
Determinants of Export Performance of Honey Industries in Ethiopia

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Abstract: The study was conducted to identify the determinants of export performance of honey industries in Ethiopia and to establish trends of the Ethiopian honey export volume and honey export value. Specifically, the study aimed to assess factors that determine the export performance of existing Ethiopian honey exporters, to identify the extent at which the determinants have an effect on performance of Ethiopian honey export industry, and to assess the trends of Ethiopian honey export in volume and value. In the study a descriptive and explanatory research designs were adopted and the sampling technique (non-probability- purposive sampling technique) was used to select sample of 96 sample size from 24 Ethiopian honey exporting firms. The data collection methods; questionnaire and descriptive data analysis methods were applied to collect the data. The analysis of the secondary data showed that the trends of the Ethiopian honey export volume and honey export value showed an average decline rate of 53% and 51.5% respectively during 2011-2020. The study recommends Ethiopia to have mandatory honey standard, technical supervision and follow up must be strong to reduce adulteration of honey and enhance quality as it is the major criteria of export standard, establishment of new policies on application of agrochemical crops and pesticides, creating suitable condition to produce honey storage and packaging materials in the country, increase production volume to stabilize domestic market price and increase export performance.

Keywords: Ethiopia, Export Performance, Market, Honey Export Volume, Honey Export Value

1. Introduction

1.1. Background of the Study

Bee keeping is a longstanding practice in Ethiopia and is an integral part of the Ethiopian agriculture. Beekeeping has manifold benefits in Ethiopia. It is a source of foreign currency through the export of honey and beeswax [15]. Beekeeping is a minimal investment and pro-poor agricultural sub-sector. For poor and vulnerable communities, even for those without access to land, small scale beekeeping has made a significant contribution to their livelihood security. Based on the technology advancement of beekeeping practice, there are four different types of honey production systems (beekeeping practices) in Ethiopia, namely traditional forest beekeeping, traditional backyard beekeeping, transitional and modern beekeeping [16, 17].

To estimate honey production, number of hives, frequency

of honey production and honey production per harvest are required. Therefore, these data were collected from the holders within sampled households in the rural sedentary areas of the country. As a result, the estimate of total honey production is about 47.71 million kilograms of which the greater portion is harvested from traditional hives [5].

Traditional beekeeping, which comprises traditional forest and traditional backyard beekeeping, is the dominant honey production system in the country. With the large honey bee population and the favorable ecological and climatic conditions for honey bees in Ethiopia, the country has an annual honey production potential of 500,000 tons [10, 1]. However, the actual annual honey production of Ethiopia is about 50,000 tons, which is only about 10% of the country's annual honey production potential [5].

However, because of Problems related to honey quality standards and marketing problems Ethiopia's honey resource contribution to global market and national economy is insufficient. Therefore, knowing these specific factors that

affect honey export performance helps to develop proper mitigation strategy.

1.2. Statement of the Problem

The issue of concern as a nation with regard to the Ethiopian honey export is that despite the long standing practice of beekeeping in Ethiopia, huge honey production potential of the country, the recognition the beekeeping sub-sector is getting by government and non-governmental organizations and also the particular interest of the government to enhance the foreign earning from honey, the annual average annual honey export volume is low and only about 12% of the actual average annual honey production of the country during the period 2011-2020 [5].

The trends of import and export of honey, the amount of exported honey to the global market is greater than the amount of honey imported to the country. The main buyers of Ethiopian honey are Germany, United Kingdom, Sudan, Norway, Saudi Arabia, and Yemen. The main buyers of beeswax are Germany, Japan, United States, United Kingdom and Italy. Despite of the big market for honey and beeswax, producers are less exposed to quality standards suitable for domestic or external market. As a result, a number of intervention activities have been carried out to face the challenges there by developing the subsector, especially honey and other bee products [5].

According to EMDIDI, 1300 tons of honey was planned to generate 4.6 million USD, and the performance was 31% (444 tons and 1.4 million USD) in 2017. In 2020, the country planned to export 479 tons and generate 1.32 million USD, but the performance was low 150.09 tons and 0.52 million USD. The honey export performance of Ethiopia during 2017 to 2020 was declined by 62% (0.88 million USD).

The past interventions have been production focused and neglected the wider value chain context, hence the impact of their investments have been negligible. The different studies on honey value chain analysis conducted in different parts of the country [9].

Efforts made in the past to address the challenges to the Ethiopian honey export, without adequate information on the root causes of the Ethiopian honey export performance prevailing across the honey value, were generally only addressing the symptoms to the challenges. The lack of such information is by implication hindrance to take correct measures to rightly address the challenges and sustainably enhance the export of honey from Ethiopia, in a level that commensurate to the country's honey production potential. Reasons reported for the low Ethiopian honey export are general and most studies conducted to address the challenge have focused on improving the honey supply side, which failed short to address the issue in a holistic manner [15].

Therefore this was the main reasons why the researcher motivated to conduct this study mainly focusing on the determinants of export performance of Honey industries in Ethiopia.

1.3. Research Hypothesis

This study contributed to the body of knowledge by identifying the determinants of export performance of Ethiopian honey industries. To address the above problems the following hypothesis are set.

H1: Domestic market price has a negative effect on Ethiopian honey export performance.

H2: Legal framework and Ethiopian honey export performance have a positive relationship.

H3: Laboratory service has a negative effect on honey export performance.

H4: packaging and Storage facilities and honey export performance have positive relationship.

H5: Chemical application on crops affects honey export performance negatively.

H6: Absence financial and credit facility has a negative effect on Ethiopian honey export performance.

H7: Honey supply and honey export performance have positive relationship.

H8: Adulteration oh honey product has a negative effect on honey export performance.

1.4. Objectives of the Study

The main objective of this study was to investigate the determinants of export performance of Honey Export industries in Ethiopia, and enhance the Ethiopian honey export.

The specific objectives of the study were:

To assess the trends of Ethiopian honey export in volume and value.

To assess factors that determine the export performance of existing Ethiopian honey exporters;

To identify the extent at which the determinants have an effect on performance of Ethiopian honey export industry.

1.5. Significance of the Study

The findings and knowledge that were generated from this study contribute to the better understanding of the factors affecting Ethiopian honey export performance, and helps to formulate appropriate policies, design strategies and prepare programs and projects to sustainably address the export challenges, and significantly enhance honey export of Ethiopia for the benefit of the Nation. Further, by sustainably improving the export of honey from Ethiopia, based on the findings of this study, the claimed benefits of beekeeping (employment generation, source of income, source of foreign currency and ecological services) can be realized given the huge and untapped honey production potential of Ethiopia. It enables owners and Manager of honey export industries to know factors influencing the performance of their company and take mitigation. The study provides information for honey export industries which are currently under construction in order to understand and prepare themselves for the likely factors which will determine their performance. The study's result might also initiate other researchers to conduct different research works from different perspectives,

which may contribute for strengthening of the export performance of Ethiopian honey in the international market.

2. Literature Review

When we look the export performance and honey trade in the world, 628,202 tons and 1,964,689,000 value of USD was exchanged in 2019. From this, only 1% or 5,752 tons and 14,247,000 USD were exported from African continent [6].

The corresponding world honey export values were 2, 230 million USD in 2016 and 2, 232 million USD in 2018. The increase in world honey export value was 2 million USD (0.09% increase) in 2018 compared with that in 2016. Based on the average annual honey export volumes of 2014-2016 the top five honey exporting countries in the world were: China, Argentina, Vietnam, Ukraine and Mexico, ranging from average annual export volume of 134 thousand tons of China to 37 thousand tons of Mexico [8].

The major honey importing countries of the world are United States of America, Germany, United Kingdom, Japan, France, Poland, Spain, Belgium, Italy, and Saudi Arabia. China, India, Argentina, Ukraine, Brazil, Germany, Mexico and Spain, Hungary, and Belgium are the major honey exporter countries in the world [7].

Based on Ethiopian national export plan, 1300 tons of honey was planned to generate 4.6 million USD, and the performance was 31% (444 tons and 1.4 million USD) in 2017. In 2020, the country planned to export 479 tons and generate 1.32 million USD, but the performance was low 150.09 tons and 0.52 million USD. The honey export performance of Ethiopia during 2017 to 2020 was declined by 62% (0.88 million USD) [6].

Lack of effective market promotion in the market in honey products, there is lack of competition in the world market and the other reason that affects the honey export and market is the honey price at the domestic market is mostly higher than the international honey price, which makes honey export less profitable in Ethiopia [1].

Most of the time, the exposure of Honey Bees to chemicals is through ingesting of residues from the pollen and nectar of plants. When insecticides, herbicides and fungicides are applied to crops, they reach the bees through pollen, nectar and through the air, water or soil [3]. The author stated that this occurs when bees are on the flowers at the time of application of the insecticide and the bees die instantly. Some other types of pesticides allow the bees to return home and then they die. There are certain pesticides that do not have any effect on the adult honey bees but cause damage to young and immature bees.

The study conducted in Burie District in Amhara Region, the majority of the sample respondents did not basically store honey due to firstly, high cash income need of the households and secondly because of lack of storage facilities. Regarding the containers, the author stated that they were not technically appropriate storage facilities as they result in serious quality deterioration. But the author did not mention why and how [2].

The main challenges that are affecting the promotion and development of honey production and marketing are dependence on traditional and low technology input, poor pre and post-harvest management, inadequate extension services and poor marketing infrastructure. Furthermore, lack of smallholders' access to finance contributes to inhibiting the adoption of improved technologies for honey production. Poor quality, limited supply in the face of high local demand entailing higher domestic prices, coupled with the absence of an organized market channels and lack of information have made Ethiopian honey uncompetitive in the international market. In spite of the existing constraints, a few honey processors and exporters have emerged; these have managed to certify their products and are able to penetrate markets in the United States, Europe and the Middle East [12].

Ethiopia's Global Position in Honey and Other Bee Products Production and Marketing: Analysis of Sectoral Opportunities and Limitations; Lack of mandatory standards resulting in adulteration and other fraud, Limited products for the market, Poor Market infrastructure and linkage, Limited technical knowhow coupled with lack of inputs and technology, Absence of branding, Absence of internationally accredited laboratory facilities for residue monitoring, Illegal export of honey across the borders, too general extension service, traditionalism in the sector, limited research and development capacity to promote honey products diversification, Packing related problems, limited regulatory functions including testing and certifying laboratories, and Weak organizations representing the interests of beekeepers, producers and buyers are the major challenges of honey production and export in Ethiopia [14].

The study undertaken three zones namely Kaffa, Sheka and Bench-Maji zones of Ethiopia, shows that the honey containers mostly used by the sample respondents included plastic sack, tin/barrel, clay/log pot, animal skin, gourd pot and plastic containers. The respondents explained that these containers helped to store honey for a long time and are air tightened [11].

The total volume of honey production in Ethiopia in 2011–2020 was 163,257.42 tons, of which 99.2 percent was consumed domestically and 0.8 percent was exported. The total volume of Ethiopian honey exports during the period was 5,299,526 kg, with a total value of US\$ 17,943,228. Sudan and Norway were the major importers of Ethiopian honey having 38.7 percent and 33 percent share in terms of volume and monetary value respectively. Although the volume of honey exported increases slightly when the totals for 2011 and 2020 are compared, Ethiopia's honey exports are still very low relative to Ethiopia's total honey production [7].

The study conducted on title "Honey Quality, Marketing System and their Impact on Domestic and Export Market: The Case of Gozamen District, East Gojjam Zone, Amhara Region" identified that traditional packaging, transportation and storage materials (use of fertilizer bags and trading & storing honey with butter) lead to honey quality deterioration. There is no national quality standard practiced and implemented for domestic honey market in Ethiopia but the

honey exporting companies like Zembaba cooperative unions are obliged to follow the requirements and standards of importing countries. Therefore, it is advisable to practice the existing honey quality standards in the domestic market so as to establish supply of quality honey in the market chain [13].

3. Methodology

3.1. Data Source and Data Collection Tools

This study was used both primary and secondary data source were used. The primary data was from semi-structured questionnaire distributed to honey exporters while reports, published and unpublished documents were secondary data sources. A questionnaire data collection method will be employed in the study to collect the primary data of the study. The questionnaire used to collect the data was developed by the researcher. The researcher did extensive review of previous relevant studies to select the questions and develop the questionnaire. The questionnaire was sent electronically through email message to the respondents purposely selected honey exporting firms.

The source of the secondary data used in this study were Ethiopian Central Statistics Agency and Ethiopian Customs Commission, which were considered as the sources of reliable and valid national data. Ten years of export data, 2011-2020 was used in the study with the intention to establish recent trends of Ethiopian honey export volume and value. It was used to examine challenges of Ethiopian honey export on one hand and observe the trends of Ethiopian honey export on the other hand.

The questionnaire was divided into two sections. The first section contained the general information characteristics of the respondents were requested to provide information about their education level, positions and address. The second section of the questionnaire was designed to enable the researcher to gather information about determinants of export performance of honey exporters in Ethiopian. For all questionnaire included in section two, the respondents were requested to indicate their feeling on a five point Likert scale.

3.2. Population and Sample Size

The target population for the study was the licensed Ethiopian honey exporting firms and active since last five years in Ethiopia as of 2019. Before conducting the study, the first measure taken is investigating into the target population to be studied, to have a clear map of the target population. According to the information from the responsible experts in the MoT, the type of trade license, which the ministry issues are "honey and honey products producer and exporter". A holder of this kind of license is eligible to either produce or export honey and honey products, or to produce and export honey and honey products. Because of the type of the trade license, which the MoT issues related to honey, its central database does not hold disaggregated data on honey exporting firms. The only available data of licensed Ethiopian honey exporting firms as five (5) years data (2015-

2019), from the Export Promotion Directorate, under the Ministry of Trade. According to these data, the total number of the honey exporting firms in Ethiopia during that period was Seventy (70). Thus, in this study, the target population of the Ethiopian honey exporters included the 70 honey exporting.

Firms, which are active exporters with adequate experience and capacity, were included in the sample. Additionally, in the process of selecting the firms to be included in the study, efforts are made to capture variation within the participating firms. The honey exporting frequency and pattern of the exporting firms are considered. Therefore, based on the information from the discussions made, a sample size of twenty four (24) Ethiopian honey exporting firms were selected from seventy (70) honey exporters. Four (4) managers or experts (general manager, marketing manager, production manager and Finance manager) were taken from each honey exporters that are totally 96 people. Therefore, there were 96 sample sizes selected as respondents from 24 honey export industries.

3.3. Data Analysis Techniques

The collected primary raw data were edited to detect errors and omissions and to correct these when possible. They were then coded and numerals were assigned to answers so that responses can be put into a limited number of categories or classes. Further, classification of the data is made to reduce the data into homogeneous groups in order to draw meaningful relationships. Tabulation of the data is also performed as appropriate to summarize and display the raw data in compact form for further analysis. The secondary data were tabulated as required and put in a way ready for analysis.

Descriptive and Inferential analysis methods were applied in this study to analyze the processed primary and secondary data. SPSS software program version 23 was used in the analysis. The major statistical measures used in the analysis of the study data include frequency, percentage, mean, mean deviation and score.

The model used in this study was Linear Multiple Regression model to identify extent determinants of export performance of Ethiopian honey exporters. This means to identify strength effect of the independent variables have on a dependent variable (export performance of honey exporters). The model was adopted from different studies conducted on the same area.

The models are shown below:

$$E_i = f(\beta_i) + \varepsilon \quad (1)$$

Where, E_i = summative of the dependent variable which is export performance of honey exporters.

β_i = summative of independent variables.

Then

$$E = \alpha + \beta_1 (DP) + \beta_2 (A) + \beta_3 (PS) + \beta_4 (HS) + \beta_5 (LF) + \beta_6 (AF) + \beta_7 (CA) + \beta_8 (LS) + \varepsilon$$

4. Results and Discussion

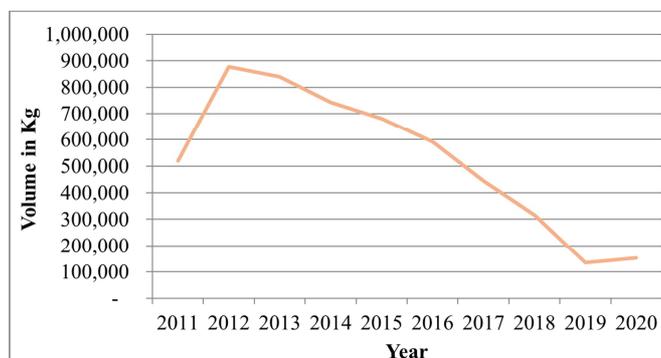
4.1. Demographic Characteristics of the Respondents

Background information of respondents participated in the study indicates that, Gender, educational level, location, ownership and position of the sample respondents are displayed in the table. As shown from the first item, Sex distribution of the sample, 76 (79.2%) of the total respondents are Males, 20 (20.8%) are Females. This implies that the proportion of Male employees is slightly larger than that of Female employees in the sampled twenty four honey exporters (24). Next, the table further indicates educational level of respondents. Master's degree holders constitute 18.18% and bachelor degree holders constitute 31.3%. Of the total firm managers only 49.0% have Diploma level and about 1% has high school certificate or secondary school. The high educational level of the majority of the farm managers is an opportunity to capitalize on, in enhancing export of Ethiopian honey. They can easily understand the requirements of the international honey market and play their part as well as work hand in hand with the government for improved Ethiopian honey export.

When we see location of the firms, 77 (80.2%) of them are found in Addis Ababa and only 19 (19.8%) are from different parts of the country. Most of the firms included in the study are owned as PLC 88 (91.7) and 8 (8.3) which means respondents from two firms answered that the ownership of the firms was a partnership. Finally, according to the Table 1, 24% (25%) of respondents are general managers, 24 (25%) are marketing managers, Production managers and Financial managers have equal proportion 23 (24%), and remaining of respondents are other experts who are 2 (2%).

4.2. Trend of the Ethiopian Honey Export Volume, 2011-2020

Figure 1 shows, the trend of Ethiopian honey export volume from 2011-2020. The results show that the general trend of the Ethiopian honey export volume was on a sharp decline.



Source: CSA and ECA, 2021

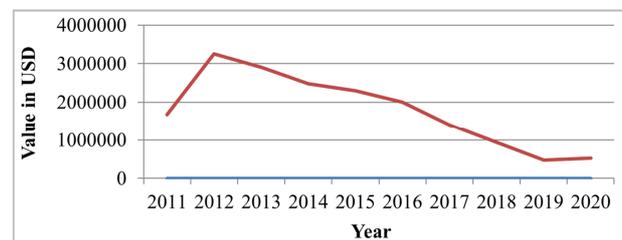
Figure 1. Trend of the Ethiopian Honey Export Volume, 2011-2020.

The honey export volumes of 2011 to 2013, there was a sharp increase. Then after the honey export volume continued

declining sharply at an alarming rate and hit the lowest honey export volume level in 2019 since 2011. The minimum honey export volume was about 134.4 tons in 2019 and the maximum honey export volume was 876.6 tons in 2013 with a mean of 816.5 tons (the average of 2011 and 2016). Over these years, the Ethiopian honey export volume decreased at an average annual rate of 53%. The findings of this study clearly show the urgent need of government and the private sector to develop and enhance the honey export. The issue is what the root causes for these alarming declining rates of the honey export are. Reasons for this are not well established. This study has identified the factors affecting of Ethiopian honey export performance, which when addressed would help to enhance the Ethiopian honey export.

4.2.1. Trend of the Ethiopian Honey Export Value, 2011-2020

The trend of the Ethiopian honey export value during the period of 2013-2020 is shown in Figure 2. As illustrated in Figure 2, the trend of Ethiopian honey export value sharply increased in 2013 and then after almost sharply declined from the year 2013 to 2020. The export value hit the lowest level in the year 2019. The minimum honey export value is, USD 260 thousand, the maximum is USD 2, 918 thousand, with the mean of, USD 2,017. Over these years, the honey export value, decreased with an annual average rate of 52%. The trend of Ethiopian annual honey export value is about the same to the trend of Ethiopian annual honey export volume (Figure 1).



Source: CSA and ECA, 2021

Figure 2. The trend of the Ethiopian honey export value during the period of 2011-2020.

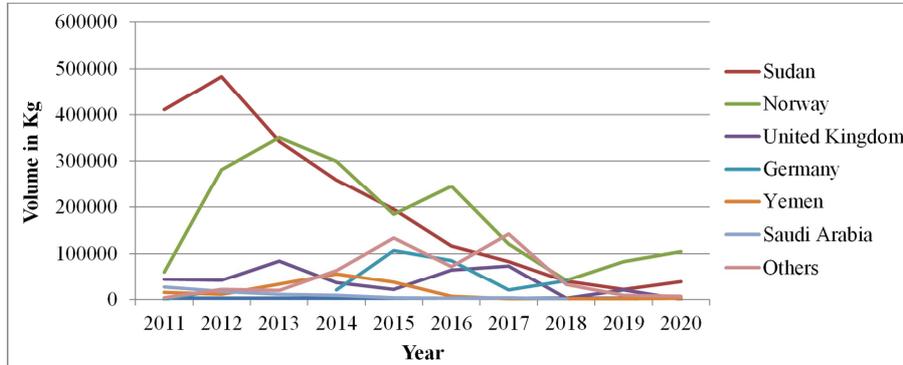
It is likely that when honey export volume decreases (Figure 1), honey export value also decreases as illustrated in Figure 2. It is also evident that the declining rate of the honey export volume (Figure 1). The challenges for Ethiopian honey export, identified in this study are also contributing factors for the sharply declining trend of honey export value.

4.2.2. Ethiopian Annual Honey Export Volume and Value by Destination, 2011-2020

Sudan, Norway, United Kingdom, Germany, Yemen, and Saudi Arabia were the major Ethiopian honey importers. Since 2013, Norway was the leading honey importer except 2014, followed by Sudan. Sudan imported the highest honey volume in 2011, 2012 and 2014. As illustrated in Figure 3 the general trend of the honey import of all countries was on the decline. All countries hit their lowest level of honey volume

import in the year 2018. The trend of the Ethiopian annual honey export volume (Kg) by destination is about the same to that of trend of Ethiopian annual honey export volume. The sharp declining trend as illustrated in Figure 3 is a concern for Ethiopia, which is striving to diversify export

commodities and enhance foreign earnings. While the reasons for the declining rate of honey export volume to those countries are not well document, it is clear that the declining rate of the Ethiopian honey export volume illustrated in Figure 2 is likely to have had an impact.



Source: CSA and ECC

Figure 3. Illustrates the destination of Ethiopian honey volume exported during, 2011-2020.

4.3. Determinants of Ethiopian Honey Export Performance

Descriptive analysis was planned to describe factors affecting export performance of Ethiopian honey exporters by using mean and standard deviations. The responses of the respondents for the variables indicated below were measured on five point Likert scale with: 1= strongly disagree, 2= disagree, 3 = neutral, 4= agree and 5= strongly agree. But, while making interpretation of the results of mean the scales were reassigned as follows to make the interpretation easy and clear. 1–1.8= Strongly Disagree, 1.81–2.6 = Disagree, 2.61–3.4= Neutral, 3.4–4.20= Agree and 4.21–5 = Strongly Agree.

During the survey, the honey exporting firms were asked to respond to relevant questions, and identify honey export performance challenges they encountered across the different aspects, with the aim of establishing the honey export challenges. The following determinants of honey export performance were examined during the survey.

Table 1. Determinants of honey export performance in Ethiopia.

List of factors	N	Mean	Std. Deviation
Domestic market price factor	96	4.30	.645
Legal framework factor	96	4.43	.637
Laboratory service factor	96	4.36	.636
Financial credit facility	96	4.11	.648
Agrochemical factor	96	4.43	.597
Storage and packaging factor	96	4.33	.663
Honey supply factor	96	4.31	.675
Adulteration factor	96	4.48	0.525

Source: Survey Data, 2021.

The table above result describes domestic price of honey as determinant of export performance. Majority of the respondents are strongly agree with price of honey in domestic market as export performance factor as overall mean was (M=4.30, SD= .645). From this result it can infer

that domestic market price is problem to increase the honey export performance in Ethiopia.

The table above describes absence of legal framework for honey marketing as export performance determinant. Majority of respondents were strongly agree with absence of legal framework negatively affects export performance of honey as the overall mean was (M= 4.43, SD= .637). The findings indicate that exporting honey to countries with stringent import regulations require testing the honey in internationally accredited, and absence of laboratory service negatively affects the export performance of honey industries in Ethiopia (M=4.36, SD= .636).

As shown in Table 1 the majority of the respondents agree with the statements; there is a problem of financial credit service (M=4.10, SD= .640). The findings indicate that financial limitation is a challenge for the honey exporters either to strengthen or expand their firms. As it can be seen from the Table 1 majority of respondents of honey exporters in Ethiopian were strongly agree with agrochemical application as export performance determinant as overall mean was (M=4.43, SD= .597). The findings of the study show that most of the survey respondents reported that their export performance was affected because of unavailable packaging and storage facilities (mean 4.33 and Std dev.663).

The respondents were asked constraints they encounter because honey marketing problems. Majority of them were agreed with lack of honey supply for export and it affects their performance (mean 4.31 and std dev.675). The implication of the shortage of honey supply reported by the firms due to the identified reasons is that the firms cannot be competitive in the honey export market which demands reliable, consistent supply of honey in bulk. This necessitates addressing the root causes for the shortage of honey supply prevailing at the production function level in the honey value chain to enhance the export of Ethiopian honey. Based on this study, most of respondents were strongly agree with the

statements related to adulteration as determinant factor of honey export performance with average mean of 4.48 and Std.dev 0.525.

4.4. Correlation Analysis

Correlation analysis was planned to analyze the relation between the selected determinants of export performance (independent variables) and dependent variable (performance of honey export) in Ethiopia. According to Berndt et al (2005), the level of association as measured by Pearson's co-

efficient falls between -1.0 and +1.0, which indicates the strength and direction of association between the two variables. The interpretation of the result is as follows; a correlation result between 0 to 1 implies positive relationship, 0 (zero) for no relationship, 1 for perfect positive relationship, -1 for perfect negative relationship and between -1 to 0 indicate the existence of negative relationship. Based on the questionnaires which were filled by the respondents of honey industries in Ethiopia the results of the correlation analysis between these variables are shown in Table 2 below.

Table 2. Results of correlation analysis.

Correlations		DM	LF	LS	AF	AC	SP	HS	A	EP
Domestic market price	Pearson Correlation	1								
Legal framework	Pearson Correlation	-.058	1							
Laboratory service	Pearson Correlation	-.008	.038	1						
Access to finance	Pearson Correlation	-.155	-.055	-.078	1					
Agrochemical application	Pearson Correlation	-.363**	-.122	-.230*	-.070	1				
Storage and packaging	Pearson Correlation	-.265**	-.008	-.273**	.212*	.446**	1			
Honey supply	Pearson Correlation	.243*	.073	.533**	.213*	-.321**	-.131	1		
Adulteration	Pearson Correlation	.448**	-.180	-.187	-.153	-.370**	-.115	-.257*	1	
Export performance	Pearson Correlation	.341**	.259*	.338**	.270**	.039*	.428**	.409**	.212*	1

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

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

Source: SPSS output

From the above correlation table, we can see that most of the independent constructed variables were correlated with export performance. Among the variables the highest and strong correlation coefficient was found between Storage and packaging and export performance (0.428), between honey supply and export performance (0.409), and followed by variables between domestic market price and export performance (0.341), between laboratory service and export performance (0.338), and between Access to finance and export performance (0.270) and between legal framework and export performance (0.259), between adulteration and export performance (0.212), and between agrochemical application and export performance. Therefore, from the above table we can conclude that domestic market, Laboratory service, storage and packaging, and honey supply are significant at p (sig) value is less than $\alpha = .05$ level,

whereas legal framework, agrochemical and adulteration are significant at p (sig) value is less than $\alpha = .01$ level.

4.5. Regression Analysis Result and Discussions

The objective of this study was identifying various factors, which influence the export performance of honey in Ethiopia. In order to study the relationship between the dependent and independent variables and specify the best predictors of the dependent variable (export performance) a multiple Regression model was applied. Multiple regressions were used for testing the model and objectives. It provides information regarding the significance of the variables that were included in the model while the R^2 explains how much variance in the dependent variable is explained by the model or how much the honey export performance is explained by the constructed variables.

Table 3. Model Summary.

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.854 ^a	.729	.675	.14249	.729	13.470	8	40	.000

a. Predictors: (Constant), Domestic Market Price, Honey supply, Adulteration, Agrochemical Application, Legal Framework, Access to Financial credit facility, Laboratory Service, Storage and Packaging Facility

b. Dependent Variable: Export performance

The regression result in Table 3 above show that the predictor (independent) variables have explain 72.9% of the variability of dependent variable. The adjusted R square which is a coefficient of determination shows that, 67.5% of

dependent (export performance) variable was explained by independent variables and the remaining 32.5% are explained by other variables out of this model.

Table 4. ANOVA table.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.188	8	.273	13.470	.000 ^a
	Residual	.812	88	.020		
	Total	3.000	96			

a. Dependent Variable: Export performance

b. Predictors: (Constant), Domestic Market Price, Honey supply, Adulteration, Agrochemical Application, Legal Framework, Access to Financial credit facility, Laboratory Service, Storage and Packaging Facility.

From the ANOVA test in Table 4 it shows the table Sig. value 0.05 is greater than the calculated sig. value of .000. This shows the statistically significant relationships between the eight independent variables (domestic market price, legal framework, laboratory service, access to finance, agrochemical application, storage and packaging, honey supply and adulteration) and export performance at

5% significance level. This means, the explanatory variables have great impact on export performance of honey in Ethiopia. But it does not mean that all these factors influencing honey export performance have equally significant correlation with export performance, and the model is well fitted at 5 percent level of significance.

Table 5. Regression Coefficients.

Coefficients ^a								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	.321	.180		1.785	.042		
	Domestic market price	.540	.249	.188	2.166	.036	.637	1.570
	Legal framework	.055	.095	.308	.585	.022	.895	1.117
	Laboratory service	.596	.134	.411	4.457	.000	.618	1.618
	Access to finance	.475	.202	.354	2.349	.024	.780	1.283
	Agrochemical application	-.378	.169	.412	2.238	.031	.505	1.981
	Storage and packaging	.737	.152	.350	4.838	.000	.679	1.472
	Honey supply	.203	.285	.256	.712	.040	.452	2.211
	Adulteration	-.760	.136	.233	-5.574	.000	.521	1.921

a. Dependent Variable: Export performance.

The level of impact each independent variable crate on the dependent variable can be examined by unstandardized Beta coefficient. The regression coefficient explain the average amount of change in dependent variable that caused by a unit of change in the independent variable. The larger value of Beta coefficient that an independent variable has, brings the more support to the independent variable as the more important determinant in predicting the dependent variable.

In the above Table 5, coefficients indicated how much the dependent variable varies with an independent variable, when all other independent variables are held constant. The beta coefficients indicated that how and to what extent the independent variables influence the dependent variable. Accordingly, the result of coefficient value of regression analysis

indicated the highest determinant factor which affect export performance was agrochemical application (at Beta value= .412), followed by laboratory service (Beta= .411), Access to finance (Beta= .354), storage and packaging (Beta= 3.50), legal framework (Beta= .308), Honey supply (.256), adulteration (.233), and domestic market price (Beta= .188). Thus, from this finding one can infer that agrochemical application and laboratory service has the most significant factors influencing honey export performance. Their significance levels are 0.036, 0.022, 0.000, 0.024, 0.000, 0.040 and 0.000 respectively, which are less than 0.05. This indicates significant relationship between them and the dependent variable export performance. Based on the above Table 5 finding we can develop the following regression model:

$$E = 0.321 - 0.540 (DP) + 0.055 (LF) + 0.596 (LS) + 0.475 (AF) - 0.378 (CA) + 0.737 (PS) + 0.737 (HS) + 0.203 - 0.760 (A) + \epsilon$$

Where; E – Export performance, DP - Domestic market price, A – Adulteration, PS - Packaging and storage facilities, HS - Honey supply, LF - Legal framework, AF - Access to Finance, CA - Chemical application, LS – Laboratory service, $\beta_1 - \beta_8$ coefficients of independent variables, α – constant, ϵ - Error Term.

Based on the above model result, the explanatory variables have positive or negative influence to honey export performance in Ethiopia. The coefficient of domestic market

price = -0.540. i.e. a unit change in domestic market price leads to -.540 unit decrease in export performance, Legal framework = .055 indicating that a change in legal framework leads to .055 increase in honey export performance, Laboratory service= 0.596 implies that a one unit change in Laboratory service leads to 0.596 unit increase in export performance, Access to finance= 0.475 signifies that a one unit change in access to finance results to 0.475 unit increase in export performance, Chemical application

beta value = -0.378 indicates that application of chemicals leads to -0.378 units decrease in export performance, Storage and packaging = .737 implies that a one unit decrease in storage and packaging results to 0.737 unit increase in export performance, Honey supply = .203 that a one unit change in honey supply results to .203 unit increase in export performance, Adulteration with beta value = -.760 means that lack of quality because of adulteration results to .760 unit decrease in export performance.

These findings provide significant support for the reliability, transaction efficiency and ease of use literature which advocates that the variables have an influence upon customer satisfaction in Ethiopian commercial banks.

5. Conclusion

From this research study, it can be concluded that the Ethiopian honey export performance is affected by a wide ranging and interlinked challenges, which urge addressing the factors holistically. During (2011-2020), the trends of the Ethiopian honey export volume and honey export value showed a sharp decline. Over the same period the period the Ethiopian honey export volume decreased at an average annual rate of 53% and the honey export value decreased at an average annual rate of 51.5%. The findings of the analysis of the primary and secondary data of the study are complimentary, and have revealed the factors affecting the Ethiopian honey export performance and the alarming declining trend of Ethiopian honey export volume and value.

To conclude on descriptive statistics of the above variables export performance of Ethiopian honey industries, Ethiopian honey exporters are not in good status of practicing important factors of export performance which this study considered (domestic market price, legal framework, laboratory service, Adulteration, packaging and storage facilities, chemical application, honey supply and access to finance), are the major determinants. Correlation analysis indicates that all factors except domestic market price, chemical application and adulteration measuring export performance were positively related with export performance and significant at $p < 0.05$.

6. Recommendations

Based on the findings of this study the following recommendations are made for informed development interventions and policy measures, to develop the honey production and enhance the Ethiopian honey export performance.

Conduct honey market study in potential honey producing areas and develop corrective measures/strategies. The domestic honey marketing in the country is full of challenges which put the legal traders, including the honey exporter, in disadvantage. Further, because of the market problems the domestic honey price is highly distorted and is very advanced than the international honey price.

Adopt and ensure provision of strong honey export oriented beekeeping extension and financial credit services.

Have mandatory honey standard, strengthen existing regulation and bridge regulation gaps.

Improve the huge honey production potential of the county to properly tap and stabilize domestic market price, increase supply and enhance the Ethiopian honey export.

Establishment of new policies on application of agrochemical crops and pesticides.

Creating suitable condition to produce honey storage and packaging materials in the country,

Further studies should be conducted on how to establish a legal framework for honey marketing system and improve honey quality so as to create healthy marketing system and encourage honey export.

Technical supervision and follow up must be strong to reduce adulteration of honey and enhance quality as it is the major criteria of export standard.

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