Imports in East Africa: Boosting Manufacturing Performance or Impeding Domestic Growth?

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Abstract: While the debate surrounding trade protectionism and liberalization continues among policymakers, particularly regarding their impact on the development of domestic infant industries, the literature has largely neglected to provide empirical evidence on this matter. This paper addresses this gap by investigating the effects of imports on the economies of five East African countries. Specifically, the study assesses whether imports promote the development of the manufacturing sector or detrimentally affect the economy by introducing products that compete with domestic alternatives. Through the analysis of panel data from these countries spanning the period between 1997 and 2020, a pooled Ordinary Least Squares (OLS) model is employed to estimate the influence of imports on the manufacturing sector's performance. The results of the study reveal a negative correlation between the importation of goods and services in these five countries and the value added to the manufacturing sector. This suggests that the increase in imports has an adverse effect on the manufacturing sector's performance. This finding implies that imports in these countries do not complement domestic production; rather, they might directly substitute for locally produced goods. Consequently, it is recommended that these countries reevaluate their trade policies to ensure that imports are channeled towards products that can further the development of other sectors within their economies, such as the manufacturing sector

1.0 Introduction

Addressing the escalating issue of unemployment through job creation has been an enormous challenge for most countries worldwide. The supply of labor, driven by population growth and the expansion of training facilities, has far exceeded the market demand for labor (Valadkhani, 2003; Farah and Ali, 2018). One significant reason for the inability to expand labor demand in various economies, particularly in the least developed countries, is the failure to diversify the economy away from reliance on the agricultural sector (Mahroum and Al-Saleh, 2013; Papola, 2014). These economies are predominantly agrarian, characterized by low productivity and low value-added activities (McCarthy, 2005; Ancans, 2018). Furthermore, the development of other sectors in these countries is likely to depend on the global supply of appropriate resources due to their low levels of capital and technology.

Recognizing the importance of global resource supply, many countries have opened their economies to facilitate greater cross-border interactions, leading to increased movement of goods and services (as illustrated by the case of an East African country in figure 1). Economic liberalization is viewed as a strategy to ensure consumer welfare by protecting them from inefficiently produced products. While it is true that liberalization can pressure domestic production, it is also argued that such competition drives innovation and efficiency among domestic firms. Additionally, opening the economy might attract complementary products that can enhance production in other sectors, despite the influx of substitute products. This paper aims to investigate whether there is evidence of a positive association between imports and the growth of non-agricultural sectors, using East African countries as a reference.

Interestingly, despite the long-standing debate between trade liberalization, which includes the flow of goods and resources, and economic prosperity, empirical evidence has only been drawn from a few subjects. The existing literature has largely focused on the relationship between imports and general economic growth (Maina, 2008; Mujahid *et al.*, 2019; Carmel, 2023). Unlike this paper, which explores the nexus between imports and the performance of non-agricultural sectors (the secondary sector), earlier studies have examined the response of gross domestic product (GDP) per capita to the surge of imports. Other related topics that have received considerable attention include imports and unemployment (Simiyu, 2017; Kirema, 2019) and imports and exchange rates (Louis and Michael, 1999; Ntui, 2013). Therefore, whether the rise in imports enhances or offsets the growth of domestic production in the non-agricultural sector remains undisclosed.
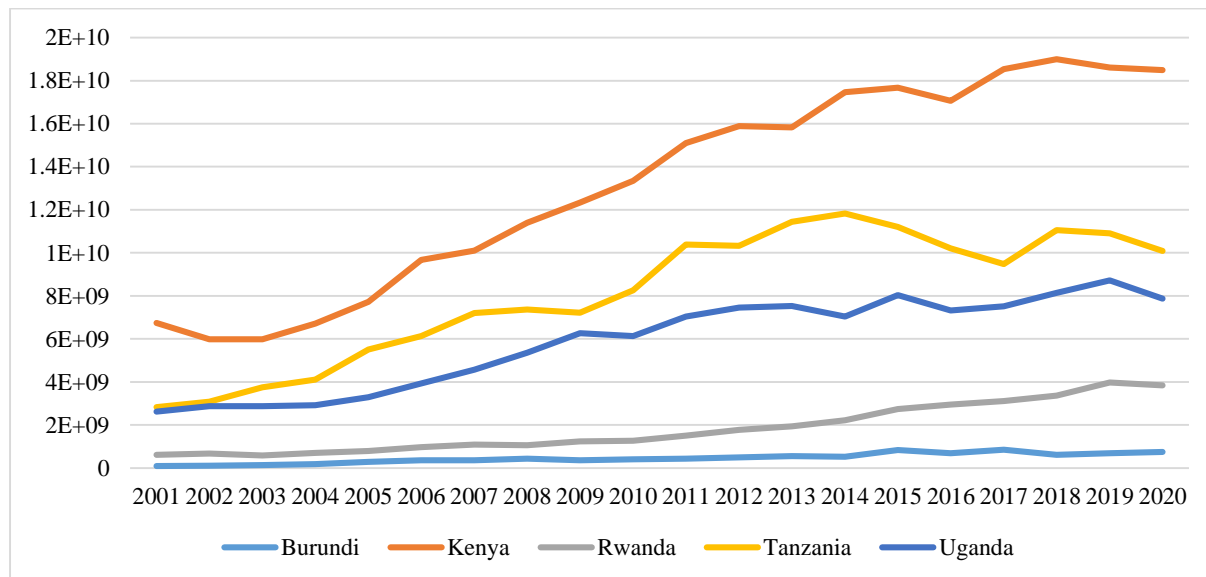
Figure 1: Values of imports of goods and services in five East African countries

Source: Data from World Bank-World Development Indicators.

Consequently, this paper aims to assess the impact of increasing imports on the performance of the manufacturing sector in the five East African countries. Similar to other developing nations, the East African region is undergoing a transformation in its economic structure, characterized by the diminishing role of agriculture and the increasing influence of the service and manufacturing sectors. While the service sector grows proportionally faster, it is the latter

that is believed to significantly contribute to improving people's well-being. Unlike the manufacturing sector, the growth of the service sector is often accompanied by limited employment creation, thereby impeding a broader economic multiplier effect. It is within this context that the performance of the manufacturing sector becomes the focus of this paper. Structurally, this paper is organized into four sections. While this section laid down the general background, section two describes the methodology used in the paper. It contains the type and source of data, together with the analytical model. Section three presents the results and discusses them, and section four concludes the paper and stipulates policy recommendations.

1.1 Theoretical perspective of import and growth

Generally, the basis for countries to allow imports is largely underscored by international trade theory of comperative advantage by Ricardo (1817) which highlights the benefits of imports for a given economy, Heckscher-Ohlin's factor proportions theory and Vernon's product life cycle theory. The Ricardian theory emphasizes on the greater economic efficiency generated in the country which participate in trade, irrespective of whether such country is a net exporter or importer. The theory requires countries to specialize its production in such goods which they have comperative advantage and import those goods which have less comperative advantage. By doing it, countries will realize higher economic efficiency. This is the case because, the resources which would be allocated in the production of goods with less comperative advantage can be transferred to produce larger shares of those goods with greater comperative advantage.

On the other hand, the works by Heckscher (1919) and Ohlin (1933) reveal that difference in resources endownments between countries determine trade and result into gains from tare. Most less developed nations have low comperative advantage in the production of capital intensive goods such as machineries and technologies and larger advantage in labor intensive goods. Thus, based on these theories, less developed nations are likely to benefit from trade if their imports are capital intensive goods, since such goods not only becomes cheaper in the economy, they can also act as complements in the production of goods with higher comperative advantage.

Therefore, while opening up the economy might influence the influx of substitute products, there is also a possibility of attracting complementary products that can further enhance production. This is well articulated by Vernon (1966)'s theory, that importation of goods which were not readily available in the economy can lead to imitation, thus transforming an importing country into efficient producer in the long-run. Owing to this, countries have largely been working to reduce barriers to trade to encourage flow of goods and services. As a results, imports to some economies, such as East African countries, have been growing rapidly. While these imports can be aimed for consumption, they might also be used for additional investment to facilitate growth of secondary sectors such as manufacturing nad service. Unfortunately, whether these increasing imports in East Africa, have been leading to economic transformation from labor-intensive industry to secondary sectors, is not clearly understood. Therefore, this paper uses both Ricardian, Heckscher-Ohlin and Vernon's reflection of trade to investigate the role of imports in East African countries on economic growth.

2.0 Methodology

2.1 Type and source of data

This paper uses data from five East African countries, namely Burundi, Kenya, Rwanda, Tanzania and Uganda. Macroeconomic data about manufacturing value added, imports, gross savings, net FDI inflows, domestic credit to private sector by banks, industry value added (both as the percentage of GDP), interest rate, exchange rate (in local currency per USD), inflation rate (consumer prices at annual percent growth), labor participation rate and access to electricity as a proxy of energy (both as the percentage of population), total population, gross capital formation and adjusted net income per capita (both in annual percent growth), for each country were collected from World Bank-World Development Indicators database.

We intended to use data between 1960 and 2020, however due to unreported data in some periods we ended up with data between 1997 to 2019 where we could get data in large number of years for all variables. In the end, our sample of unbalanced panel data stands at 115 observations. Table 1 shows the summary of all variables that have been used in this paper.

Table 1: Summary of the data

Variable	Mean	Standard deviation
Manufacturing (value added, percentage of GDP)	9.316	2.958
Imports (percentage of GDP)	24.410	7.761
Interest rate	5.723	12.184
Exchange rate (local currency per USD)	504.512	770.801
Inflation rate (consumer prices, annual percent growth)	10.083	8.677
Labor (participation rate, percentage of population)	79.231	7.432
Total population	17400000	13800000
Saving (gross savings, percentage of GDP)	14.560	7.909
Capital (gross capital formation, annual percent growth)	16.171	12.784
FDI (net inflows, percentage of GDP)	1.213	1.456
Credit (domestic credit to private sector by banks, percentage of GDP)	13.634	8.303
Income (adjusted net income per capita, annual percent growth)	2.590	9.257
Energy (access to electricity, percentage of population)	15.464	13.374
Industrial value added (industry value added, percentage of GDP)	16.572	4.886

2.2 Analytical approach

In this paper, we have employed the Im-Pesaran-Shin test to examine the unit root across all variables. Despite the usefulness of other tests, such as Fisher-type and Hadri LM on unbalanced panel data unit root analysis, Choi (2001) argued that the Im-Pesaran-Shin test tends to report critical values that are valid when both time periods and samples are fixed.

In our empirical estimation, we hypothesize that importation for the promotion of the manufacturing sector would potentially lead to increased productivity and, consequently, a higher sectoral contribution to the national economy (GDP). Therefore, we use the manufacturing sector's contribution to GDP to assess the performance of the manufacturing

sector, implying whether or not there is a promotion to the sector. With macro panel data containing only five countries and 23 periods, we first made use of the Breusch-Pagan Lagrange Multiplier (LM) model, as indicated in Equation 1, to choose between pooled ordinary least square and models that capture panel effects.

$$Y_{it} = X\beta + \mu_i + \nu_{it} \tag{1}$$

Such that Y_{it} is the response variable and X represents set of predictor variables, μ_i is the cross-section random effect and ν_{it} is an error term.

The LM model's null hypothesis is that variances across countries are zero. If this is true, it implies the inexistence of a panel effect, and OLS can be employed. In case the LM model returns a significant result, we intend to employ Hausman's (1978) specification test to determine the appropriate model between random and fixed effect models. The specification test checks whether the differences in coefficients are not systematic; thus, failure to reject the null hypothesis implies that the random effect model is consistent. Generally, our panel data model is as indicated in Equation 2.

$$Manufacturing_{it} = \gamma_0 + \gamma_1 Imports_{it} + \varphi Z + \varepsilon_{it} \tag{2}$$

Where γ_0, γ_1 and φ are parameters to be estimated, ε_{it} is an error component for country i and period t while Z is a set of control variables which include interest rate, net FDI inflows, inflation rate, labor participation rate, gross savings, gross capital formation, adjusted net income per capita, domestic credit to private sector by banks, exchange rate, total population, access to energy in form of electricity and industry value added.

3.0 Results and discussion

Table 2 shows the test for stationarity.

Table 2: Im-Pesaran-Shin unit root results

Variable	Level	First Difference
	W-t-bar stat.	W-t-bar stat.
Interest rate	-5.774***	
Inflation rate	-3.084***	
Labor participation	-2.760***	
Log (Population)	-1.313*	
Capital formation	-2.371***	
Gross savings	-2.971***	
Income	-4.757***	
FDI net inflows	-2.334***	
Manufacturing Value added	-1.147	-6.342***
Imports	0.259	-6.145***
Log (Exchange rate)	0.379	-6.493***
Energy/Access to electricity	7.857	-6.705***
Industry value added	-0.748	-6.393***
Credits by banks	0.510	-3.877***

The results shows that the response variable (manufacturing value added, as a percentage of GDP), together with imports, the logarithm of exchange, proxy of energy, industry value added, and credits by banks are not stationary at the level but rather at the first difference.

The test result from the LM model, as indicated in Table 3, turned out to be insignificant, indicating that variances across observations are zero, meaning that there is no panel effect. As a consequence, the results imply that the pooled OLS model is appropriate over models with panel effects.

Table 3: Results from Breusch-Pagan Lagrange Multiplier (LM) model

Variable	Variance	Standard deviation
Manufacturing	0.704	0.839
v	0.502	0.709
μ	0	0

Note: ***, ** and * imply statistical significance at 1%, 5% and 10% respectively

After identifying the appropriate model and performing pooled OLS estimation, the main results are presented in Table 4. From the results, the coefficient of imports of goods and services as a percentage of GDP is significant but negative. The former rationalizes the relevance of the import variable in the model, while the latter depicts the existence of an opposite relationship between the two variables (imports and the performance of the manufacturing sector). Generally, this result indicates that the value added of the manufacturing sector in East African countries, as a percentage of GDP, decreases as imports increase. This finding corresponds to the observations made by Nambiar *et al.* (1999), Mkubwa *et al.* (2014), Luisa and Axel (2016), and Sooriyakumar *et al.* (2020). It is similarly in line with protectionism ideology that imports tend to harm domestic production due to their competitive strength.

Likewise, the result implies that the region imports goods and services that are mostly substitutes rather than compliments to the economy. This is so because complimentary imports such as plant machinery, office equipment, and technology would mostly likely raise productivity in the manufacturing sector and consequently add value to the economy. The importation of substitute products, on the other hand, tends to hinder domestic production, thus impeding the contribution of the manufacturing sector. Our finding, however, is in contrast with Raju (2023), Kenneth and Morris (2003), and Parc (2018). Given the contexts of the countries of analysis, the findings from the previous literature are hardly surprising since most advanced economies apply both tariff and non-tariff measures to protect specific domestic industries (Zhaohui *et al.*, 2018). India, for instance, implements tough tariff measures and is particularly selective on imports from China (Moyuru, 2021).

Apart from the import-manufacturing relationship, the results from the pooled OLS model on the other hand reveal some other interesting findings for other variables. For instance, the impact of the interest rate on the performance of manufacturing value added is negative. As interest rates rise, discouraging borrowers and thus disrupting investments in the economy, a negative relationship between the interest rate and the performance of manufacturing value added was expected. Our finding, however, is consistent with Wokabi and Fatoki (2019) which

studied the relationship between interest rates and financial inclusion in East Africa. However, further studies (Sarma and Pais, 2008; Yorulmaz, 2016; Asuming *et al*., 2018; Wokabi and Fatoki, 2019; Gassiah and Kikula, 2022) articulate that the interest rate itself is not sufficient to steer the growth of the manufacturing sector; rather, it has to be supported by income, education, and possession of appropriate collaterals.

Meanwhile, gross capital formation is negative, although insignificant. Gross capital formation indicates the component of national expenditure on GDP which is invested in an economy. Negative coefficients do not imply negative growth impact on the overall economy, rather in a specific manufacturing sector. Studies on the overall economy have divided opinions on the impact of gross capital formation and savings on growth. A study by Neddy *et al*. (2013) shows that gross capital formation and economic growth have no significant relationship in Kenya, while Wabiga and Nakijoba (2018) indicate the short-run relationship to be significant and negative in Uganda. Gross savings are also insignificant, which is similar to observations made by Muhumuza (2018) and Ihimbazwe (2018) that gross savings do not Granger-cause economic growth in Uganda and Rwanda, respectively.

The findings also indicate that the inflation rate, FDI inflows, access to energy, and value added in the industry are positive, albeit some are insignificant. Inflation tends to make it difficult for individuals to save money; therefore, a rising rate might propel more investments and production in the economy to increase wealth (Umaru and Zubairu, 2012). Findings for the other variables are largely as expected. The coefficient of labor participation is unexpectedly negative. According to Rizzo and Wuyts (2014), countries in the majority of Africa see a large fraction of their labor force engaging in the informal sector. This makes it hard to find the true impact of labor participation in an economy and might possibly be the reason for finding a negative coefficient in our paper.

Table 4: Results from pooled OLS regression

Variable	Coefficient	Standard Error
ΔImports	-0.017*	0.029
Interest rate	-0.049**	0.020
Inflation rate	0.042	0.027
ΔLog (Exchange rate)	0.557	1.472
Labor participation	0.017	0.020
Log (Population)	-0.197*	0.198
Capital formation	-0.007	0.009
Gross savings	0.015	0.006
Income	-0.008	0.013
FDI net inflows	0.040	0.096
ΔEnergy/Access to electricity	0.023	0.023
ΔIndustry value added	0.264***	0.077
ΔCredits by banks	-0.008	0.050
Constant	5.082	4.339

Note: Dependent variable - Manufacturing value added as a percentage of GDP; Δ means first difference; ***, ** and * imply statistical significance at 1%, 5% and 10% respectively.

4.0 Conclusion and recommendation

This paper aims to investigate the role of imports in affecting the performance of the manufacturing sector and the overall consumption patterns in the economies of five East African countries. Specifically, the study aims to determine whether the imports in these countries primarily serve a technical function that enhances the performance of the manufacturing sector or whether they are predominantly driven by consumer-oriented motives.

Using a pooled Ordinary Least Squares (OLS) model, we uncover a negative correlation between imports and the performance of the manufacturing sector, as measured by its value added. These findings strongly indicate that imports have a detrimental impact on the manufacturing sector's performance. Furthermore, the results suggest that a substantial portion of imports in these countries might consist of products that act as substitutes for domestically produced goods.

This paper contributes significantly to the policy discourse, particularly in the realm of trade liberalization versus protectionism. In light of the compelling findings, we propose that these countries reconsider their trade policies to strategically channel imports towards products that can facilitate the growth of other sectors within their economies, particularly the manufacturing sector.

It's important to note that our conclusion, which suggests that imports in the five East African countries are primarily oriented towards consumption rather than bolstering domestic manufacturing operations, is drawn exclusively from the pooled OLS estimation. Due to data limitations, an empirical quantification of the exact proportions of imports allocated to consumption versus supporting domestic manufacturing activities wasn't feasible within the scope of this study. Future research endeavors focused on establishing these precise values would undoubtedly enhance the value of the present paper.

References

Ancans, S. (2018). *Effect of an underdeveloped high value-added sector on the low value-added sector in less developed countries*. Proceedings of the 2018 International Conference "Economic Science for Rural Development", No 49

Asuming, P. O., Osei-Agyei, L. G. and Mohammed, J. I. (2018). Financial inclusion in Sub-Saharan Africa: Recent trends and determinants. *Journal of African Business*, 20(1), pp. 112-134

Carmel, N. (2023). Do Burundi's exports and imports really help the country's economic growth? -Burundi case study from 1978 to 2020. *Open Journal of Business and Management*, 11(2), pp. 718-743

Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance*, 20(2), pp. 249-272

Farah, S. A. and Ali, H. A. (2018). A study on the causes of unemployment among university graduates in Kenya: A case of Garissa County, Kenya. *European Journal of Social Science*, 3(1), 182-193

Gassiah, N. and Kikula, J. (2022). Challenges small and medium enterprises (SMEs) face in acquiring loans from commercial banks in Tanzania. *African Journal of Business Management*, 16(4), pp. 74-81

Hausman, J (1978). Specification tests in Econometrics. *Econometrica*, 46(6), pp. 1251-1271

Heckscher, E. F. (1919). "Utrikshandelns verkan pa inkomstfoerdelningen, *Ekonomist Tradskrift*, 21, Del, 2, 1-32" (The effect of foreign trade on the distribution of income, in H. S. Ellis and L. A. Metzler eds., *Readings in the Theory of International Trade*, 1949, Philadelphia: Blakiston, 272-300)

Ihimbazwe, E. (2018). The impact of national savings on economic growth. Master [Thesis]. University of Rwanda

Kenneth, K. and Morris, M. (2003). Do unfairly traded imports injure domestic industries. *Review of International Economics*, 6(2), pp. 321-332

Kirema, P. K. (2019). Effect of trade openness on unemployment rate in Kenya. Master. Thesis. University of Nairobi

Louis, A. K. and Michael, A. E. (1999). Impact of liberalization on key markets in Sub-Saharan Africa: The case of Uganda. *Journal of International Development*, 11(3), pp. 411-436

Luisa, S. and Axel, S. (2016). The impacts of the German biofuel quota on sectoral domestic production and imports of the German economy. *Renewable and Sustainable Energy Reviews*, 63(September), pp. 497-505

Mahroum, S. and Al-Saleh, Y. (2013). Demand-led related diversification: An innovative policy approach to economic diversification and development. *Science and Public Policy*, 40(3), 406-418

Maina, , R, M. (2008). *The effect of exports and imports on economic growth: Empirical evidence from Kenya*. Master. Thesis. University of Nairobi

MCCarthy, C. (2005). *Productivity performance in developing countries: South Africa, country case study.* UNIDO 50th Anniversary paper

Mkubwa, h. M., Mtengwa, B. A. and Babiker, S. A. (2014). The impact of trade liberalization on economic growth in Tanzania. *International Journal of Academic Research in Business and Social Sciences*, 4(5), pp. 514-532

Moyuru, B. (2021). India tariff hikes target mainly China in protectionist drive. *Nikkei Asia*. [Online] 11st February. Available from: https://asia.nikkei.com/Economy/Trade/India-tariff-hikes-target-mainly-China-in-protectionist-drive [Accessed 14/08/2023]

Muhumuza, R. (2018). Relationship between savings and economic growth in Uganda (2000-2015). Masters [Thesis]. Makerere University

Mujahid, N., Begam, A., Shamshir, M. and Zeb, A. (2019). Import-led growth hypothesis: A case study of Pakistan. *Journal of Economic and Sustainable Development*, 10(8), 20-28

Nambiar, R. g., Mungekar, B. L. and Tadas, g. A. (1999). Is import liberalization hurting domestic industry and employment? *Economic and Political Weekly*, 34(7), pp. 417-424

Neddy, S., Kosker, I., Buigut, K. and Kibet, J. (2013). Impact of openness, foreign direct investment, gross capital formation on ecnomic growth in Kenya. *Journal of Economics and Sustainable Development*, 4(4), pp. 130-135

Ntui, P. P. (2013). Exchange rate fluctuations-shock in Tanzania: An empirical analysis. *Scholarly Journal of Business Administration*, 3(1), pp. 12-19

Ohlin, B. (1933). *Interregional and International Trade*, Cambridge, Mass.: Havard University Press

Arbogast, M., Lufuke, M., Baha, M.

Papola, T. S. (2014). Economic diversification and labour market dynamics in rural India. *Indian Journal of Agricultural Marketing*, 28(3), 18-33

Parc, J. (2018). Evaluating the effects of protectionism on the film industry: A case study analysis of Korea. In:Murschetz, P., Teichmann, R., Karmasin, M. (eds) *Handbook of State Aid for Film.* Media Business and Innovation. Springer, Cham. https://doi.org/10.1007/978-3-319-71716-6_20

Raju, S. (2023). Impact of imports from China on Indian manufacturing performance: An analysis of trade competitiveness. *International Journal of Emerging Markets*. [Online] Available from: https://www.emerald.com/insight/content/doi/10.1108/IJOEM-02-2022-0223/full/pdf [Accessed 14/08/2023]

Ricardo, D. (1817). *On the principles of political economy and taxation*. London: john Murray (1772-1823)

Rizzo, M. and Wuyts, M. (2014). *The invisibility of wage employment in statistics on the informal economy in Africa: Causes and consequences*. REPOA, Working Paper 14/1

Sarma, M. and Pais, J. (2008). Financial inclusion and development: A cross country analysis. *Journal of International Development*, 23(May), pp. 613-628

Simiyu, E. J. (2017). *The impact of trade liberalization on Kenya*. Doctoral. Thesis. Nelson Mandela Metropolitan University

Sooriyakumar, K., Sarujan, S. and Anushiya, S. (2020). Impact of milk powder imports on local milk industry and consumers welfare in Sri Lanka. *International Journal of economics and Financial Issues*, 10(5), pp. 165-170

Umaru, A. and Zubairu, A. A. (2012). Effect of inflation in the growth and development of the Nigeria economy (An empirical analysis). *International Journal of Business and Social Science*, 3(10), pp. 183-191

Valadkhani, A. (2003). The causes of unemployment in Iran. *International Journal of Applied Business and Economic Research*, 1(1), 21-33

Vernon, R. (1966). International Investment and International Trade in the Product Cycle. *The Quarterly Journal of Economics*, 80, 190-207

Wabiga, P. and Nakijoba, W. (2018). High technology exports, gross capital formation and economic growth in Uganda: A vector auto regressive approach. *International Journal of Business and Economic Research*. X(X). pp. 1-15

Wokabi, V. W. and Fatoki, O. I. (2019). Determinants if financial inclusion in East Africa. *International Journal of Business and Management*, 7(1), pp. 125-143

Yorulmaz, R. (2016). Construction of a financial inclusion index for the member and candidate countries of the European Union.

Zhaohui, N., Chang, L., Saileshsingh, g. and Chris, M. (2018). Non-tariff and overall protection: Evidence across countries and over time. *Review of world economics*, 154(May), pp. 675-703.