CURRENCY MANIPULATION AND THE PROSPERITY OF NATIONS: EMPIRICAL IMPLICATIONS FROM KENYA

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Abstract
Purpose- The study examined whether the unethical practice of currency manipulation persisted; and how this would influence the prosperity of Kenya.

Design/methodology/approach- The study was a mixed model cohort survey of the Kenyan financial regulators, seeking to answer the key question: why currency manipulation persisted; and testing the forex intervention as well as the Ricardian and Heckscher models.

Findings-Currency manipulation is unfavourable, and yet the free floating regime would hurt the prosperity of Kenya's developing economy. Furthermore, some countries were selfish and engaged in the unethical practice to foster economic prosperity at the expense of trading partner nations. This implied that the contemporary finance theory on forex regimes was unhelpful to nations, whose intervention strategies were collaborative.
Originality/value-CNN transmitted news of President Donald Trump accusing the Chinese authorities of currency manipulation leading to USA weak financial prosperity. However, a yearly evaluation of China's monetary policies by the IMF concluded that China neither engaged in the practice nor did they hurt the USA financial wellbeing. Whether or not countries engage in currency manipulation to gain trade advantage over their trading partners is a big deal for nations, including Kenya.
Key words: Currency manipulation, Forex Regimes, financial prosperity, Kenya.
Type of paper: Research paper

1. Introduction

1.1 Background

Currency manipulation is an unfair trade practice which can lead to devastating effects on trade flows as well as trade imbalances amongst trading partner nations (Bergsten, 2017). However, Madura and Fox (2020) found that the world's major currencies were controlled via the managed float system, implying that currency manipulation may take the form of skilled alignment of a nation's currency to cushion against unpleasant economic shocks. Currency manipulation was defined in this study as the deliberate practice by nations to devalue or revalue their currencies by off fair market margins to gain unfair trade advantage over their trading partner states.

In an historic court ruling in South Africa (S.A.) (Ekpo, 2020), individual traders involved in currency manipulation schemes to gain unfair advantage over their counterparts were relieved of their duties and culpable banks required to answer for their actions. According to Ekpo (2020), in the year 2017, American bank, Citibank

was the first to plead guilty and arrived at a settlement with the S.A. Commission to pay a fine of R69.5 million for its involvement in unethical currency manipulation.

Katz (2015) reported how the USA witnessed the narrowest voting margins (51-48) when the country's senate defeated an amendment to the Trade Promotion Authority designed to aid the enactment of trade pacts to include a provision penalizing any nations found to practice currency manipulation. This implied that nations engaging in skilled alignment of their currencies would have no remedy, and yet world's major currencies were controlled via the managed or the 'dirty' float system (Madura & Fox, 2020), the artery of currency manipulation.

In its televised news on August 21st 2018, CNN broadcasted news of USA President Donald Trump accusing the Chinese authorities of engaging in currency manipulation to their favour on American trade deals. According to Navarro (2012), the USA owed China approximately three trillion dollars, with more than fifty thousand American factories having transitioned to the Chinese territory: thanks to currency misalignments and illegally subsidized exports which flooded the USA market from China following the ratification of the 'policy of engagement' in 2001, which saw China join the World Trade Organization. The USA Treasury Secretary Steven Mnuchin categorised China as a currency manipulator under the USA law after Beijing permitted the managed exchange rate to depreciate beyond 7 renminbi to the dollar for the first time in eleven years (Palmer, 2019).

However, a yearly assessment of China's monetary policies by IMF concluded that largely, China's currency was steady, and depreciated by a mere 2.5% against a basket of benchmark foreign currencies, and hence the country did not engage in unethical currency manipulation (Palmer, 2019). This implied that unethical currency manipulation was a big deal, and it had a significant influence on the prosperity of nations.

When a nation's currency change in value is influenced by economic pressures of demand and supply, this equals to currency depreciation or appreciation. Nations witness this trend in a free floating currency environment. However virtually all nations, including those that employ the free floating forex regime intervened in the forex market to cushion their currencies from devastating dangle. This implied that practically all countries, including Kenya used the forex intervention model. The intervention led to currency devaluation (reduced value relative to trading partner currencies) or revaluation (increased value relative to trading partner currencies). When the devaluation or revaluation was a skewed currency misalignment by margins that were way below or above what would be their fair market value relative to those of the trading partner states, currency manipulation set in. However, this could be avoided if trading partner nations engaged in open currency price consultations.

The most rampant practice by especially exporting nations with huge balance of payment surpluses was currency devaluation, with the aim of growing their exports while diminishing their imports. This was because a devalued home currency led to cheaper home goods and services relative to those of the trading partners. This implied that citizens of trading partner states which didn't devalue their currencies were forced to buy cheaper goods and services abroad, thereby killing local

industries. This led to job losses and lost livelihoods of families and communities in those countries. Cwik (2011) observed that currency manipulation on the international market was undertaken to promote exports and trade surpluses.

Besides illegally subsidized exports, where countries involved often awarded exporters profit margins in order to produce and sell at cost; or provided abnormal tax holidays or abnormal capital allowances, certain jurisdictions engaged in currency revaluation. This practice was employed by states with specialized machinery or technology or skilled Human Capital with the aim of discouraging their trading partners from accessing these assets. Revalued currency made these factors of production overly expensive for the trading partners with weaker currencies. According to Heckscher (1919), an increase in the value of factors of production such as labour services, labour skills, physical capital, or land causes biased economic growth in those nations. In Krugman and Obstfeld (2009), renowned economist Ricardo found that technological progress causes biased economic growth in affected states.

In order to manage currency fluctuations, four forex regimes from finance theory namely: (i) free floating regime, which says allow the forces of demand and supply to determine the value of the nation's currency with no fiscal intervention whatsoever; (ii) pegged regime, which says bolt the nation's currency on another nation's currency, especially a significant trading partner, and allow its movements against other currencies to match those of the significant other; (iii) managed float regime, which says allow the forces of demand and supply to influence the value of the nation's currency, while at the same time intervening ethically to regulate the value against extreme shocks; and (iv) fixed regime, which says let the nation's currency value be determined based on a predetermined criteria and thereafter remain unchanged or be allowed to vary narrowly: have been applied. This is regarded as the ethical perspective on one condition, namely, open consultations on currency prices are held between trading partners. A key question was, was this the case? In all the regimes save for the free floating, a nation's fiscal policy managers can intervene. Did this imply that the free floating was the only fair regime? Why was it not applied to manage major currencies? For example, China applied a 'floating peg' regime and was accused of currency manipulation.

Kenya, the largest and leading economy in the East African region applied the managed free floating forex regime. This followed the amendment of all the forex control laws since 1993. Kenya's imports-exports gap reached Ksh 860.87 billion (representing Ksh 1.33 trillion imports versus Ksh 470.57 billion exports) in November 2018 (KNBS, 2018). According to the Ministry of Industry, Trade and Cooperatives (2018), the country had made the export of value-added farm produce including tea, coffee, and fruits to China and India a top priority in a new and ambitious Integrated National Exports Development and Promotions Strategy, whose goal was to grow external sales by 25% each year, to reach Ksh 1.8 trillion by the year 2022. Were the two trading partners, and especially China going to 'play fair ball'? Kenya's president Uhuru Kenyatta banned Chinese fish from the Kenyan markets, arguing that the influx was killing local trade (Vidija, 2018).

1.2 Research questions

1.2.1 How did currency devaluation by Kenyan trading partners influence Kenya's prosperity?

1.2.2 Did subsidized exports by Kenyan trading partners influence Kenya's prosperity?

1.2.3 How did Currency revaluation by Kenyan trading partners influence Kenya's prosperity?

2. Theoretical and Empirical Review

2.1 Theoretical Review

Fanelli and Straub (2017) have developed a baseline model to augment the forex intervention theory: and concluded that intervention policies should be coordinated across nations to avoid wasteful competitive devaluation as well as over-reserve accumulation. Accordingly, the bottom-line of the intervention theory would be to maximize its benefits, while at the same time minimizing its costs. Hence, coordination across nations was the underlying factor. A key question in this study was whether Kenya's trading partner states engaged in the coordination practice. Heckscher (1919) concluded that nations holding factors of production such as machinery or Human Capital with increased prices caused biased economic growth in those nations, as countries with weaker currencies could not access them. This applied to technological advancement promoted by Ricardo in Krugman and Obstfeld (2009).

2.2 Empirical Review

An increase in a nation's money supply leads to a fall in both the interest rates and rates of return on domestic currency deposits, as well as the depreciation of the domestic currency (Krugman & Obstfeld, 2009). Jung (1995) hypothesized and tested the normal mixture model with 'appropriate components that provided satisfactory fit to the data' on forex forecasting and concluded that central banks intervention in the forex markets were partly responsible for the poor forex management models' predictive power. Ladany and Arbel (1976) designed a model to test how the supply of funds would be affected by the ratio between the black market exchange rate and the official exchange rate in Israel, and found that when the black market rate was lower than the effective export rate, there was a motivation for exporters to over-state the volume of exports, buy foreign exchange in the black market and offload it to the government as export proceeds. Carsamer (2016) applied the augmented DCC model framework to study forex volatility diffusion in most Africa markets and concluded that both the Chinese and the UK's forex news had significant impact on the African trade balances and GDP growth. Was Kenya's central bank's intervention in the forex market responsible for the country's trade imbalances?

3. Methodology

A key question in this study was: did currency manipulation persist, and did it affect the prosperity of nations? The question was directed to the census of the five Chief Executive Officers (CEOs) of the five Kenya's financial regulators who administer the country's financial progression. Accordingly, the research was a cohort-mixed model survey of the Kenyan regulators namely (i) Central Bank of Kenya (CBK), (ii) Capital Markets Authority (CMA), (iii) Insurance Regulatory Authority (IRA), (iv) Retirement Benefits Authority (RBA) and (v) Sacco Societies Regulatory Authority (SASRA).

Each regulator is unique, hence the choice of the cohort model. However, when the CMA CEO received the questionnaire, he mobilized his top nine managers plus himself to respond. This implied that the results solicited were CMA concentrating. However, this enriched the study findings because CMA controls the listed industry and especially Multinational Corporations who bear the sting of forex volatility, and have weighty influence on Kenya's prosperity. Accordingly, raw data was collected from a census of fourteen managers through the survey strategy as follows:

Regulator	**Number of managers Surveyed**
CBK	1
CMA	10
IRA	1
RBA	1
SASRA	1
Total	**14**

In all the cases, hard copies of pre-tested questionnaires were employed and a response rate of 93% was achieved. The mixed model was applied in data analysis.

The study variables were measured using both the ordinal scale and Likert-type scale (1= strongly disagree; 2= Disagree; 3= Agree; 4= strongly agree). The following hypotheses were tested to yield requisite results:

Hypothesis 1: There was no statistical significant relationship between currency devaluation by Kenyan trading partners and Kenya's prosperity.

Hypothesis 2: Subsidized exports by Kenyan trading partners had no statistical significant relationship with Kenya's prosperity.
Hypothesis 3: Currency revaluation by Kenyan trading partners had no statistical significant relationship with Kenya's prosperity.
Overall model hypothesis 4: There was no statistical significant relationship between the sum of currency devaluation, subsidized exports, as well as currency revaluation by Kenyan trading partners and Kenya's prosperity.

1. Results and Findings

4.1 Demographics

Table 1 presented demographic information on the respondents in frequencies and percentages. This included:(i) gender of the respondents, (ii) Age, (iii) highest level of education, and (iv) years spent in the current position.

Table 1: Demographic characteristics

		Frequency	Percent	Cumulative Percent
Gender	Male	9	69.2	69.2
	Female	4	30.8	100.0
	Total	13	100.0	
Age	Below 50 years	10	76.9	76.9
	More than 50 years	3	23.1	100.0
	Total	13	100.0	
Level of Education	Bachelor's Degree	2	15.4	15.4
	Master's Degree	8	61.5	76.9
	PhD	2	15.4	92.3
	Post Graduate Diploma	1	7.7	100.0
	Total	13	100.0	
Years in Current Position	Less than 1	2	15.4	15.4
	1-5	5	38.5	53.8
	More than 5	6	46.2	100.0
	Total	13	100.0	

Males aged below fifty years, and holding a master's degree were dominant respondents.

4.2 Descriptive analysis

4.2.1 Descriptive analysis of Currency Manipulation by Devaluation

Table 2: Descriptive analysis of Currency Manipulation by Devaluation

	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
Buying assets in their home markets denominated in their home currency caused Kenya's trading partners to devalue their currencies below their fair market value.	15.4	46.2	23.1	15.4	2.77	1.423
Buying assets in Kenya denominated in Kenya shillings made Kenya's trading partners reduce their currencies relative to the Kenya shillings below their fair market value.	7.7	53.8	7.7	30.8	3.00	1.528
When Kenya's trading partners devalued their currencies below their fair market value, Kenya followed suit and devalued her own below its fair market value.	30.8	53.8	7.7	7.7	2.08	1.188
Kenya's trading partners engaged in the coordination process with Kenya before devaluing their currencies.	61.5	23.1	7.7	7.7	1.77	1.301
The free floating forex regime was the only regime which would inhibit currency manipulation among Kenyan trading partners.	0.0	30.8	53.8	15.4	3.54	1.127

Kenya had to intervene in the forex market to cushion her currency from extreme shocks although she employed the free floating regime, because her economy was developing.	0.0	7.7	53.8	38.5	4.23	.832
Kenya's central bank's intervention in the forex market was responsible for the county's trade imbalances.	23.1	76.9			1.77	.439

4.2.2 Descriptive analysis of Currency Manipulation by Subsidized exports

Table 3: Descriptive analysis of Currency manipulation by Subsidized exports

	Disagree	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%		
Paying their exporters profit margins and therefore making them produce and sell goods at cost made Kenya's trading partners have unfair advantage and hence export more into the Kenyan market.	0.0	38.5	61.5	4.62	.506
Kenya's trading partners offered tax holidays that were greater than was allowed by the World Trade Organization (WTO).	30.8	38.5	30.8	3.69	1.251
Kenya's trading partners offered capital allowances that were greater than was allowed by WTO.	69.2	15.4	15.4	2.77	1.235
Export subsidies were used by Kenya's trading partners as a form of currency manipulation.	30.8	38.5	30.8	3.69	1.251

4.2.3 Descriptive analysis of Currency Manipulation by Revaluation

Table 4: Descriptive analysis of Currency manipulation by Revaluation

	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
Selling assets in their home markets denominated in their home currency caused Kenya's trading partners to revalue their currencies above their fair market value.	7.7	30.8	38.5	23.1	3.38	1.387
Selling assets in Kenya denominated in their currencies made Kenya's trading partners revalue their currencies relative to the Kenya shillings above their fair market value.	0.0	23.1	61.5	15.4	3.69	1.032
Revaluing their currencies above fair market value caused Kenya's trading partners to inhibit Kenya from accessing affordable factors of production such as advanced technology.	0.0	38.5	53.8	7.7	3.31	1.109

4.3 Descriptive analysis on the Finance Theory

Table 5: Descriptive analysis of Finance Theory

	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
Finance theory was sufficient in aiding nations better manage the fair value of their currencies.	7.7	30.8	53.8	7.7	3.23	1.235
Finance theory was sufficient in aiding unethical nations better manage the fair value of their currencies.	0.0	76.9	15.4	7.7	2.54	1.050

4.4 Descriptive analysis on the Prosperity of Nations

Table 6: Descriptive analysis of Prosperity

	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
Reducing their currencies below fair market value caused Kenya's trading partners to export more into the Kenyan market.	0.0	15.4	46.2	38.5	4.08	1.038
When Kenya's trading partners exported more into the Kenyan market, this killed Kenya's industries leading to unemployment and lost livelihoods.	0.0	7.7	30.8	61.5	4.46	.877
Improved technology made Kenya's trading partners experience more economic growth than Kenya.	7.7	30.8	38.5	23.1	3.38	1.387
Increased factors of production such as raw materials and Human Capital made Kenya's trading partners experience more economic growth than Kenya.	15.4	15.4	46.2	23.1	3.46	1.450
Currency manipulation persisted among Kenya's trading partners because it helped them achieve enhanced economic growth relative to that of Kenya.	7.7	30.8	30.8	30.8	3.46	1.450
When Kenya's trading partners inhibited Kenya from accessing affordable factors of production, this killed Kenya's industries leading to unemployment and lost livelihoods.	0.0	38.5	30.8	30.8	3.54	1.330

4.5 Correlation analysis

A set of three hypotheses constituted the independent variables. These were: (i) Currency manipulation by devaluation, (ii) Subsidized exports, and (iii) Currency manipulation by revaluation. Prosperity and finance theory were the dependent and moderating variables respectively. Correlation analyses was conducted on the variables and results summarized in Table 7.

Table 7: Correlation Analysis

		Prosperity	Currency manipulation by Devaluation	Subsidized exports	Currency manipulation by Revaluation
Prosperity	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	13			
Currency manipulation by Devaluation	Pearson Correlation	.612*	1		
	Sig. (2-tailed)	.026			
	N	13	13		
Subsidized exports	Pearson Correlation	.556*	.484	1	
	Sig. (2-tailed)	.048	.094		
	N	13	13	13	
Currency manipulation by Revaluation	Pearson Correlation	.609*	.713**	.677*	1
	Sig. (2-tailed)	.027	.006	.011	
	N	13	13	13	13

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 7 show that there was a positive and statistically significant linear relationship between: (i) Currency manipulation by Devaluation and the Prosperity of nations as follows: r=0.612; p=0.026, (ii) Subsidized exports and the Prosperity of nations as follows: r=0.556; p=0.048, and (iii) Currency Revaluation and the Prosperity of nations as follows: r=0.556; p=0.027. Essentially, all their respective p-values were less than 0.05. This implied that all forms of currency manipulation would impact the economic prosperity of Kenya.

4.6 Path analysis and Regression analysis

4.6.1 Influence of Currency manipulation by Devaluation on the Prosperity of Kenya

A simple linear regression was conducted with the Prosperity of Kenya as the dependent variable and Currency manipulation by Devaluation as the independent variable. According to the research findings in Table 8, it was found that currency manipulation by devaluation explained 31.8% of the variation in the dependent variable. Accordingly, the model was found to be significant in predicting the Prosperity of Kenya, with F=6.593, and p=0.026.

Table 8: Regression analysis of Currency manipulation by Devaluation and the Prosperity of Kenya

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F-value (p-value)	R^2
	B	Std. Error	Beta				
(Constant)	.733	1.178		.622	.547	6.593	0.318
Currency manipulation by Devaluation	1.096	.427	.612	2.568	.026	(0.026)	

a. Dependent Variable: Prosperity of Kenya

Structural equation modelling using Path analysis was conducted using AMOS and results presented in Figure 1: which implied weighty effect of the model.

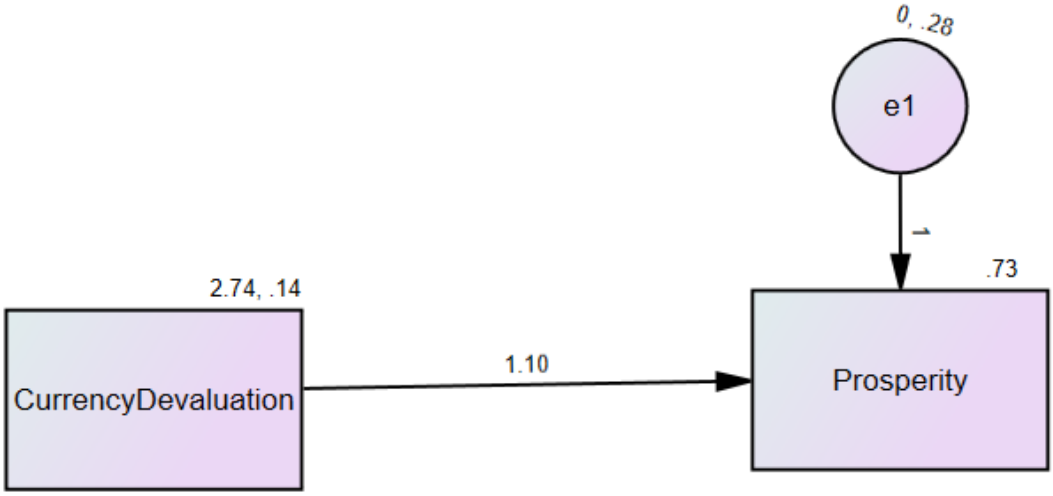

Figure 1. Path Analysis Regression Model of Currency Devaluation and Prosperity

The resulting regression equation predicting the Prosperity of Kenya was formulated as follows:
Prosperity = 0.73 + 1.10 *Currency manipulation by Devaluation.

Following the output, the study rejected the first hypothesis: that currency manipulation by devaluation had no influence on the prosperity of Kenya. This implied that currency manipulation by devaluation by Kenya's trading partners would hurt Kenya's economy, and her prosperity.

4.6.2 Influence of subsidized exports on the Prosperity of Kenya

A simple linear regression was conducted with the Prosperity of Kenya as the dependent variable, and subsidized exports by Kenya's trading partners as the independent variable. According to the research findings in Table 9, it was found that the independent variable explained 24.7% of the variation in the dependent variable. The model was found to be significant in predicting the Prosperity of Kenya as follows: F= 4.930, p=0.048. This implied that subsidized exports by Kenya's trading partners would hurt the prosperity of Kenya's economy.

Table 9: Regression analysis of Currency manipulation by subsidized exports and Prosperity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F-value (p-value)	R^2
	B	Std. Error	Beta				
(Constant)	1.916	.834		2.297	.042	4.930 (0.048)	0.247
Subsidized exports	.484	.218	.556	2.220	.048		

a. Dependent Variable: Prosperity of nations

Structural equation modelling using Path analysis was also conducted using AMOS and the results presented in Figure 2.

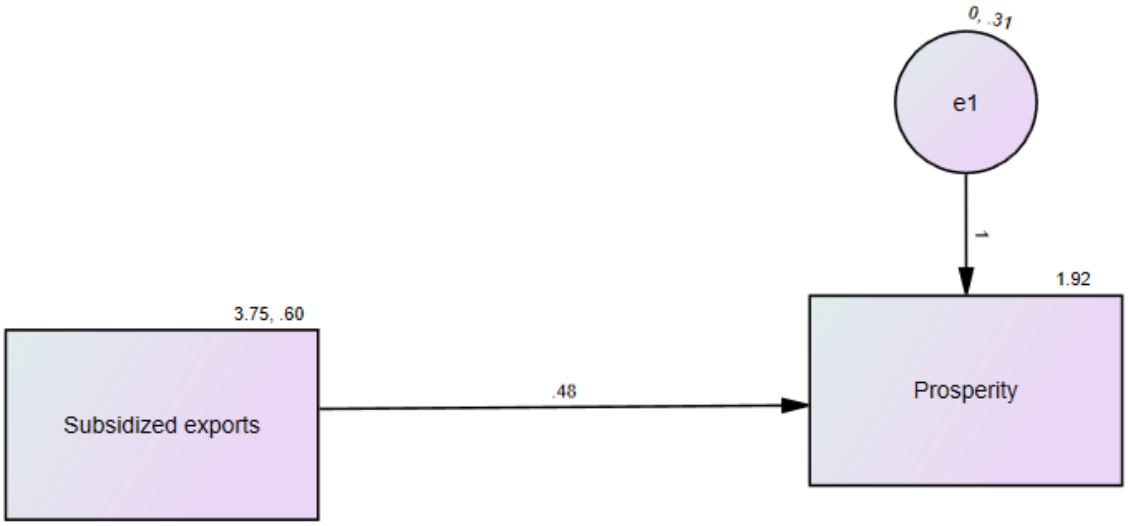

Figure 2. Path Analysis Regression Model of Currency subsidized exports and the Prosperity of Kenya

The resulting regression equation predicting the Prosperity of Kenya was formulated as follows:

Prosperity = 1.92 + 0.480 * subsidized exports.

Accordingly, the study rejected the second hypothesis, implying that subsidized exports by Kenya's trading partners would inhibit the prosperity of Kenya's economy.

4.6.3 Influence of Currency manipulation by Revaluation on the Prosperity of Kenya

Basic linear regression was conducted with the Prosperity of Kenya as the dependent variable and currency manipulation by revaluation as the independent variable. The research findings were presented in Table 9. The independent variable explained 31.4% of the variation in the dependent variable. Accordingly, the model was found to be significant in predicting Prosperity as follows: F= 6.487, and p=0.027. This implied that currency manipulation by revaluation employed by Kenya's trading partners would harm the prosperity of Kenya's economy.

Table 9: Regression analysis of Currency manipulation by Revaluation and Prosperity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F-value (p-value)	R^2
	B	Std. Error	Beta				
(Constant)	2.192	.625		3.507	.005	6.487 (0.027)	0.314
Currency Revaluation	.444	.175	.609	2.547	.027		

a. Dependent Variable: Prosperity of nations

The results of a structural equation modelling using Path analysis were presented in Figure 3.

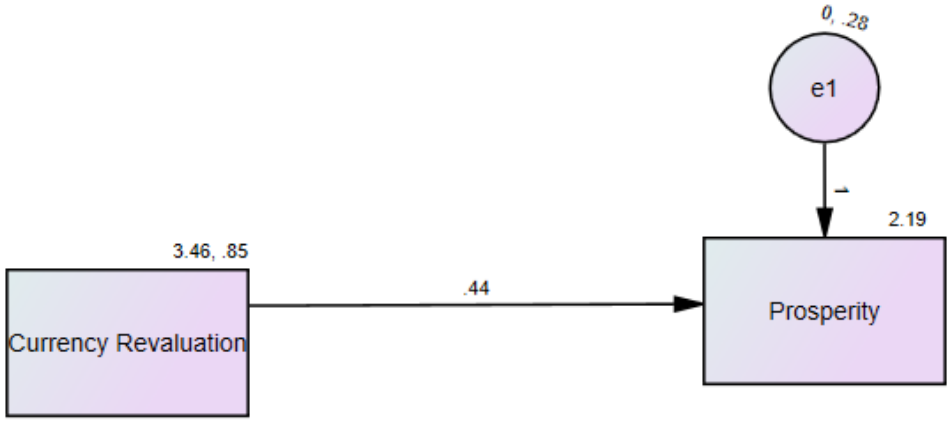

Figure 3. Path Analysis Regression Model of Currency Revaluation and Prosperity

The resulting regression equation predicting the Prosperity of Kenya was formulated as follows:
Prosperity = 2.19 + 0.440 * Revaluation.
The third hypothesis was therefore rejected, implying that Currency manipulation by revaluation employed by Kenya's trading partners would impair the prosperity of Kenya.

In sum, the three research questions were found to be significant predictors of the prosperity of Kenya, at 5% level of significance.

4.7 Combined regression model analysis

Multiple linear regression was performed on the Prosperity of Kenya as the dependent variable: and currency manipulation by devaluation, subsidized exports, and currency manipulation by revaluation as the independent variables. The results were presented in Tables 10, 11 and 12.
In Table 10, the independent variables were found to elucidate 29.8% of the variation in the prosperity of Kenya, as indicated by a coefficient of determination ($\mathbf{R^2}$) value of 0.298.

Table 10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688[a]	.473	.298	.58570

a. Predictors: (Constant), Currency manipulation by Revaluation, Subsidized exports, Currency manipulation by Devaluation

Table 11 presented ANOVA, which determined the significance of the model. The results showed that the model did not significantly predict prosperity: with *F*= 2.697; and *p*=0.109.

Table 11: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.776	3	.925	2.697	.109[b]
	Residual	3.087	9	.343		
	Total	5.863	12			

a. Dependent Variable: Prosperity of Kenya

b. Predictors: (Constant), Currency manipulation by Revaluation, Subsidized exports, Currency manipulation by Devaluation.

Table 12: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.662	1.341		.494	.633
	Currency manipulation by Devaluation	.647	.618	.361	1.047	.322
	Subsidized exports	.231	.286	.265	.808	.440
	Currency manipulation by Revaluation	.125	.299	.172	.419	.685

Dependent Variable: Prosperity of Kenya.

In Table 12, the model equation was formulated as follows: Prosp = 0.662 + 0.647*CMD + 0.231*SE + 0.125*CMR. Based on the findings, the independent variables in the combined model did not have a significant impact on the prosperity of Kenya, at 5% level of significance. This implied that if Kenya's trading partners devalued their goods, subsidized, and revalued them at the same time, this would not have significant influence on the prosperity of Kenya. This would further imply that simultaneous devaluation and revaluation have a neutralizing effect on each other.

4.8 Moderating effect

An analysing was undertaken on the relationship between the moderation and the dependent variables. In this regard, I sought to establish whether finance theory as the moderator would enhance or diminish the relationship between the dependent and independent variables. This would be determined by a significant coefficient of an interaction term.

Accordingly, multiple linear regression was performed with the Prosperity of Kenya as the dependent variable: and, Currency manipulation by Devaluation, Subsidized exports and Currency manipulation by Revaluation as the independent variables. Two models were presented: (i) model one had no interaction terms, and (ii) model two had interaction terms. Three Tables were produced in each model as follows: (i) Model summary Table, (ii) ANOVA Table and (iii) Model Coefficient Table.

Table 13 was the Model summary and presented results of the coefficient of determination (R^2) and the R^2 change. R^2 change would show the rise in deviation explained by adding an interaction term. Consequently, addition of interaction terms caused a 26.6% increase in the variation of the prosperity of Kenya. However, the increase was statistically insignificant: F = 2.046, *p*=0.209. This implied that the finance theory indeed impacted currency manipulation and its consequent impact on the prosperity of Kenya, but insignificantly. This would further imply that the contemporary finance theory was irrelevant in diminishing currency manipulation which hurt the prosperity of Kenya.

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.688[a]	.473	.298	.58570	.473	2.697	3	9	.109
2	.860[b]	.740	.479	.50434	.266	2.046	3	6	.209

a. Predictors: (Constant), CMR, SE, CMD
b. Predictors: (Constant), CMR, SE, CMD, SE*Fin, CMD*Fin, CMR*Fin

The ANOVA model in Table 14 with the interaction terms was statistically insignificant: F (6,6) = 2.842 and *p* = 0.115. This implied that the finance theory was extraneous to nations in managing currency fluctuations, and hence nations could engage in the unfavourable practice of currency manipulation which hurt the prosperity of their trading counterparts.

Table 14: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.776	3	.925	2.697	.109[b]
	Residual	3.087	9	.343		
	Total	5.863	12			
2	Regression	4.337	6	.723	2.842	.115[c]
	Residual	1.526	6	.254		
	Total	5.863	12			

a. Dependent Variable: Prosp
b. Predictors: (Constant), CMR, SE, CMD
c. Predictors: (Constant), CMR, SE, CMD, SE*Fin, CMD*Fin, CMR*Fin

The coefficient model in Table 15 showed the significance of the interaction terms, as it also provided important information on the overall impact of the moderator in its connexion with the dependent and the independent variables.

Table 15: Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.662	1.341		.494	.633
	CMD	.647	.618	.361	1.047	.322
	SE	.231	.286	.265	.808	.440
	CMR	.125	.299	.172	.419	.685
2	(Constant)	1.851	1.987		.932	.388
	CMD	.279	1.556	.156	.180	.863
	SE	-1.731	1.135	-1.990	-1.525	.178
	CMR	2.030	.814	2.782	2.496	.047
	CMD*Fin	-.100	.311	-.527	-.322	.759
	SE*Fin	.856	.450	5.755	1.903	.106
	CMR*Fin	-.788	.341	-5.225	-2.311	.060

a. Dependent Variable: Prosperity

The Regression equation in Table 15 was formulated as follows: Prosp = 1.851 + 0.279*CMD – 1.731*SE + 2.030*CMR - 0.100 CMD*Fin + 0.856 SE*Fin - 0.788 CMR*Fin, where: Prosp = Prosperity of nations, CMD = Currency manipulation by Devaluation, SE = Subsidized exports, CMR= Currency manipulation by Revaluation and Fin = Finance theory, the moderating variable. Requisite results affirmed that the interaction terms of all the variables were statistically insignificant and hypothesis four was not rejected. This implied that the finance theory was infeasible in prohibiting currency manipulation which harmed the prosperity of nations.

4.9 Regression/Path analysis summary model

A path summary model was established and presented in Figure 4. The requisite results affirm the aforementioned findings from the combined effect model.

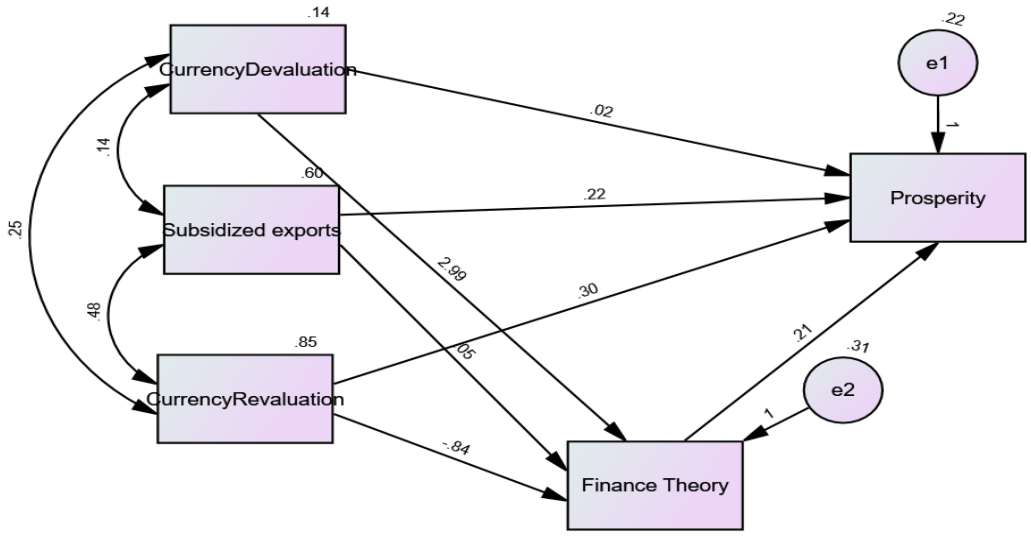

Figure 4: Regression/Path analysis summary model

5. Discussions, Conclusion, Recommendations

World's leading currencies were controlled through the managed or the 'dirty' float forex system, as central banks intervened to stabilize their monies against extreme and unpleasant shocks. However, these interventions ought to have been consultative among trading partners to prohibit currency manipulation which led to unfair trade. Jung (1995) found that banks intervention in the forex markets were partly responsible for the poor forex management models' predictive power. This implied that nations could engage their central banks to unfairly influence their currencies to their favour. This summed up to unethical currency manipulation. These findings were corroborated by this study's results, as currency manipulation persisted, (62% of interviewees supported the notion) and hurt the prosperity of Kenya. Seventy-seven percent of the examinees supported the view that the finance theory was unhelpful in prohibiting nations from engaging in currency manipulation.

Ninety-nine percent of Kenyan micro, small and medium enterprises merchandized products sourced from the Chinese markets. This validated Carsamer's (2016) empirical evidence, that Chinese forex news had direct and immediate effect on the African and Kenyan trade balances. Accordingly, any currency manipulation by the Chinese would hurt Kenya's economic prosperity. Vidija (2018) affirmed that Kenya's president banned Chinese fish, because it was killing the local market.

In tandem with Ladany and Arbel (1976) empirical findings as verified by this study results, the existence of forex black markets in most jurisdictions such as Kenya was promoted by currency manipulation practices.

In conclusion, the forex intervention theory promoted by Fanelli and Straub (2017) could be employed by nations to gain unfair trade advantage on trading partner states. This was achieved through the unfavourable practice of currency manipulation. Furthermore, both Ricardian and Heckscher models were corroborated (62% and 69% of the respondents respectively), implying that nations with advanced factors of production such as machinery, technology or human capital should allow those without access through fair forex trade deals devoid of currency manipulation to promote balanced trade. Furthermore, consultations among trading partner states should promote bank interventions as the purely free-floating forex regime would hurt developing nations such as Kenya, with weak economies. This was because extreme currency shocks were very expensive especially for the industry in developing economies.

The USA senate failed to enact a legal stipulation which would enable the chastisement of nations engaged in currency manipulation. Accordingly, it was recommended that the WTO ought to enact such law to augment the contemporary finance theory on forex regimes which remained unhelpful to nations involved in skilled alignment of their currencies. Furthermore, researchers could pursue the area and pose their hypothesis to a larger sample of nations.

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