Ruaha Catholic University
Faculty of Business, Economics and Management Sciences
Ruaha Journal of Business, Economics and Management
eISSN 2507-79945 Vol 5, December, 2022

Effect of Tanzanian Shilling Depreciation against United States Dollar on International Trade Performance in Tanzania

Emmanuel A. Lyapa[1], Alexander Juma Ochumbo[2], Isidore Minani[3]

[1]*Postgraduate Student, Ruaha Catholic University*

[2]*Associate Professor, Ruaha Catholic University*

[3]*Senior Lecturer, Ruaha Catholic University*

Abstract:

The purpose of this study was to examine the Effect of Tanzanian Shilling Depreciation against United States Dollar on The International Trade Performance In Tanzania; this was done through analyzing the effects that occur on either import levels or export levels. The relationship has been tested in a number of studies but lack of clear results made the room for this study. The interest on the study increases due to the fact that it has not been tested so thoroughly for Tanzania. The study was undertaken by evaluating theoretical and empirical considerations of the effects of currency depreciation on international trade performance. All the data used in the study are based on the data for Tanzania between the years 2007 and 2021. The methodology comprised of the statistical analysis using statistical regression analysis, specifically through Excel Microsoft. International Trade performance is the dependent variable, while the effects of depreciation on imports and exports are the independent variables.. The overall conclusion of the study examined that the depreciation of the local currency affects the export volumes but restricts the import volume.

Key Terms: Exchange rate, Depreciation of a Currency, International Trade

Introduction

An understanding of the reactions of the exchange rate fluctuations on the international trade is inevitable; this is especially for the trending open economy in a globalized world of trade. Due to the role played by the exchange rate in International trade, the situation did make Economists to put serious emphasis on the interrelation between the two; this is since that the analysis of the macroeconomic development unveils (Annette & Sofia, 2010). The results reveal that the issue had been dealt since the middle of twenty century. The reality proves that exchange rate deeply determines the trend of the economy, financial markets and the people. The influence of the exchange rate goes wider to a number of macroeconomic variables such as inflation rate, employment levels, and interest rates but also the price levels, wages and production levels. In a nutshell it impacts largely the living standard of people, indeed the everyday life. The case of Brexit procedure revealed how to some point competitiveness of exchange rate can be examined against the International trade performance especially in situations where key policies regarding trade are triggered by the political decisions and the existence of setting tariffs and quotas (Bostan, 2018). But the fact comes to be that exchange rate affects multitude of areas and its changing leads to multiple results on areas such as financial markets, external trade competitiveness and even real economy at large (Bostan, 2018).

Basically the effects of exchange rates can be different in the long-run compared to the short-run. The reason behind this is that a slow adjustment of the trade quantity to the new exchange rate level. Ahead of the foreign exchange fluctuations, this paper aimed at examining how depreciation in the exchange rate influences the performance of the International trade in Tanzania. It focused on determining the period through which the trade balance comes to improve, if so, due to depreciation in the exchange rate. Most economists on International trade argue so strongly as to whether depreciation causes decrease in trade deficit or not (Bahman-Oskooee, 1989). For an understanding, the terms overvalued and undervalued exchange rate are of close concern, where an exchange rate to be overvalued refers to as reduction or decline in its price competitiveness in transacting, and being undervalued is interpreted as increase in its competitiveness hence an action towards fastening economic growth (Cakrani et al., 2013).This paper is aligned on how a real depreciation of the exchange rate (not nominal), affects international trade (trade balance, a component of export levels and import levels over a period of time). Concentration on the real exchange rate changes and not nominal exchange rate is due to the reason that a nominal exchange rate decline may be offset by existence of a higher domestic inflation and has no effect on the net exports (Annette& Sofia, 2010). The determination was based on the short run and the long run. Thus, following the contemporary circumstances the study aimed at examining how depreciation may affect the export and import levels.

Theoretical Review

Trade balances are a result of the international trade performance. The trade balance as a component of the Balance of Payments (BOP) goes at ending up with trade deficits or surpluses which mostly are being determined using the export to import levels that are executed at a time. But sometimes, not so often they are attributed to intentionally low or high exchange rate levels.

Exports generally include high import content and Imports includes high content of exports. If exchange rate depreciation makes export of final product cheaper, then it makes imported component more expensive for domestic producers. For that reason, it means that real depreciation affects the competitiveness of commodities that a country is expected to export. How? A number of theories have been put forward to reflect how a nation may experience a real depreciation of the exchange rate and its core effects on the trade balance. The theories are such as The J-effect theory, Marshall-Lerner Theory, Elasticity theory. The focus of this study was on the J-curve theory. The theory was the mostly acknowledged theory hence provided a direct connection to the study.

J-Curve effect

The theme behind the use of J-curve on this was that, the economic concept of the J-curve relates closely to the depreciation of the depreciation of the exchange rate. The J-curve was for the first time introduced by Magee (1973). According to the J-curve concept, the depreciation so explained is the real depreciation of the exchange rate and not nominal depreciation. The theory explains that, immediately after the depreciation, the real exchange rate depreciation tends to worsen the trade balance this is in the short run, being unveiled by the situation that exists at that time where the domestic imports comes to face rise in prices on foreign goods in terms of the domestic currency which has then depreciated, making the net export levels initially fall. At this point, it means that trade balance will face a decrease being resulted by sticky prices as a result of slowness in recognizing the changes, working out to make the right decisions, facing delays in delivery, procurement of raw materials and the cost effectiveness being faced in continuing the process of production. Means that, goods will still be traded at the former price levels in the producer's currency, and the depreciation will make the domestic country to face a higher relative price for its imports and a lower relative price for its exports. This makes the trade balance and the terms of trade to worsen due to higher value on the imports in the short run. The other side, in terms of the foreign currency, the foreign markets faces the lower prices for the exports but since the demand for the exports and imports are relatively inelastic in the short run there comes a need of some time for the adjustment to the changes in prices for the export and import volumes.

As stated prior, elasticity of demand is influenced by the sluggishness in the change people's consumer behavior or even the time lag of the renegotiating contracts. In the long run, the quantity (demand) will adjust to the new price levels and the resulted change in exchange rates as a result market at large, and the domestic country will come to experience increase in export volumes and decrease in import volumes and the trade balance tends to improve. But the improvement that exists is not huge enough to achieve a surplus. The effects of the depreciation lead to a fall in the prices of the exports relative to the imports. The fall in the exports levels when compared to the Import levels tend to make the movement in the trade balance which take a shape of a curved-J thus the term J-curve theory.

Literature Review

Krugman and Obstfeld (2015) showed that depreciation refers to the decrease in value of a currency relative to another currency. It is a scenario where a currency becomes less valuable (less expensive) and therefore comes to be exchanged for (can buy) a fewer amount of foreign currency. In most cases goods denominated in a depreciated currency becomes less expensive, here exports becomes cheaper while imports gets more expensive.

There is a number of approached being studied concerning the effects of currency depreciation, where each gives its own findings as such to reflect as for how much the depreciation of the currency against the foreign currency (most currencies from weak economies against that from strong economies as the case of the USD), and among such an approach is the 'Absorbance theory' (Bostan, 2018). The theory by itself gives pictures of how the exchange rate bears big influence on not only the international trade sphere but also the whole scope regarding the national income of a country. The theory states (basing on the effects of the depreciation of the currency against that of the stable economies as the case of the USD) that, the effects of the depreciation won't be shown just at once, instead it will take time to come and experiences such effects. (Bostan, 2018) showed that the effects even if exists will take a lapse of time to be unveiled. According to the literature review regarding this topic, some studies found out there exists a significant negative effect of depreciation of the currency on International trade where these effects might either be in the short run or even in the long run, while some others conclude a non-significant effect that exists. For instance, Kurtovic (2017), under the study 'The Effects of Depreciation of the Exchange Rate on the trade balance of Albania', where aimed at investigating the effect of the real effective exchange rate depreciation of the Lek (ALL), the Albanian currency on the trade balance of Albania using the quarterly data from 1994 to 2015, came up with the findings that, there exists a long term co-integration between the exchange rate depreciation and the trade balance. Taking an account of how influential that depreciation is to trading aspect, on specific terms the exchange rate depreciation in its real terms bears effects positively on the trade balance of Albania, this is in both the long run and the short run. There comes a point that, his findings showed that the depreciation favors exportation over importation. The literature review approaches a frame work which was general that, where exchange rate has significant effects on the key decision making processes basing on the International trade activities, an instant reaction by the core participants of the International trade only when the depreciation so explained are very high, in the perspective of having a long term depreciation it is acknowledged so widely that the depreciation of the currency bears effects on the volume of International trading (Bostan, 2018). Empirical arguments have been formulated by Nicita (2013), under the study 'Exchange rates, International trade policies' where the study covered a period of ten years came up with findings that Currency depreciation tends to promote export levels at the same time restricts the import levels. Showing further that the favor being depicted on the exportation flows must go hand in hand with the effective trade policies otherwise in the long run in the absence of such policies there exists a worsening situation of trade balance as in general the weakening of the currency comes to disrupt its competitiveness. Marilyne & Korinek (2011), postulated their findings that the value of trade between China and US is more affected by currency changes (taking an account the depreciation of the Chinese Yuan against USD), than that of the US - Euro are or Euro area - China. But came up with findings that, the stable economies are less impacted by currency changes, hence exchange rate does not seems to be powerful determinant in dictating trade flows between these large economies, but the case might be different for small economies.

Hericourt and Poncet (2015), came up with recommendations that, developing countries should not only focus on the effects by the exchange rates, but have to be cautious regarding relaxation in the exchange rate and just come to embrace the floatation exchange rate, which might come to be a danger for International Trade performance at large without them structuring effective and Well-developed financial systems. These results came up after conducting their econometric studies.

Methodology and Statistics

Data Set

The study's Empirical Analysis based on the regression, the statistical technique that was used to identify the relationship between the two variables under study, the independent variable, being the depreciation of the TZS against the independent variable, the International Trade performance, composing the Exportation flows and the Importation flows. The study aimed at analyzing the effects that might be resulted into the International Trade performance by the depreciation of the TZS against the USD, hence deciding how significantly the depreciation effect of the currency impact the trading performance in terms of the Import levels/volumes and export levels/volumes. The data was collected through documentary methodology where the source of these data as per Appendix 1 is the Bank of Tanzania (BOT), covering a period of 2007-2021. The methodology of the study came to relies on the linear regression that estimated the best value and an independent or explanatory variable. The linear regression provides an equation that predicts one variable, be it independent variable from the other variable, and be it dependent variable hence coming with the results that explains as to whether the exchange rate as the independent variable affects the International trade performance as the independent variable. Means that depreciation of the TZS is an exogenous variable which may influence International trade while, Tanzanian exports and imports being endogenous variable which indicates the effects being resulted at the end of analysis.

Multivariate Analysis: Trend Analysis and Regression Analysis

Robust Check: Regression Analysis.

The study applied regression analysis in Excel Microsoft application to code, enter and compute the measurements of the linear regression, where the coefficient of determination came to explain the extent to which changes in independent variable comes to impact the independent variable. The regression is based on the OLS method which implies finding the unique coefficients for which the sum of residual squares is minimal. The Linear regression adopted is guided by the following model:

The model is presented below:

$$y_n = \beta_0 + DP_i x_i + \varepsilon_i,$$

Where:

DPx_i = Explanatory variable or independent variable, the Depreciation of the TZS against the USD.

Yn_i= the dependent variable (The International Trade Performance).

ε_i= Estimation error.

βo = Parameter to be estimated (The coefficients βo are found by minimizing the error of prediction).

The study based on the notion that, the exchange rate is influenced by demand and supplies referring to the floating exchange rate, where there are rare interventions by the Central bank are rare, and strive for avoidance of imbalances that may destabilize the economic and financial environment (including the exchange rate, specifically depreciation). To assure the robustness of the model, specific lags have been added. The study covers a 15 years period, both recession and economic recovery have been taken into an account, and it then demonstrates what effects the depreciation causes in the performance of International trade. The trend analysis set of data, used in the empirical analyses is presented in the Appendix 1.

Table 4.1 and 4.2 shows the Regression Model Summary results where R square, adjusted R square and standard error are presented.

Table 4: 1 Regression Model Summary – Import as Dependent Variable

Model	R	R Square	Std Error of the Estimate	F	Sig.
1	0.17703	0.31341	0.2175	22.105	0.00005279

Source: (Author's own Calculation 2022)

The study shows that the findings for the independent variable are statistically significant (where the probability value is below 0.05), further it shows that the influence of depreciation of the currency can be manifested after three years, where even though there is depreciation of the currency, the rate at which the import levels shoot is not in correlation to the depreciation rate. Results shows when depreciation raises one unit, it the importing volumes goes higher by almost 31.34%. The results as per figure 4.1 indicate a picture that import flows are not only influenced by the exchange rate depreciation. The R value shows that relatedness between these two variables is minimal to a level of 0.1770 which is too minimal. For-instance, the drop in import flows were registered during the financial crisis of between 2008 - 2009 and the COVID Pandemic of 2020. To that extent shown, it can be said that depreciation of domestic currency diminishes the transacting competitiveness hence influencing negatively the imports.

Table 4: 2 Regression Model Summary- Export as Dependent Variable

Model	R	R Square	Std Error of the Estimate	F	Sig.
1	0.84367	0.71179	0.9181	42.0644	0.00007717

Source: (Author's own Calculation, 2022)

It is manifested by fig 4.2 that, after financial crisis of 2008-2009, the trend of export levels were almost proportional to the rate at which the depreciation of local currency was taking place. Therefore the results reveal that depreciation of a local currency influence positively the level of exportation by the country. This is in line with a concept that, the competitiveness of the foreign goods is minimized such that making them becomes affordable. Furthermore, the results suggests that the rise with one unit of the currency depreciation, results into 71.17% as shown by the R-square value, but also the relatedness of the dependent variable and the independent variable is almost 0.8437 as shown by the R value. The results then indicate that currency depreciation is a sufficient stimulus for higher exports volume, but should go hand in hand with well-structured financial systems and enforceable policies. Ahead of that measures should be taken to improve the export levels through other available channels beside this of exchange rate depreciation.

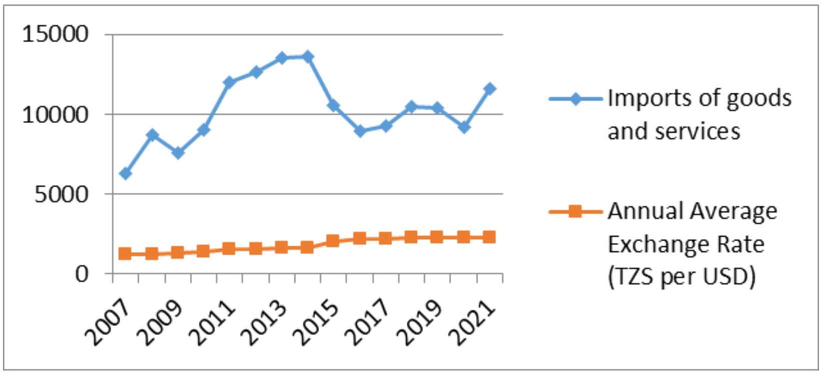
Trend Analysis

This involved the analysis of the trends of the variables for a specified period under study. It involved analyzing the effects being brought by depreciation of the currency to both the export levels and import levels hence depicting an overall picture of how the International trade is impacted. The determination of these effects was put into two areas which cover the International Trade, examining the effects of depreciation on the Import level and the effects of depreciation on the Export levels in Tanzania.

i. Effect of Depreciation of TZS against USD on the Import levels in Tanzania

Here the Import levels were the dependent variable and the depreciation of the exchange rate being the independent variable. The findings were extracted from the analysis of the data that were obtained as per Appendix 1. Figure 4.1 shows that from 20107 to 2008 there was a slight appreciation, while from 2009 currency have constantly depreciated with a reasonable margin. The depreciation came to be of small margin between 2016 and 2020. The dependent variable, Import levels on the other side for the whole period has kept increasing, even though its margin was higher than that of the exchange rate (as it tremendously shouted between 2009 to 2015) , revealing that there are might be other macro-economic variables that trigger such a situation. For such findings it is shown that, direct effect of currency depreciation on the import levels is minimal.

Figure 4: 1 Period Average Exchange Rate (TZS per USD) and Import Levels of Goods and Services in USD

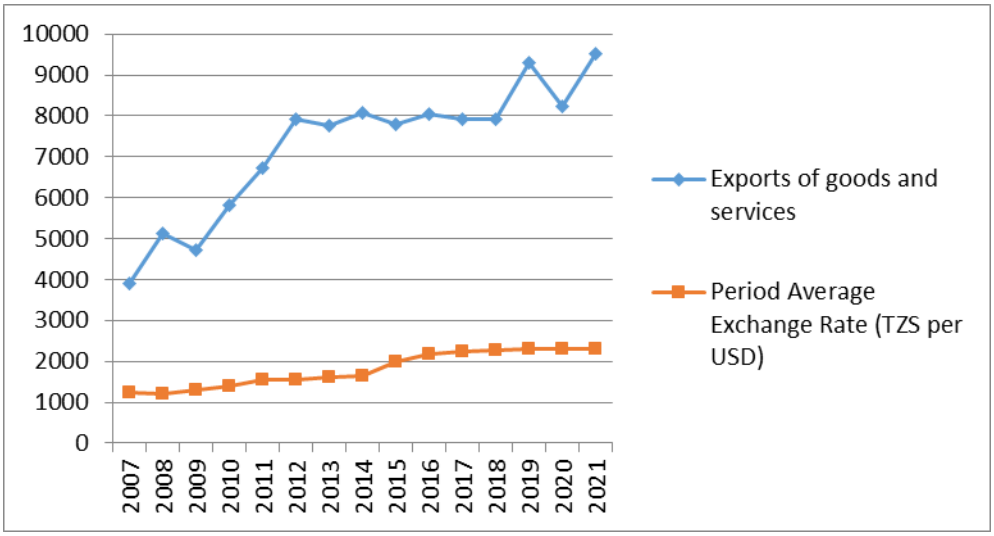


Source: (Author's own Calculations 2022)

ii. Effects of Depreciation of TZS against USD on the Export levels in Tanzania

The export levels were the dependent variable and the depreciation of the exchange rate being the independent variable. The findings were extracted from the analysis of the data that were obtained as per Appendix 1. Figure 4.2 shows that from 20107-2008 there was a slight appreciation, while from 2009 currency have constantly depreciated with a reasonable margin. The depreciation came to be of small margin between 2016 and 2020. The dependent variable, Export levels on the other side has shown a proportional increase to the rate of currency depreciation. The existence of such a situation shows the inter-relation between the dependent variable and the independent variable; as such even in absence of other factors in between, the dependent determines the movement of the independent variable. These results as per trend show, gives a picture that there is a direct effect of currency depreciation on the export levels, this is a point that has been shown in the regression model as well.

Figure 4: 2 Period Average Exchange Rate (TZS per USD) and the Export Level of Goods and Services in USD



Source: (Author's own Calculation, 2022)

Conclusion

The study aimed at investigating the effects of the currency depreciation on the International trade performance in Tanzanian, where the analysis of the study based on the trend analysis using the regression statistics in the Excel Microsoft utilizing data set for a period ranging from 2007 to 2021. The findings of the study are in line with those that have been given in a number of literatures. According to the paper the results shows that depreciation of the currency has effects on either way, on the Imports values and export values, whereby there exist effects on import values that are being brought by the reality that it leads to increased costs on the import of goods due to rise in price. The scene then tend to discourage importation, even though there might arise other factors. This has been manifested in the figure 4.1. The study further found that there is a significant negative effect of depreciation of TZS against USD on the export values to an extent of favoring the trade balance. The effects are resulted by the decrease in prices of the goods and services that are being exported thus making them affordable as manifested by figure 4.2. The need to manage effects of the depreciation of the currency on International trade performance unveils that, countries should monitor their exchange rate relative not only to that of their trading partners but also in relation to that of their competitors.

References

Anette.A. and Sofia .S. (2010), *How Does Depreciation in the Exchange Rate Affect Trade over Time*? Bachelor's thesis within Economics, Exchange-rate

Bahmani-Oskooee, M. (1989).*Devaluation and the J-Curve: Some Evidence from LDCs*: Errata. The Review of Economics and Statistics, 71(3), 553-554.

Bostan .I.,Toderascu .C. (Sandu) and Bodgan-Narcisfirtescu (2018), Exchange rate effects on International commercial trade competitiveness. Faculty of Economics and Business Administration, AlexandruIoan Cuza University of Iasi,700506 Iasi, Published: 8 April 2018.

Cakrani, E., Resulaj, P., Koprencka, L. K. (2013) *Government Spending and Real Exchange Rate Case of Albania.*European Journal of Sustainable Development, 2 (4), pp. 303-310.

Héricourt, .J., and Poncet .S. (2015). *Exchange Rate Volatility, Financial Constraints, and Trade*: Empirical Evidence from Chinese Firms. The World Bank Economic Review 29: 550–78.

Krugman .R.P., Obstfeld .M. (2008), *International Economics-Theory and policy*, 7th Edition, Cpyright @ 2008 Pearson, Addisson-Wesley

Kurtovic, S. H, B., Maxhuni, N. (2016) Bilateral Trade Elasticity: B&H versus its seven trade partners. MPRA Paper No. 72297.

Kurtović .S. (2017) : *The Effect of Depreciation of the Exchange Rate on the Trade Balance of Albania*, Review of Economic Perspectives, ISSN 1804-1663, De

Magee, S. P. (1973). *Currency Contracts, Pass-through, and Devaluation*. Brookings Papers on Economic Activity, (1), 303-325.

Marilyne H.B and Korinek .J., (2011): *To what extent do exchange rates and their Volatility Affects trade*. RePEc: hal:journ/:45 p. 10.1787/5kg3slm7b8hg-en. hal-00729403.

Nicita .A. (2013).*Policy Issues in International Trade and Commodities Study*: Series No.56 Exchange Rates, International Trade and Trade Policies, Unctad Geneva.