

Examining the Empirical Effect of Public Debt on Export Earning of Flower Firms in Kenya.

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Abstract: Flower firms play significant role in Kenya economic growth; however, they face uncertain future on their operations due to overreliance on export earning which is affect by exchange rate fluctuation. The study sought to establish the effect of foreign public debt on export earnings of flowers firms in Kenya. The study was guided by classical theory of public debt. The study used descriptive research design to evaluate connection between determinant exchange rate fluctuation and export earning of flower firm in Kenya. The study used both secondary and primary data. The study target population was 100 (accounts and finance managers) working with 30 registered flower firms in Kenya. The study employed structured questionnaires. The research instrument was pilot tested in two flower firms namely Sosian flower firm and Kitale Riverside Flowers before its administration for data collection in the main study. The data collected was subjected to relevant processing and analysis whereby the Statistical Package for Social Sciences (SPSS) software was analysis data. Descriptive statistics tools including mean, mode, standard deviation and variances were used. Inferential statistics in form of correlation and multiple regression analyses was also used to analyze data. The research hypotheses were tested at 0.05 level of significance. The study finding indicate that public debt has strong positively and statistically significant of ($\beta_4 = 0.201, p < 0.05$) on export earnings of flower firms in Kenya. The study recommends that there is need for policy makers and Government to maintain optimal level of public debt in the country bearing in mind that they influence export earnings. This study will be useful to practitioners and policy makers through providing evidence which help in understanding factors affecting export earning of flower firms which will be important for management purpose and development of new policies.

Key Words: Flower firms, public Debt, Export Earning

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I. Background of the Study

In any country the major objective of the government is to ensure economic growth. Kenya's ambition to become a newly industrialized upper middle-income country is enshrined in Vision 2030. Floriculture sector in Kenya play significant role on the achievement of this objective and vision 2030 (Bishoge, Zhang & Suntu, 2017). The floriculture sub-sector has been pivotal in boosting the growth of the agriculture sector. Recently, the industry performed well, increasing its earnings by 41 per cent to 305 million in 2017 from 216 million in 2016, employing an estimated 500,000 people, thus placing the sector among the top economic drivers in the country (Kenya flower council, 2018).

Export earnings are earnings of a firm or a country from export of goods and services to foreign countries. Exports of horticultures product are importance to the economic growth of developing countries. Thus, effect employment, balance of payments, price and income stabilization and income distribution directly related to the horticulture export sector (Kibiy & Nasieku, 2016). High export earning in a country can lead to high investment which results in high economic growth. Exports have contributed to the economic growth of the country. Specifically, exports generate foreign exchange; generate revenue for government; provide employment for in the country; boost nation's productivity; provide industrialization base for the country and contribute to the country's GDP (Kartikasari, 2017).

Firms that deal with international business are exposed to exchange rate fluctuation risk which affect the export performance resulting from convention of foreign currency received to home currency to gather for firm operation required (Adetayo, 2013). Foreign exchange rate fluctuation according to (Ramasamy & Abar, 2015) is the international monetary system in which market force of demand and supply determine the rate of each currency. Exchange rate play an important role in international trade and often fluctuate as a result of varies reasons which include a) Inflation rates rate b) Political factors c) Balance of payment d) interest rate and e) Speculation (Mirchandani, 2013).

Public debt refers national debt owned by the central government. A country with government debt is less likely to acquire foreign capital, leading to inflation. Foreign investors will sell their bonds in the open market if the market predicts government debt within a certain country (Musyoki, Ganesh & Pundo, 2012). If a country is perceived to have a high national debt, without a credible plan for dealing with it, that can have a negative impact on the value of its currency. Through various channels, the amount and structure of public debt can have a significant influence on a central bank's foreign exchange reserve management (Oiro, 2015). On the other hand, repayment of public foreign currency debt not only reduces the level of foreign exchange reserves but can cause transient problems in liquidity management (Majumder, Ray & Sinha, 2015).

In India inflation rates is the major determinant of level of exchange rate fluctuation. High inflation rate weakens India currency leading to apparition of country exchange rate (Sharma & Rai, 2014). Currency appreciation and currency fluctuation lead to decrease in export earnings in India (Jayachandran, 2013). Flower business in India is considered highest return agriculture business but a case documented revealed that though flower business is profitable export of flowers contain many challenges which affect their earning 2500 farmers involve in flower business in Pradesh Himachal using land total to 584 hectares earn a only Rs.220 million per year from floriculture export (Bijalwan, Dubey & Rathau, 2017).

In Turkey, public debt political factors, and balance of payment are the major factors responsible for exchange rate fluctuation. Increase in both public debt and balance of payment cause appreciation in exchange rate (Saraç & Karagöz, 2016). Exchange rate volatility resulting from change in balance of payment influence export earnings (Yaksel, 2012). In a study done the same year it was found that exchange rate has significant negative effect on turkey export in long run (Demeza & Ustaoglu, 2012). RER volatility has positive effect on turkey export earning in long run and no significant effect in short run (Tatliyer & Yigit, 2016). Turkey flower industry has grown steadily since then. Flower exports earning in turkey rose up to \$ 56 million in 2010 from \$ 17 million in 1996 (Erdogan, 2016).

In Nigeria, public external debt come with interest attached, which results in debt servicing. Serving external debt involve demand for foreign currency which affect the exchange rate of the country (Hassan, Abubakar & Dantama, 2017). Fluctuation of exchange rate influence import and export (international trade) in both short and long term this negatively affect trade flow in long run (Odili, 2015). Depreciation of foreign exchange rate leads to increase in export earnings agriculture products in Nigeria. Despite important role play by Flower industry in Nigeria, the industries have been hampered by various problems and receive little support from their government. Production of cut flowers in Nigeria continued to increase while their earnings decline (Akintoye, Idowu, Olufolaji, Adebayo, Olatunji, Aina & Shokalu, 2011).

In Sudan, debt service burden results in a real depreciation of currency, while increasing foreign exchange reserve results in a real appreciation of currency. Moreover, Political instability has a significant negative effect on the value of domestic currency (Deng, 2013). Real exchange rate volatility negatively affects Sudanese export (Ebaidalla, 2014). Sudan was faced by varies economic constrains between the year 2008 and 2010 due to loss of revenue from oil export attributed to sudden depreciation of exchange rate (Ebaidalla, 2014). RER over valuation badly interfere with economic performance and reduce export earning in Sudan while under value support economic growth and increase

External debt has most influence and positively impacted the KES/EUR and KES/USD foreign exchange rate volatilities. Increase in external debts increases the volatilities of the two currencies while a decrease in external borrowing decreases their volatilities (Kibiy & Nasieku, 2016). Interest rates have most positive contribution to the KES/JPY exchange rate volatility and its increase would increase the volatility while a reduction of the interest rates would result in a decline of the Yen Volatility. Inflation have the lowest positive influence on the Yen volatility meaning an increase in inflation would lead to an increase in volatility while a reduction in inflation in the country would lead to a fall in the Yen volatility (Otuori, 2013).

Exchange rate volatility determinant have an impact on Kenya export earnings. With interest rate, inflation rate and money supply having positive effect on export and public debt had negative impact to export (Karuraa, 2017). Volatility of foreign exchange rate significantly affects performance of stock exchange and monitoring of exchange rate trend by investors in the market and use strong currency which enhance maximum return from investment (Obi1, Ndou & Peter, 2013). Export earning of flower firms was affected by frequent changes of exchange rate it noted that two exchange rates determinant notably public debt and balance of payment had a significantly positive affects export earnings of Kenya flower firms (Rono, Kipkurui & Rotich, 2018).

Statement of the Problem

Stable earning is an important aspect in business. This help firms and business to budget with assururity of their production and performance. Exporters of flowers are interested with export earnings stability in order has to cover their cost of production. Though flower exportation in Kenya is among the major contributors to foreign earning in the country their earnings have been unstable all the years which has a negative impact on

farmers and Kenya economy (Mwase, 2015). For instance, in 2014 Kenya exported 136,601 metric tons of flowers and earned Kshs 55 million while in 2015, Kenya exported 122,800 and earned Kshs 63 million. This shows an increase of earnings against a backdrop of the volume exported. Export earnings volatility have a negative effect on economic growth in the long run implication include losses of foreign exchange, unfavorable balance of payment and capital flight which will reduce country ability to sustain economic growth (Okereke, 2016). Despite the critical importance that flowers play in Kenya's economic development and concerns raised by exporters and policy makers, the relationship between foreign exchange rate fluctuation and export earnings in Kenya remains unclear. There have been limited studies in Kenya on the effect of foreign exchange rate fluctuation and export earnings done by Rono, Kipkurui & Rotich, (2018), Mlambo, Maredza & Sibanda, (2013), Karuraa (2017), Obi1, Ndou & Peter, (2013). Therefore, there is a gap which this study sought to fill by analyzing determinant of exchange rate fluctuations on export earnings of selected flowers firms in Kenya.

Research Objective

The general objective of this study was to ascertain the effect of Public debt on export earning of flower firms in Kenya.

Research Hypothesis

H₀₁: Public debt has no significant effect on export earning of flower firms in Kenya

II. Literature review

Theoretical Review

In this section discusses the theory which formed the basis of conceptualized relationship existing between determinant of public debt and export earnings. This theory is Public interest theory

Classical Theory of Public Debt

Classical theory of public debt was introduced by Adam Smith in 1980s. The theory hold that public borrowings does not create new capital however they in this manner either borrowed what other people must have employed all in maintaining productive labor (Megersa, 2015). According to this theory there is a remarkable distinction between an individual borrowing and a borrowing government the former borrows capital for the purpose of beneficial employment the latter for the purpose of the barren consumption and expenditure. Say vehemently reject the argument that as a debt it imposes no burden on the economy by arguing that government bond is simply a parchment and not properly and as such holding of debt bond is not like holding of real wealth (Egert, 2015).

This theory is based on a number of assumptions. Firstly, the view that the State functions should minimum and the government had to maintain only internal law and order, defense from external aggression and look after some public works (Carabelli & Cedrini, 2015). Secondly that full employment existing in the economy and there is a perfect competition and mobility of factors for production in the market. Also assume that there is no need of government intervention in the smooth going economic activities (Ingham, 2004). The theory further assumes the supply of money is fixed, any amount that is transferred to the government will be at the cost of the private (Megersa, 2015).

This theory is criticized mainly on two grounds. Firstly, every government expenditure is not always unproductive, hence public borrowing may not be always burden upon the economy and secondly, the traditional view regarding the shifting of debt, is not correct (Egert, 2015). The real burden must be borne in the period in which public expenditure has been incurred because resources are not withdrawn from private use and put into public projects only in this period (Megersa, 2015). There is no burden of the basic burden to the future generation. Future generation not only inherits liabilities of the payment of interest and principal from the present generation but also inherits assets in the form of the right of receiving the interest and principal (Egert, 2015).

Public Debt and Export Earning

Kourtellos, Stengos, and Tan, (2013) conducted a study effect of public debt on growth in multiple regimes structural threshold regression methodology was used to investigate relationship between debt and economic growth which was a free from discrimination and other trade barriers. Empirical results revealed that domestic regulation had a significant negative effect on export decision and value of professional service export by varies firms in French. This study looked at the domestic regulation effect on export of professional service in French a developed nation. While this study will look at effect of domestic regulation on export earning of flower in Kenya underdeveloped country hence it is not applicable to the study.

Ijeomay (2013) studied influence public debt on selected macroeconomic economy indicators in Nigerian. The study used linear regression analysis to analysis secondary data drawn from Debt Management

Office and internet materials. The study found that external debt had significant effect on Nigeria economic growth during the study period. Analysis also revealed significant association between debt service payment and capital formation in Nigeria. The study concluded that government should avoid borrowing as much as possible and only borrow high priority projects are being considered. The study looked at the influence of public debt on economic growth but this study will be looking at the effect on export earning of flower firms hence not applicable to the study.

Putunoi and Mutuku (2013) studied impact of public domestic debt on economic growth in Kenya. The study employed analysis and ordinary least square model to analyze existing relationship between the variable. The study results revealed existence of positive connection between domestic debt and economic growth in Kenya. Also found out that previous values of interest rate gross domestic product debt and private sector credit were the variables influencing economic growth during the study period. The concluded by suggesting that domestic debt should be used for productive purposes in order to positively influence economic growth in the country. The study looked at effect domestic debt had on economic growth while this study will at effect public debt both local and foreign on export earning thus not applicable.

Conceptual Framework

The research assignment will consider public debt as an independent variables. Export earnings will be the dependent variable.

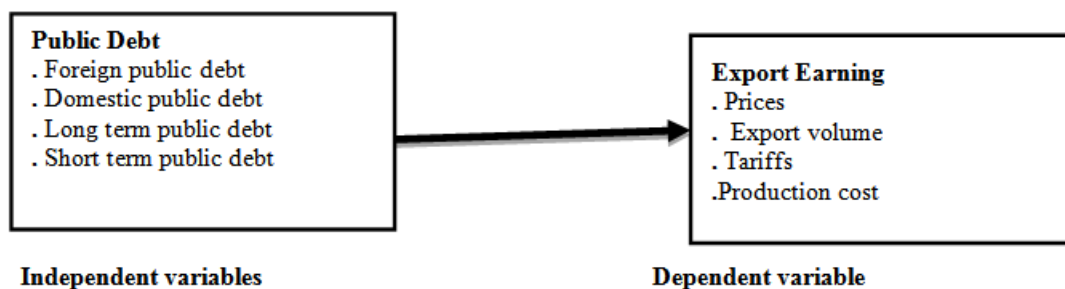


Figure 2.1: Conceptual Framework

III. Research methodology

Research Design

Research design guide the process of conducting research, it outlines how to go about in collecting data, measuring and data analysis (Upagade & Shende, 2012). This study used descriptive research design to evaluate connection between determinant exchange rate fluctuation and export earning of flower firm in Kenya. Descriptive research design enable researcher to capture important aspects of the situation (Sckaran & Bougie, 2011).

Target Population

Population can be defined as group of individual, objects or events with common observable characteristic (Ngwenya & Ramukumba, 2017). The target population is aggregate of all that conforms to a given specification and to which result will be generalized (Eldredge, Weagel& Kroth, 2014). The target population of this study will be employees of 108 flower firms in Kenya. The accessible population refer to subset of the enter target population that can be practically reached in selecting the sample (Ngwenya & Ramukumba, 2017). The accessible population of this study will be 100 employees of 20 flower exporting firms in Kenya licensed by Kenya flower council.

Sample Size and Sampling Technique

Purposive sampling method involves deliberate selection of particular units of the universe for constituting a sample which represents the universe. When population elements are selected for inclusion in the sample based on the ease of access (Kothari, 2004). The study will use purposive sampling base on the ease of access three (3) finance department staff for each 30 flower firms out of 108 flowers in Kenya, in total 100 respondents were used for the purpose of this study.

Data Collection Instruments

Purposive sampling uses various data collection instrument with include interviews and questionnaires. A questionnaire is a series of question which reflecting research objectives (Costanzo, Stawski, Ryff, Coe & Almeida, 2012). Questionnaire may be in hard copy deliver in person to participants or deliver through electronic form via email (Ponto, Ellington, Mellon & Beck, 2015). The study will use both self-administered

and mail questionnaire in order to gather primary data /information on determinant of foreign exchange rate fluctuation on export earning of flower firms. Secondary data will be collected from the annual report of the flower firms using survey sheet.

Pre-testing of Research Instruments

Pre-testing or pilot testing refer testing research instruments like questionnaire with a small sample of respondents before the actual study to point out problems (Dikko, 2016). 10% sample size is recommendable for pilot testing (Mugenda and Mugenda, 2012). This study will use two flower firms namely Sosian flower firm and Kitale Riverside Flowers for purpose of pilot testing with a total of 10 respondents (10% of the total 100 respondents). Pre testing revealed construct to both reliable and valid and also give opportunity to refinement of the research instrument prior to actual research (Dikko, 2016). Test of validity and reliability will be as explain below.

Validity of Instruments

Test of validity aim at ensuring that tool use for measurement achieve its concept for measure. By ensuring adequate representation of all items that operationalize the concept and also ensure that measure use fit to the theories it intended to test (Dikko, 2016). The study will use internal validity to reveal the extent of relationship between data collation, analysis and interpretation with research variables. In order to ensure validity concept is achieve researcher review relevant literature to identify item required for measuring concepts. Validity content will also be achieved by including pretested constructs in research questionnaire and by doing careful sampling to enhance representation of all items.

Reliability of Instruments

Reliability of measure is achieved when it gives consistent and non-bias results of the concepts it measures. Reliability can be established through test re-test where the same test is administered at different time to the same respondents give the same data (Dikko, 2016). This study will determine reliability with help of a technique called internal consistency. This technique is based on rational that all individual items should be measure at the same constructs and enhance positively correlate to one another. Internal consistency will be measured use of Cronbach's coefficient alpha. While reliability test will be calculated using statistical package for social science, according to (moghaddan, Nakhaee, Sheibani, Garrusi & Amirkafi, 2012) Cronbach's alpha coefficient ranges from 0 to 1. High alpha coefficient shows reliability of measuring scale, acceptable alpha according thumbs rule is 0.7 and above (Taber, 2017).

Data Collection Procedure

Data collection procedure refers to the method of administering the data collection instruments (Palinkas, Duan & Hoagwood, 2015). The primary data will be collected by use of questionnaires which will be administered to employees of select flower firms after obtaining permission from managements of the respective flower firms. Questionnaire will be administered through research assistant and also principal investigator. Secondary data will be collected through data survey sheet. Website of 20 flower firms were used to provide secondary data. The data will cover a period of 5 years from 2013 to 2017.

Data Processing and Analysis

The questionnaires will be edited and coded in order to improve quality of the data. Data editing involve going through the questionnaires to establish if all questions have been answered or if there is a blank space (unanswered questions). Data will be analyzed by use of SPSS version 21.0. Descriptive statistic employer use frequencies, percentages and means summary to analyze data. Inferential statistics by use of ordinary least square (OLS) model will be used to test effect of determinant of foreign exchange rate volatility (independent variable) on export earnings (dependent variable).

OLS Equation $Y = \beta_0 + \beta_1 X_i + \epsilon$ Equation 3.1

Where: Y represents export earning

X₁ represents public debt

e represents Random error term which represents residual values

β₁ represents regression model's coefficients of public debt

IV. Research Findings and Discussions

Response Rate

The number of questionnaires that were administered was 100 and returned were 95 representing 95.0%. However, questionnaires that were correctly filled and returned were 91. This represented an overall successful response rate of 91% as shown on Table 4.1. The high response rate was due to follow up of respondents by the

principal researcher. This agree with Babbie, (2004) who asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good. Based on these assertions 91% response rate is adequate for the study.

Table 4.1 Response Rate

Response	Frequency	Percentage
Questionnaires distributed	100	100
Questionnaires correctly filled and filled Returned	91	91

Pilot Study Results

The study conducted pilot study to test reliability and validity of the research instrument. The pilot study used 10 respondents which is 10% of the total sample size. This study used two flower firms namely Sosian flower firm and Kitale Riverside Flowers. The pilot study result was presented in Table 4.2. The pilot study findings indicated that inflation rate had a Cronbach's Alpha coefficient of 0.857; company balance had Cronbach's Alpha coefficient of 0.795; interest rate had a coefficient of 0.738; public debt had Cronbach's Alpha coefficient of 0.874 and export earning had a Cronbach's Alpha coefficient of 0.848. This implies that Cronbach's Alpha coefficient values for all the study variables were above the acceptable reliability threshold of 0.7. Thus, the researched instruments used for this study were reliable (Castillio, 2009). This represented high level of reliability and on this basis; it was supposed that scales used in this study are reliable to capture the variables.

Table 4.2 Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Inflation rate	.857	4
Company balance	.795	4
Interest rate	.738	4
Public debt	.874	4

Demographic Information

This section analyses the demographic characteristics of the respondents. The section presents the descriptions of the respondents in terms of their gender, age bracket, education level, work experience and position.

Gender of the Respondents

The respondents were requested to indicate their gender. Results in table 4.3 revealed that majority of 59(64.8%) of the respondents were male while 32(35.2%) were female. This implies that despite the fact there was male dominance in the flower sector the 1/3 gender rule has been observed since the composition of either gender exceeds 33.3% which is the required minimum threshold according to the constitution of Kenya (2010).

Table 4.3 Gender of the Respondents

Gender	Frequency	Percent
Male	59	64.8
Female	32	35.2
Total	91	100.0

Age Bracket

The respondents were asked to indicate their age bracket. Results in table 4.4 revealed that 7(7.7%) of the respondents were in the age less than 30 years, 35(38.5%) aged between 30-39 years, 43(47.3%) aged between 40-49 years, 6(6.6%) were aged between 50 to 59 years. The results imply that the study collected data from all age categories of respondents. The study results further revealed that those employed in flower farms were old enough to give reliable and accurate information for the study.

Table 4.4 Age Bracket

Age bracket	Frequency	Percent
Less than 30 yrs	7	7.7
30-39 yrs	35	38.5
40-49 yrs	43	47.3

50-59 yrs	6	6.6
Total	91	100.0

Level of Education

The respondents were asked to indicate their highest level of education. Results in table 4.5 revealed that 32(35.2%) of the respondents had diploma, 46(50.5%) had a bachelor’s degree, 10(11%) had masters, 26(36.6%) had a diploma while 3(3.3%) had doctorate. The results imply that all the respondents were knowledgeable and that their education level was sufficient for effective performance of flower farms. The results further imply that all the employees were in a position to understand the topic and the objectives of the study.

Table 4.5 Level of Education

Level of education	Frequency	Percent
Diploma	32	35.2
Bachelor	46	50.5
Masters	10	11.0
Doctorate	3	3.3
Total	91	100.0

Experience of Respondents

The study sought to determine the years of experience of the respondents. Table 4.6 presents the study results. The findings revealed that 9(9.9%) had experience of two years and below, 22(24.2%) had experience of 3-5 years, 50(54.9%) had experience of 6-9 years and 10(11.1%) had experience of 10 years above. The study results revealed that majority of respondents were experienced enough to give accurate and reliable information from flowers farms. They gave information based on their experience.

Table 4.6 Experience of Respondents

	Frequency	Percent
Less than 2 yrs	9	9.9
3-5 yrs	22	24.2
6-9 yrs	50	54.9
10 yrs and Above	10	11.0
Total	91	100.0

Descriptive Finding and Discussions

The purpose of descriptive statistics is to enable the researcher, to meaningfully describe a distribution of scores or measurements using indices or statistics. The type of statistics or indices used depends on the types of variables in the study and the scale of measurements. The study used frequencies; percentages mean average; percentages and deviations to present the study findings.

Descriptive Finding for Public Debt on Export Earning of Flower Firms in Kenya

The study analyzed the effect of Public debt on export earning of flower firms in Kenya. The study findings in Table 4.10 revealed that; 87(95.6%) of respondents agreed, 1(1.1%) undecided, and 3(3.3%) disagreed with the statement that foreign public debt affect export earning in your firm (mean=4.00 and standard deviation=0.54). The study finding indicated that 57(62.6%) of respondents agreed, 32(35.2%) undecided and 2(2.2%) disagreed with the statement that domestic public debt affect export earning in your firm (mean=3.62 and standard deviation=0.61). The study results further revealed that 88(96.7%) of respondents agreed, 1(1.1%) undecided, and 2(2.2%) disagreed with the statement that Long term public debt affect export earning in your firm (mean=4.20 and standard deviation=0.62). Finally, the study indicated that 61(67%) of respondents agreed, 27(29.7%) undecided, and 3(3.3%) disagreed with the statement that Short term public debt affect export earning in your firm (mean=3.68 and standard deviation=0.71).

The study findings show that public debt positively influence export earning of flower firms in Kenya. This implies that foreign public debt, domestic public debt, long term public debt and short-term public debt affect export earnings in the firm. The study findings agreed with Ijeomay (2013) who studied influence public debt on selected macroeconomic economy indicators in Nigerian. The study found that external debt had

significant effect on Nigeria economic growth during the study period. Analysis also revealed significant association between debt service payment and capital formation in Nigeria. The study findings also concur with Dawson and Seater (2013) who studied effect of federal regulation on aggregate economic growth in United States (U.S). The study found that regulation had both statistical and economical important effects on total factor production, aggregate output, labor and physical capital. The study further found that Regulation had caused substantial reductions in the growth rates of both total factors of production and output and had affected trends in capital and labor.

Table 4.7 Descriptive Statistics Results for Public Debt

			SA	A	N	D	SD	Mean	Sd
i.	Foreign public debt affect export earning in your firm	F	8	79	1	2	1	4.00	0.54
		%	8.8	86.8	1.1	2.2	1.1		
ii.	Domestic public debt affect export earning in your firm	F	2	55	32	1	1	3.62	0.61
		%	2.2	60.4	35.2	1.1	1.1		
ii.	Long term public debt affect export earning in your firm	F	24	64	1	1	1	4.20	0.62
		%	26.4	70.3	1.1	1.1	1.1		
v.	Short term public debt affect export earning in your firm	F	6	55	27	1	2	3.68	0.71
		%	6.6	60.4	29.7	1.1	2.2		
Valid N			91						

Inferential Statistics

The study used correlation and multiple regression models under inferential statistics. The study sought to determine the relationship between the independent and dependent variables.

Correlation Statistics

The correlation analysis was done in order to know the strength and association between the study variables. The study results were presented in Table 4.8. The study results revealed that the independent variables were positively correlated with the dependents variable. The study results show that

The study further revealed that public debt was strong positively and statistically significant associated with fluctuations of export earnings ($r=0.435$, $p<0.05$). This implies that public debt contributed 43.5% to fluctuations of export earnings. This gave an implication that all the study variables were positively and strongly correlated to fluctuations on export earnings.

A strong or high correlation means that two or more variables have a strong relationship with each other while a weak or low, correlation means that the variables are hardly related. Correlation coefficient can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 means that there is no relationship between variables being tested (Orodho, 2003).

Table 4.8 Correlation Statistics

		Fluctuations of export earnings	Public debt
Fluctuations of export earnings	Pearson Correlation	1	
	Sig. (2-tailed)		
Public debt	Pearson Correlation	.435*	1
	Sig. (2-tailed)	.023	

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

Model Summary

The study results in Table 4.16 shows the model summary which provides the coefficient of determination (R^2) which shows proportion of the variance in the dependent variable that is predictable from the independent variable and correlation coefficient (R) of 0.881 which shows that there was 88.1% degree of association between the export earnings and inflation rate, balance of payment, interest rate and public debt. This is supported by coefficient of determination also known as the R square of 77.6%. This means that public debt explain 77.6% of the variations in the dependent variable which is fluctuations of export earnings. The results further imply that the model applied to link the relationship of the variables was satisfactory. Adjusted R^2 is a modified version of R^2 that has been adjusted for the number of predictors in the model. The adjusted R^2 of

0.735 which was slightly lower than the R² value was exact indicator of the relationship between the independent and the dependent variable because it is sensitive to the addition of irrelevant variables. The adjusted R² indicates that 73.5% of the changes in fluctuations of export earnings are explained by the model while 26.5% was not explained by the model. The standard error of the estimate was 0.23967 in the model.

Table 4.9ModelSummary

R	R Square	Adjusted R Square	Std. Error of the Estimate
81 ^a	.776	.735	.23967

Model Fitness

The study checked for model fitness using ANOVA Table 4.10. The study findings revealed that the F test value was 19.058 which were greater than F table 2.718. Further the study result revealed the significance value was less than 0.05 thus the model was fit to be fitted in regression model. This implies the independent variable are good predictors of fluctuations of export earnings. This further implies that the fluctuations of export earnings can be regressed against the inflation rate, balance of payment, interest rate and public debt.

Table 4.10Model Fitness

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.379	4	1.095	19.058	.000
Residual	1.264	22	.057		
Total	5.642	26			

4.7.4 Regression Model Coefficients

The study sought to determine the coefficients of study variable. The study results are presented in Table 4.11.

Table 4.11Coefficient Statistics

	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	.243	.545			2.279	.033
Public debt	.372	.101	.377		3.692	.001

The study presented study results on statistical significance of each individual regression coefficient. The β coefficients were all significant to be used for multiple regression as follows public debt (β₄= 0.372, p<0.05). This gave an implication that a unit increase in a unit increase in public debt caused 0. 372 units increase in export earnings of flower firms in Kenya. Therefore, the multiple regression model equation was developed from the coefficient as shown in equation 4.1;

Y= 0.243+0. 372X₄..... Equation 4.1

Hypotheses Testing

In this study, all the four hypotheses were tested using the multiple regression models. The decision rule was that if the p value is less than conventional 0.05 the null hypothesis was rejected and when its above 0.05 study failed to reject the null hypothesis. The hypotheses test results were presented in table 4.11.

Null Hypothesis **H₀₁** indicated that public debt has no significant effect on export earning of flower firms in Kenya. But the study findings indicated that Public debt has a positive and a significant effect on export earning of flower firms in Kenya (β₄= 0.372, p<0.05). Thus, the study rejected the null Hypothesis. Public borrowings come with interest attached, which results in debt servicing implying that Serving external debt may involve high demand than for foreign currency than local currency which low the value of local currency and increase exchange rate of the country. Given that flower exporters are paid in foreign currencies, increase in exchange rate increase export earnings of flower firms when they convert the same to local currency.

The study findings agree with Putunoi and Mutuku (2013) study on impact of public debt on economic growth in Kenya. The study results revealed existence of positive connection between domestic debt and economic growth in Kenya on the other hand Kourtellos, Stengos, and Tan, (2013) study on effect of public debt on growth in multiple regimes found that domestic public debt had a significant negative effect on export decision and value of professional service export by varies firms in French. Also, Ijeomay (2013) found that external debt had significant and negative effect on Nigeria economic growth. The study Kourtellos, Stengos, and Tan, (2013) and that of Ijeomay (2013) looked at effect of domestic public debt and external debt public debt respectively but this study looked a public debt in general which include external and domestic public debt hence the finding was not the same.

V. Summary, Conclusions and Recommendations

Summary of the Study Findings

This section presents the summary of public debt on export earnings of selected flowers firms in Kenya.

The study objective sought to determine the influence of public debt on export earnings of flowers firms in Kenya. The study found out that the respondents agreed on all of the four aspects of public debt. That is foreign public, local public debt; long term public debt and short-term public debt affect export earning in your firm. The study findings also showed that public debt had significant positive influence on export earnings of flower firms in Kenya. This implies that when public debt increases export earning of flower firms also increase.

Conclusions of the Study

Based on the summary of findings, the study drew conclusions that an increase in level of public debt increase foreign exchange rate hence increasing export earnings of flower firms in Kenya given that flower exporters are paid in foreign currencies.

Recommendations of the Study

The study established that there is a positive influence of public debt on export earnings of flower firms in Kenya. Therefore, the study recommends that the government firms should establish and adopt an optimal domestic debt to maintain growth of flower firms.

Suggestions for Further Study

The study suggests that a similar study also has to be conducted in other firms so as to come up with a conclusive picture. Given these considerations, there will be conclusive results on the effect of inflation rates, balance of payment, interest rates and public debt. Secondly, this study mainly focused on the macroeconomic quantitative factors that are interest rates, inflation rate, balance payment and public external debt impacting on export earnings in Kenya. The influence of macroeconomic qualitative factors such as political stability, market liberalization institutional reforms and the ease to do business and such other factors which may impact on export earnings were not included in the analysis therefore a study on effect of macroeconomic qualitative factors on export earning of flower firms in Kenya should be conducted.

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