and Opportunity Act (AGOA) (Williams, 2015), the Economic Partnership Agreement (EPA) with the EU (Mwatu, 2024), and the African Continental Free Trade Area (AfCFTA) (Gogo, 2021). The bulk of Kenya's manufactured goods are sold under these agreements but there is still a lot of

potential to expand within the current framework. Strategic participation in global trade expos and expansion of promotional campaigns like 'Buy Kenya, Build Kenya' and the 'Made in Kenya' campaign can also raise the visibility of Kenyan products abroad and open new markets and open new markets for Kenyan goods (Domeisen, 2003).

Strengthen Manufacturing Capacity

It is also important for Kenya to strengthen its manufacturing capacity in line with the Vision 2030's. One of the primary goals under vision 2030 is increase manufacturing sector's contribution to GDP to 15% (Omamo, 2019). The Kenyan manufacturing sector has been growing at a slower pace than the overall economy, hence its limiting the contribution to GDP overtime. To improve manufacturing contribution, the government must invest in critical infrastructure within industrial parks, special economic zones and outside these zones (Khisa, 2016). Most of competitive manufactured exports emanate from special economic zones, whose contribution to the economy may be limited. Kenya needs to relook the reliance on such zones and address impeding factors such as cost and reliability of electricity to lower overall production and increase the potential for its good internationally. Reforms to make industrial inputs more affordable through tax incentives and tariff adjustments should also be prioritised, especially for MSMEs and emerging sectors. Encouraging the development of industrial clusters such as the Dongo Kundu industrial park can further boost efficiency by promoting economies of scale (Khisa, 2016), fostering technology transfer, and strengthening supply chains (De Melo, 2020).

Facilitating Access to Affordable Capital

Further, facilitating access to affordable capital is key for Kenyan growth. Access to affordable capital would help scale Kenyan production for export beyond the traditional large exports and open new opportunity for MSMEs. In Kenya, the cost of capital is a major impediment for most small and medium-sized enterprises (SMEs) from participating in industrialisation and exports (Garcia Pires, 2012). According to Wamaitha (2023), Kenyan MSMEs struggle with high interest rates, limited access to capital, which limit their competitiveness (Wamaitha, 2023). To address this, the government should collaborate with commercial banks and development finance institutions to introduce tailored financial products (Wamaitha, 2023). The government can, for instance, provide export credit guarantees and low-interest loan facilities to local MSMEs as has been the case for developing nations (Haraguchi, 2019). These financial interventions would empower firms to invest in machinery, enhance productivity, and meet the demands of regional and international markets.

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APPENDICES

Table 2: Manufacturing Output and Value Added at Current Prices, 2018-2022

YEAR	Value of Manufacturing Output	Value Added	Manufacturing Percentage Contribution to GDP
2018	2,216,547	785,369	8.4%
2019	2,311,586	809,253	7.9%
2020	2,376,423	814,328	7.6%
2021	2,700,161	885,633	7.4%
2022	3,175,340	1,046,289	7.8%

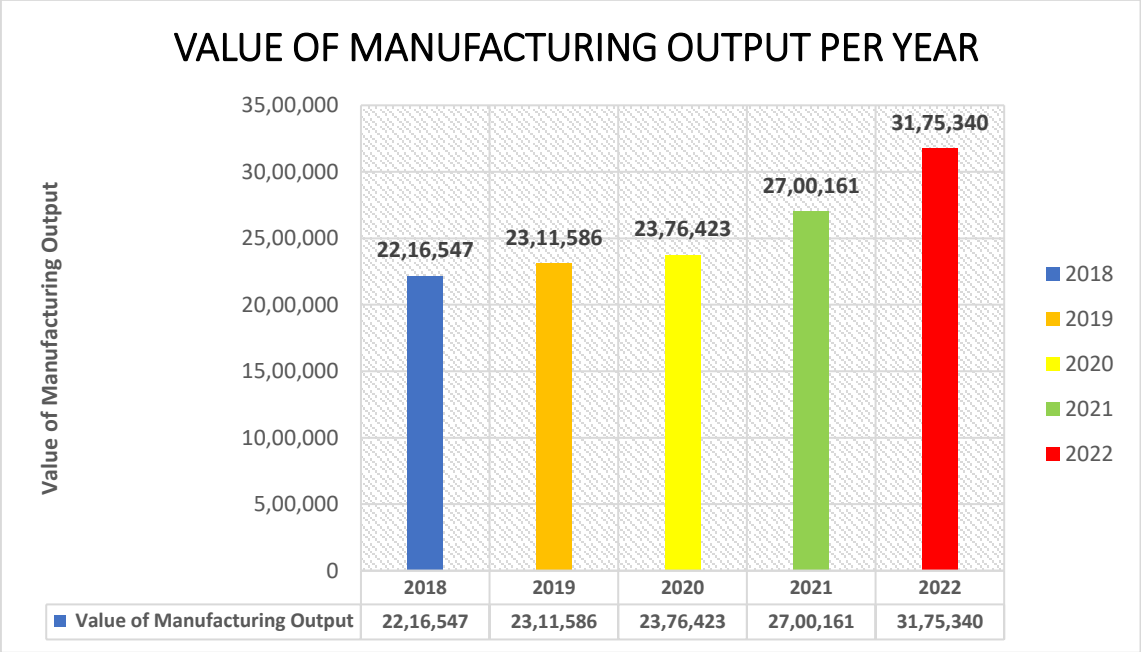


Figure 1: Manufacturing Output at Current Prices, 2018-2022

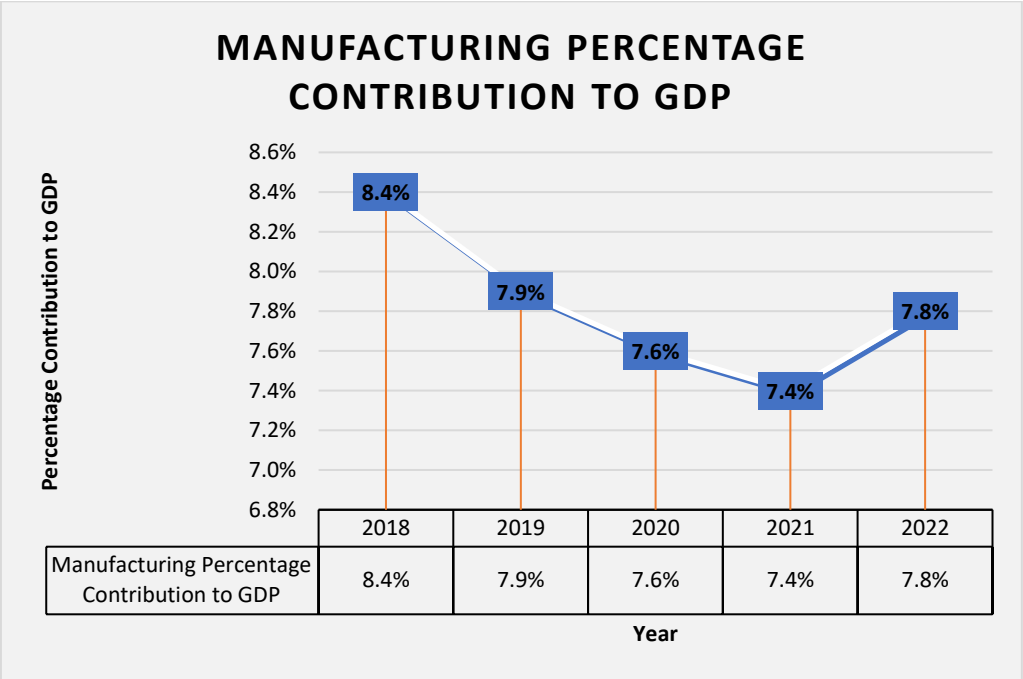


Figure 2: Manufacturing Percentage Contribution to GDP

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