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Contribution of Foreign Direct Investment on the Growth of Agro-Processing Sector: A Case of Selected Agro-Processing Companies in Kenya

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Abstract

World Investment Report's like United Nations Conference on Trade and Development (UNCTAD) detail trends in global foreign direct investments in which Kenya is ranked below its neighbours and other emerging markets. This study evaluated the contribution of Foreign Direct Investment on the growth of Agro-Processing Sector. The objectives of the study were to determine the extent of use of FDI and its contribution on the growth of Agro processing sector. This study adopted a survey design. The study target population was 350 respondents. Sample size was 78 respondents selected using simple random sampling. A structured questionnaire was used to collect data which was analyzed using descriptive statistics, regression analysis and a 5 point Likert scale. Study results showed that Foreign Direct Investment in the Agro processing Sector influenced technology spill over, creation of employment opportunities and resource improvement; FDI accelerated to a greater extent growth in the sector; and a positive relationship existed between FDI and growth of the agro processing sector; correlation oefficients determined confirmed a positive association between FDI and growth of the sector where production volumes and profit are output variables that measure growth in the agro-processing sector.

Key words: Foreign Direct Investment, growth, Agro-processing Sector, Kenya

1. Introduction

1.1 Background to the Study.

Foreign Direct Investment (FDI) consists of a flow of capital, expertise, and technology into the host country. It is defined as an investment made to acquire lasting interest in enterprises operating outside the economy of the investor (IMF Report, 1993). Interested researchers, countries and international organizations have increasingly recognized the importance of foreign capital to growth. FDI has emerged as an important form of international capital flow. The surge in Foreign Direct Investment flows to developing countries is attributed to increased cross border mergers and acquisitions for example Kenya and Japan have various projects like Sondu Miriu hydroelectric power station funded by the government of Japan. Other companies operating in kenya facilitated by the FDI include: James Finlay company formerly the African Highlands in Kericho and Del Monte farms in Kenya owned by foreign investors. The most recent World Investment Report from the United Nations Conference on Trade and Development (UNCTAD, 2001) details trends in global foreign direct investments in which Kenya ranks way below its neighbours and other emerging markets on FDI flows.

The United Nations Report, (2005) states that the leading recipients of Foreign Direct Investment inflows in Africa are South Africa, Egypt and Nigeria. In 2005, inflows to South Africa amounted to US$6.4 billion representing 21.4% of the entire inflows to Africa; the continent has the least proportion of FDI and the trend shows a continuous decline. Statistics indicate that by 2003, FDI inflows to Africa accounted for between 2-3% of global flows compared to 6% in the 1970s. In terms of productivity, Africa experienced modest growth from the 1960s to the late 1970s (UNCTAD Report (2001). The decline was due to political and civil unrest, structural and institutional errors that kept the developing countries to continue operating under unstable political and economic policies.

Kenya has a large agro-processing industry reflecting the importance of the agricultural sector in the Kenyan economy. These industries range from processing staple food and fruits, beverage and tobacco production for both the domestic and foreign markets. Food processing is one of the key activities in Kenya's agro-processing industry. Large firms processing pineapple and a wide range of household products using agricultural raw materials were focused in this study. Del Monte (Kenya) Ltd is a multinational company which is owned by the US-based Delmonte Foods International. Del Monte firm in Kenya started operation in 1965 when it took over from a local company called Kenya Canners Ltd which had been in existence since 1948. Del Monte constructed a large cannery plant backed by workshops, training facilities and a large plantation at Thika Town near Nairobi. Kenya Fruit Processors is owned by a British Company and operate in Thika Town in Nairobi and deals with juice processing.

1.2 Statement of the Problem

The recent developments indicate a departure of multinational companies in scaling back new investments in their operations in Kenya; some companies have moved their manufacturing plants to other countries such as Egypt. Some of the firms have either transferred or restructured their operations. Delmonte and Kenya Fruit processors are multinationals companies in Agro processing sector and they have a duty to make sure that the FDI inflows produce positive results. The existing empirical evidence is in contrast with more settled theoretical evidence and show mixed results about the relationship between FDI and growth of Agro processing sector in a country (Harrison, 1996). There is conflicting information regarding the question as to how and to what extent FDI influences growth. The contribution of FDI to the agro-processing sector growth may confine the possible effects to the short-run when actually it has a long-run contribution.

1.3 Objectives of the Study

The general objective of this study was to evaluate the contribution of Foreign Direct Investments on the growth of agro-processing sectors in Kenya. The specific objectives are:

i) to determine the extent of use of the Foreign Direct Investments (FDI) in the Agro processing sector in Kenya;
ii) to evaluate the contribution of Foreign Direct Investments (FDI) on the growth of the Agro processing sector in Kenya.

1.4 Scope of the Study

The study focused on the foreign direct investments particularly those companies in the Agro processing sector in Kenya. The Agricultural sector forms the back bone of the Kenyan economy. Agricultural processed commodities accounts for 30% of the total commodity market share (Hull, 1999).The study findings can be generalized to other sectors in the economy and be used to set strategies to overcome the prevailing constraints on Foreign direct investments and enlighten the private sector, donors and the government on the need for Foreign Direct Investment in the Agro- processing sector.

1.5 Limitations of the Study

The data collected was limited to the context of foreign direct investments on the growth of the agro-processing sector in Kenya, and for a period ten years from 1999 to 2009.

2.0 Theoretical Literature

2.1 Foreign Direct Investment in the Agro-Processing Sector in Kenya.

According to the agro-processing Development Plan in Kenya (2006-2010) the main objective is to enable high sustainable and equitable growth, improve social environment and living conditions for rural people especially the poor, protect and sustain natural resources and environment through effective and dynamic sector management emphasizing decentralization and inclusion of stakeholders in decision-making, regulation, service delivery and monitoring. Agro - processing sector in Kenya has been described as a success in export of fruits, vegetables, flowers. Exports have grown to over USD 150 million in 1999 equivalent to 17 percent of agricultural exports; in this regard small farmers have proved effective suppliers for products like French beans or avocados. Approximately 85 to 110 thousand people are employed in the sector as farm labourers and industry workers. According to the Manufacturing and Industry Sector report (2008) growth in export of Agro processing sector products in Kenya declined from 17% to 4% during the 1974-1983 this was due to new competitors and to new quality standards which acted as technical barriers to trade. Kenya's exports in agro processed products have received far more attention than the domestic system. For example the smallholder share in horticulture export market had fallen from 75% in early 1990s to about 45% in 2004. It continued to fall given the difficulty for smallholders to adapt to the new international traceability obligations. The domestic horticulture system is larger and has shown more absolute growth. In the year 1998, four of the largest exporters in Kenya were sourcing only 18% of their produce from small farms, while 42% from large commercial farms and 40% from exporter or leased land.

The Agro-processing industries comprise of food, biotechnology, textile, leather, beverages and tobacco, paper, wood and wood products. Manufacturing and Industry Sector report (2008), asserts that Kenya's agro-processing sector is among the key productive sectors identified for economic growth and development because of its immense potential for wealth, employment creation and poverty alleviation. The performance of the Agro-processing sector has been affected by low capital injection, use of obsolete technologies and high costs of doing business which is attributed to poor state of physical infrastructure, limited access to finance, limited research and development, poor institutional framework, and inadequate managerial, technical and entrepreneurial skills. This has led to the limited local and Foreign Direct investment (FDI) in the country and the high outflow of investment to the neighboring countries. Despite these many challenges and issues in the sector, the implementation of the Economic Recovery Strategy (ERS) from 2003-2007 has resulted in improved performance of the sector with an annual growth rate of 5.5 percent between 2003 and 2007.

The Kenya's investment code which was developed through the Investment Promotion Act 2004 led to enactment of Kenya investment Authority which provided a one-stop-shop for licensing and registration of business in 2006; this was a big step towards facilitating development of basic infrastructure for small and medium enterprises (SMEs) to serve as incubators for the Agro-processing sector. The Private Sector Development Strategy (PSDS) formulated in 2006 promoted the participation of the private sector in economic growth. The National Exports Strategy (NES, 2004) was formulated to improve competitiveness of the sector.

2.2 Economic Aspects and Theories on FDI

Thomas L.B (1993), research on the focus in the international business literature on host government policies that create market imperfections and make FDI an economically rational strategic alternative for firms, this has diverted attention from a variety of other types of pertinent government policies and a wide range of their effects on FDI. The research analyzed the multiple effects of diverse types of government policies on market imperfections and FDI. It is clear that there are connections of government policies to market imperfections and FDI. Adam Smith (1776) described the export theory as one of the neoclassical growth models; the underlying argument of the theory was that countries need to export goods and services in order to generate revenue to finance imports which cannot be produced indigenously. In most cases, Gross Domestic Product (GDP) is used as a measure of a country's economic potency and it provides an estimate of the value of goods and services produced in a country in a specified period (Tayeb, 1992).

Marin (1992), in relation to the export theory the performance of exports has a stimulating effect to a country's economy especially in form of technology spillovers. The export theory further predicts that growth in exports causes economy wide productivity gains which amounts to enhanced gross domestic product are linked to sustainable economic growth through the balance of payments. The constraints on the balance of payments arise when a country's level of imports exceeds that of exports. In such a situation, the deficit can only be financed either through government borrowing or use of the country's reserves. Moreover, the Multi-National Enterprise (MNE) has positive effects of inward FDI on a host country's exports. In this case, the multinational enterprise may outsource some segments of its production process to the host country and export these (intermediate) products back to the home country (as well as other countries). Similarly, when the host country has a cost advantage and costs of trade are low (as compared to the trade costs of the home country), the host country may be used by the Multi-National Enterprise as an export platform for serving its home market, as well as other markets. The idea is that firms must have certain advantages in order to become multinational companies. The selected companies in this study are Multi-Nationals in the sector.

Dunning (1993), the study organized Multi-National Enterprise advantages in three basic groups: first; ownership advantage that refers to the case where the MNE have a product or a production process that provides it with market power in the foreign market. Secondly, location advantage that indicates that the multinational needs to locate production abroad to maintain its competitive advantage, and finally internalization advantage that suggests that the MNE have an incentive to exploit its ownership advantage internally. The market imperfection theory explain that firms only invest overseas if they can capitalize on those capabilities that their competitors in the foreign country do not have with the hope of making high returns, control more markets, increase their profitability and create oligopolies (Hymer, 1970). Further the international production theory states that the tendency of firms to invest overseas is dependent on a cost-benefit analysis of particular factors in both its home country and the receiving country. This theory explicitly states that the decision to invest in a country is dependent not only on the anticipated returns but also on a country's specific factors like barriers to entry, political stability, cost of capital and production, economies of scale and demand for products. Firms may invest in countries where labour and raw materials are comparatively cheaper in order to minimize costs (Carbaugh, 2000).

The Modernization theory originated from the classical theories stipulates that foreign direct investment can promote economic growth by providing external capital which spills over to the entire economy. The spill over may be through technology advancement, increased efficiency or improved productivity (Findlay, 1978). Furthermore the dependency theory criticizes the modernization theory; it hypothesizes that foreign direct investment may show a positive impact in the short run, but it may have an adverse negative effect on economic growth in the long run. The short run effect is attributed to perceived increase in savings, investments and consumption, which create immediate economic impact while in the long run, the effect of accumulation of foreign direct investments is due to intervening mechanisms of dependency such as decapitalisation and lack of linkages (O'hearn, 1990). These research findings motivate this study on the contribution of FDI to the growth of agro-processing sector in Kenya.

The benefits of foreign direct investment in relation to human capital formation and enhancement is that multinational firms tend to offer more training to their employees compared to domestic firms (Gerschenberg, 1987). The training provided by the multinational enterprises normally supplements the existing skills set of the work force and provide a useful demonstration effect of the type of skills that are required for a given business sector. The desire to create, maintain and consolidate market share, profitability and growth results in both a revision of and change in business strategies and industry structure. The dynamics in the business environment have led to increased investment in research and development which by itself has stimulated innovation and competition in the domestic economy. An increase in foreign direct investment may enable the host country to service its debt obligations, stimulate exports and increase its foreign exchange reserves position. Both economic theory and other studies indicated that foreign direct investment is beneficial to the economic growth of host countries; some studies show the reverse effect of FDI on the economic growth. For instance a study done by Bornschier (1980), found out that in the long run foreign direct investment reduces the rate of economic growth because of its dependency effect which is realized through decapitalisation; a situation where investors repatriate capital, interest and dividends to their mother countries. According to Sims and Lake (2000), expressed that "Trade and Investments are only a means to an end and not an end in them." Foreign direct investment could have a negative impact on employment upon acquisition of a domestic firm through redundancies. Consequently, countries should take precaution and desist from over estimating the benefits of FDI and relying on foreign direct investment as a major source of finance for their development.

The GDP for Kenya since 1999-2008 is shown in the table below.
Table 2.1 The GDP for Kenya since 1999-2008

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
GDP(%)	2.4	-0.2	0.8	1.2	2.9	5.1	5.8	6.4	7	5.6

Source: Kenya Bureau Statistics (2014)

2.3 Empirical Literature

Different studies undertaken show robust results in regard to the relationship of Foreign Direct Investment to economic growth, its impact and determinants. The results of the studies show varied findings with some indicating that Foreign Direct Investment causes economic growth, others showing the reverse relationship and in some cases no relationship. Carkovic and Levine (2006) study findings indicate the impact of Foreign Direct Investment on economic growth is not straight forward but rather it depends on a country's specific factors: the development of local financial markets and the educational level of the country's population. The findings were consistent with those Durham (2004), and Hermes and Lensink (2003), who found that only countries with well-established financial markets benefit from Foreign Direct Investments. This study adopted a survey design and focused on financial markets as an independent variable. In the Kenyan context the flourishing companies that are quoted in the Nairobi Stock Exchange in the 20 Share Index majority are from the Agro-Processing Sector: Kakuzi Limited, Rea Vipingo Limited, Sasini and Uniliver Limited. These studies did not highlight the relationship between FDI and growth of the Agro-Processing sector. A study done by Zhang (2001), indicated that a key benefit of FDI to recipient countries is technology transfer and spillover efficiency but this benefit does not automatically occur, but rather depends on the absorptive capabilities which include: a liberal trade policy, human capital development and an export-oriented FDI policy. Borensztein et al (1998), study found out that Foreign Direct Investment had a positive impact on economic growth. Further a study done by Blomström and Kokko (1997), noted that Foreign Direct Investment may promote economic growth in host countries but the exact relationship between Foreign Direct Investment and economic growth varies with sectors. This note motivates this study as the sectors in Kenya range from service; manufacturing and agro-processing all supported by Foreign Direct Investment (FDI), their contribution towards the GDP is not the same due to their varying scales of production and growth.

A study by Bornschier (1980) asserted that Foreign Direct Investment has an initial short run positive effect on economic growth because of its early drive of economic activity. Further the Organization of Economic Commission for Development (OECD, 2002) report revealed that Foreign Direct Investment elicit technology spillovers and creates a more competitive business environment enhancing business development and contribute towards International Trade Integration all of which adds to economic growth. De Mello (1999) research used both time series and a sample of 32 developed and developing countries; the findings indicated weak relationship between Foreign Direct Investment and economic growth. Harrison (1996) study findings indicated that Foreign Direct Investment enhances productivity as compared to domestic investment and there were no indication of positive short run spill over. The study further explained that in the short run Foreign Direct Investment may unfavorably have an effect on domestic investment by "capturing" part of the market share which may lead to a reduction in capacity utilization by the domestic firm. This study focused on short-run effects of FDI and

economic growth in relation to domestic investment. The economic growth of any economy takes into account the contribution of its sectors. Therefore it is not clear to what extent the contribution of FDI to economic growth is via the agro-processing sector.

Further, Mulandi (1998) study focused on the horticultural produce turnover in terms of tonnage and value and the export performance. This study did not highlight the influence of FDI on the growth of the sector. Maritime (1994) researched on the structure and performance of the fruits and vegetable processing in Kenya with a focus on the industrial policy; research findings indicated that the policy of processing products was not adequately fulfilled as the country continues to import fruit products, juices, pickles chutneys and grape products and not much was towards meeting national objectives of foreign exchange earnings and employment creation.

The study further indicated that the distribution of the agro-processing firms was influenced by the need to be close to the market, the barriers to entry into the processing business and the conduct of the processing industry in Kenya. The findings pointed out that provision of market information, investment information, provision of credit facilities and infrastructure development help when expanding the processing industry. These studies have not captured issues related to Foreign Direct Investment and growth of the Agro processing sector in Kenya. This study seeks to evaluate the contribution of FDI on growth of Agro processing sector.

3.0 Research Methodology

The study adopted a survey design of selected Agro- Processing Investments in Kenya. The design provided the researcher with the desired information and understanding of the relationship between Foreign Direct Investments and growth of the agro processing sector in Kenya. The study covered the selected Agro -Processing Firms in Kenya: Del Monte, Kenya Fruit Processors Limited. The research target population was 350 respondents: Delmonte Kenya Limited 215 respondents, Kenya Fruit Processors Limited 135 respondents who are in the agro- processing sector (Horticultural Crop Development Authority, 2015).The study sample for any study was determined scientifically using the formulae: $\mathbf{n = \{ Nc_v^2 \} / \{ c_v^2 + (N- 1) e^2 \}}$ Where: N is the target population (350; c_v is the coefficient of variation (take 0.5); e- Tolerance at desired level of confidence, at 95% confidence level (take 0.05), (Nasiurma D.K 2000)

$\mathbf{n = \{ Nc_v^2 \} / \{ c_v^2 + (N- 1) e^2 \}}$

$= (350x\ 0.5^2)/ 0.5^2 + (350-1)0.05^2$

$= 87.5/ 1.1225$

$= 77.95$

Therefore 78 respondents were selected for a sample for this study. The sample proportion from each company was determined as: Delmonte Kenya Limited {215/350} x 78 = 47.9, thus 48 respondents was selected; Kenya Fruit Processors Limited {135/350} x 78 =30.08, thus 30 respondents were selected using simple random sampling. Therefore the study sample for this research was 78 respondents all drawn from the selected companies dealing with agro processing activities. The questionnaire was used for data collection. The validity of the instruments is its ability to be used for data collection and obtain the required data from the field. Content validity was provided through adequate coverage of the topic under investigation on the questionnaire as it may deem right as per the expert advice. Reliability is the ability of the instruments to provide consistent information in order to draw informed conclusions (Kothari, (2005). Reliability of the questionnaire was determined by test-retest method in the region of study using respondents who were not part of the study sample. The questionnaire was administered and then re-administered to confirm the consistence level of the result. The alpha Cronbach's value obtained was 0.87 and is consistent with the standard 0.7.The data was analyzed using descriptive and inferential statistics. Descriptive statistics was used to summarize the data collected during the survey and it involved working out the mean, percentages and frequencies, which were used to assess the variables. Simple Regression Analysis and a Likert scale point of 5 to 1 was used to assess the relationship of the variables: FDI and growth of the agro processing sector (performance) in this study. The results of this study were tested at a 95% confidence level.

4.0 Results and Discussion

4.1 Foreign Direct Investment in the Agro- processing Sector.

The researcher sought to find out whether the company's in the Agro- processing sector do receive Foreign Direct Investment.

Table 4.1 Foreign Direct Investment in the Agro- processing Sector.

Receiving of FDI (FieldResponse)	Frequency f	Relative frequency %
Yes	73	93.6 %
No	5	6.4 %
Total	78	100%

From the table 4.1 above it indicates that 93.6% (73) of the total respondents expressed that their company do receive Foreign Direct Investment. While 6.4% (5) respondents expressed the opposite. This information indicates that the Agro processing sector do receive the Foreign Direct Investment to finance some of its operations'.

4.2 The Influence of Foreign Direct Investment in the Agro- processing Sector

The researcher sought to find out the influence of FDI in enhancing the growth of certain factors in the Agro processing companies. The results indicate that foreign direct investment do influence moderately(3.63) technology spill over, influential (4.18) on the creation of employment opportunities and resource improvement and accelerated company growth in the sector to a moderate influential(3.68); further human capital and entrepreneur skills development was influenced moderately (3.44). This indicates that Foreign direct Investment do enhance the growth of the factors when used in the agro processing sector.

4.3 Flow of FDI to the Agro Processing Sector in Kenya

The researcher sought to find out whether certain factors do influence the flow of FDI to the agro processing sector in Kenya. The statements in Table 4.3 below summarize the response rates obtained from the field. The results show that political and civil unrest in a country do influence to a very great extent (4.58), closed political regimes in a country do influence to a great extent (3.58), unstable national economic policies do influence to a moderate extent (3.38), the level of policy and financial risk assessment score on the economic sector influenced to a moderate extent (3.47), improved investment climate through subsidies and tax rates reduction to great extent(3.85), inadequate physical facilities and infrastructure (roads, offices) to a great extent (3.65) and lack of appropriate legal framework in a country in support of FDI, Influenced to a moderate extent (3.47). The findings further indicated that cross border balance of trade influenced to a moderate extent (3.18). The economic activities in any country are dependent on the stability in both political and civil arena as this provides a conducive environment for investments opportunities. The agro processing sector is not an exception; this consequently influences the flow of FDI to the agro processing sector.

4.4 Production and Export Volumes in the Agro- processing sector

The researcher sought to assess the contribution of FDI to the agro processing sector in terms of output. The researcher analyzed the volumes of both production and export in tonnes. The response rate obtained from the field was as in Table 4.6a below.

Table **4.4a Production and Export Volumes in the Agro- processing sector**

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Production Kgs,(000,000)	6,241	7,211	8,247	8,532	9021	11,670	11,920	15,193	14,947	8,901
Export sales Kgs,(000,000)	2,350	1,760	3,950	4,000	4,980	6,140	8,800	8,580	7,970	4,020

Table 4.4a above indicates that production trend increased from 1999 to 2006 but in 2007 and 2008 the production decreased. This indicates that there is a potential domestic market for the agro processed products.

4.4 b FDI and Production Volumes in the Agro processing Sector

The study sought to evaluate the relationship between FDI and production volumes and the information obtained was tabulated as in Table 4.6 b below.

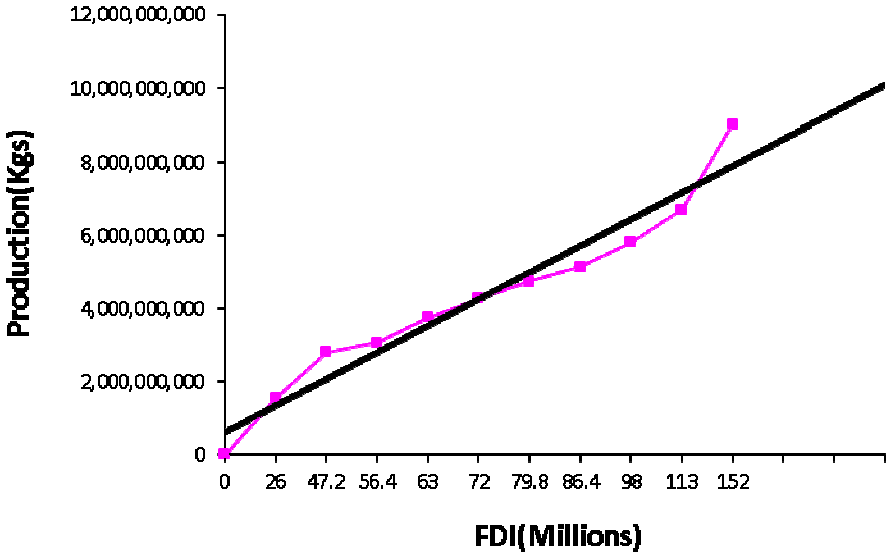
Table 4.6b FDI and Production Volumes in the Agro Processing Sector.

Year	FDI in Kshs (000) (x)	Production in kgs (000,000) (y)	x^2	y^2	xy	e^2
1999	86,400	6,241	7464.96	38950081	539222.4	19050073.6
2000	72,000	7,211	5184	51998521	519192	6444281.796
2001	63,000	8,247	3969	68013009	519561	936073.6651
2002	47,200	8,532	2227.84	7295024	402710.4	65946.7536
2003	56,400	9,021	3180.96	81378441	508784.4	39545.69732
2004	79,800	11,670	6368.04	136188900	931266	2122065.206
2005	113,000	11,920	12769	142086400	1346960	71293.80608
2006	152000	15,193	23104	230827249	2309336	472575.1285
2007	98000	14,947	9604	223412809	1464806	13335212.33
2008	26000	8,901	676	79227801	231426	3557527.872

Source: Field data (2015)

Using the regression line equation: $y = a + bx_i + e$ where y is the volume of production in tonnes; a is the y intercept which means that without any FDI there is a constant production. The b is the gradient of the regression line and measures the change of production associated with one unit change in FDI. From the Table 4.6 above it show various calculated values using FDI represented by (x) and production volume in kilograms(y) data obtained from the field. The established values of ***b*** and ***a*** were + 59.45 and + 5469.159 respectively (Annexure tables 2a and 2 b).$y=5469.159 + 59.45x_i$. The standard error of regression was used to find the relationship between FDI and production volumes in the Agro processing sector (Annexure table 5) established a standard deviation of $S_b = 8.79$, and that of $S_a = 1929.615$; these were subjected to the set confidence level at 95% and t-test and a degree freedom of (n-2), 10-2 =8, to estimate the true interval of the parameters α and β and the set confidence limit(Annexure table 6a and table 6b); the implications indicated that the ranges lies $1019.5 \leq a \leq 9918.85$ and $39.18026 \leq b \leq 79.71974$. This implied that the regression constant limits lies between the values obtained. The t_c is the table value equal to 2.306 at 95% level of confidence from the table using t-test. Since the coefficients ***a*** and ***b*** lie within the stated limits. The researcher recommends that the regression line $\boldsymbol{y_i = 5469.159 + 59.45x_i}$ can be confidentially be used to predict the variations in FDI and the production volumes in kilogrammes per year. It is also important to note that the two variables production volumes and FDI in the agro processing sector have a positive relationship; the level of production increases as FDI level increases. The implication is that FDI contributes positively towards the growth of the agro based processing sector and in the country in terms of enhanced annuals operations and its related output parameters. The study analyzed graphically the results to illustrate the relationship between FDI (in millions) and production (in Kgs “000,000”). The figure 4.1 below summarizes the trend analysis of the responses obtained from the field.

Figure 4.1 Trend of FDI (in millions) and Production (in Kgs) over time.



Source: Field Data (2015)

The graph shows FDI in million shillings and production in kilogram's (000,000) over time. The FDI injected to the industry decreased since 1999 to 2002 but thereafter it increased until 2006 when it dropped. The production also increased dismally until 2006 the dropped. When FDI increases the production increases at an increasing rate.

4.5 Foreign Direct Investment and Trading Profit Volumes for the Company

The contribution of the foreign direct investment towards the growth of the agro processing sector was established. In this study profit earned per year was used as an indicator of growth against the foreign direct investment pumped into the sector. The response rate obtained from the field was recorded as in the table 4.7 below.

Table 4.5 The Volume of FDI and Profit earned in Kenya Shillings for the respective years for the Company.

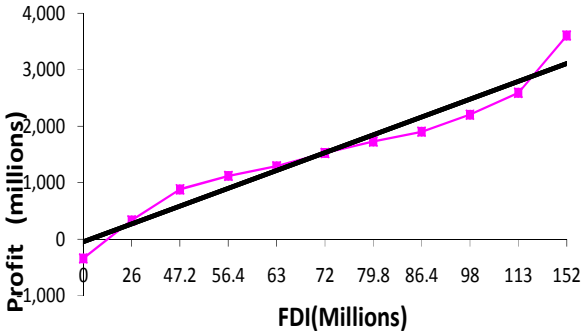
Year	FDI in Kshs (millions) (x)	Profit earned in kshs (millions) (z)	x^2	z^2	xz	e^2
1999	86.4	1487	7464.96	2211169	1284768	170912.79
2000	72	1364	5184	1860496	98208	26529.90
2001	63	1289	3969	1661521	81207	19.54
2002	47.2	1199	2227.84	1437601	56592.8	99497.35
2003	56.4	1044	3180.96	1089936	58881.6	6117.74
2004	79.8	1475	6368.04	2175625	117705	64623.74
2005	113	2727	12769	7436529	308151	18654.10
2006	152	3893	23104	15155449	591736	84634.45
2007	98	2631	9604	6922161	257838	184624.90
2008	26	776	676	602176	20176	195682.37

Source: Field data (2015)

table 4.7 above show various calculated values using FDI represented by (x) and profits (z) data. Using the regression line equation: $z = a + bx_i$ the value of $\boldsymbol{b}$ obtained was + 25.94 and that of $\boldsymbol{a}$ was - 304.8 (Annexure table 2a and table 2b). The determined standard deviations were $S_b = 1.12$ and S_a 246.45 respectively (Annexure Table 5). These values were subjected to the set confidence level at 95% using t-test and a degree freedom of (n-2), 10-2 =8. To estimate the true interval of the parameters $\boldsymbol{\acute{a}}$ and $\boldsymbol{\beta}$ and the set confidence limit, the study established that - 909.1 ≤ a ≤ 227.5 and 23.36 ≤ b ≤ 28.52. This implied that the regression constant limits lied

between the values obtained. The $\mathbf{t_c}$ is the table value = 2.306 at 95% level of confidence from the table using t-test. Since the coefficients ***a*** and ***b*** lie within the stated limits, the researcher recommends that the regression line z = -340.8 + 25.94x can confidentially be used to predict the variations in FDI and the profit level per year. It is also important to note that the two variables profit level per year and FDI (x) has a positive relationship and that the level of profit increases as FDI level increases and vice versa. The implication is that FDI contributes positively towards the growth of the agro based processing sector and in the country in terms of enhanced annuals profits. The study analyzed graphically the results to illustrate the relationship between amount of FDI and profit (in millions). The figure 4.2 below summarizes the trend analysis of the responses obtained from the field.

Figure 4.2 Trend of FDI and Profit (in Million Shillings) over



time

Source: Field Data (2015)

The graph above shows the relationship between FDI and Profit (in million shillings) over time; that when FDI increases the profit is also increased. The amount of FDI injected into the sector has an effect on profit generated.

4.6 The correlation between the variables: FDI and Production Volumes

The study further established the correlation between the FDI and production volumes in the Agro processing sector in this study. The formula for the calculation of Pearson's correlation coefficient was adopted (Annexure table 1) and the determined **r** was positive 0.685080337. The study further sought to establish the correlation between the FDI and profit in the Agro processing sector in this study. The determined **r** was + 0.95202. The two correlation coefficients determined by the study show positive association between the two variables independent and dependent variables. Both production volumes and the profit realized are output variables that are measure growth and this can be predicted from the regression equation $y = a + bx_i$ and $zy = a + bx_i$ as the values for **b** are positive. Therefore there is a relationship between FDI and growth in the agro-processing sector.

5.1Conclusion

It is observed that Foreign Direct Investment do influence the growth of the agro- processing sector; moreover the size of the inflows influence the growth index in the sector. Kenya as a country has to make efforts to attract FDI through government regulations and policy frameworks to boost the Agro-processing sector in Kenya. Therefore it is justifiable to conclude that Foreign Direct Investment has dogged the growth of the agro processing sector in Kenya.

5.2Recommendation

To consolidate the fragile economic growth and return the country onto the vision 2030 growth trajectory, the policies related to FDI and Agro processing sector should be geared towards inclusive and sustainable rapid economic growth. Policy priorities be centered on economic growth, equity and poverty reduction and extended into the attainment of millennium development goals through prioritization and allocation of budgetary resources to the sector. Liberalization policies on the part of the government and other regulations should be tailored to encourage foreign investors onto this sector.

5.3 Suggestions for Further Research

Further research can be done using experimental designs or observational studies that can involve observing an already existing situation; this can look into cohorts of companies in which the investigator may manipulate the independent variables and observe the outcome, this can give cause effect analysis. This study was a survey design; if a different study design is applied probably the result may be different. The sample size used in this

study was small a further investigation should be done using a bigger sample size incorporating other companies this may give different results with a close generalization to the population. Further investigation can be done across industries to uncover the similarities and differences FDI and growth. Moreover further research can be done using another research instrument like interview schedule or open ended questionnaire as this may give more information on this field of study.

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