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Agriculture is the most important sector in the Ethiopian economy, contributing the lion's share of the GDP. Nearly 80% of the population live in the rural areas and derive their livelihoods directly or indirectly from agriculture. Given its importance, the performance of the sector is therefore reflected in the performance of the whole economy. With this background, the Journal of Agriculture and Development aims to stimulate research and thinking on agriculture and development studies in Ethiopia. The articles contained in the journal reflect the views of their authors and do not necessarily coincide with those of the Editorial Committee, Institute of Agriculture and Development Studies, JADS or of SMU.

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CONTENTS

Analysis of the Ethiopian Agricultural Export Performance: A Dynamic Panel Model

Nasreen Mohammed[1] and Sisay Debebe[1]

Abstract

The main objective of the study was to examine the determinants of Ethiopian agricultural exports using a dynamic panel data approach. Specifically, the study assessed the trends, compositions, and the major destinations of Ethiopian exports and identified key determinants of the performance level of agricultural volume, value of export and systemic and operational bottlenecks of agricultural export. The study employed panel data of top 29 agricultural export commodities for the period 2000-2020. The selective commodities of agriculture were chosen on the basis of volume and value of export and availability of required data during the study period. Using the natural logarithm of agricultural export value of each commodity, and the selected demand and supply side determinant factors of agricultural export of the commodity-like lag of agricultural export commodity, RGDP, exchange rate, consumer price index, labor force, total road network coverage, corruption index, foreign direct investment, indirect tax revenue, total domestic saving, and trade openness were determined. The study identified all variables that were significant factors to determine agricultural commodity export. From these determining factors, lag of agricultural export, economic growth, Foreign Direct Investment, and terms of trade have positive and significant effects on agricultural commodity export at one-step system GMM. On the contrary, the remaining variables of exchange rate, labor force, gross domestic saving, road, indirect tax revenue, consumer price index, and corruption index have significant and negative effects on agricultural export. The study revealed that lowering corruption and indirect tax on export, and poor quality of the road, enhancing gross domestic saving would motivate private investment to engage in the export sector of the economy. Besides, controlling rapid population growth would decrease domestic consumption of exportable commodities and would increase export surplus. Finally, it is recommended that a concerted effort should be directed towards productive channels of agricultural commodity in the economy so as to enhance sustainable economic growth through increased agricultural commodity export.

Key words: System GMM, Panel Data, Ethiopia, Agricultural Export,

Ethiopia

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Introduction

Countries differ in their resource endowments and technological levels in the production of products and services on this planet (Allaro, 2015). Differences in resource endowments and production processes, on the other hand, will result in a difference in prices between nations, resulting in a difference in product pricing. As a result, as predicted by classical trade theories, product price differences are the cause of international commerce (Smith, 1776). More crucially, through specialization, international commerce would improve resource allocation efficiency and promote global output and welfare (Narayan, 2019). Recent experiences in some Asian countries have shown that increasing exports by specializing in high-yielding agricultural products at the start of economic development, then labor-intensive products, and finally capital-intensive export products, is critical for changing comparative advantage and structural transformation in developing countries (Cheffo, 2020).

Even though developing countries' part in worldwide commerce has climbed from 25% to 33%, Africa's average proportion of international trade has remained below 3%. Similarly, although Ethiopia has a huge potential for agricultural and horticultural products due to its broad geographical area and diverse climates and temperatures, its average share of foreign commerce has remained below 0.03 percent (World Bank, 2016).

Agriculture contributes significantly to Ethiopia's economy. In 2016, agriculture contributed 36%, 75%, and 85% of the gross domestic product, employment, and foreign exchange profits, respectively (NBE, 2018). Ethiopian agricultural exports, on the other hand, are dominated by a few

commodities, with coffee, oilseeds, and pulses accounting for more than half of the country's overall export value. During 2019/20, the export value of coffee, oilseeds and pulses was 855.9 million USD (28.6%), 345.0 million USD (11.5%) and 234.8 million USD (7.9%) respectively. During the same period the export volume of pulse, oilseed and coffee was 354.01 million kilogram (28%), 271.11 million kg (21.2%) and 236.50 million kilogram (18.49%) respectively (NBE, 2020). This indicates that Ethiopian exports are more agricultural commodities concentrated. In a similar line, Ethiopia's export value to import value ratio was 35% in 2000, while it was only 17% in 2016, 21% in 2019, 25.3% in 2020/21 (NBE, 2021).

The Ethiopian government, on the other hand, has taken a variety of policy initiatives to address the export sector's problems. The government has taken measures such as simplifying export licensing, currency devaluation, a 70% loan for export-related investment, a preferential interest rate scheme that is 3.5% lower than the interest rate on non-export activity loans, and foreign exchange retention of 10% of earnings (Bekele & Mersha, 2019). Despite these incentives, the disparity between Ethiopian imports and exports has widened during the previous two decades. Exports, for example, increased in value from USD 482 million in 2000 to USD 2,785 million in 2016. Imports, on the other hand, have surged in value from USD 1,392 million in 2000 to USD 16,244 million in 2016 (NBE, 2018).

The export boom from the early 2000s to 2014 was concentrated in a small variety of agricultural commodities after which it declined. Ethiopia's export slowdown not only partially explains the deceleration of growth in the last period but has also prevented Ethiopia from completing the goals set in the second Growth and Transformation Plan, which expected a much larger role for merchandise exports, especially in agriculture. This is due to

external pressures, such as falling worldwide prices for key agricultural commodities like coffee (Dube *et al*., 2018). For example, as of 2017, a few agriculture goods/ commodities representing 77% of merchandise exports dynamics of Ethiopia's coffee, gold, cut flowers and other animal and vegetable exports largely explain both the rise and fall of the country's export sector (Goldstein, 2020).

The success of agricultural exports has fluctuated during the last three decades. Agricultural exports grew at a fairly slow pace from 1991 to 1995 (Gebregziabher, 2019; Petrikova, 2019; Goldstein, 2020). The slow growth of agricultural exports during this period was due to a shift in the government system, institutional reforms, political instabilities, the formation of legislative frameworks, and other factors. Liberalization of commerce opened up new opportunities for producers, dealers, and exporters following the overthrow of the *Derg* regime and the formalization of the EPRDF government.

However, between 1995 and 2001, the rate of increase in agricultural commodity exports was only 4.6% each year. The Ethio-Eritrean battle, which lasted two years and drained resources from the industry, was the main cause of the downturn (Bantie, 2019). To make matters worse, the droughts of 2001 and 2002 had a considerable influence on the agricultural sector's overall performance, but not on export commodities: the volume of export for these commodities in 2002 and 2003 was 2,452,744 and 2,565,186 quintals, respectively (Tolcha, 2020). Nonetheless, exports have decreased by an average of 18.6 percent since 2000.

Given the importance of agricultural exports to Ethiopia's economy, determining the impact of demand and supply side factors on agricultural

exports is critical. Exchange rates, GDP, population or labor force, institutional quality, and trade policies all affect Ethiopian export (Karamuriro & Karukuza, 2015; Geda & Seid, 2015; Kebede, 2016; Siyakiya, 2016; Hutchinson, 2019; Bantie, 2019; Bereket, 2020). Furthermore, other scholars cited trade openness, foreign direct investment, and infrastructure as factors influencing Ethiopian exports (Gebrehiwot & Gebru, 2015; Geda & Seid, 2015; Gururaj *et al*., 2016). However, both theories and evidence show that developing countries, in general, and Ethiopia, in particular, export primarily agricultural primary products, making it more plausible to figure out the major determinants of agricultural export using dynamic panel data analysis. Furthermore, no empirical research employing a dynamic panel model with the most recent data up to 2020 has been conducted to better understand the dynamics driving Ethiopia's agricultural export flows. This study has investigated the issue, and the findings/factors that aided in the development of appropriate and relevant interventions. A closer look at the key variables guiding and determining the export trends helped inform future trade policy's prescriptions and assess the magnitude and effects of the key determinants to bridge the previously missed gaps. The study aimed to evaluate the Ethiopian agricultural product export performance.

Materials and Methods

Data Type and Source

The data type used in this study is quantitative data. The analysis employed a sample of 29 Ethiopian agricultural export commodities for the period 2010 - 2020, based on data availability. In this study, data on 29 export goods have been collected for twenty years, resulting in a panel data set with

609 observations. In order to meet the study's stated research objectives, data were acquired from a variety of domestic and foreign institutions. The Food and Agricultural Organization (FAO), World Development Indicators (WDI), annual report of the National Bank of Ethiopia, Ministry of Trade and Regional Integration, Worldwide Governance Index, and Ethiopian Economic Association or Ethiopian Economic Policy Research were all used to collect secondary data.

Method of Data Analysis

The study used descriptive and econometric analysis tools. Descriptive statistics such as mean, standard deviation, minimum and maximum values are used to describe economic size, volume of export, real effective exchange rate, indirect tax revenue, labor force foreign direct investment, corruption index, and trade openness. Using Arellano bond (1991) GMM dynamic panel model estimation, the study analyzed the influence of explanatory variables on the dependent variable.

Arellano–Bond's (Arellano and Bond 1991) and Arellano–Bover/Blundell–Bond,s (Arellano and Bover 1995; Blundell and Bond 1998) dynamic panel estimators are increasingly popular. Both are general estimators designed for situations with 1) "small T, large N" panels, meaning few time periods and many individuals; 2) a linear functional relationship; 3) one left-hand-side variable that is dynamic, depending on its own past realizations; 4) independent variables that are not strictly exogenous, meaning they are correlated with past and possibly current realizations of the error; 5) fixed individual effects; and 6) heteroskedasticity and autocorrelation within individuals but not across them. Arellano–Bond estimation starts by transforming all regressors, usually by differencing, and uses the

generalized method of moments (GMM) (Hansen, 1982), and is called difference GMM.

Specification and Estimation Procedure of the model

Many econometric relationships are dynamic, and the advantage of panel data is that they allow the researcher to better understand the dynamics of adjustment. These dynamic relationships are characterized by the presence of a lagged dependent variable among the regressors (Baltagi, 2005; Sul, 2019; Tsionas, 2019; Parker, 2020). For a dynamic panel data approach, the general framework of an autoregressive model of order of $\boldsymbol{p}$ with additional regressor $\boldsymbol{x_{it}}$ could be specified as (Baltagi, 2005):

$$Y_{it} = \theta_1 Y_{it-1} + \cdots + \theta_p Y_{it-p} + X'_{it}\beta + \alpha_i + \varepsilon_{it}; t = 1, \ldots., T, i = 1, ., N \ldots (3.4)$$

Where $\boldsymbol{\alpha_i}$ is a time-invariant individual effect whose treatment may be fixed or random, $\boldsymbol{\varepsilon_{ijt}}$ represents a disturbance term assumed to be uncorrelated with $\boldsymbol{X_{it}}$, but for our case, the general specification of equation (4) reduces to a first-order model. In a static panel data model choosing between fixed or random effects yields a consistent and efficient estimator, whereas in a dynamic model the opposite exists because it will depend upon $\boldsymbol{\alpha_i}$ irrespective of the way we treat the latter (verbeek, 2004). A within estimator applied to a first-order autoregressive model yields consistent estimates only when the number of periods *T* is very large (Green, 2003). (Arellano & Bond, 1991), introduced a two-step procedure based on differencing and instrumenting which is a consistent and efficient estimator. The first step consists of differencing the dynamic equation to remove the individual effects ($\boldsymbol{\alpha_i}$). (Cameron & Trivedi, 2005) wrote the first step of the procedure as:

$$\Delta Y_{it} = \theta_1 \Delta Y_{it-1} + \cdots + \theta_p \Delta Y_{it-p} + \Delta X'_{it}\beta + \Delta\varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.5)$$

Δ is the first order differential equation expressing the change of the dependent variable by the effect of its lagged value and exogenous regressors. In this regard, we assume that $\boldsymbol{\varepsilon_{it}}$ are serially uncorrelated, otherwise, estimators are inconsistent. The second step deals with instrumental variable (IV) estimation of the first differenced (FD) model that uses appropriate lags of the dependent variable as instruments. According to (Drukker, 2008), these couple of steps does lead to consistent parameter estimates. The fixed or random effects panel data estimators are not appropriate even for the FD equation. In contrast to a static model, ordinary least squares on the FD data produce inconsistent estimates because the regressor $\Delta \boldsymbol{Y_{it-1}}$ is correlated with the error $\Delta\boldsymbol{\varepsilon_{it}}$, even if the $\boldsymbol{\varepsilon_{it}}$ are serially uncorrelated. For serially uncorrelated $\boldsymbol{\varepsilon_{it}}$, the FD model error term $\Delta\boldsymbol{\varepsilon_{it}} = \boldsymbol{\varepsilon_{it}} - \boldsymbol{\varepsilon_{it-1}}$ has correlation with $\Delta \boldsymbol{Y_{it-1}} = \boldsymbol{Y_{it-1}} - \boldsymbol{Y_{it-2}}$ because $\boldsymbol{Y_{it-1}}$ depends on $\boldsymbol{\varepsilon_{it-1}}$. However, $\Delta\boldsymbol{\varepsilon_{it}}$ is uncorrelated with $\Delta \boldsymbol{Y_{it-k}}$ for $\boldsymbol{k \geq 2}$, opening up the possibility of IV estimation using lagged variables as instruments (Cameron & Trivedi, 2005).

The Arellano-Bond estimator employs an IV estimation strategy based on the assumption that $\mathbf{E}\ (\boldsymbol{Y_{ik}}, \Delta\boldsymbol{\varepsilon_{it}}) = 0$ for all $\boldsymbol{k \leq t-2}$ in the level's equation, so that the lags $\boldsymbol{Y_{it-2}}$, $\boldsymbol{Y_{it-3}}$, $\boldsymbol{Y_{it-4}}$, and so forth can be used as instruments in the first differenced equation. In the case of the system GMM estimator, we consider the additional condition that $\boldsymbol{E\ (\Delta Y_{it-1}, \varepsilon_{it}) = 0}$ and incorporate the levels equation utilizing $\Delta \boldsymbol{Y_{it-1}}$ as an instrument (Cameron & Trivedi, 2005). Similar additional moment conditions can be added for endogenous and predetermined variables, whose first differences can be used as instruments.

Depending on the previous justifications, our equation to be estimated can be specified in the levels and first differenced forms as:

$$lnEx_{it} = \beta_0 + \beta_1 lnEx_{it-1} + \beta_2 lnGDP_{it} + \beta_3 lnCPI_{it} + \beta_4 lnIT_{it} + \beta_5 lnREER_{it} + \beta_6 Opne_{it} + \beta_7 CI_{it} + \beta_8 lnLF_{it} + \beta_9 lnFDI_{it} + \beta_{10} lnS_{it} + \beta_{11} lnRoad_{it} + \alpha_i + u_{it} \quad (3.6)$$

$$\Delta lnEx_{it} = \beta_1 \Delta lnEx_{it-1} + \beta_2 \Delta lnGDP_{it} + \beta_3 \Delta lnCPI_{it} + \beta_4 \Delta lnIT_{it} + \beta_5 \Delta lnREER_{it} + \beta_6 \Delta Opne_{it} + \beta_7 \Delta CI_{it} + \beta_8 \Delta lnLF_{it} + \beta_9 \Delta lnFDI_{it} + \beta_{10} \Delta lnS_{it} + \beta_{11} \Delta lnRoad_{it} + \Delta u_{it} \quad (3.7)$$

All variables are in natural logarithms except openness and corruption index. Using the latest version of Arellano/Bond GMM estimation, equation (3.7) is first estimated to determine the determinants of agricultural export. Since the Arellano-Bond method generates several instruments (for large T) leading to potentially poor performance of asymptotic results (when the number of groups is small), we have employed the least possible number of instruments.

Description of Variables

The value of export ($lnEx_{it}$): It is the logarithm of the value of each of Ethiopia's agricultural export items, measured in US dollars, while $lnEx_{it-1}$is the logarithm of each agricultural export item's one-period lagged value. In this study, the coefficient of one period lagged value of the outcome variable in (3.1) should be positive.

Economic Size ($lnGDP_{it}$): The actual gross domestic product (GDP) is a measure of the total value of goods and services produced by a country's economy. It is utilized as a proxy for a country's supply capability. Other things being equal, an increase in real GDP has a beneficial impact on

export performance (Kiani *et al*., 2018; Uysal & Mohamoud, 2018; Bake & Yuya, 2020; Liu *et al*., 2020; Yoon, 2021). GDP measures the value of marketable goods and services generated over a certain period. There are some non-tradable items and services that have no direct impact on sesame export performance. Because data on direct investments made to provide sesame for export markets is difficult to come by, GDP should be used as an independent supply capacity for sesame export performance.

Consumer Price index ($lnCPI_{it}$): It is the logarithm of the consumer price index. The consumer price index (CPI) tracks the average change in prices for a basket of goods and services over time. The consumer price index (CPI) is used to track the average changes in prices that consumers pay for products and services over time. In essence, the index aims to quantify an economy's aggregate price level and hence evaluate the purchasing power of a country's currency unit. In a theoretical sense, export and inflation are antithetical to one another. Inflation raises the price of products and services on the global market. Only if demand for domestic export in other nations is inelastic will the export of products and services increase (Fleming, 1962; Mundell, 1963).

Indirect Tax Revenue ($lnIT_{it}$): It is the logarithm of the total indirect tax value in US dollars, and it is projected to harm company production decisions. However, if the government provides fiscal incentives such as tax exemptions to boost the export sector, indirect taxes are projected to have a favorable impact on the value of agricultural exports (Emran & Stiglitz, 2005; Khurana & Sharma, 2016).

Exchange Rate ($lnREER_{it}$): It is the logarithm of Ethiopia's exchange rate, and it is intended to have a favorable impact on a country's exports. This is because currency depreciation is thought to increase a country's

competitiveness. As a result, the exchange rate coefficient is predicted to be positive. About Ethiopia's key trading partners, the true effective exchange rate is determined. European nations, African nations, Australian nations, East Asian nations, and Middle Eastern nations are among them. The REXR for a particular time is measured as by:

$$REER = \frac{NEER*DP}{FP} \quad \text{……..……. (3.2)}$$

Where NEER is the nominal exchange rate, DP is the domestic price, Fp is the foreign price.

Because the actual effective exchange rate accounts for differences in purchasing power, it is the most accurate way to quantify the impact on export growth. According to Couharde *et al* (2018), Thuy & Thuy D.T. (2019, Nguyen & Do (2020), the supply response to the price incentive expressed by real exchange rate depreciation has a considerable impact on goods export. As a result of the increased export performance caused by real effective exchange rate depreciation, the projected relationship between REER and export value is positive.

Trade Openness ($\boldsymbol{Opne_{it}}$): While there is a strong and positive association between real exchange rate and export growth in the long run, according to Agasha 2006, the short-term relationship is not significant. Another study, conducted by Sharma in 2000, discovered a positive relationship between depreciation in the real exchange rate and export performance, demonstrating that depreciation in the real exchange rate makes exports cheaper in the global market, thereby stimulating demand and improving overall export performance. using dynamic panel GMM approaches Das (2016), Hossain & Mitra (2013) found that trade openness is positively connected with exports.

$$Opne_{it} = \frac{m_{it}+x_{it}}{y_{it}} \text{ ….. ……} \quad (3.3)$$

Where $m_{it}$is the total value of import at time t, x_{it} is the total value of export at time t, y_{it}

Is the real gross domestic product of the country at time t.

Corruption Index (CI_{it}): The corruption perceptions index assigns a score to nations and territories depending on how corrupt their government is thought to be. Corruption, according to the CPI, is defined as "the abuse of public power for private gain." In under-developed countries, the corruption perceptions index variable has a larger impact on export and import volume than in rich countries. This result suggests that because the corruption perceptions index is higher in developing nations, it will have a greater beneficial impact on exports and imports than in rich countries. It is reasonable to assume that, as a result of the inefficiency of developing countries' work processes, the cost of doing business in developing countries is a significant burden for firms.

Labor Force ($lnLF_{it}$): It is the logarithm of the total number of workers, and its impact on agricultural export is determined by whether the workers are competent or unskilled. The effect on export for skilled labor predicted to be positive, whereas the effect on export for unskilled labor is expected to be negative. Employment tends to shift towards more productive industries, which, in turn, has driven productivity growth. Cline (2004) estimated an increase in the trade to GDP ratio. Labor force is measured as the total number of people above age of eighteen years or older, who are employed or who are unemployed and seeking employment.

Foreign Direct Investment ($lnFDI_{it}$): Depending on whether the government directs foreign direct investment to agricultural export sectors or non-agricultural industries, the coefficient of the logarithm of foreign direct investment in US dollars, $lnFDI_{it}$ might be positive or negative. The coefficient of foreign direct investment in (2) is predicted to be positive if foreign direct investment leads to the production of exportable agricultural products. However, if non-agricultural sectors get foreign direct investment, the coefficient of foreign direct investment in (2) is projected to be negative.

Total Saving (lnS_{it}): It is the logarithm of domestic saving in US dollars, and it is projected to have a positive impact on export levels because a higher level of saving would result in a larger volume of commodities available for export.

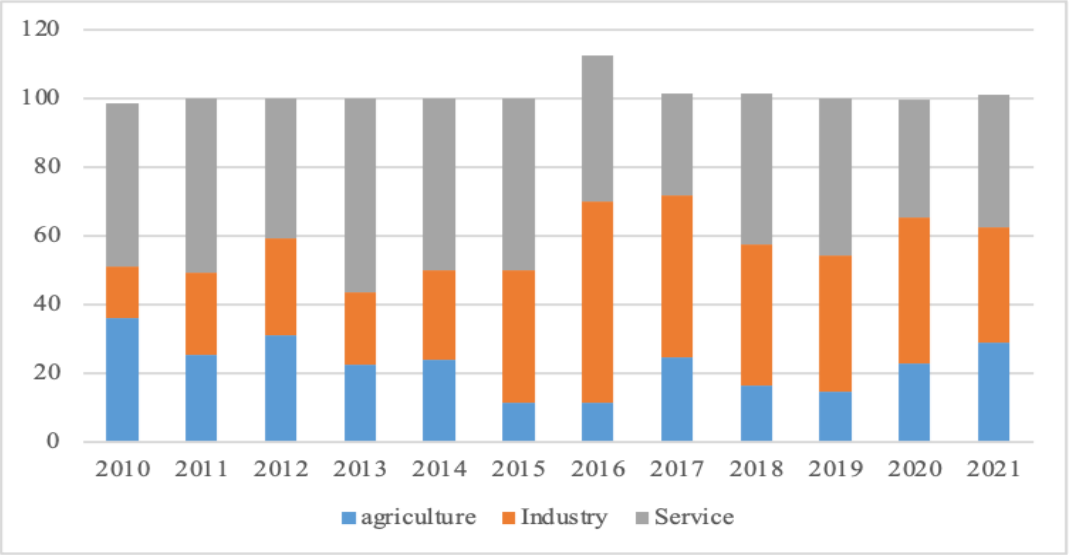
Road ($lnRoad_{it}$): A higher road network is predicted to improve agricultural exports, according to the coefficient of the logarithm of the road network in kilometers.

Result and Discussions

Structural Overview of Ethiopian Economy

The growth was largely driven by substantial public investment on infrastructure coupled with a solid performance by the service and construction sectors that benefitted from some modest mobility of labor from the agricultural sector. Figure 1 shows that out of the 8.94 % average real GDP growth registered between 2010 and 2021, the agricultural sector contributed 22.4%, industry 34.65%, and service 44.15%. In recent years, the contribution of the service and the industry sectors to real GDP growth has been increasing. For real GDP growth in 2010, the agricultural sector

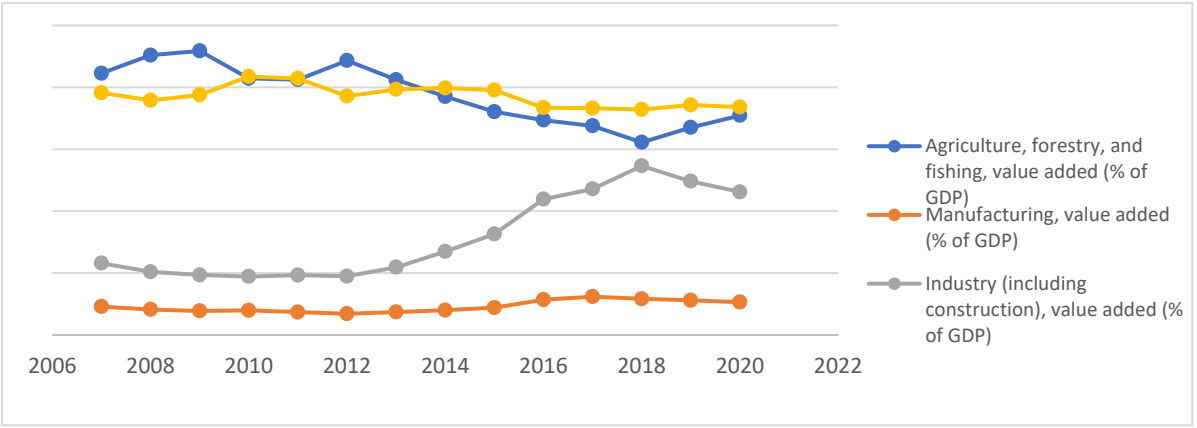
contributed about 36% while the service sector, industry sector, including construction, contributed the remaining 46.9% and 14.9%, respectively. In 2021, however, the service sector, the industry sector (including construction), and agriculture contributed 38.4%, 33.6% and 29%, respectively. In fact, the service and construction sectors have become the dominant drivers of GDP growth in recent years.



Source: Authors computation using NBE, 2020/21

Figure 1. Sectoral drivers of GDP Growth (% contribution to growth)

In terms of sectoral contribution to real GDP, the service sector has overtaken agriculture since 2014 (Figure 2). In the year 2007, the share of the agricultural sector to GDP was 42.26% while the service sector contributed 39.1%, and the remaining 16.7% came from the industrial sector. In 2020, the service sector contributed 36.8% of GDP while the agricultural sector contributed 35.45%, whereas the fast-growing industrial sector contributed around 28%.



Source: Authors computation using WDI, 2022
Figure 2. Trends in sectoral shares of GDP

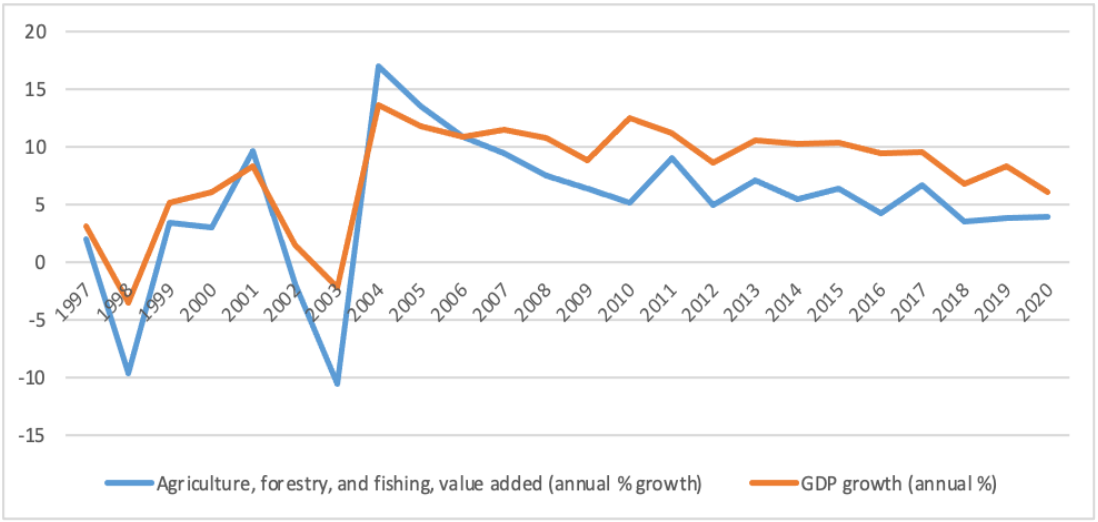
Performance and contribution of agriculture sector to the country's Economy

The Ethiopian economy continued to register growth in 2020/21 except for the instability in the northern part of the country and the impact of COVID-19 pandemic. At the time of reviewing the fiscal year, real GDP showed a 6.3% growth that was slightly higher than the 6.1% growth last year. The growth of real GDP was 3.7% lower than the average growth rate target set in the Ten Years Development Plan, but significantly higher than the 3.4% growth estimate of the Sub - Saharan African countries (IMF and WEO Update, June 2020). The growth of the Ethiopian economy is projected at 8.7% in 2021/22 compared to 4.9% growth forecast for the world and 3.8% for Sub-Saharan Africa economies (IMF, 2021).

The growth of real GDP in 2020/21 was attributed to the growth of industry (7.3%), services (6.3%) and agriculture (5.5%). In the meantime, agriculture grew by 5.5% in 2020/21, higher than the 4.3% growth recorded in the previous year mainly due to improvement in crop production, animal farming and hunting. According to NBE (2021), the share of agriculture in

GDP declined to 32.5% while its contribution to GDP growth improved to 29% compared to the preceding year. According to NBE (2021), crop production had the lion's share in agriculture accounting for 65.1% while animal farming and hunting and forestry had a 26% and 8.6%, respectively. While crop production showed a 5.7% growth, animal farming and hunting, and forestry registered 5.8% and 3.9% expansion, respectively.

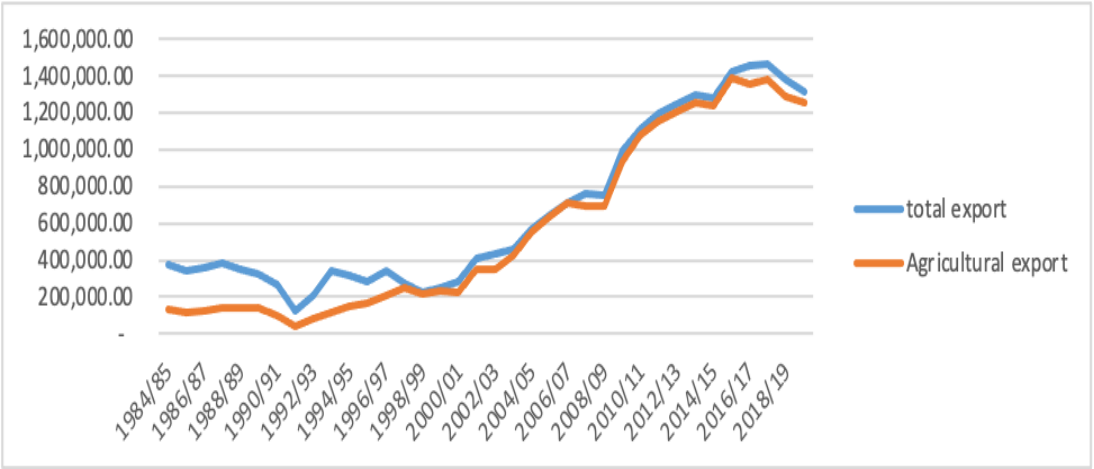
When we observe Figure 3, two major facts emerged. The first one is that the trend shows the rhythmic co-movement of GDP and agricultural sector growth which clearly confirms the very fact that Ethiopia's economy is highly dependent on the rain-feed/fed agriculture. The second fact, on the other hand, is the erratic nature of both agriculture and GDP growth as they are highly suspicious to the vagaries of nature in the sense that GDP registers the highest figure when there is good rain and the lowest comes otherwise (Alemyehu, 2011). In this regard, the major challenge for Ethiopia is to sustain its current growth rate while ensuring that growth is also dynamic as agriculture still remains the country's largest source of growth.



Source: Authors Computation using data from NBE, 2020/21Figure 3. Ethiopia's GDP and Agriculture Growth Rates (1997-2020)

Contribution and Performance of the Agriculture to Export

In relation to agricultural sector's contribution to the country's overall export earnings, agricultural export items including coffee, oilseeds, pulses, flowers, and fruits and vegetables aggregately in 2019/20 exported 1.25 billion metric ton which takes 95.5% share of the total country's export volume (NBE, 2019/20). Export volume from agricultural sector, as it is indicated below, is relatively stable with a progressive growth trend, and the total export volume is highly dependent on the agricultural sector.



Source: Author computation using data from MoT, 2021
Figure 4. Trend of total and agricultural export in volume

Value and Volume of Agricultural Export

Total merchandise export in 2020/21 amounted to USD 3.6 billion showing a 21.1% annual growth owing to higher export earnings from coffee (6.3%), gold (24.2%), flower (11.4%), *Chat* (24.1%), electricity (36.2%), fruits & vegetables (17.7%) and meat & meat products (11.7%). The increase in export earnings from coffee stood at USD 909.4 million driven by 15.9% rise in international price despite 8.3% drop in its export volume. The share of coffee in total merchandise export revenue declined to 25.1% from 28.6% last year (NBE, 2021). The reason for the decline in the share of coffee during the period was the Covid 19 pandemic shock as well as the increase in the export value of other commodities such as gold and mineral.

In the same way, export revenue from flower grew by 11.4% and reached USD 470 million as world price increased 7.6% and 3.6%, respectively. However, the share of flower in total export earnings declined to 13.0% from 14.1% a year ago. Receipts from chat export amounted to USD 402.5 million depicting a 24.1% annual growth due to a 24.6% increase in export

volume despite 0.5% fall in international price. Thus, the share of *chat*'s total export earning stood at 11.1%. Revenue from export of fruits & vegetables increased to/by 17.7% as export volume rose to/by 16.0% and international price to/by 1.5%. However, their share in total merchandise export receipts slightly declined to 1.9% from 2.0% a year earlier. Receipts from meat & meat product export went up 11.7% over last year wholly driven by 14.1% increase in export volume despite a 2.1% drop in international price. However, their share in total export revenue constituted just 2.1%. On the other hand, export earnings from oilseeds declined 2.7% and stood at USD 335.5 million due to a 6.3% fall in world price although its export volume increased to/by 3.8%. Hence, revenue from oil seeds accounted for 9.3% of the total merchandise export earnings.

Proceeds from pulses export slightly dropped to/by (0.4%) and generated USD 233.8 million as export volume declined to/by 20.7% despite a 25.6% increase in international price. As a result, its share in total merchandise export decreased to 6.5% from 7.9% in the previous year. Export earnings from live-animals decreased to/by 17.0% owing to 10.7% decline in export volume and 7.1% in international price. Thus, the share of live animal in total merchandizes export decreased to 1.2% in 2020/21 from the previous year.

Table 1. Value of Major Export Items from 2018/19-2020/21 in millions of USD

Particulars	**2018/19**		**2019/20**		**2020/21**		**Percentage Change**	
	A	**%**	**B**	**%**	**C**	**%**	**B/A**	**C/B**
Coffee	764.1	28.7	855.9	28.6	909.4	25.1	12.0	**6.3**
Oilseeds	387.8	14.5	345.0	11.5	335.5	9.3	-11.0	**- 2.7**
Leather & Leather products	117.4	4.4	72.0	2.4	36.5	1.0	-38.6	**-49.4**
Pulses	272.3	10.2	234.8	7.9	233.8	6.5	-13.8	**- 0.4**
Meat & Meat Products	88.6	3.3	67.4	2.3	75.3	2.1	-23.9	**11.7**
Fruits & Vegetables	60.9	2.3	58.8	2.0	69.3	1.9	- 3.4	**17.7**
Textile & Textile Prod.	152.9	5.7	168.9	5.7	147.1	4.1	10.5	**-2.9**
Live Animals	45.8	1.7	54.1	1.8	44.9	1.2	18.1	**-17**
Chat	303.6	11.4	324.4	10.9	402.5	11.1	6.9	**24.1**
Gold	27.9	1.0	196.5	6.6	672.0	18.6	604.5	**242**
Flower	256.6	9.6	422.3	14.1	470.6	13.0	64.6	**11.4**
Electricity	55.8	2.1	66.4	2.2	90.5	2.5	19.2	**36.2**
Others	132.9	5.0	121.1	4.1	129.5	3.6	-8.9	**7**
Total Export	**2,667**	**100**	**2,988**	**100.0**	**3,617**	**100**	**12**	**21**

Source: Authors computation using MoT and NBE, 2020/21

Table 2. Volume of Major Export Items from 2018/19-2020/21 in millions of Kilograms

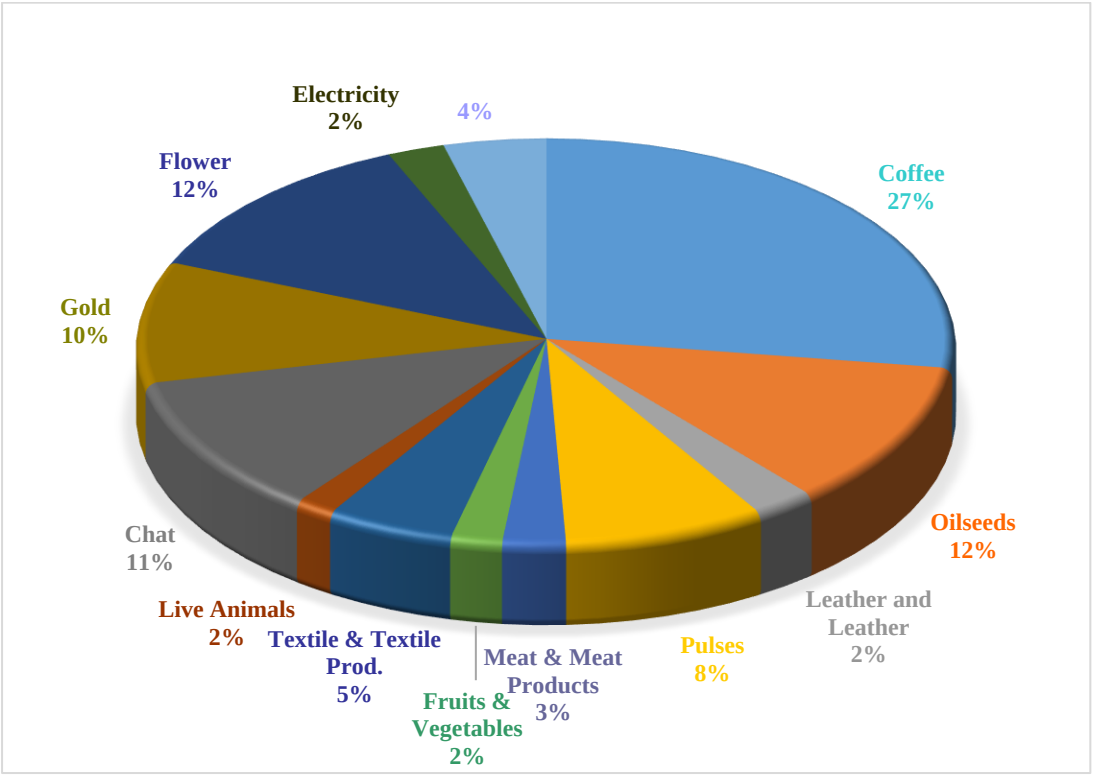
	2018/19	2019/20	2020/21	Percentage Change	
Particulars	A	B	C	B/A*100 - 100	C/B*100 - 100
Coffee	230.93	271.11	248.65	17.40	-8.28
Oilseeds	260.00	236.50	245.48	-9.04	3.79
Leather & Leather Products	5.59	3.55	2.29	-36.48	-35.50
Pulses	462.82	354.01	280.60	-23.51	-20.74
Meat & Meat Products	17.72	12.82	14.63	-27.65	14.13
Fruits & Vegetables	175.62	191.18	221.70	8.86	15.96
Textile & Textile Prod.	19.89	22.80	24.05	14.63	5.47
Live Animals	24.35	29.40	26.26	20.74	-10.66
Chat	53.57	57.14	71.21	6.67	24.63
Gold (*In mn. of grams*)	0.82	3.32	9.56	306.55	187.68
Flower	57.85	94.39	101.58	63.17	7.62
Electricity (In mn of kwh)	968.59	1,145.25	1,637.22	18.24	42.96

Source: Authors computation using MoT and NBE, 2020/21

Ethiopia's export dependence on few primary commodities has worsened the vulnerability of receipt instability from merchandise export. The export receipt from six commodities, namely coffee, oilseeds, pulses, *Chat*, flower, and gold has accounted for the lion's share that any effect on these dominant commodities' price could adversely affect the entire external trade balance (NBE, 2021). According to the annual report 2020/21 of the National Bank of Ethiopia, these six export items jointly generated around 77% of the total export proceeds over the period 2018/19−2020/21. Moreover, coffee,

oilseeds, and gold alone contributed more than half of the total earnings in the last three years (Figure 5).

As shown in the figure below, coffee with 27%, flower with 12%, oilseeds with 12%, *Chat* with 11%, pulse with 8%, meat and meat products with 3%, and fruits and vegetables with 2% are the major export items of agricultural sector and Ethiopian major export items, in particular, with the total share of 75% of the total export item.



Source: Authors Computation using MoT and NBE, 2020/21

Figure 5. Share of Major export Items 2020/21

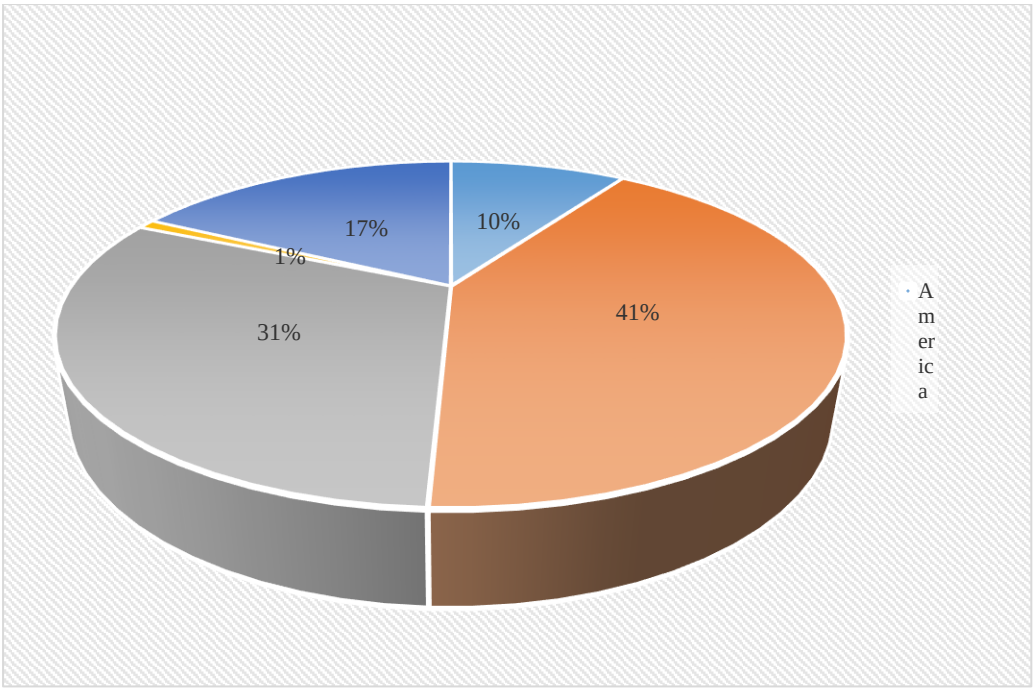
Directions of Agricultural Export

As far as Ethiopia's geographical distribution of trade is concerned, the major destinations for Ethiopian agricultural export during 2019/20 were

Asia, Europe and Africa. Europe accounted for 41 percent of Ethiopia's total export of goods. Switzerland was the largest market for Ethiopia's export with a 45.4% share in total export earnings followed by the Netherlands (19.7%), Germany (8.9%), Belgium (6.1%), Italy (3.2%), United Kingdom (2.2 %), France (1.9 %), Turkey (1.5%) and Spain (1.0%). These countries had 89.9% share in Ethiopia's total export of goods to Europe during 2019/20.

Asia had a 31.0% share in Ethiopia's total export of goods, with exports to Saudi Arabia accounting for 18.7%, followed by United Arab Emirates (14.7%), India (6.7%), Japan (6.6%), South Korea (6.1%), China (6.0%), Israel (6.0 %), Singapore (4.5%), Indonesia (2.8%), Yemen (2.8%) and Taiwan (1.7%). These countries altogether constituted 76.6% of Ethiopia's total export to Asia.

Ethiopia's export destined to African countries had a 17% share. The exports were mainly to Somalia (33.5%), Djibouti (15.0%), Sudan (13.5%), Kenya (1.5%), South Africa (1.0%), Nigeria (1.0%) and Egypt (0.8%), which altogether accounted for 66.2% of the total export of goods to Africa. America constituted 10% of Ethiopia's total goods export of which, 81.2% went to the United States, 5.0% to Canada and 0.6% to Mexico. These countries accounted for 86.8% Ethiopia's total export of goods to America.



Source: Authors Computation using MoT and NBE, 2020/21

Figure 6. Ethiopian export items

Econometrics Model Result

Panel unit root testing emerged from time series unit root testing. The major difference in time series testing of unit roots is that we have to consider asymptotic behavior of the time-series dimension T and the cross-sectional dimension N. Using Stata, we can implement a variety of tests for unit roots or stationarity in panel datasets with the command xtunitroot. The Levin–Lin–Chu (2002), Harris–Tzavalis (1999), Breitung (2000; Breitung and Das 2005), Im–Pesaran– Shin (2003), and Fisher-type (Choi 2001) tests have as the null hypothesis that all the panels contain a unit root. The Hadri (2000) Lagrange multiplier (LM) test has as the null hypothesis that all the panels are (trend) stationary.

Table 3. Testing for Unit Roots in Panel Data

Ho: panel data has unit root (not stationary) Ha: panel data has not unit root (stationary)			
Variables	Summary statistics	P value	Test for unit root in level
lnER	-19.6046	0.000	I(0)
lnGDP	-12.4561	0.000	I(1)
lnLF	-29.8613	0.000	I(1)
lnCPI	-11.6668	0.000	I(1)
lnFDI |	-15.9676	0.000	I(0)
lnGDS	-13.0469	0.000	I(1)
lnRoad	-8.2519	0.000	I(1)
lnITR	-4.5818	0.000	I(0)
TON	-29.5042	0.000	I(1)
CI	-19.5071	0.000	I(0)
lnExport	-16.1538	0.000	I(0)

Source: Author's computation (2022)

According to the result in Table 3, the null hypothesis was rejected and concluded that the variables were almost all stationary. Exchange rate, foreign direct investment, indirect tax revenue, corruption index and agricultural export were stationery at level while the remaining variable like GDP, labor force, consumer price index, gross domestic saving, road network and Terms of trade were stationery at first difference.

Table 4. Regression Result of Agriculture Export Commodity determinants

Dependent variable: Natural logarithm of the total agricultural export commodities				
Regressors	One step system GMM result		Two step system GMM	
	Coefficients	P- value	Coefficients	p-value
ln(lag agricultural export)	0.0034***	0.000	0.001	0.119
$ln(ER_t)$	-2.116***	0.000	-1.263 ***	0.006
$ln(GDP_t)$	6.922***	0.000	4.207	0.226
$ln(LF_t)$	-15.95***	0.000	-2.585	0.814
$ln(CPI_{ij})$	-1.487***	0.000	-1.458**	0.031
$ln(FDI_{t)}$	1.45***	0.000	0.997***	0.000
ln(GDS)	-0.633***	0.000	0.057	0.847
ln(road)	-1.147***	0.000	-1.130	0.398
ln(ITR)	-0.390***	0.000	-2.102*	0.072
TOT	0.649***	0.000	1.233*	0.097
CI	-0.072***	0.000	-0.038	0.294
Constant	205.15**	0.000	12.90	0.933
Hansen Test of Overid. Restrictions	chi2(353) =33.88		Pr > chi2 = 0.330	
Arellano-Bond Test for Autocorrelation	AR(1): z = -9.07		Pr > z = 0.000	
	AR(2): z = -0.29		Pr > z =0.770	
No of observation	29 Agricultural commodities Countries*21 years = 609 Observations			

Table 5 shows that all variables were significant factors that determined Ethiopia's agricultural commodity export. From this determining factor lag of agricultural export, economic growth (lnRGDP), Foreign Direct Invest (lnFDI), and Terms of Trade (TOT) have positive and significant effect on Agricultural commodity export at one step system GMM. On the other hand, the remaining variables exchange rate (lnER), labor force (lnLF), Gross Domestic Saving (lnGDS), Road (lnROad), indirect tax revenue

(lnITR), consumer price index (lnCPI) and corruption index (CI) have significant and negative effect on agricultural export.

The coefficient of lagged agricultural export is positive and statistically significant at the 5% level, indicating an autoregressive nature of export flows. The implication is that a large number of exports to trade partners in the preceding year would create a better relationship and improve the future performance of the country's export. Since the lagged variable has a considerable impact on the dependent variable, we suspect that dynamic specification of the agricultural export overwhelms the static counterparts. Based on the one-step results, for instance, a one percent increase in export level of the previous year boosts current export of each agricultural commodity by about 0.0034%, ceteris paribus. Bekele and Mersha (2019) also found that one period lagged value of Ethiopian coffee export has a positive and significant effect on Ethiopian coffee export; Eshetu & Mehare (2020) also investigated that the lagged value of agricultural export has a positive and significant effect on export. In addition, Bantie (2019) investigate that the previous export affects the current export in Ethiopia.

Likewise, economic size (GDP) is found to have a positive significant effect on agricultural export. The concept behind it demonstrates that the higher the economic growth of a nation, the higher the capacity to exports. In absolute terms, when economic size increases by 1%, other things remaining unchanged, the flow of export value of each commodity increase by 6.992%. Kebede (2016), Bantie (2019), Eshet & Mehare (2020) and Alnafissa *et al*. (2022) also found a positive and significant association between export volume and gross domestic product. In addition, this result is also in line with the prediction of the imperfect substitutes model of international trade and the gravity model.

The other variable, foreign direct investment has positive and significant effect on agricultural export of commodity. Increasing foreign direct investment by 1% resulted in increasing the value of agricultural commodity export by 0.98%, other things being constant. With foreign direct investment, companies can expand their production operations because they have larger capital and the ability to borrow from international markets, thus benefiting from economies of scale, leading to an increase in exports of a host country. The last variable which increases the export value of the agricultural commodities in Ethiopia is a volume of economic openness. Our result indicated that increased support/higher degree of trade openness would result in higher export expansion. Other things remaining constant, increasing trade openness by 1% resulted in increasing the value of an agricultural export commodity by 0.649 percent. The result is confirmed by Zekaria *et al*. (2019) who reported that trade openness increased agricultural productivity and indirectly increased (booted) agricultural export to the rest of the world.

With regards to factors that decrease the value of the agricultural export commodity, the exchange rate has a negative and significant effect on agricultural export. When a country's exchange rate increases relative to other countries, the price of its goods and services increases and imports become cheaper. Ultimately, this can decrease that country's exports and increase imports. This is because exchange rate volatility is negatively associated with trade flows as changes in currency rates are linked to uncertainty (Vo *et al*., 2019). Exchange rate volatility can harm export trade, directly through uncertainty and adjustment costs, and indirectly through its effect on the allocation of resources and government policies. Elgali and

Mustafa (2012) found that exchange rate volatility harmed developing country exporters' agricultural trade.

In relation to the second determining factor of an agricultural export commodity in Ethiopia, the labor force growth rate has a surprisingly significant and negative effect on the agricultural export of Ethiopia. The result implies that the country is not benefiting from its abundant labor force in raising the production of agricultural exports. A study conducted by (Boansi *et al*, 2014) also found a similar result. Although human capital is crucial for economic growth in Africa (Gilbert *et al*., 2013; Siaw *et al*., 2018), the negative effect of the labor force on the growth potential of agricultural export is suggestive that human capital development due to education, skills and training, and better health facilities for the poor in Africa can improve the export of agricultural sector. However, in the case of Ethiopia, the labor force has, in turn, affected the agricultural export sector as the labor growth is dominated by the unemployed labor force that resulted in increasing the domestic consumption of the agricultural product and decreasing the export of agricultural commodities.

Domestic saving hurts agricultural commodity export in Ethiopia. Other things remaining constant, increasing the domestic saving by 1% resulted in a decrease in the agricultural export commodity by 0.63%. The reason for this is the overall domestic saving may come from the corporate sector. It may both have a larger propensity to save and be more readily taxable and at higher rates than other sectors. If overvaluation leads to the relative expansion of those production sectors that have a larger incidence of the corporate sector within them, the net result could be to increase corporate, and hence total, saving. Thus, it is perfectly possible in a developing country of the Salter-Pearce variety (with exportable, importable, and non-traded

goods) that the incidence of the corporate sector is highest in the importable sector because non-traded goods are services and the exportable are agricultural goods produced in the traditional organizational molds, or highest in the exportable sector because it is characterized by plantations that are virtually corporations (as in Maize's' Malayan example) whereas the importable sector has smaller sized concerns and the non-traded sector consists of services. Thus, even if one assumes that the non-traded sector has the least incidence of the corporate form of organization, an overvalued exchange rate, as under the managed floating exchange control regime, which (under suitable restrictions) leads to a relative expansion of the importable and reduction of the exportable sector, may be associated with a change in either direction in the average propensity to save and in the tax revenue gathered. Yet another link between the foreign trade regime and the saving performance of the economy may be asserted in the form of the impact of the regime on the relative sizes of the urban and the rural sectors. Given these arguments, it would appear that overvaluation could lead to more saving by relatively expanding the importable sector and inhibiting the growth of the exportable sector, thus increasing incomes in the urban and depressing them in the rural sector if the average propensity to save and the taxability in the urban sector was higher than in the rural sector. As most of the gross domestic savings in Ethiopia are arising from the urban sectors, it has the greatest probability that increasing total domestic savings resulted in decreasing the total agricultural export commodity.

Infrastructure on the road network had a negative and significant effect on the agricultural export commodity. Other things remaining constant, increasing the road network by 1% resulted in decreasing the value of agricultural export by 1.14% in the country. This result indicated that

increasing the road network decreased the price of agricultural commodities and resulted in a decrease in the value of agricultural export commodities even though it has a potential effect on increasing the volume of agricultural export. The result supports Bond's (2006) hypothesis about the potentially detrimental effects of transport infrastructure on other countries through the terms of trade. The other possible justification is that the higher domestic price may either encourage exporters to sell their products at local markets or discourage importers of the products and will lead to lower exports of an agricultural commodity to the rest of the world.

Indirect tax revenue had a significant and negative effect on agricultural commodity export in Ethiopia. An indirect tax is a tax imposed by the government that increases the supply costs of producers. Therefore, the imposition of indirect tax revenue on the producer of agricultural supplies resulted in a decrease in the agricultural export value of the commodity. A ban or a tax on exports implemented by a large country depresses the domestic price of the taxed commodity, increases the international price, and reduces the volume of trade. Other things remaining constant, increasing the indirect tax revenue by 1% resulted in a -0.39 percent decrease in the agricultural commodity export. Efficiency losses stem from distortions caused by the export tax, affecting both producers and consumers. Production distortions result from the fact that too little is produced in the exporting country, while too much is produced in the importing country. On the one hand, a tax on exports discourages efficient local producers in the exporting country. On the other hand, it leads foreign producers in the importing country to produce locally what consumers could purchase more cheaply abroad. Consumption distortions result from the fact

that too much of the taxed good is consumed domestically because of the reduced domestic price.

The last determining factor is the corruption index; corruption index has a negative and significant effect on agricultural commodity export. For every 1% increase in the corruption index, agricultural commodity export value tends to fall by 0.07%, ceteris paribus. Corruption is stated as the abuse of entrusted power for private gain. The existence of corruption depends on three elements: benefits, abuse of power, and the private-public sector. Corruption is mostly linked with the organizational structure of a state in terms of economic and managerial. It is seen as a basic impediment to governmental efficiency. Indeed, the private sector or government can be conceived as a symptom that something has gone wrong in the management of the state. Advice on sound policies, well-designed incentives, and efforts may not reach the desired results when corruption starts and grows.

Conclusions and Policy Recommendations

Conclusions

The agriculture sector, which accounts for more than 43% of the country's GDP, 83.9% of foreign currency earnings, and employs a large portion of the population, with more than 80% of the population employed in it for the past 20 years, is the key sector of fluctuation of Export in Ethiopia.

The descriptive results revealed that the export sector of Ethiopia is still dominated by a few primary, price, and income inelastic agricultural commodities, where coffee, oilseeds, and pulse alone account for more than 50% of the export earnings of the country and are vulnerable to internal and

external shocks. The selected 29 agricultural export items constituted more than 80% of the total export value of the country.

The agricultural export sector suffers from a multitude of institutional and systematic bottlenecks including cumbersome custom procedures, limited market information (international quality standards, product marketing), poor product standards and volume capacity, limited/unavailability of trade logistics services (storage and transportation), lack of trade finances and loose and inconsistent quality regulation framework and supervision. By causing time delays, supplying sub-standardized quality products and volume and incurring additional cost, these bottlenecks have had a significant impact on the volume and quality of agricultural products that are being exported out of the country. These agricultural products are also the future potential of the sector.

The second objective of the study was to identify and understand the rational/determinant factors using panel data of key commodities across a period of time. Based on intensive literature reviews conducted, both theoretical and empirical studies, the study identified Real Gross Domestic Product (RGDP), exchange rate (ER), consumer price index (CPI), labor force, total road network coverage (RNC), corruption index (CI), net inflow of foreign direct investment (FDI), indirect tax revenue (ITR), total domestic saving (RGDS), and terms of trade index of exports which are measure of trade openness (ToT) as the main independent variables.

These independent variables were regressed by applying two logarithmic functions on value and volume of a panel data of 29 major agricultural export commodities for the period of 21 years (2000 – 2021). The study collected secondary data from various government and international

organizations, and utilized both descriptive and econometric models to analyze the data.

After defining the model, the Fisher panel unit root test was conducted and the null hypothesis rejected whereby the independent variables were found to be almost all stationary. The dynamic model estimation with the one-step system GMM was selected and applied due to its lower bias and higher efficiency. The Hansen J test was conducted and presented no over-identifying restrictions suggesting the model's validity to the study and present context.

Using the natural logarithm of agricultural export value of each commodity, and the selected demand and supply side determinant factors of agricultural export of the commodity-like lag of agricultural export commodity, RGDP, exchange rate, consumer price index, labor force, total road network coverage, corruption index, foreign direct investment, indirect tax revenue, total domestic saving, and trade openness, the result showed that all variables were significant factors that impact Ethiopia's agricultural commodity export. From these determining factors, lag of agricultural export, economic growth (lnRGDP), Foreign Direct Invest (lnFDI), and Terms of Trade (TOT) have a positive and significant effect on agricultural commodity export at one-step system GMM. On the contrary, the remaining variables, exchange rate (lnER), labor force (lnLF), Gross Domestic Saving (lnGDS), Road (lnROad), indirect tax revenue (lnITR), consumer price index (lnCPI), and corruption index (CI) have a significant and negative effect on agricultural export.

Lowering corruption and indirect tax on export, and improving quality of the roads, gross domestic saving which hinders the agriculture sector (lack

of agriculture financing) will motivate private investment in the export sector. Besides, controlling rapid population growth would decrease domestic consumption of exportable commodities and would increase export surplus. Finally, directing foreign direct investment to the agricultural sector will also increase Ethiopian agricultural exports.

Recommendations

The study found that export performance of agricultural products is dependent on several internal and external variables, holding other factors constant. Based on the study results the following recommendations are made:

- Considering the strong relationship between improved export performance and its positive implication on economic growth, the data gathered in this study suggested that Ethiopia should identify the important factors that directly and indirectly determine the country's export performance. There is strong evidence that positive and significant coefficients of the production capacity, denoted by real GDP, coupled with macroeconomic policy reforms aimed at improving the growth of real GDP have strong correlation to enhanced total export supply of agricultural commodity export to the rest of the world.
- In order to increase the impact of agricultural export on economic growth, a concerted effort should be directed towards productive channels of agricultural commodity in the economy so as to enhance sustainable economic growth through increased agricultural commodity export. Modern production systems must be quickly introduced to upgrade the traditional methods of farming and encouraging large commercial farms through the provision of agricultural growth

opportunities and enforcing the implementation of different export incentives available for exporters in the sector. Emphasis of the government should be directed towards value addition rather than exporting raw agricultural commodity.

- The agricultural export sector suffers from a multitude of institutional and systematic bottlenecks including cumbersome custom procedures, limited market information (international quality standards, product marketing), poor product standards and volume capacity, limited/unavailability of trade logistics services (storage and transportation), lack of trade finances and loose and inconsistent quality regulation framework and supervision. As most of the challenges identified in this study are focused on institutional and systematic bottlenecks, the recommendations derived thereof reflect the same. The study has found that the revision and introduction of institutional frameworks needed for an improved coordination and efficient alignment in procedure would require that various regulatory institutions that focus on agricultural exports need to put in place the proper human resource, knowledge, and skill capabilities to enable them conduct key services competently, resourcefully and in a targeted manner. Alignment amongst key institutions can lead to efficient decision making amongst regulatory institutions, consistent quality supervision, targeted interventions through various actors, and improved efficiency in service provision.
- Based on the econometric result derived in this study, findings indicate improvement of business enabling environment through key indicators such as lowering of corruption and indirect tax on exports, and improving key infrastructures will attract and motivate both domestic and foreign private investments in the agricultural export sector.

Therefore, positive efforts in policy, strategic interventions, and development of key infrastructure should be directed towards lowering corruption and indirect tax on export, enhancing quality of roads, and improving gross domestic saving focused towards motivating private investment in the export sector.

- The study indicated that there was a positive relation between economic growth, FDI and terms of trade (ToT), and performance of agricultural products export. It would, therefore, be advantageous to exporters to be informed of international prices, develop agreements for a sustained demand, develop and rollout a marketing plan to introduce agricultural products to the international market that would boost the presence and demand of the Ethiopian agricultural export products.
- Future researchers may assess the association between political instability and Ethiopian agricultural exports.

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