

REVIEW OF LIBYA'S ECONOMY, FOREIGN TRADE AND ITS AGRICULTURAL SECTOR

Youssef Abdulhamid Mustafa Alkhurmani
Mohammad Haji Alias
Siti Nurazira Binti Mohd Daud

ABSTRACT

This paper is a review of the potential correlation of Libya's economy, foreign trade and its agricultural sector since application of the economic opening-up policies, that began immediately after the suspension of international sanctions in 1999, data shows the best period of economic growth occurred during the 2000s with the net trade as a share of GDP rising to 28 percent compared to that of 1980s and 1999. By using descriptive statistics analysis and compound annual growth rate, the average degree of total trade increased from 60.6 percent as the percentage of GDP during period of 1980-1998 to 87.7 percent in the period of 1999-2014, while the agricultural exports have been decreased from 79.2 percent to (2.5) percent, the growth rate of agricultural imports was increased from (1.1) percent during period of 1980-1998 to 13.6 percent in the period of 1999-2013. The agricultural output showed decreased in terms of contribution to the whole economy from 7.1 percent in the 1990s to 3.0 percent in 2000s. Therefore, from the above indications, it is apparent that the increase in GDP growth and decline in agricultural production practically in last decade may largely link to implementing policies of trade liberalization that started in the early of 2000s.

Keywords: Libya's economy, trade liberalization, agricultural sector, increase and decrease.

1. INTRODUCTION

In the last decade, trade policy in Libya, as developing country, has commenced with trade liberalization, which actually came in later in comparison to its North African neighbors. Libyan economy has been imposed with trade restrictions between 1980s and 1990s by United States (USA), United Kingdom (UK) and United Nations (UN) that caused some distortions in foreign trade sector. It was until 1999 that the UN Security Council resolution suspended the sanctions through political compromise between Libya and the western countries. The sanctions were lifted altogether in 2003.

Trade liberalization in Libya becomes more pronounced in the mid-2000s. In order to meet the conditions for World Trade Organization membership and embrace a more open and integrated economy with rest of the world, Libya has introduced several steps towards trade policy reforms over the last decade. Among major economic reforms were to reduce subsidies on some essential commodities, decrease a number of state importing monopolies, limit the number of import bans, encourage privatization to give a greater economic role to private sector, and abolish import tariffs and licenses for most goods (George, Miles, & Prud'homme, 2010).

Since the freezing of international sanctions on Libyan economy in 1999, the government has been gradually applying measures to develop the country's economy through policies that advocate economic openness. The implementation of these policies of trade liberalization are targeted initially to reduce and abolish some state control over economic activities in order to build an economy that is more market-oriented by restructuring the economic mechanism from central administrative planning to mostly market-driven pricing and exposing the economy to the world through trade (oil exports and imports) and foreign investment (Masoud, 2009).

In addition, World Bank (WB) in its report on Libya's economy 2006 acknowledged that Libya has taken some steps to enhance liberalization of trade through abolishment of licenses and tariffs on all commodities and services, excluding goods that pose negative health consequences such as cigarettes. WB also indicated that despite the application of trade liberalization programs, Libya still imposed trade restrictions and tariffs on some products¹. Import bans were also remained for 18 items. Some of them were banned for health, religious, ecological and ideological considerations, while others were to protect the domestic production of goods and services (equipment of telephone for fixed lines, milk production, etc.). The exports of raw materials such as iron, copper, aluminium scrap and coal were also banned.

The country is located on the south of Mediterranean Sea and the vast Sahara desert that is located in its south makes up approximately 95 percent of its zone. Available data from the Food and Agriculture Organization (FAO) indicated that the contribution of agriculture production to Libyans' Gross Domestic Product (GDP) has been decreasing over the past five decades since the export of crude oil in the early of 1960s. Prior to that, the agriculture sector was the key source of income for the

¹ Including imports of raw gold, tobacco, medicines of veterinary and vaccines (besides oil and security related products) are reserved to be monopolized by the state enterprises.

Libyan people that made up roughly 30 percent of the country's GDP. After the 1980s and practically in 2000s, with the growing production exports of crude oil and increasing of world prices of black gold, the share of agriculture sector has quickly decreased to less than 5 percent of its GDP in 2003 (IMF 2005) .

On the other hand, the contribution of the energy sector to GDP has rapidly increased to more than 55 percent. Relative to its area, Libya can be considered less populous compared to other countries in the world. It becomes wealthier, especially after the sanctions were lifted that boosted its oil revenue. However, the economy is less diversified, relying heavily on the production of crude oil and natural gas, fully controlled by the government and has a shrinking agricultural sector. 90 percent of the land area of the country is desert, with most agriculturally productive land limited to a strip abutting the Mediterranean Sea. Only a few lands get an annual rainfall of more than 100 mm. The Arable land area is around 2.2 million hectares which represented just 1.7 percent of Libya's area WFP/FAO, (2011). Overall, the trade balance of Libya has been positive for a longtime due to the value of oil and gas exports. In contrast, trade balance of agricultural products has been weakening for a long time mainly because the country needs to satisfy its domestic demand for foods. Thus, the agricultural reduction and food imports represent a substantial fraction of Libya's food needs. The export value of agri-food products is insignificant; it accounted for less than 0.6 percent of total exports from the period of 1998 to 2001.

Given the fact that the GDP growth, foreign trade sector, and agricultural sector are major components in economies of developed and developing countries. Thus, attempting to review these three components may be essential for process evaluation of economic development policies. Despite the limitation of this paper is not using inferential statistics in order to make a full analysis of a set of data, it hopes to make a useful conclusion to a better understanding and provide a comprehensive picture of the potential association between GDP growth, foreign trade and agricultural production in Libya by using descriptive statistical analysis, bar charts and histograms of a time series over the last three decades. However, the period after 2014 could not be included because of data limitations. The major data sources are obtained from the United Nations conference on trade and development (UNCTAD 2016), agricultural production, and export and imports agricultural were collected from Statistics - Food and Agriculture Organization of the United Nations (FAO 2016). The remains of data were extracted from other resources namely, international Monetary Fund (IMF 2016), and World Trade Organization (WTO 2016), the values of data were by US Dollar prices.

Following the introduction, the rest of the paper is outlined as follows, in the second section of this paper, we have reviewed the situation of Libya's economy and foreign trade, followed by the final section reviewing agricultural output, and export and import agricultural under the opening-up policy regimes during the last three decades.

2. STRUCTURE OF LIBYA'S ECONOMY

This section presents long-term trends in the sector structure of Libya's economy, using data on real value added. According to the World Bank, Libya is classified as an upper-middle-income developing country². For instance, the economy is dominated by the hydrocarbons sector (crude oil and natural gas). Libya produces around 1.6 million barrels/day of oil, roughly equivalent to 2 percent of the global total. Libya's economy, which remains largely state controlled and heavily dependent on the oil sector. It grew solidly in 2003-04, reflecting favorable developments in world oil markets (IMF, 2005).

2.1 LIBYA'S ECONOMIC GROWTH

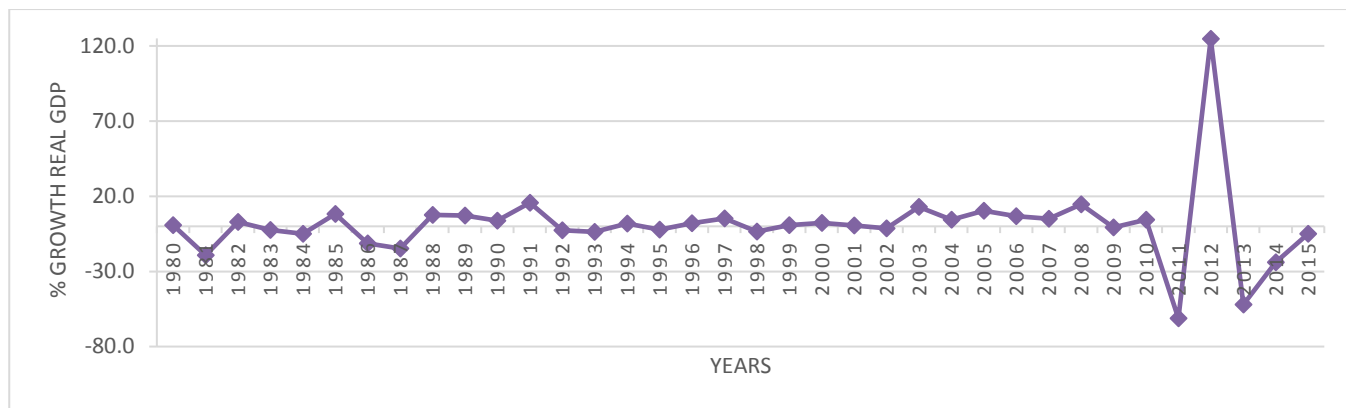
The growth rate of an economy can be measured by the rate of change of real gross domestic production (GDP) (i.e. at constant prices) during certain period (usually one year). Since gross domestic production is a flowing of variable that measures aggregated value added produced in a country, its growth rate is also a flow variable, which, expressed as a portion, is obtained as follows:

$$\text{Growth GDP} = \frac{\Delta \text{GDP}}{\text{GDP}} = \frac{\text{GDP}_t - \text{GDP}_{t-1}}{\text{GDP}_{t-1}} = \left(\frac{\text{GDP}_t}{\text{GDP}_{t-1}} - 1 \right)$$

Where, the gross domestic production growth rate equals the ratio of the increase in GDP from one period (t-1) to the next period (t) divided by GDP in the first period (t-1). Rate of growth can be expressed as fractions or, as percentage changes (in which case, the fraction is multiplied by 100). The growth rate of gross domestic production (GDP) growth is a quantitative outcome variable, which when plotted as a time series describes a track of highly aggregated footprints of a given economy over time. For example, Figure. 1 shows the percentages of time series for the rate of real GDP growth of Libya from 1980 to 2015, obtained from United Nations Conference on Trade and Development (UNCTAD).

Figure 1: The growth trajectory of Libya's GDP from 1980 to 2015

² World Bank country classification that distinguishes between low-income economies (\$1005 or less), lower-middle-income economies (\$1006 to \$3975), upper-middle-income economies (\$3976 to \$12275), high-income economies (\$12276 or more).



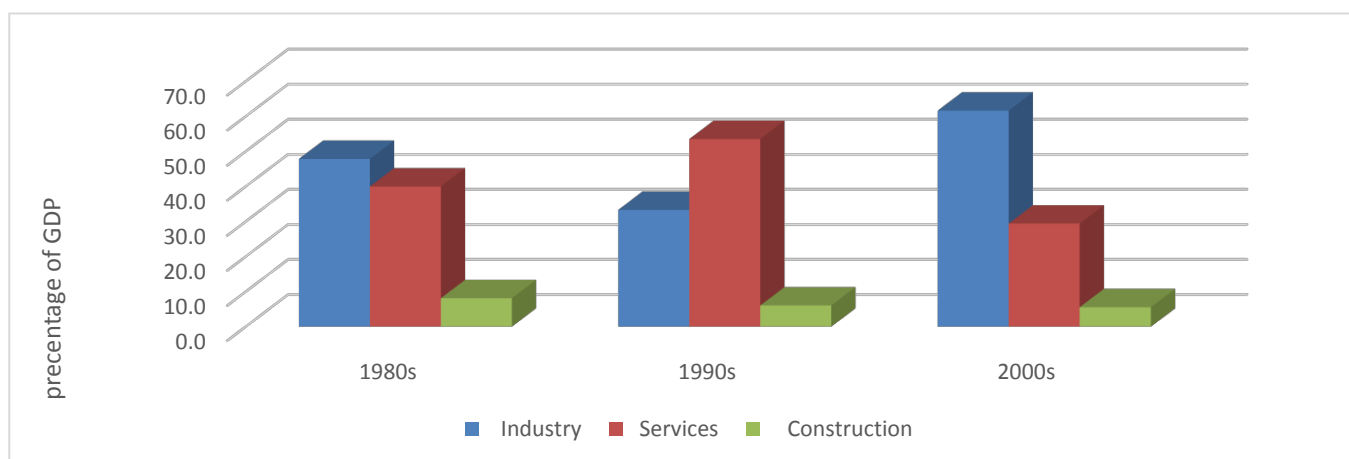
Using UNCTAD data (2016).

Figure 1 also illustrates the trajectory of short-run ups and downs in the rhythm of quantitative expansion of Libya’s aggregated economic output. Nevertheless, it does provide a useful background chart for the subsequent empirical analysis in this study. This analysis is focused on the impact of trade liberalization on economic performance representative in GDP growth, particularly since the programs of liberalization begun in the late 1990s. Indeed, when looking at the pattern of economic growth, we will find out some remarkable improvements of growth happening after 2002. Before that period, the figure shows that the GDP was contracted sharply at the early and late of eighties, in which could be attributed largely to the price of crude oil which slumped during that dates. In addition, it can also be seen that the rate of GDP dropped abruptly after 2008. This could be attributed partly to financial crisis that happening in United States and South East Asia which led to shrinking in global economy and affecting the demand of crude oil production. In 2011 the economic activity collapsed during the revolution year and real GDP contracted by 61.3 percent. By end-2012 most hydrocarbon output had been restored and growth rate is estimated at 124.7 percent, beyond 2014 the economy is negatively affected by the decline in global crude oil prices.

2.2 Sectoral Value of GDP

Figure 2 shows gross domestic production per basic sectors, defined as the market value of final goods and services produced within the boundaries of a country during three decades; 1980s, 1990s, and 2000s. It explicitly excludes the agriculture sector, which will be seen in the next section of this chapter. As can be seen in the figure, the structural change of the Libya’s economy has not changed rapidly in the last three decades, the remaining dominant sector is Industry sector³, despite its contribution to GDP declined to 33 percent during 1990s. This percentage supports the view that the international sanctions had targeted mainly the oil sector and its needs, which affects its contribution to the gross domestic product during the nineties, after rising quite markedly and consistently to 62 percent in 2000s. The share of services sector in GDP, which stood at 40 percent in eighties, first rose up to nineties to 53 percent after which it declined to 29 percent in next decade. World Bank report 2006 indicates that the decrease of services in decade of 2000s reflected the soaring price of oil. In contrast, construction sector did not record a significant change in terms of its contribution to GDP over three periods of analysis, as the relative stability of construction sector is largely due to the substantial stability in engineering construction activity associated with major resource- related projects.

Finger 2 Sectoral Distribution of GDP during 1980s, 1990s and 2000s



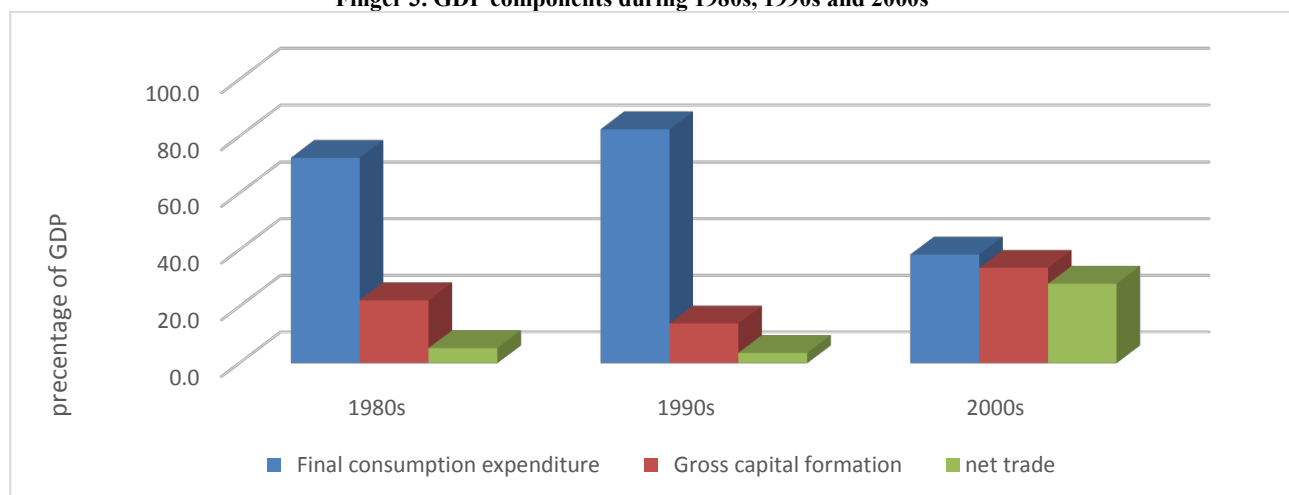
Using UNCTAD data (2016).

2.3 GDP COMPONENTS

³ Defined as sum-total of Crude oil/Natural gas, Mining activities and Manufacturing.

In the previous section, we looked at the composition of GDP from the production side. In this section, we examine GDP from the expenditure side. Figure 3 describes the percentages of components of gross domestic production which consist of final consumption (household and government consumption), gross capital formation (gross fixed capital formation and changes in inventories), and net trade (exports minus imports). Final consumption expenditure is the largest element for the individual components of GDP, accounting roughly for 70, 80, and 35 percent of the periods 1980s, 1990 and 2000s respectively. The contribution of net trade to GDP has jumped from 5 percent in 1980s to around 28 percent of GDP in 2000s. The changes in the share of net trade most likely reflected application of trade liberalization policies to achieve economic objectives that began in the end of 1990s.

Finger 3. GDP components during 1980s, 1990s and 2000s



Using UNCTAD data (2016).

3. LIBYAN FOREIGN TRADE

3.1 PERFORMANCE OF TOTAL TRADE

From the mid-1980s to the 1990s, all the foreign trade of commodities and services in Libya was virtually conducted by the government, either directly or through public corporations. In the early 1990s, Libya was not only suffering from the effects of international economic sanctions but a drop in oil prices was placing a huge strain on the Libyan state's ability to finance its inefficient public sector (Otman & Karlberg, 2007).

Libya's overall trade balance has been positive mainly due to its large exports of oil, as Table 1 shows that total trade (imports plus exports) as percentage of real GDP (here represented as a measure of liberalization) in the Libyan economy has grown from about 77.9 percent of GDP in the period of 1981-85 to 98.1 percent of GDP in the period of 2006-2010. In recent years, the contribution of total trade to gross domestic production (GDP) as percentage of real GDP has a tendency to increase from year to year, which is most likely due to implementing policies of trade liberalization that started in the early of 2000s.

Table 1 Indicators of trade openness for Libya from 1981-2014(as share of GDP), (selected periods)

	Means 1981-85	Means 1986-1990	Means 1991-95	Means 1996-00	Means 2001-05	Means 2006-10	Means 2011-2014
TOTAL TRADE	77.9	55.4	53.3	42.1	80.2	98.1	107.7
TOTAL EXPORTS	37.9	27.4	27.5	24.3	49.5	64.9	64.2
TOTAL IMPORTS	40.0	28.5	25.8	17.8	30.7	33.2	43.5
TRADE BALANCE	-2.1	-1.1	1.7	6.5	18.8	31.7	20.7
CURRENT ACCOUNT BALANCE	-4.0	-1.9	2.8	9.1	17.1	34.4	6.0

Using UNCTAD data (2016).

3.2 DESCRIPTIVE STATISTIC FOR LIBYA'S FOREIGN TRADE

Descriptive statistics analysis presents the basic characteristics of the data like Mean, Standard Deviation, Maximum and Minimum values of data series. A relevant question for our analysis is whether the liberalization of trade is similar with respect to their characteristics. Next, we therefore provide descriptive statistics for the pre- and post-liberalization trade characteristics by divide the period to two groups (1980-1998 and 1999-2014). The aim of this approach is to have preliminary information on pattern of Libyan's trade foreign in the pre- and post-liberalization eras. Despite, this method has weakness that no other variables have been using as a controls variables; therefore, liberalization alone cannot be accountable for the changes in the growth of exports and imports and therefore trade balance.

Table 2 Descriptive Statistics- Indicators of Trade Openness (percentage of GDP), period 1980-2014

	Pro –liberalization 1980-1998				Past – liberalization 1999-2014			
	total trade	total export	total imports	trade balance	total trade	total export	total imports	trade balance
MEAN	60.622	31.582	29.040	2.542	87.769	55.162	32.607	22.556
MEDIAN	55.930	27.316	28.946	1.839	94.052	57.983	33.015	19.714
MAXIMUM	96.345	57.832	51.801	24.650	114.464	75.124	45.659	42.625
MINIMUM	36.897	17.948	18.949	-7.257	37.532	21.804	13.059	5.933
STD. DEV.	16.447	9.668	8.151	7.022	23.521	15.572	10.297	11.992
SKEWNESS	0.797	1.100	1.117	1.510	-1.144	-0.769	-0.594	0.348
KURTOSIS	2.663	3.861	4.250	6.305	3.045	2.678	2.282	1.879
JARQUE-BERA PROBABILITY	2.104	4.421	5.188	15.866	3.490	1.648	1.283	1.161
	0.349	0.110	0.075	0.000	0.175	0.439	0.526	0.560
SUM	1151.82	600.05	551.76	48.29	1404.30	882.60	521.71	360.90
SUM SQ. DEV.	4869.20	1682.50	1195.87	887.55	8298.26	3637.18	1590.43	2156.98
OBSERVATIONS	19	19	19	19	16	16	16	16

Source: UNCTAD data (2016) using Eviews (9)

The descriptive results (Table 2) compared the statistical averages and standard deviation of the selected parameters over the period 1980 to 2014. The average degree of total trade during the Pre-liberalization period was 60.62 percent. This shot up to 87.77 percent during the Post-liberalization era. In the same vein, total exports increased to the highest average growth statistics during the post liberalization era from 31.5 percent to 55.16 percent. Whereas average growth of total imports remained roughly the same percentage of two eras. The standard deviation of total trade of post liberalization era was a 16.44 percent increased to 23.5 percent in post liberalization. This is an indicators of Trade Openness in Libyan's economy refer to recorded an improvement in trade openness during the post liberalization era.

4. AGRICULTURE SECTOR AND LIBYAN ECONOMY

Since the early 1970s, food security and strengthening the agricultural sector as a possible source of income and replacement for oil revenues were assigned top priority in Libya. Nevertheless, the performance of the sector has been frustrated and its contribution to GDP and import substitution has remained modest. This shows that a number of factors contributed to this, while the low performance ran almost across all sub-sectors.

Libyan agriculture output share has rapidly fallen to direct share of the total gross domestic product (GDP) since oil discovery in 1958, FAO (2011). This percentage of agricultural share to GDP decline particular after 2003, which the United Nations lifted sanctions imposed in 1992 to become 3 percent, and 6 percent of the workforce in 2010 WFP/FAO, (2011).

From 1981 to 2010, the available data of United Nations Conference on Trade and Development (2016) (UNCTAD) indicate that agricultural output⁴ in Libya increased on average at the annual rate of 3.2 percent from 777, 25.1 million USD to 2,008.2 million USD. When comparison is made between years in terms of contribution to gross domestic production (GDP), one sees an 8.0 percent the biggest percentage contribution of agricultural output in 1998 and the smallest percentage of 1.9 percent in 2008. The sector slowed down slightly during 2001-2005 which was largely due to the application of trade liberalization policies that followed immediately after the suspension of international sanctions in 1999.

Table 3. GDP and agri-GDP, value in million USD (selected periods)

	Mean	Mean	Mean	Mean	Mean	Mean
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⁴ Crop, Animal production, fishing, and forestry.

	1981-85	1986-90	1991-95	1996-00	2001-05	2006-10	2011-14
GDP	31,379.6	26,133.7	32,579.7	33,297.0	39,884.9	72,570.4	62,224.2
AGRI-GDP	906.3	1,735.4	2,470.2	2,678.4	1,271.1	1,701.2	1,326.4
CONTRIBUTION%	2.9	6.6	7.6	8.0	3.2	2.3	2.1

Using UNCTAD data (2016)

During 1990-1999, the agricultural production of Libya increased by 608.9 million USD, and a compound annual growth rate about 2.6 percent in 1999 compared with 1990. Change occurred by increasing population of Libya by 4 million, as well as increasing of agriculture per capita in Libya by 533.2 USD.

Finger 4. Contribution of agriculture sector to GDP during 1980s, 1990s and 2000s



Using UNCTAD data (2016)

5. FOREIGN TRADE OF AGRICULTURAL PRODUCTION

Libya's overall trade balance has been positive mainly because of its large exports of oil. Agriculture trade balance, however, has been negative for a long time. Libya must import most of its needs of commodities to satisfy its domestic demand. Other than that, agricultural products and food imports represent a significant proportion of its food needs. The value of agri-food products exports is insignificant and accounted for less than 0.6 percent of all its total exports from 1998 to 2001 (Abidar & Laytimi, 2005).

Foreign trade of agricultural products as a portion of total trade is a relative importance of year to another, depending on how economic variables impact global and regional trade. This is based on the foreign trade of agricultural products of Libya and its structural changes over the period 1990-2010, and the share of exports and imports commodities agriculture to total merchandise. Data shown in Table (4) that exports of agricultural goods are enormously small, while agricultural imports more than 93 percent of its agricultural trade. The imbalance in trade of agricultural output is increasing over time largely because of low increase in productivity and population. The value of Libyan agricultural trade with the rest of the world had recorded to 38.153 billion USD during the last three decades (1981-2010). These imports had amounted to 37.6 billion USD which constituted 98.5 percent and the rest of a percentage of 1.5 percent for exports. This implies a huge gap between agriculture imports and agriculture exports. For example, the percentage of import agriculture to total foreign trade of agricultural production was more than 98 percent in years 2005, 2006, 2008, 2009, and 2010. The largest percentage of agricultural exports to total foreign trade of agricultural production was 4.6 percent in 1990. In addition, the ratios of agricultural imports and agricultural exports to total agricultural trade were approximately the same percentages during each year of the period.

	Mean 1981-85	Mean 86-90	Mean 91-95	Mean 96-00	Mean 01-05	Mean 06-10	Mean 2011-13
TOTAL EXPORTS OF MERCHANDISE	12,890.4	8,838	9,111.6	9,255.5	17,446.4	46,990.8	41,147.3
AGRICULTURAL EXPORTS	0.8	37.8	40.3	32.7	12.1	7.4	31.7
% OF TOTAL EXPORTS	0.0	0.2	0.4	0.4	0.1	0.0	0.0

TOTAL IMPORTS OF MERCHANDISE	6,381.8	5,051.4	5,158.4	5,070.4	5,105.6	10,491.4	19,000.0
AGRICULTURAL IMPORTS	1,174.1	1,023.7	1,198.1	1,093.2	1,161.2	1,868.9	10,810.5
% OF TOTAL IMPORTS	18.4	20.3	23.2	21.6	22.7	17.8	56.9
AGRICULTURAL TRADE BALANCE	-1,173.3	-985.9	-1,157.8	-1,060.5	-1,149.1	-1,861.5	-3,592.9

Table 4 Libya's total merchandise and agricultural trades in million USD (selected periods)

Using data of FAOSTAT, WTO and UNCTAD (2016)

By using the formulae of compound annual growth rate⁵ to make the comparison between growth rate in the pre- and post-liberalization eras of both agricultural exports and agricultural imports, we find that the growth rate of agricultural exports has been decreased from 79.2 percent during 1980-1998 to (2.5) percent during the period 1999-2013. In contrast, the growth rate of agricultural imports was increased from (1.1) percent to 13.6 percent. This results most likely implying that trade liberalization has a negative effect on agricultural exports and positive effect on agricultural imports.

Formula

$$CAGR(t_0, t_n) = \left(\frac{V(t_n)}{V(t_0)} \right)^{\frac{1}{t_n - t_0}} - 1$$

$V(t_0)$: start $V(t_n)$: finish value, $t_n - t_0$

Where

CAGR is compound annual growth rate,

$V(t_0)$ is start value,

$V(t_n)$ is finish value and

$t_t - t_0$ is the number of years.

i) The CAGR of agricultural exports:

Pro-trade liberalization $t_t - t_0 = 1998-1980 = 18$, $CAGR_{(0,18)} = \left(\frac{36,277}{1,000} \right)^{\frac{1}{18}} - 1 = 0.792 = 79.2\%$

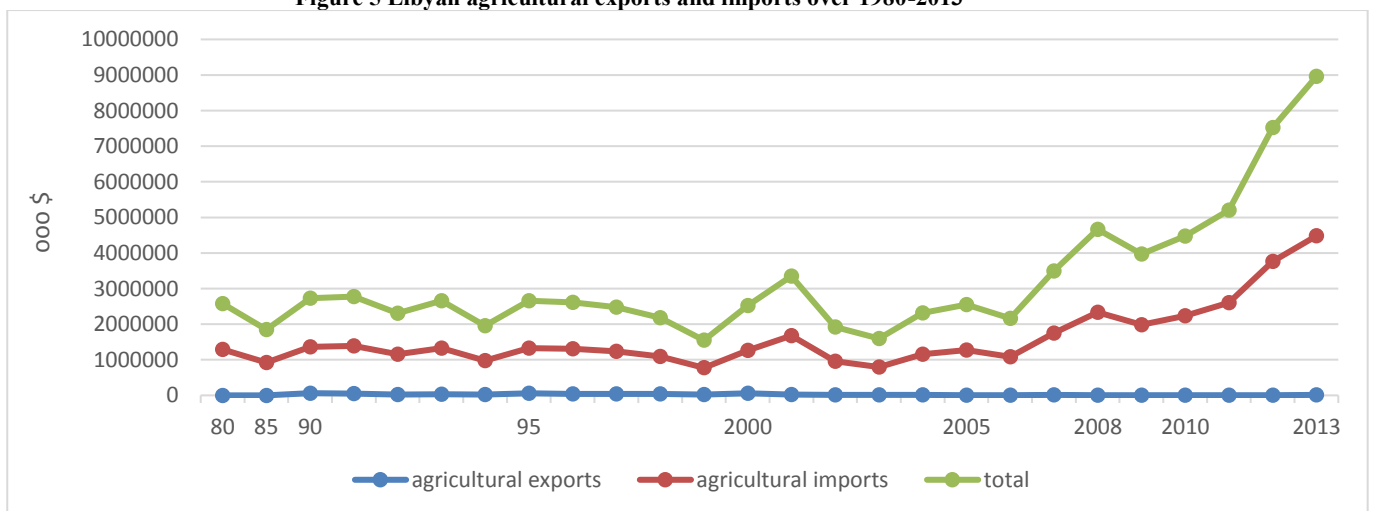
Post- trade liberalization $t_t - t_0 = 1999-2013 = 14$, $CAGR_{(0,14)} = \left(\frac{16,667}{23,824} \right)^{\frac{1}{14}} - 1 = -0.025 = -2.5\%$

ii) The CAGR of agricultural imports:

Pro-trade liberalization $t_t - t_0 = 1998-1980 = 18$, $CAGR_{(0,18)} = \left(\frac{1,052,177}{1,290,092} \right)^{\frac{1}{18}} - 1 = -0.011 = -1.1\%$

Post- trade liberalization $t_t - t_0 = 1999-2013 = 14$, $CAGR_{(0,14)} = \left(\frac{4,463,094}{749,955} \right)^{\frac{1}{14}} - 1 = 0.136 = 13.6\%$

Figure 5 Libyan agricultural exports and imports over 1980-2013



Using FAOSTAT (2016).

⁵ Compound annual growth rate (CAGR) is measure of growth over multiple time periods and usually use to compare the performance of two different periods.

6. CONCLUDING REMARKS

In this paper, we have surveyed the link between GDP growth, foreign trade, and agricultural output since application of the economic opening-up policies, that began immediately after the suspension of international sanctions in 1999 data shows the best period of economic growth occurred during 2000s with the net trade as share of GDP rising to 28 percent compared to that of 1980s and 1990s. With respect to foreign trade, we have seen that total trade increased from 60.6 percent as the percentage of GDP during period of 1980-1998 to 87.7 percent the period of 1999-2014. Agricultural production shows decreased in terms of contribution to the whole economy from 7.1 percent in 1990s to 3.0 percent in 2000s. Libya's agricultural trade balance has been largely negative, and its trade performance has also been very low, and both will likely continue to be as such for times to come. By using compound annual growth rate we find also that the growth rate of agricultural exports has been decreased from 79.2 percent during the period of 1980-1998 to (2.5) percent during the period of 1999-2013, whereas the growth rate of agricultural imports was increased from (1.1) percent to 13.6 percent. This results most likely implying that trade liberalization has a negative effect on agricultural exports and positive effect on agricultural imports. The country only exports about 0.3percent of its agricultural produce in some agricultural raw materials, mainly ruminant skin and wool products, and imports the major part of its food needs, especially those of wheat and their products. Dairy products group and sugar refined imports are relatively higher and amount to make up about 10 percent.

From the above indications, it is apparent that there is a possible association between GDP growth, foreign trade and its agricultural production, in other words the increase in GDP growth and decline in agricultural output practically in last decade may largely link to implementing policies of trade liberalization that started in the early of 2000s. The limitation of this paper is not using inferential statistics in order to make a full analysis of a set of data, and using trade liberalization alone as control variable cannot be accountable for the changes in the GDP or agricultural production, because there will be some question arise: for example, how significant have the trade liberalization been improved the GDP growth and level of Libya's foreign trade, and why have current Libyan agriculture exports declined while agricultural imports have risen during the last decade. Therefore, analysis like this study needs to add further variables and factors which are related to subject in order to identify the long run relationship and then determine which variables are significant or insignificant. The previous statistic indicators could be seen as a guide to a number of policies that the government should adopt in order to pave way for higher growth rates of GDP and agricultural production.

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Youssef Abdulhamid Mustafa Alkhourmani
Faculty of Economics and Muamalat
Universiti Sains Islam Malaysia 71800 Nigeria Sembilan, Malaysia
Email: khrmaney@yahoo.com

Mohammad Haji Alias
Faculty of Economics and Muamalat
Universiti Sains Islam Malaysia 71800 Nigeria Sembilan, Malaysia
Email: hjmohd_99@yahoo.co.uk

Siti Nurazira Binti Mohd Daud
Faculty of Economics and Muamalat
Universiti Sains Islam Malaysia 71800 Nigeria Sembilan, Malaysia
Email: nurazira@usim.edu.my

7. APPENDIX

Table 5 Major Composition of Exports as a Percentage of Total agricultural exports (selected periods)

	1980-83	84-87	88-91	92-95	96-99	00-03	04-07	08-2010
GROUND NUTS	0	0	13.4	10.4	14.4	22.9	0.04	0.02
POTATOES	0	0	14.5	3.1	1.8	0.5	0.04	2.5
SKINS SHEEP WITH WOOL	0	0	3.5	21.7	30.5	3.2	13.5	4.4
WOOL GREASY	0	99.3	7.5	3.9	2.4	3.0	10.1	5.21
WOOL DEGREASED	0	0.7	1.4	1.2	0.7	1.5	9.3	17.8
ONIONS DRY	0	0	4.9	11.8	14.2	0.03	0	0.5
OIL MAIZE	0	0	0	9.3	10.6	31.8	0.01	0
OTHER COMMODITIES EXPORTS	100	0	55	39	25	37	67	70

Table 6 major Composition of imports as a Percentage of Total agricultural imports (selected periods)

	1980-83	84-87	88-91	92-95	96-99	00-03	04-07	08-2010
WHEAT	4	5	5	5	8	5	10	17
FLOUR WHEAT	7	8	11	13	17	18	20	5
BARLEY	3	7	8	8	4	1	2	3
MAIZE	2	4	4	3	3	5	5	6
SUGAR REFINED	5	4	7	5	7	5	5	4
TOMATOES PASTE	2	3	5	4	5	3	3	5
MILK WHOLE EVAPORATED	4	4	3	2	4	5	3	4
FOOD WASTES	10	8	7	8	6	2	1	1
OTHER COMMODITIES IMPORTS	63	57	50	52	46	56	51	55

Table 7 major Composition of output as percentages of total (selected periods)

	1980-83	84-87	88-91	92-95	96-99	00-03	04-07	08-2010
WHEAT	9	8	6	5	5	4	4	3
BARLEY	7	4	5	2	2	3	3	3
POTATOES	6	5	6	7	7	7	9	10
OLIVES	8	5	3	5	8	6	6	6
TOMATOES	10	8	6	7	7	7	7	7
ONIONS DRY	4	4	3	5	6	6	6	6
ORANGE	4	3	3	2	1	2	2	2
WATERMELON	8	7	8	9	8	9	8	8
DATES	4	4	3	4	4	6	5	5
FORAGE PRODUCTS	24	29	32	29	26	27	27	26
OTHER COMMODITIES	16	23	25	25	26	23	23	24

Table 8 Mean and Std.Dev of production Volume (000' Metric tons) (selected periods)

		1980-83	84-87	88-91	92-95	96-99	00-03	04-07	08-2010
WHEAT	M	165,336	173,658	151,192	122,000	137,600	125,000	114,500	105,000
	S	40,352	18,049	27,028	4,242	14,164	0	12,124	1,000
BARLEY	M	123,555	89,175	129,881	50,750	52,575	85,000	96,250	101,000
	S	56,733	8,172	98,99	28,441	21,300	0	7,500	1,000
POTATOES	M	105,583	108,872	137,750	169,450	182,300	197,924	258,750	290,407
	S	7,475	11,711	10,307	22,110	31,765	9,479	47,675	704
OLIVES	M	10,695	106,900	68,738	132,000	212,670	163,660	179,471	176,963
	S	8,693	32,781	7,902	29,028	41,983	18,709	1,057	5,259
TOMATOES	M	192,715	161,621	148,000	158,375	202,570	189,045	194,230	220,936
	S	24,654	27,160	10,295	5,677	27,881	27,074	23,723	8,633
ONIONS DRY	M	72,340	71,888	84,750	57,200	40,875	46,788	44,309	46,316
	S	18,515	4,461	4,856	10,521	818	8,246	985	284
ORANGE	M	72,340	71,888	84,750	57,200	40,875	46,788	44,309	46,316
	S	18,515	4,461	4,856	10,521	818	8,246	985	284
WATERMELON	M	142,701	144,530	194,250	207,347	209,007	257,500	222,357	229,333
	S	25,323	19,186	13,573	6,221	2,570	49,081	11,957	14,011
DATES	M	80,605	86,750	72,750	100,250	121,812	165,000	150,540	155,453
	S	8,964	12,841	2,217	20,418	6,101	41,231	1,080	5,500

FORAGE	M	445,487	611,250	776,250	690,000	725,647	780,000	780,000	780,000
PRODUC	S	51,180	135,088	7,500	181,107	58,135	0	0	0
TS									
