
Khat Marketing and Its Export Performance in the Ethiopian Economy

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Abstract: The major aims of this paper were to assess Khat marketing and its export performance in the Ethiopian economy. The study used secondary data collected from different organizations. The data were analysed using both descriptive and econometric methods. The descriptive study showed that the crop has crucial importance for the economy as a whole and the producers. The crop can also be cultivated by mixing with other crops and the production varies from region to region. The production is expanding rapidly in some regions of the country due to the high-income elasticity of plants than another crop. On the other hand, the plant seen as socially undesirable in some parts of the country due to its social ill. And also, the crop has several adverse effects on both social and socioeconomic factors of a country. As a result, the different country attempted to impose restrictions. On the other hand, econometric analysis result found that per capita income of importing country and real effective exchange rate are the most important factors which significantly affect Khat export in the long run in Ethiopia. Finally, the study recommended that there should be an appropriate policy towards the restrictions of further Khat expansion because it harbours considerable social and economic risks to the country.

Keywords: Ethiopian Economy, Export Performance, Khat, Khat Export, Khat Marketing

1. Background of the Study

1.1. Introduction

Agriculture is one of the dominant sectors in the Ethiopian economy and its share of GDP is 36.3% and above 70% of Ethiopia's population is employed in the sector [6]. The Khat industry is one of the leading agricultural sectors. The industry constitutes 4% of the country's export earnings and shares 9.4% of total merchandise export [16].

Khat (*Catha edulis*) is an evergreen tree cultivated for the production of fresh leaves that are chewed for their euphoric properties. The plant is well-known and controversial in the eastern part of Africa and the Arabian Peninsula due to its adverse impact on the hand and preferred crop on the other [7]. It mostly grows in East Africa and southern Arabia and often known as chat but also goes by different names such as Khat, Qat, Kat, Kus-es-Salahin, Mirra, Tohai, Tschat, Catha, Quat, Abyssinian tea, African tea, and African salad [2]. In Ethiopia, there are also other names given for Khat such as Aweday, Beleche, Abo Mismar, Wondo, Bahirdar, Gelemso,

Hirna, etc., which based on the source of the plant.

Globally, each day it is estimated around 5 to 10 million people consume Khat, East African countries and southwestern Arabia are the utmost users [22]. In Ethiopia, the habit of chewing Khat shows rises at radical change, most importantly it changes in younger age population predominantly, in high school, college and university students for whom the academic activity is high [3]. According to CSA 2016 report, 12% of women and 27% of men reported having ever chewed Khat.

Currently, Ethiopia is the leading Khat producer in Africa and worldwide. Most of the Khat is produced in the South Eastern part of the country. Even if, the Khat export in some countries is banned and unpermitted to transact within and outside the country, Ethiopia constitutes one of the major earnings from Khat consumption within a country and its export.

The cultivation of Khat is also growing rapidly. About 275 million kilograms of Khat was cultivated on 248,000 hectares in 2014-15, from this about 45 million kilograms were exported and 226 million kilograms was consumed

domestically. Nearly 800 million ETB (\$37 million) was spent by a consumer annually to buy Khat. Depending on the quality and type the price of Khat ranges between 35 and 1,000 ETB [6]. The demand for the plant is not only the domestic market, but it also traded and consumed in some parts of Europe and North America. It also consumed in the US, even if the plant seen as a drug of abuse. Humanitarian crises and conflict in the world create a good market opportunity for illegal drugs including Khat [15].

However, the market operation on Ethiopia Khat trade has remained unsatisfactory for farmers and the market. This is because there is no significant change in the form of production, processing, and marketing for several years due to non-engagement of government through policy rule and also the increasing ban of importing countries as an illegal drug [10].

Even though Khat production is discouraged because of problems listed above in Khat production and marketing, the plant continues to be a chief cash crop in Ethiopia due to its high demand both in the domestic and foreign market [19].

Despite, this increase in the export sector in the past few years currently it fluctuates or not as intended and data shows that the export performance of Khat in the country is unsatisfactory and also the addiction of the youngsters and working labour force worrying society and government. In addition to these, the demand for the plant is declining in some areas of the country especially in Tigray and Amhara regions. By understanding these gaps this study was conducted on Khat marketing and its export performance on the country's economy. These gaps were caught the attention of the researcher to do further study in the Khat export and its relation to economic growth in the context of Ethiopia.

Finally, the findings of this study would enable us to know about Khat marketing structure and export performance. Examining the problems that affect Khat production, processing, and marketing. Identifying these problems helps policy makers and market participants on which factors to focus to be effective in Khat production and consumption. The study also helps producers or farmers, traders, governmental and nongovernmental organizations and also for anyone who has a will to participate in the Khat industry or the marketing activity. Besides, this paper supports any researcher who wants to do further study in the area.

1.2. Legal Issues

The growing habit of Khat consumption worrying many countries including Ethiopia due to its numerous adverse effects of the plant. However, it is quite tough to ban the plant overnight since some parts of the country make a livelihood from the plant where they need to compensate. Ethiopia experienced some effort to ban the plant albeit its ineffectiveness due to its non-inclusiveness of producers from the decision making [8].

The illegality of Khat continues the year onwards which follows the ban in Netherlands, Canada and recently in the UK, which lists the plant as a class C drug in 2017. The sale and use of Khat are also banned in many other developed

countries including the United States; cathinone is a Schedule I drug, effectively rendering Khat illegal. Missouri and California specifically prohibit Khat as well as cathinone. And also, in countries such as China, Indonesia, Saudi Arabia, Malaysia, Norway, Sweden, France, Belgium, Switzerland, United Arab Emirates, Israel, Poland, Italy, Rwanda, Tanzania and others are illegal or banned to trade Khat [4, 7, 14]. In Africa countries like Eritrea and South Africa are kept the plant itself as protected species. However, it is legal to produce and consume Khat in many parts of the Arabian Peninsula and Horn of Africa, particularly in Ethiopia, Somalia, Djibouti, Kenya, and Yemen.

2. Methods

2.1. Study Design and Source

The study employed the time-series study design to determine factors that affect Khat export in Ethiopia. To achieve the intended objectives, secondary data ranging from the year 1985/86 to 2016/17 were used and the necessary data required to this determinant are obtained from different sources such as publications of annual bulletins and reports by National Bank of Ethiopia (NBE), Ethiopian Revenue and Custom Authority (ERCA), Ministry of Finance and Economic Development (MoFED) and Central Statistical Agency (CSA) and other annual based reports.

The study used descriptive statistics tools like graphs, tables and percentages. Moreover, the econometric analytical technique particularly Ordinary least squares (OLS) method was applied to determine variables that affecting khat export in Ethiopia.

2.2. Specification of the Model and Description of the Variables

This research attempts to develop an empirical model linking world export value for Ethiopian Khat to various determinants based on the literature reviewed and experience of our country's. Such factors like the price of Khat, the income of consuming countries, real exchange rate, interest rate and trade openness are included which believed to determine Khat export in Ethiopia.

Application of simple ordinary least square (OLS) model for time series data results in spurious regression among variables. However, cointegration analysis can be made to identify the long-run and short-run elasticities through the error correction formulation [21].

The model limited and facing a challenge in choosing variable because no studies are done on the areas and no enough data on the variables such as the supply of Khat and domestic consumption of Khat. So, the model obliged to drop the variables from the analysis of Khat export in Ethiopia and the empirical model is specified based on model explained above part and considering other variables that are believed to be important in describing the model better in the context. The model has applied the OLS estimation method because of its convenience and efficiency than other estimation

methods.

In this research, the value or revenue of Khat received by farmers or producers from the export market through middlemen or by itself is considered as the dependent variable. The model for this study is constructed based on the following function;

$$LnKEXP = LnPRICE + LnREER + LnPCIC + LnRIR$$

Table 1. Description of the variable.

Variables	Description
LnKEXP	The log value of Khat export
LnPRICE	The log value of world price of Khat
LnREER	The log value of real effective exchange rate
LnPCIC	The log value of per capita income of Khat importing country i.e. Somalia and Djibouti
LnRIR	The log value of real interest rate

3. Results

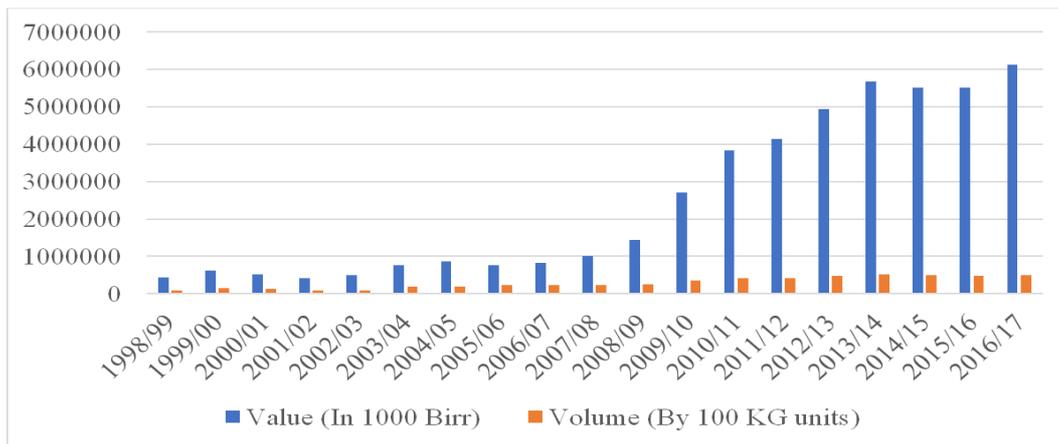
3.1. Descriptive Results

Ethiopia's export sector is dominated by a few primary

products and it accounts for the largest share of export earnings. On the other hand, non-agricultural sectors are almost having an insignificant share of total merchandise exports. Export earning of agriculture accounts for 80% to 90% share of export earnings over the past fifty years [17]. From these Khat is one source of export revenue, generating about 4% of Ethiopia's total export earnings in 2017 [16].

Khat shows remarkable growth from time to time as compared to other exported commodities. Though, the plant is termed as a drug of abuse the market for the plant is worldwide. It exported to many countries including some parts of Europe, North America, Colombia, Afghanistan, Somalia, Djibouti [15].

The export earnings from Khat export shows a notable change following the changes in regimes. During regimes of Dergue (1974/1975 to 1990/1991) revenue from the export of Khat shows an annual average growth of 69.8% while the growth in Imperial regime is accounted for about 0.8% [9]. Following the Dergue regime, the Ethiopian Peoples' Revolutionary Democratic Front (EPRDF) come to power where the export revenue from Khat shows a significant increase.



Source: ERCA

Figure 1. Trends of Khat export growth in values and volumes over a year (1998/99-2016/17).

The volume of Khat export increases steadily from 60 tons in 1998 to 157 tons in 2000. However, due to the shortage in supply the revenue declines from 618.8 million ETB in 2000 to 510.5 million ETB in 2001, and 418.7 million ETB in 2002. Revenue from Khat export continues to decline from 61 tons and 78 tons in 2003 and 2004, respectively for the reason that there are drought and high domestic consumption which creates a shortage in supply of the plant [18].

The value of Khat is the most dynamic over time. The value received from exported Khat increased from 15.9 million ETB in 1985s to 618.8 million ETB in 2000 and continues to rise and reached 6.1 billion ETB in 2017. The revenue of Khat export also increased from 138 tons in 1985 to 156 tons in 2000 and reached 488 tons in 2017. This is mainly attributed to increased demand from Somalia. Somaliland is becoming the largest importer of Khat replacing Djibouti, the traditional largest importer of Khat

[1].

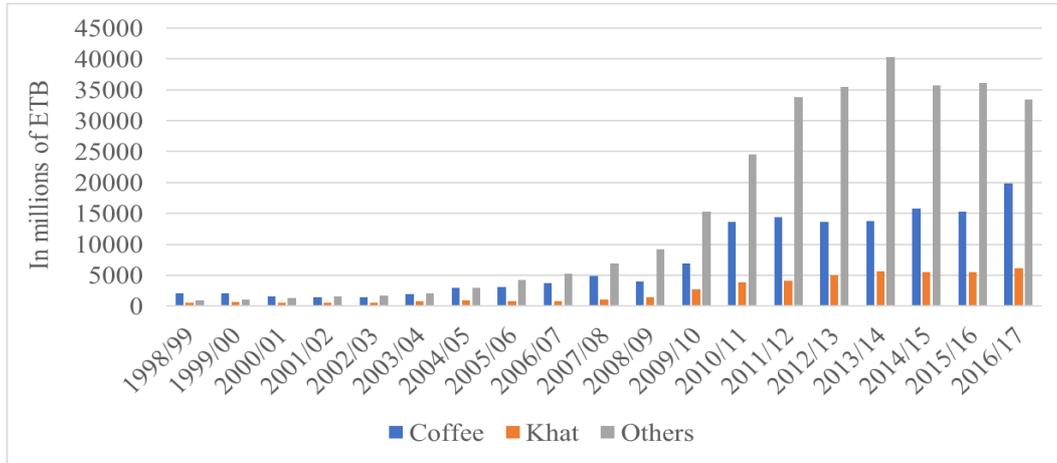
In Ethiopia, Khat is an important cash crop which has multipurpose attributes like personal consumption, sale to the domestic and foreign market. The multitask activities of Khat production which extends from harvesting through its marketing activities to the ultimate market creates high employment opportunity for a large number of populations [8].

Khat ranked second most revenue-generating export in 1999/2000 which generates 618.8 million ETB. It is well known due to its high-income elasticity and its export earnings share rise from year to year continuously as compared to other export commodities. According to NBE report, its share of Khat export in total merchandise export went up to 9.4% in 2016/17.

Ethiopian government gives attention to Khat due to its economic value but there is no policy direction taken by the

government towards encouraging farmers and producers. The revenue gained from Khat export reaches 773.23 million ETB in 2008/09 [11]. The revenue from Khat export

increased by 4% as export volume rose by 3.9% from the previous year. Hence, the share of Khat export in total merchandise export went up to 9.4% in 2017.



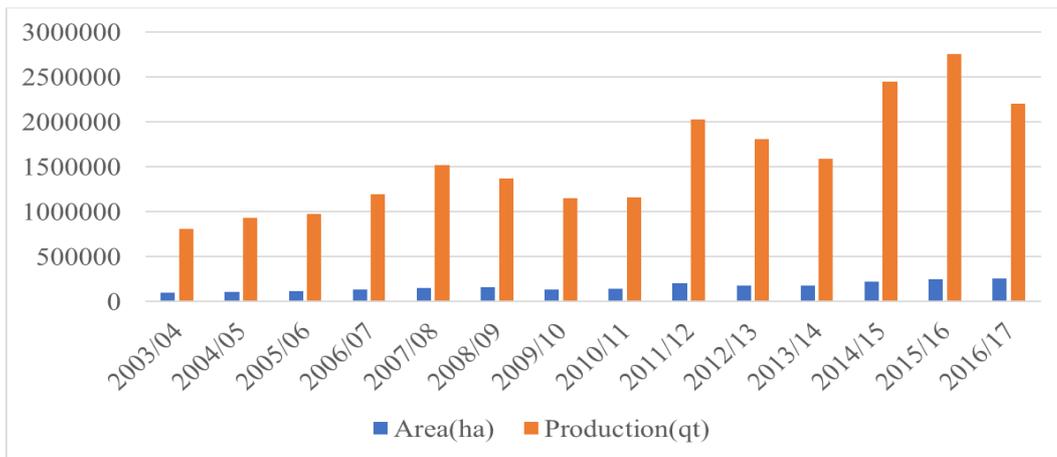
Source: ERCA

Figure 2. Trends of revenue of Ethiopian Khat export growth as compared to other export items over a year (1998/99-2016/17).

The production of Khat expands increasingly from time to time due to several reasons. One of the factors for the expansion Khat is the increasing market demand for the plant [19]. Socioeconomic and agroecological factors are also attributed to the expansion of the Khat [5]. The proximity to the road network, favourable price and irrigation facilities on farms is also the factor which contributed to market

opportunities.

Khat needs minor area and little resources for cultivation. The cultivation of Khat has many benefits including rising income, increasing the living standard of rural and soil conservation are some [20]. It also generates foreign exchange earnings and helps the farmers to compensate for the deficit of other crops since the plant is high-income elastic.



Source: CSA

Figure 3. Expansion of Khat production in area and production over a year (2003/4-2016/17).

According to CSA the total area cultivated in the year 1998 was estimated at 78,570 hectares, in 2008 increased to 163,227 hectares and in 2017 it reached 255,401 hectares. Correspondingly the production gained has increased. In 1998 the total production has estimated to be 60 quintals, in 2008 raised to 1,517,236 quintals and in 2017 reached 2,201,860 quintals.

Ethiopia remains the largest producer of Khat in the world. The country has suitable environmental conditions for Khat production which is an excellent opportunity for the producer farmers as well as traders. In recent few years, Khat

production and consumption is rapidly expanding. The production and consumption of Khat expand to the new corners of the country due to its high economic values [11, 13].

The economy of the country made significant earnings from Khat and the population depended on the Khat production and export made on the hand. And the consumption of Khat addicted the millions of populations which led to socioeconomic, psychological and health problems. Although, the expansion of Khat there is no government intervention through policy

implications [23].

The Ethiopia total area and production of Khat crops are 111,578 hectare and 933,398 quintals in 2004. While the area and production for 2017 are 255,401 hectares and 2,201,860 quintals, which show an increment of 123.9% on area coverage and 135.9% on the production. Accordingly, the total Khat cropped area reported for Oromia, Amhara, SNNP,

Harari and Benishangul-Gumuz Regions have increased by about 115.68%, 314.28%, 0.77%, 190.4%, 212.3% and 1667.9% respectively. Following the same pattern, the production reported for the above-mentioned regions have increased by about 140.07%, 430.5%, 172.85%, 306.73% and 3137.85% over the same period in that order. (For details see table below).

Table 2. Regions of rapid Khat production and area coverage (2003/04–2017/18).

Region		2003/04	2016/17	Change
Amhara	Production (qt)	13,566	72,103.44	430.5%
	Area (ha)	2,718	11,260.18	314.28%
	Yield (qt/ha)	4.99	6.4	28.26%
Benishangul Gumuz	Production (qt)	457	14,796.96	3137.85%
	Area (ha)	46	813.24	1667.9%
	Yield (qt/ha)	9.89	18.2	86.65%
Dire Dawa	Production (qt)	2409.94	3,072.59	27.5%
	Area (ha)	713	1,159.74	62.66%
	Yield (qt/ha)	3.38	2.65	-21.6%
Gambela	Production (qt)	-	-	-
	Area (ha)	39	345.85	786.79%
	Yield (qt/ha)	-	-	-
Harari	Production (qt)	33,363	135,696.57	306.73%
	Area (ha)	2,038	6,364.75	212.3%
	Yield (qt/ha)	16.37	21.32	30.24%
Oromia	Production (qt)	543,737	1,305,332.93	140.07%
	Area (ha)	75,196	162,184.94	115.68%
	Yield (qt/ha)	7.23	8.05	11.34%
SNNP	Production (qt)	238,109	649,682.24	172.85%
	Area (ha)	22,570	65,549.20	190.4%
	Yield (qt/ha)	10.5	9.91	-5.6
Somali	Production (qt)	104,138	21,175.58	-79.67%
	Area (ha)	7,984	6,360.88	-20.3%
	Yield (qt/ha)	13.04	3.33	-74.5%

Source: CSA (No data before 2003/4 is available. Data for Afar and Tigray is not found. Data for production for Gambela region is not available).

The table above depicts that the distribution of Khat production, area coverage and its yield is varied between regions of the country. Among the listed regions, Khat production dominantly produced in Oromia and SNNP regions. Oromia region yields 4.99 quintals per hectare in 2004 and rises to 6.4 quintals per hectare in 2017. Correspondingly, SNNP region yields 10.5 quintals per hectare and shows a decline and reached 9.91 quintals per hectare in 2017. All the regions of the country relatively show the growth of production of Khat except for Somali region which decreases the yields from 13.04 quintal per

hectare in 2004 to 3.33 quintal per hectare in 2017.

3.2. Econometric Analysis

3.2.1. The Long Run Estimation of the Model

To obtain both short-run and long-run relationship one can appeal to cointegration as the long-run equilibrium could be lost. The table below shows the cointegration test using two steps Engle-Granger procedure by saving residual and testing its stationarity.

Table 3. Cointegration test.

Variable	Test Statistic	1% Critical value	5% Critical value	10% Critical value
Residual	-6.697	-3.723	-2.989	-2.625
MacKinnon approximate p-value for Z(t) = 0.0000				

As shown in the table above the variables are cointegrated and hence there is a linear combination of variables. That is there exists an explicit long-run relationship between Khat export and its determining variables at 1% critical value. After

all needed tests are computed, the study found that almost all variables are stationary after first difference and there exists long-run cointegration among determining variables. Therefore, the long-run model is estimated using OLS as follow;

$$\ln KEXP = 3.713527 + 0.3281077 \ln PRICE - 2.81853 \ln REER - 0.0293743 \ln RIR + 4.20629 \ln PCIC$$

Table 4. The long-run results of OLS estimation.

Variable	Coefficient	Std. Err.	t	P>t	[95% Conf. Interval]	
LnPRICE	0.3281077	0.2785946	1.18	0.250	-0.2445517	0.9007672
LNREER	-2.81853***	0.1814593	-15.53	0.000	-3.191524	-2.445535
LnRIR	-0.0293743	0.1916496	-0.15	0.879	-0.4233157	0.3645672
LnPCIC	4.20629***	0.2246527	18.72	0.000	3.744509	4.66807
_Cons	3.713527	2.313795	1.60	0.121	-1.042548	8.469601
Number of obs = 31						
F (4, 26) = 210.41						
Prob > F = 0.0000						
R-squared = 0.9700						
Adj R-squared = 0.9654						
Root MSE = 0.40366						

*** - significant at 1% level.

** - significant at 5% level.

* - significant at 10% level.

R-squared of 96.54% shows that the dependent variable is sufficiently explained by the independent variables. The F-statistic of 210.41 is significant with p-value > 0.0000. This shows the coefficients are different from zero. And it also shows the relationship between explanatory and dependent variables exists in the long run. One of the determinants of Khat export, price of Khat has a positive and insignificant relationship with Khat export.

The variable real effective exchange rate (REER) which is measured at the weighted sum of the exchange rates with trading partners and competitor significantly and negatively affect the Khat export in the long run. The long-run coefficient of Khat export concerning REER is 2.81853 indicating a one percent increase of exchange rate or the depreciation of currency decreases Khat export by 2.81853 percent significantly at 1%. The real interest rate (RIR) has a negative and insignificant effect on Khat export in the long run.

The other variable in the model is per capita income of importing country which taken as a proxy to show the two most importers of Khat Djibouti and Somalia are positively and significantly affects the Khat export in the long run. The long-run elasticity of per capita income of importing country for Khat export is 4.20629. The coefficient shows that a one-unit rise in per capita raises the Khat export by 4.20629 which are significant at 1%.

3.2.2. Short-run Estimation of the Model

A short run model (error correction model) is estimated in this section as the first difference of the dependent variable is regressed on the first difference of explanatory variables and the first lag of the residual obtained in the first step. It indicates the short-run dynamics of the OLS estimation results and its adjustment towards the long-run equilibrium. The short-run model of OLS estimated as follow;

$$\text{LnKEXP} = 0.0085819 + 0.2843708\text{LnPRICE} - 2.824847\text{LnREER} + 0.0135078\text{LnRIR} + 4.078607\text{LnPCIC}$$

Table 5. Short-run regression result.

Variable	Coefficient	Std. Err.	t	P>t	[95% Conf. Interval]	
DLnPRICE	0.2843708***	0.0243077	11.70	0.000	0.2343083	0.3344334
DLnREER	-2.824847***	0.0452078	-62.49	0.000	-2.917954	-2.73174
DLnRIR	0.0135078	0.0138164	0.98	0.338	-0.0149477	0.0419633
DLnPCIC	4.078607***	0.0138164	35.97	0.000	3.845101	4.312112
De	0.98419***	0.0141141	69.73	0.000	0.9551214	1.013259
_Cons	0.0085819	0.0073683	1.16	0.255	-0.0065933	0.0237572
Number of obs = 31						
F (5, 25) = 1991.03						
Prob > F = 0.0000						
R-squared = 0.9975						
Adj R-squared = 0.9970						
Root MSE = 0.03557						

*** - significant at 1% level.

** - significant at 5% level.

* - significant at 10% level.

As shown on the table above the R-square and adjusted R-square for the short-run model are 99.75% and 99.7% shows

that the dependent variable Khat export is explained by explanatory variables before the adjustment and after

adjustment respectively.

The coefficient of the result shows the price of Khat and per capita income of the importing country has a positive and significant effect on Khat export whereas the real effective exchange rate has a negative and significant effect. The real interest rate has a positive and insignificant effect in the short run.

The statistical significance of the lagged value of residual (De) conveys an important message. The Coefficient of the error-correction term is a significant and positive sign. The coefficient shows that the model converges to equilibrium by about 98.4% of the discrepancy created each year.

Generally, 99.75% of Khat export determined by the independent variables in the short-run which indicates that the model explained more in short-run than in the long run.

4. Conclusion and Policy Implication

4.1. Conclusion

Khat is a well-known and vital cash crop for its foreign currency earnings. However, there is no attention given through research and development by government or non-governmental organizations. Millions of people make their livelihood from the crop either through producing or through participating in the marketing activities.

The plant viewed as a drug of abuse in some parts of the country due to its adverse effects. As a result, different countries attempted to put restrictions on the production and consumption of Khat. Khat has substantial benefits for farmers, regions and country as a whole. It cultivated by mixing with other crops and the production varies from region to region. The production is expanding rapidly in some regions of the country due to the high-income elasticity of plants than another crop.

Currently, the plant is generating income both for farmers and the national economy. Many consider Khat as a drug of abuse and many others made their livelihood from the plant. The adverse effects of Khat including socioeconomic, social, cultural and health impacts sights as to reduce the consumption.

The econometric analysis revealed that Khat export varied positively with per capita income of importing country and negatively with the real effective exchange rate both in the long run and short run. Khat export is also varied positively with the world price of Khat in the short run. The world price of Khat does not affect Khat export, in the long run, this is maybe because of Khat is an addictive plant (inferior good) so that people spend their money without considering the price.

Besides, the econometric model result indicates per capita income of importing country and real effective exchange rate are the most important factors which significantly affect Khat export in the long run in Ethiopia in relative to the other determinants of Khat export. Both of the variables affect the Khat export significantly both in the

long run and short run.

To sum up, the expansion of Khat production in Ethiopia should be restricted because further Khat expansion results in significant social and economic risks for the country. And also, as the ban continues by different countries there is a risk to the country's economy because it is an important source both for producers and for those engaged in marketing activities [10].

The export earnings from the plant relatively declining, due to the ban of product in many previously importing countries. There is also a risk for the farmer if the market or crop fails for a year. In addition to these, currently, the plant is regulated in some regions of the country especially Tigray and Amhara which decreases the domestic market for a plant.

4.2. Policy Implication

Understanding the hazardous expansion of Khat production and consumption in the country on the one hand and the declining demand for the plant in the country and in the export market on the other hand, there should be a policy direction in the long run to bound the further expansion of Khat. To bring this change in the long run the following policy implications are put forward;

1. Producers or farmers should diversify their source of livelihood and income for the reason that the global market for Khat is currently declining due to banning in previously Khat imported countries and in some part of the country.
2. The government should introduce and disseminate high-income elastic cash crop for farmers producing Khat and subsidize them to compensate for the benefits obtained from the crop.
3. Comprehensive and systematic regulatory mechanisms are essential for the control of Khat marketing within a country and outside of a country.
4. Government involvement at all levels to develop effective regulatory legislation for socio-economic management of Khat to reduce abuse and the negative impact of the substance on the government's wider plans for national development.
5. Creating and introducing higher revenue earning demonstration of cash crop cultivation to discourage the farmers from the production of Khat.
6. The government should put higher tariffs and taxation both on local producer and exporters to hinder the expansion of the plant over the entire country.
7. Provision of research and development on Khat to explore additional adverse effects of Khat on society in general.
8. Market places should be bind legally for Khat distribution as the demand for plant reduces among young's and working-age population.
9. All-inclusive and community-based awareness regarding the adverse impact of the plant should be given through mass Media, public forum and other information diffusion mechanisms.

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