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THE CONTRIBUTION OF AGRICULTURAL CROP PRODUCTION TO EXPORT STIMULATION IN SOMALIA

[1]Abdinur Ali Mohamed, [2]Said Abdiraizak Ali

[1,2]Faculty of Economics, Simad University, Somalia

ABSTRACT

This paper test relationship between export and crop production in Somalia and how the export can participating increasing crop production in Somalia, data found from world development indicators1970-2014 and analyzed in regression using OLS method in EViews9 Software. And theory used this study is Cobb–Douglas production function , The main finding of this study is to know the relationship between export and crop production is positive relationship, also the relationship between fertilizers and crop production is negative relationship and also the relationship between labor and crop production is positive relationship also the relationship between capital and crop production is positive relationship finally the relationship between climate change and crop production is positive relationship.

Keywords: fertilizers, climate change, labor, crop production, capital

1. INTRODUCTION

The role of the export to the crop production is improvement capital, lobar and technology, because increase the export of crop production lead to get new technology , new capital and encourage employment because the labor has gets high wages and they increase their productivity and also the export makes extension services and modern farming techniques, and also the export helping farmers to get a money that maintenance dilapidated irrigation infrastructure, (Whipkey, 2002).

In the last two decades the crop and livestock production contributed the exports of Somalia. And Livestock accounts for about 40% of GDP and a large percentage of export earnings, on other hand bananas are the main cash Crop and account for nearly 50% of export earnings. But other crops produced for domestic Consumption are cotton, maize, and sorghum. The aid, together with good rains and increased stability, helped ease the food situation and few communities were at risk of widespread famine in 1997, however, the lack of rains in spring 2001 caused major food shortages in the south of the country, (Solomon Munyua, 2009).

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Many studies have made the issue of export and crop production, and these studies include, Okuneye (1985), Dr. Solomon Munyua (2009), Michael Kamoyo and Zororo Muranda and Tendai Chikuya (2002), Oliver Morrissey and Basile Boulay (2014), JDAV K.S., DEVI G. (2015), J. Janick and A. Whipkey (2002), Leigh Anderson, (2010).

The purpose of this study to measure the relationship between export and crop production in Somalia and how the export can participating increasing crop production in Somalia.

This study will benefit policy makers to identify what is the role of export to increase crop production, and very weak places that need further improvement to remove problems faced crop production. And also the policy makers helping this study to reduce the balance of payment deficit and increase export of crop production to avoid that deficit, and also help policy makers to know foreign exchange rate.

The second section will be literature review also the third section will be Theoretical framework and methodology, and section four will be find and discussion finally section five will be conclusion.

2. LITERATURE REVIEW

Munyua (2009) the Contribution of the Crops and Livestock Production on Somali Export, Result of this study was to known crops and livestock production has positive relationship between with Somali Exports.

Kamoyo and Muranda and Chikuya (2002) Agricultural export crop participation and Contract farming and rural livelihood in Zimbabwe, Study found that cotton as an export crop provide livelihood means to both male and female headed families. And also result ensured few cases of livelihood successes; cotton is better income than non-exportable cash crop.

Angeli Kirk, Paul Winters, and Benjamin Davis (2008), Welfare Impact of non-Traditional Export Crops in Finland, Study found that there are positive coefficient indicates slower adoption and family labour.

J. Janick and A. Whipkey (2002) Nontraditional Crop Production in Africa for Export, The result of this study was showed few large firms within each country succeed in this venture.

Exporters work closely with growers from planting to harvest to ensure production of high quality produce and compliance with European standards of food safety and labor practices.

Anderson (2010) the impact of export cash crop smallholder households, The result of this study was there are positive relationship between smallholder and/or rural poor welfare and

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agricultural production systems. Because smallholder and/or rural poor welfare spillover effects of agricultural production systems.

Jadav kj and Devig G (2015) Export Opportunities and Competitiveness of Vegetable Crops in Gujarat, The result of this study is to know there are positive relationship between the Greater proportion of area and production future in India Because India was found at lowest position with the productivity that the Greater proportion of area as compared to the proportion of its production in India shows greater potentiality to increase its productivity as well as its production in future.

Muhammad A. Quddus and Usman Mustafa (2011) Comparative Advantage of Major Crops Production Export in Punjab, The result of this study was to know to assess the competitiveness and comparative advantage of Major crops such as wheat production in Punjab (Pakistan) and also province qualifies for export or should produce for self-sufficiency. And the main output is undervalued at its private price, resulting in a transfer of wealth from the production system to the economy.

Okuneye (1985) The Export crop production sector in Nigeria The result of this study was Export crop farmers in Nigeria are better off than other farmers in their communities largely due to trade liberalization.

Calalang, L. Bock and G. Colinet (2015) Export Crop production of Northern Mindanao in Philippines The result of this study was there is unequal distribution of the country's wealth among Filipinos and until now the disparity of land ownership prevails. Landlordism characterized the country's land ownership and in this feudalistic system the farmers working on landlord lands became tenants and their children after them generation after generation.

HabtamuRagaa Feisal (2000) Export Crop Production OF Aroma Investment Bureau In Ethiopia, The result of this study was to know the important export cash crops in Ethiopia's economy that contributes for more than 60% of the foreign exchange Earning, so that in line with agricultural Strategy of the government of Oromia and contributes to the recent undertakings of the region on agricultural development corridors plan.

Tina Mangier (2006) African Cloth Export crop Production, and Secondhand Clothing in Kenya, The result of this study was to increasing populations of refugees in Kenyan camps. Charitable organizations working with displaced persons were able to import used Clothing to serve the needs of these impoverished communities during this period, with some of the donations reportedly finding their way into surrounding villages and later urban areas as commodities for Resale.

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Taffesse, Paul Dorosh and Sinafikeh Asrat (2011) Export Crop Production in Ethiopia The result of this study was to known Ethiopia has little suitable land available for expansion of crop cultivation available, especially in the highlands, future cereal production growth will need to come increasingly from yield improvement.

Morrissey and Basile Boulay (2014) Food crop production in Tanzania, The result of this study was there are negative relationship between productivity can be expected to be lower than that of farms using variable inputs. Because that caused Family labour (adults) is mildly significant except when only farms using organic fertilizer are considered. That may be a preliminary indicator of greater productivity among organic fertilizer users, which could result in less reliance on family labour.

FAO (1997/98) Export crop liberalization and climate change in Africa, The result of this study was farmers have few problems selling their coffee at competitive prices. A negative consequence of this, however, is that many buyers are inexperienced. This had an adverse impact on quality, at least in the initial stages of liberalization, although recent reports indicate that this trend has been reversed as the inexperienced operators have dropped out of the business.

3. THEORETICAL FRAMEWORK AND METHODOLOGY

3.1 Definition

Exports are the goods and services produced in one country and purchased by citizens of another country. It doesn't matter what the good or service is. It doesn't matter how it is sent. It can be shipped, sent by email, or carried in personal luggage on a plane. If it is produced domestically and sold to someone from a foreign country, it is an export. (kimberly amadeo, 2017)

Crop production is a branch of agriculture that deals with growing crops for use as food and fiber. Degree programs in crop production are available at undergraduate and graduate levels. Graduates are eligible for a variety of agricultural careers. Crop production includes grains, cotton, tobacco, fruits, vegetables, nuts and plants. Different crops grow best in different areas of the country. Warmer climates are ideal for growing citrus crops. (Tina Mangier , 2006)

3.1.1 Cobb-Douglas production function Theory

The Cobb–Douglas production function are a particular functional form of the production function, widely used to represent the technological relationship between the amounts of two or more inputs (particularly physical capital and labor) and the amount of output that can be produced by those inputs. To participate increase export, The Cobb–Douglas form was

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developed and tested against statistical evidence by Charles Cobb and Paul Douglas during 1927–1947.

3.2 The Cobb–Douglas Production Functions

For illustration, assume that this takes the form of a Cobb-Douglas production function:

Where Kt is capital input and Lt is labor input.

$P = AL\beta K1 - \beta$ (1)

$\frac{AP}{AK}$=(1-β)P/K (2)

$\frac{AP}{AK}$=$\frac{\partial}{\partial k}$(AL$\beta K1 - \beta$)

=$(1 - \beta)$AL$\beta K - \beta$

=(1-β) $= AL\beta - \beta * \frac{K}{K}$

=-$\frac{(1-\beta)AL\beta K1-\beta}{K}$ (3)

$\frac{\partial P}{\partial K}$=$\frac{(1-\beta)AL\beta K1-\beta}{K}$ = $\frac{(1-\beta)\{AL\beta K1-\beta\}}{K}$ = $(1 - \beta)P/K$ (4)

EXPORT= $\beta_{0+}\, \beta_1\ K + \beta_2\ L + \mu$ (5)

3.3. Data Description

The secondary source of data is the World Bank, World development indicators data. LMF, Selected countries is Somalia. Unbalance Serial data is used to measure relationship between export and crop production. Sample contains observations from 1985 to 2005. Export is measured to value of export to the country is independent variable. And also crop production is measured Labor and capital and climate change is dependent variables. Labor is measured number of people who involve in production. Capital is measured number of machines and capital used to produce the production. And also climate change measured the exchange that Happened the situation of production.

3.4. Model Specification

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Model is specified by using equation (5) which measured the relationship between export and crop production, which is using same Log in equation. Model is specified as follows:

$$\mathrm{In(CRP)} = \beta_{0+}\ \beta_{1K}\ \mathrm{InK} + \beta_{2L}\ \mathrm{InL} + \beta_{3EXP}\ \mathrm{InEXP} + \beta_{4fer}\ \mathrm{InFER} + \mathrm{cl} \quad (6)$$

Where CRP is crop production, K is capital, L is labor, and EXP is crop production.CL is climate change and FER is fertilizer.

4. FINDS AND THE DISCUSSION

4.1 Descriptive of statistics variables

Variables	Mean	Maximum	Minimum	Std. dev
FERTILIZERS	1385690	3106110	1000000	472123
LABOR	2601592	3201796	2280715	314102.3
M-tractor	1311.684	1700	1000	241.1878
X	6681579	25940000	3170000	5457728
CRE	632.0753	1008.43	480.38	141.7873

The mean of the fertilizer is 1385690 so it's very low to compare the fertilizers are used other countries, because the Somali famers didn't how to used fertilizer and the maximum is 3106110 and also minimum is 1000000. The mean of the labor is 2601592 so its low because the labor of people of Somalia is small but the maximum amount was 3201796 and also minimum was 2280715. And also the mean of the tractor (capital) is very 1311.684 so it's low because the people of Somalia are not able to pay more capital and also there is no government that helping this people, And The maximum amount 1700 was and also the minimum was 1000. The mean of export of Somalia is 6681579 its low And also maximum was 25940000 and minimum was 3170000. The mean of calamite change is 632.0753 so it's very high because the climate of Somalia is good and also the maximum amount was 1008.43 and also the minimum was 480.38.

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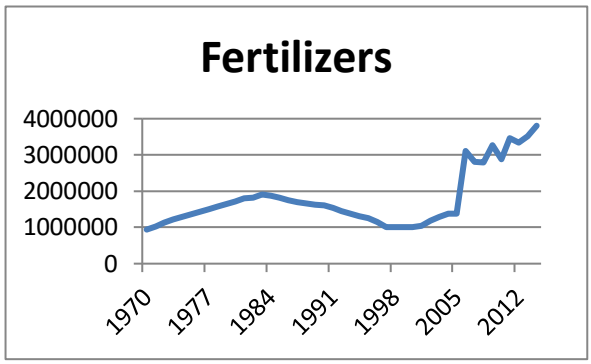
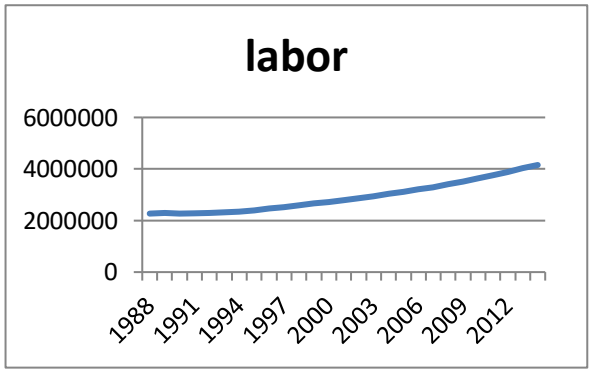
Figure 4.1: fertilizer



The fertilizer used the farmers was high in 2010 and was 3,600,000 because the farmers they learned how to used a fertilized, and also fertilizer used a farmers was law in1970 and was 800,000 because the people of Somalia they don't know how to used fertilizer.

Figure 4.2: labor



The labor of farmers was high in 2010 and was 4,400,000 because the number of the Somalia people is increase and that caused, also the labor of farmers was low in 1988 and was 2,000,000 because the number of Somali people are low.

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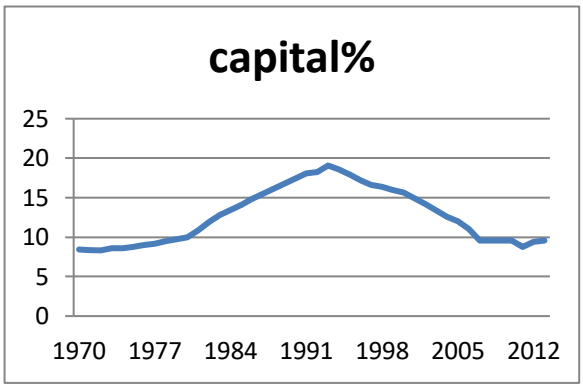
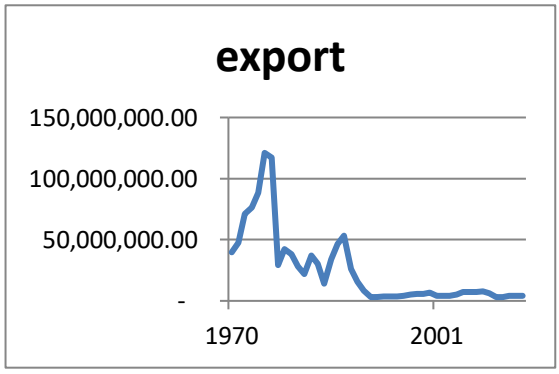
Figure 4.3: capital

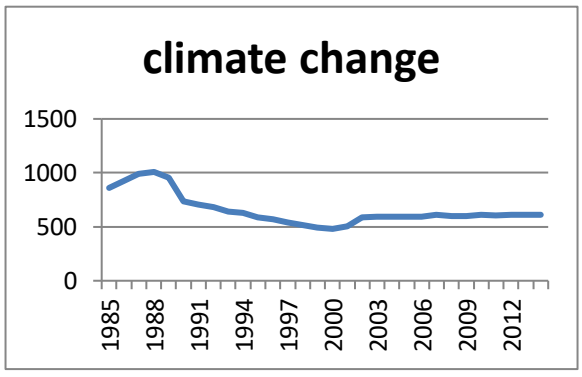


The capital used farmers was high in 1985 and was 1,900 because central government of Somalia has gave a subside in farmers, but also the capital used farmers was low in1997 because there is no government that support a farmers and also the farmers don't able to pay more capital.

Figure 4.4: EXPORTS



The export of Somalia was high in 1972 and was 120,000,000 because the country has strong government, and government was supported the export, and encourage a farmers.



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The climate change of Somalia was good in 1986 and its 1000 because it was good situation and exist more rains, there was no morphology , lose water.

4.3 Estimation of model parameter

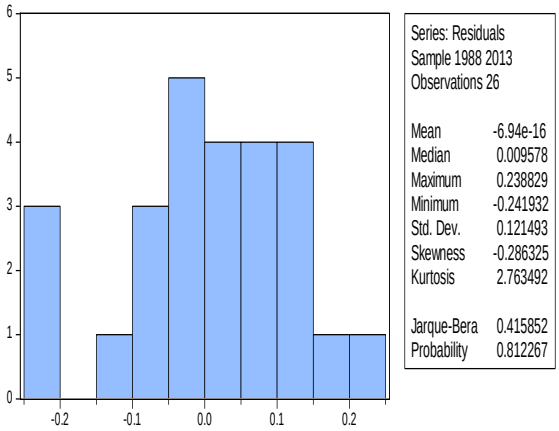
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.882070	3.503702	-0.822579	0.4204
LOG_F	-0.918901	0.304312	-3.019606	0.0068
LOG_L	1.900246	0.775698	2.449724	0.0236
LOG_X	0.186805	0.172745	1.081395	0.2924
CRE	0.000954	0.000458	2.084106	0.0502
D(LOG_C)	2.042668	1.479502	1.380646	0.1826

The variable of fertilizer is significance because p-value is less than 0.05 and its 0.0068 the variable of labor is significance because p-value is less than 0.05 and its 0.0236 the variable of export is insignificance because p-value is greater than 0.05 and its 0.2924 The variable of Climate change is significance because p-value is less than 0.05 and its 0.0502 the variable of tractor is insignificance because p-value is greater than 0.05 and its 0.1826.

The Prob (F-statistic) is significance because its less than 0.05 and its 0.007468 and the fitness of the model about R-squared is 0.68008

Model strength

Figer of normality test



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This figure is Breusch-Godfrey Serial Correlation LM Test of normality test it's showing there is no any normality test in this model because of the probability is insignificant, and also the Jarque Bera is insignificance.

	LOG_F	LOG_L	D(LOG_M_C)	LOG_X	CRE
LOG_F	1	0.076175	0.159604	0.34874	0.5019034
LOG_L	0.0761751		0.629012	-0.082790	-0.536162
D(LOGC)	0.1596040.629012		1	0.001741	-0.040708
LOG_X	0.348746	-0.082790	0.001741	1	0.679224
CRE	0.501903	-0.536162	-0.040708	0.679224	1

Multicollinearity Test

There was multicolloronality problem in this model but I remove when I was used variables as log and also I used unit root test to solve this problem.

Heteroskedasticity Test: Breusch-Pagan-G

F-statistic	**)181**	**Prob. F(5,20)**	**20**
Obs*R-squared	**3792**	**Prob. Chi- Square(5)**	**25**
Scaled explained SS	**2426**	**Prob. Chi-Square(5)**	**09**

There is no Heteroskedasticity in this model because f-statistic is insignificance and also prob. Chi square also is insignificance.

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Auto correlation

F-statistic	*1.000196*	*Prob. F(2,18)*	*0.3874*
*Obs*R-squared*	*2.600458*	*Prob. Chi-Square(2)*	*0.2725*

This figure is showing there is no Auto correlation in this model because prob. Chi-square is insignificance.

The studies those found with same results are **first** Munyua (2009) the Contribution of labor to the Crops and Livestock Production on Somali Export, Result of this study was to known crops and livestock production has positive relationship between with Somali Exports. **second** Jadav kj and Devig G (2015) Export Opportunities and Competitiveness of capitals to Vegetable Crops in Gujarat, The result of this study is to know there are positive relationship between the Greater proportion of area and production future in India **third** Angeli Kirk, Paul Winters, and Benjamin Davis (2008), Welfare Impact of labor to non-Traditional Export Crops in Finland, Study found that there are positive coefficient indicates slower adoption and family labour.

5. CONCLUSION

The purpose of this study is to measure the relationship between export and crop production in Somalia and how the export can participate increasing crop production in Somalia, data found from world development indicators1970-2014 and analyzed in regression using OLS method in EViews9 Software. And theory used this study is Cobb–Douglas production function.

The main finding of this study is to know the relationship between export and crop production is positive relationship, also the relationship between fertilizers and crop production is negative relationship and also the relationship between labor and crop production is positive relationship also the relationship between capital and crop production is positive relationship finally the relationship between climate change and crop production is positive relationship.

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