International Experiences in Diversifying Sources of National Income: Lessons for Libya

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Abstract

This study investigates international experiences in diversifying national income sources to offer insights for Libya's economic development. Employing a descriptive-analytical approach, the research analyzes time series data from 2007 to 2022 using simple regression to examine the relationship between various Libyan export categories and gross domestic product (GDP). The findings confirm a positive correlation between GDP and exports of primary agricultural materials, food, oil, and gas. The study advocates for enhancing the efficacy of Libya's financial and monetary policies to stimulate tangible economic growth. It further emphasizes the importance of increased government investment in sectors that foster rapid economic development while ensuring the sustainability of achieved growth rates. Crucially, the study underscores the need for diversifying Libya's income streams to reduce reliance on oil and recommends developing economic and financial policies that support this objective.

Keywords: International experiences, income diversification, national income, Libya

هدف البحث إلى التعرف على التجارب العالمية لتنويع مصادر الدخل القومي. استخدم البحث المنهج الوصفي التحليلي واستخدمت الدراسة بيانات السلاسل الزمنية للمتغيرات خلال المدة ٢٠٠٧-٢٠٢٢ واعتمدت الدراسة على أسلوب الانحدار البسيط ودراسة العلاقات بين أنواع الصادرات الليبية والناتج المحلي الإجمالي. وخلص البحث إلى وجود تأثير إيجابي بين صادرات المواد الزراعية الأولية، وصادرات الأغذية، وصادرات النفط، وصادرات الغاز على الناتج المحلي الإجمالي. وأوصت الدراسة باتخاذ إجراءات إحداث تغييرات في السياسة المالية والنقدية في ليبيا لجعلها أكثر فعالية مما يساعد ذلك على تحقيق تنمية اقتصادية حقيقية للمجتمع الليبي، ويساهم في تحقيق أهداف السياسة الاقتصادية. ومن الضروري زيادة معدلات الإنفاق الحكومي على القطاعات التي تُسهم في دفع عجلة التنمية الاقتصادية بشكل سريع، مع ضمان استمرارية معدلات النمو المُتحققة. ويجب أيضاً الاهتمام بتنويع مصادر الدخل للاقتصاد الليبي بهدف تقليل الاعتماد على النفط، ووضع سياسات اقتصادية ومالية تُساهم في تحقيق ذلك.

الكلمات المفتاحية: التجارب الدولية، تنويع المصادر، الدخل القومي.

1.Introduction

The imperative to diversify income sources has acquired renewed urgency in oil-dependent economies, particularly in the Gulf Cooperation Council (GCC) countries. Decades of experience in many developing nations have demonstrated that an overreliance on the oil sector fails to generate positive structural transformations. Instead, it exposes these economies to the volatility of global oil markets. The recent global economic downturn triggered by the COVID-19 pandemic, for instance, caused Brent crude prices to plummet from $64 per barrel in early 2020 to $23 in April 2020. With oil prices projected to remain below $50 per barrel until late 2022, GCC countries are grappling with financial strain, leading to public budget deficits (5.7% in 2021/2022) and impacting economic performance. This situation exacerbates existing structural imbalances, contributing to economic instability.

The continued dominance of the oil sector presents a critical challenge for economic management, particularly as oil reserves are predicted to dwindle within the next decade in Bahrain and within 25 years in Oman. Furthermore, global demand for oil is expected to decline in the medium term, starting around 2040. This looming reality necessitates the adoption of robust economic policies and clear diversification strategies to transform infrastructure and restructure economic sectors (Al-Qabbani, 2021).

Diversifying income sources is fundamental for any nation seeking to establish a resilient and sustainably growing economy. Countries with diversified economies demonstrate greater resilience and recover more swiftly from global shocks than those reliant on a single income source. The interconnectedness of the global economy amplifies the impact of economic crises, making diversification even more crucial. The recent crises triggered by fluctuating oil prices underscore the need to diversify production bases, cultivate new income-generating sectors, and explore areas with higher added value and greater potential for productive employment. Such diversification paves the way for sustainable economic

growth (Kamal, 2021).

2.Research Problem

Libya, despite its abundant natural resources, faces economic vulnerability due to its overdependence on the extractive industry. To mitigate this vulnerability, the Libyan economy requires diversification into new, high-value sectors, particularly through the development of a thriving private sector capable of generating attractive employment opportunities for young Libyans. This diversification must be underpinned by sound economic, fiscal, monetary, and public spending policies that can effectively support private sector-led growth.

A report by the United Nations Conference on Trade and Development (UNCTAD) cautioned Libya against its near-total reliance (99%) on oil and gas exports, emphasizing the need for diversification. The report highlighted that any nation exceeding 60% dependence on raw materials for its total exports becomes highly susceptible to international crises and fluctuations in global food markets. This dependence on raw materials, as per the UNCTAD study, breeds macroeconomic instability, particularly during periods marked by volatile commodity prices and global shocks. However, the report also acknowledges the "huge potential to break the dependence on raw materials" (UNCTAD, 2022).

The importance of diversifying income sources resonates strongly with Arab countries grappling with persistent imbalances, crises, and structural distortions stemming from their overreliance on oil. Despite possessing diverse natural resources, these nations remain vulnerable. The significance of economic diversification is evident in the national visions of several Arab countries, including KSA Vision 2030, Bahrain's Economic Vision 2030, Qatar National Vision 2030, Kuwait Vision 2035, Oman Vision 2040, and UAE Vision 2050 (Ballamah, 2020).

This study aims to identify and analyze successful international experiences in diversifying national income sources. By drawing upon these experiences, the research seeks to identify adaptable models and strategies relevant to the Libyan context. The ultimate goal is to move Libya away from its dependence on oil and gas by fostering the growth of other po-

tential sectors such as renewable energy, tourism, agriculture, manufacturing, foreign trade, transportation, and logistics.

3.Research Objectives:

1. Conceptualize: Define and clarify key concepts related to diversifying sources of national income.

2. Identify and Analyze: Examine successful international experiences in diversifying national income sources, highlighting best practices and lessons learned.

3. Evaluate Impact: Analyze and measure the potential impact of income diversification on the Libyan economy.

4.Research Questions:

1. Conceptual Understanding: What constitutes diversification of national income sources, and what are its key components?

2. International Best Practices: What are some notable examples of successful income diversification strategies implemented by other countries, and how can Libya benefit from these experiences?

3. Impact Assessment: What is the anticipated impact of implementing a diversified income strategy on the Libyan economy?

5.Research Hypotheses:

This study will test the following hypotheses:

H1: Exports of manufactured goods have a statistically significant impact on Gross Domestic Product.

H2: Food exports have a statistically significant impact on Gross Domestic Product.

H3: Exports of primary agricultural materials have a statistically significant impact on Gross Domestic Product.

H4: Exports of commercial services have a statistically significant impact on Gross Domestic Product.

H5: Oil exports have a statistically significant impact on Gross Domestic Product.

H6: Natural gas exports have a statistically significant impact on Gross Domestic Product.

(The rest of the paper would then delve into the literature review, methodology, data analysis, findings, discussion, and conclusion sections, addressing each research question and hypothesis in detail.)

6.Research Importance:

The research's importance stems from the critical role diversification plays in

oil-producing countries. These economies recognize the need to diversify income sources to mitigate internal and external shocks that could hinder sustainable economic development. Diversifying income sources is a goal pursued by most countries, especially developing ones, to accelerate economic growth.

7.Search Terms:

1. Diversification in Sources of Income:

This refers to expanding the economic base beyond a single source and establishing a real economy comprising production, finance, and service sectors. This approach contributes to generating income streams beyond oil revenue (Hani & Sadiq, 2014, p. 4).

2. Economic Diversification:

The concept of diversification gained prominence as countries, particularly those with imbalanced and distorted economic structures, realized their over-reliance on single income sources, often natural resources like oil. This dependence on a single sector is known as economic unilateralism. Numerous countries have endeavored to implement successful economic diversification strategies by adopting diversified economic policies. These policies aim to restructure the economy, increase the contribution of alternative sectors to output, and enhance their effectiveness. Relying heavily on a single resource like oil carries significant risk due to its vulnerability to global oil market fluctuations. These price swings can significantly impact economic growth and stability in oil-dependent nations (Al-Khatib, 2014).

3. Diversification in Sources of Income (Economic Diversification):

This involves developing policies that reduce reliance on a single industry or sector, such as oil, in terms of its contribution to GDP, export revenues, and government revenues (Pshraf, Mishrif, & Al Balush, 2018, p. 23).

4. Economic Diversification:

This entails reducing dependence on a single resource, establishing a production base, diversifying GDP sources, diversifying general budget revenue sources, empowering industrial and agricultural sectors, and diversifying markets (both domestic and export). These efforts contribute to building a robust national economy moving towards self-sufficiency in multiple sectors (Marzouk, 2014, pp.

56-81).

8.Previous Studies:

First: Studies in Arabic:

1. Study: Mamdouh Awad Al-Khatib (2014)

This study employed a standard model to examine the impact of economic diversification on economic growth. The model used real GDP growth rate as the dependent variable and included growth rates of total fixed capital formation, labor force, oil GDP, and the Herfindahl composite coefficient as independent variables.

2. Study: Laban Haddou Amna (2020)

This research investigated the extent to which determinants of economic diversification contributed to non-oil economic growth in a sample of Arab oil-producing countries from 2000 to 2017. The study found that foreign direct investment positively impacted long-term non-oil GDP growth, suggesting that transparent and clear policies attract foreign investment across multiple sectors. Additionally, the research revealed a positive relationship between trade openness (driven by non-oil exports) and non-oil economic growth in the studied countries.

3. Study: Asmaa Belalama (2020)

This study analyzed the reality of economic diversification as a pathway to achieving economic sustainability in Arab countries. It diagnosed indicators of both economic diversification and economic sustainability in these nations and proposed mechanisms for economic diversification to enhance sustainability. The study concluded that Arab countries must further strengthen their economic diversification policies (pp. 79-94).

9.Second: Studies in English:

1. Study: Ibassam A. Bassam (2015)

This research examined the reality of economic diversification in Saudi Arabia since 1970, considering it a cornerstone of sustainable economic development and a way to reduce reliance on rentier income sources that expose the economy to instability. The study employed an experimental approach using variables such as oil's share of GDP, the private sector's share of GDP, oil exports as a percentage of total exports, and oil revenues as a percentage of total revenues from 1970 to 2013. The findings indicated that the oil sector remained dominant in the Saudi economy,

contributing over 10% of its revenues.

2. Study: Abdelkarim A. Guendouz & Saidi M. Ouassaf (2020)

This study investigated the macroeconomic factors influencing economic diversification in Saudi Arabia and analyzed strategies for diversifying the Kingdom's economy. It also aimed to determine the level of success achieved in reducing reliance on oil revenue between 1991 and 2016. The results indicated a direct relationship between the economic diversification index and GDP, gross fixed capital formation, and the percentage of foreign direct investment contributing to GDP.

10.Experiences of Successful Countries in Diversifying National Income Sources and Lessons Learned:

First: Saudi Arabia's Experience:

The Saudi government implemented measures to attract foreign direct investment, improving the country's competitiveness ranking to 13th globally (out of 144 countries) in 2013. Saudi Arabia effectively utilized high oil prices to reduce government debt, decreasing the debt-to-GDP ratio from 37.3% in 2005 to 5.9% in 2017 (http://www.vision2030.gov.sa).

The Kingdom successfully reduced inflation and achieved financial and monetary policy stability, essential requirements for economic diversification. Vision 2030 outlined ambitious policies for economic diversification, including:

1. Focusing on the private sector by increasing the contribution of small enterprises to GDP from 20% to 35%.
2. Expanding investment in non-oil sectors.
3. Encouraging private sector investment and innovation by raising its contribution to GDP from 40% to 65%.
4. Structuring economic cities.
5. Increasing foreign direct investment from 3.8% to 5.7% of GDP.
6. Raising non-oil government revenues from 631 billion riyals to one trillion riyals annually.
7. Increasing non-oil exports from 16% to approximately 50% of GDP.
8. Prioritizing logistical services to achieve a global ranking of 25th and first regionally.

Second: The United Arab Emirates' Experience:

The UAE achieved remarkable economic and social development by leveraging oil wealth after its discovery. The country implemented various strategies, including economic diversification, to shift away from its reliance on oil. These efforts have led to significant success in diversifying national income sources.

Lessons from the UAE's Economic Diversification Model and Application Framework

Key Lessons from the UAE's Experience:

1. The UAE's diversification strategy has achieved notable success. The oil sector's contribution to the economy has decreased to 30%, while other sectors now contribute 70%, demonstrating the effectiveness of reducing reliance on oil.

2. Developing world-class infrastructure is crucial for fostering innovation and building a skilled workforce.

3. Empowering the private sector to drive economic activity and attract foreign investment is essential for comprehensive development.

4. The UAE's success in diversifying its economy has led to a high average per capita national income, reaching \$63,700 annually, and effectively addressing poverty.

5. The industrial sector has played a key role in diversification, driven by supportive legislation, customs exemptions for machinery and materials, and tax breaks for industrial projects.

6. Free zones, offering attractive incentives such as property ownership, have attracted significant foreign investment, further bolstering income diversification.

7. With 70% of its economy no longer reliant on oil, the UAE has demonstrated resilience to oil price fluctuations, emerging as one of the least affected countries in the region.

The UAE's commitment to diversification has secured its development gains. Its national agenda prioritizes sustainable development across infrastructure sectors, further reducing reliance on oil.

Application Framework:

11.Methodology:

This research employs a descriptive analytical approach to identify and describe variables related to economic diversification. Statistical methods will be used to analyze financial data obtained from relevant reports to

achieve the study's objectives.

12.Study Population and Sample:

The study analyzes data on Libyan income sources and economic development indicators. A sample dataset covering 2007-2022 will be used, focusing on variables such as manufactured exports, food exports, primary agricultural exports, commercial service exports, oil exports, natural gas exports, and gross domestic product. Data will be sourced from economic reports and bulletins published by the Central Bank of Libya and the World Bank.

13.Statistical Methods:

Data processing and hypothesis testing will be conducted using SPSS 25 and E-Views software. The following statistical methods and indicators will be employed:

Descriptive Statistics: Means, standard deviations, maximum and minimum values, growth rates, and graphical representations will be used to describe the study variables.

Simple Linear Regression Analysis: This method will examine the impact of independent variables on dependent variables and test the study's hypotheses.

Standard Tests: The Augmented Dickey-Fuller test, causality test, and cointegration test will be used to analyze relationships between variables. An error correction model will determine the long- and short-term relationships between independent and dependent variables using E-Views.

14.Statistical Model:

A simple regression model will be used to test the study's hypotheses:

$Y = a + bX$

This model will help analyze the relationship between economic diversification strategies and economic growth in the context of the Libyan economy.

Y= Dependent Variable

X= Independent Variable

A= Constant

B= Regression Coefficient

Descriptive Analysis Results: Libyan Economic Indicators (2007-2022)

The following presents the descriptive statistics for key Libyan economic indicators during the period of 2007 to 2022 were calculated for each variable.

Exports of Manufactures: The average value of manufactured exports was 670.23 million Libyan dinars, The highest value (2,546.25 million dinars) was recorded in 2008, while the lowest (102.56 million dinars) occurred in 2016. This sector experienced a concerning annual decline of 13.1%.

Food Exports: Food exports averaged 22.83 million Libyan dinars, The highest export value (62.84 million dinars) was reached in 2018, contrasted against the lowest point (0.79 million dinars) in 2014. This sector showed positive growth, with an annual increase of 31.9%.

Exports of Primary Agricultural Materials: Averaging 8.20 million Libyan dinars, exports of primary agricultural materials had a standard deviation of 7.87. The peak value (20.02 million dinars) occurred in 2018, while the lowest (0.66 million dinars) was in 2013. This sector demonstrated an annual growth rate of 20.7%.

Exports of Commercial Services: Commercial service exports averaged 277.40 million Libyan dinars, The highest value (667.12 million dinars) was recorded in 2015, while the lowest (49.21 million dinars) was in 2011. This sector showed a modest annual growth rate of 2.6%.

Oil Exports: Oil exports, a crucial sector for Libya, averaged 42,661.70 million Libyan dinarshighlighting volatility. The highest value (112,365.39 million dinars) was in 2022, while the lowest (6,008.69 million dinars) occurred in 2020. This sector showed a slight annual decline of 2.4%.

Natural Gas Exports: Natural gas exports averaged 2,264.36 million Libyan dinars, The highest value (9,123.23 million dinars) was reached in 2022, while the lowest (679.55 million dinars) was in 2020. This sector experienced a significant annual growth rate of 8.8%.
Gross Domestic Product (GDP): Libya's GDP averaged 99,287.49 million Libyan dinars, The highest GDP (220,214 million dinars) was recorded in 2022, while the lowest (43,030 million dinars) was in 2014. The overall economy demonstrated an annual growth rate of 3.3%.

Table (1) Development of study variables during the period(2008-2022)

Years	Exports of manu-factures million Libyan) (dinars	Food exports million Libyan) (dinars	Exports of primary agricultural materials (million Libyan dinars)	Exports of commercial services million Libyan) (dinars	Oil exports million) Libyan (dinars	Natural gas exports million) Libyan (dinars	Gross Domestic Production million Liby-) (an dinars
2007	2121.91	1.17	1.49	137.00	51480.15	1214.88	85901.50
2008	2546.25	2.03	11.35	254.13	68767.65	1284.64	106096.00
2009	1010.75	2.83	1.54	482.61	38045.94	1351.94	76225.60
2010	1441.78	1.23	0.79	519.51	52068.16	1331.24	95491.60
2011	423.36	1.96	0.74	49.21	21422.86	679.55	58966.50
2012	392.36	1.43	0.71	192.02	67286.13	1664.71	116755.20
2013	314.36	1.21	0.66	228.78	43888.66	1809.72	95823.40
2014	275.36	0.79	1.46	100.77	12319.72	984.60	43030.00
2015	210.26	2.63	2.36	667.12	9707.42	1253.47	67289.10
2016	102.56	24.48	7.41	118.88	7490.03	956.30	69396.20
2017	258.09	61.61	18.66	149.14	19607.16	1065.78	93605.40
2018	406.63	62.84	20.02	182.50	31438.31	1613.12	104673.90
2019	263.73	42.30	11.69	353.20	31715.14	1635.10	96835.50
2020	296.36	45.36	15.36	278.43	6008.69	1408.12	65001.00
2021	310.26	53.69	17.43	370.63	108975.73	8853.35	193295.00
2022	349.69	59.71	19.49	354.39	112365.39	9123.23	220214.00

Source: Prepared by the research based on economic reports and bulletins issued by the Central Bank of Libya and the World Bank during the period (2007-2022)

Second: Standard relationships between study variables

1- The standard model of the relationship between manufactured exports and gross domestic product during the period (2007-2022)

15.Unit root test:

The developed Dickey-Fuller test (ADF) was used, and it was found that the manufacturing exports series (X1) is stable at its level, thus the series becomes integrated from zero degree and it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and because the two series are not integrated at the same degree, Ardel Integra-

tion is used to perform the cointegration test between them.

Table (2) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	.Sig	Result	ADF	.Sig	Result	ADF	.Sig	Result
X1	-8.520	0.000	Stationary						
Y	0.350	0.773	No stationary	-4.358	0.000	stationary			

Bounds Test

It turns out that there is no Integration between manufacturing exports and GDP at a significance level of 0.05

Table (3) Bounds Test

		k	Value	Test Statistic
		1	3.395374	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance
		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

2- The standard model of the relationship between Food exports and gross domestic product during the period (2007-2022)

Unit root test:

The developed Dickey-Fuller test (ADF) was used, and it was found that the Food exports series (X2) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree, because the two series are integrated at the same degree, Ardel Integration is used to perform the cointegration test between them.

Table (4) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X2	-0.669	0.847	No stationary	-3.470	0.002	stationary			
Y	0.350	0.773	No stationary	-4.358	0.000	stationary			

Bounds Test

It turns out that there is Integration between Food exports and GDP at a significance level of 0.01

Table (5) Bounds Test

		k	Value	Test Statistic
		1	11.48340	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance
		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

3- The standard model of the relationship between Exports of primary agricultural materials and gross domestic product during the period (2007-2022)

Unit root test:

The developed Dickey-Fuller test (ADF) was used, and it was found that the Exports of primary agricultural materials series (X3) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and because the two series are integrated at the same degree, Ardel Integration is used to perform the cointegration test between them.

Table (6) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X3	-0.140	0.619	Non stationary	-4.482	0.000	stationary			
Y	0.350	0.773	Non stationary	-4.358	0.000	stationary			

Bounds Test

It turns out that there is Integration between Exports of primary agricultural materials and GDP at a significance level of 0.01

Table (7) Bounds Test

		k	Value	Test Statistic
		1	24.91341	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance
		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

4- The standard model of the relationship between Exports of commercial services and gross domestic product during the period (2007-2022)

16.Unit root test:

The developed Dickey-Fuller test (ADF) was used, and it was found that the Exports of commercial services series (X4) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and because the two series are integrated at the same degree, Ardel Integration is used to perform the cointegration test between them.

Table (8) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X4	-1.435	0.135	No stationary	-6.026	0.000	stationary			
Y	0.350	0.773	No stationary	-4.358	0.000	stationary			

Bounds Test

It turns out that there is no Integration between Exports of commercial services and GDP at a significance level of 0.05

Table (9) Bounds Test

		k	Value	Test Statistic
		1	0.738730	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance

		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

5- The standard model of the relationship between Oil exports and gross domestic product during the period (2007-2022)

17.Unit root test:

The developed Dickey-Fuller test (ADF) was used, and it was found that the Oil exports series (X5) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and because the two series are integrated at the same degree, Ardel Integration is used to perform the cointegration test between them.

Table (10) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X5	-0.590	0.441	No stationary	-4.943	0.000	stationary			
Y	0.350	0.773	No stationary	-4.358	0.000	stationary			

Bounds Test

It turns out that there is no Integration between Oil exports and GDP at a significance level of 0.05

Table (11) Bounds Test

		k	Value	Test Statistic
		1	3.428271	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance
		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

6- The standard model of the relationship between Natural gas exports and gross domestic product during the period (2007-2022)

18.Unit root test:

To measure the stability of the model variables, the developed Dickey-Fuller test (ADF) was used, and it was found that the Natural gas exports series (X6) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and it was also shown that the GDP series (Y) was not stable at its level, and stability occurred after taking the first difference, so the series became integrated of the first degree. and because the two series are integrated at the same degree, Ardel Integration is used to perform the cointegration test between them.

Table (12) Results of the Augmented Dickey-Fuller (ADF)

Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X6	0.577	0.829	No stationary	-3.638	0.001	stationary			
Y	0.350	0.773	No stationary	-4.358	0.000	stationary			

Bounds Test significance level of 0.01

It turns out that there is an Integration between Natural gas exports and GDP at a

Table (13) Bounds Test

		k	Value	Test Statistic
		1	7.704152	F-statistic
		Critical Value Bounds		
		I1 Bound	I0 Bound	Significance
		4.78	4.04	10%
		5.73	4.94	5%
		6.68	5.77	2.5%
		7.84	6.84	1%

Third: Testing the study hypotheses

First hypothesis: There is a statistically significant impact of the Exports of manufactures on Gross Domestic Production

In Table (14) The simple regression equation was not significant at 0.05, Because (P-VALUE) is greater than 0.05 and there is no statistically significant impact of the Exports of manufactures on Gross Domestic Production, at 0.05 Because (P-VALUE) is greater than 0.05 and no correlation between Exports of manufactures and Gross Domestic Production at 0.05 and it is noncorrect the first hypothesis

Table (14) impact of the Exports of manufactures on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
-1.868	0.029	0.011	-0.110	0.012	0.914

Second hypothesis: There is a statistically significant impact of Food exports on Gross Domestic Production.

In Table (15) The simple regression equation was significant at 0.05, Because (P-VALUE) is less than 0.05and there is a statistically significant impact of the Food exports on Gross Domestic Production, at 0.05 Because (P-VALUE) is less than 0.05 and the correlation between Food exports and Gross Domestic Production at 0.05 and the value of the correlation coefficient was 0.524 and it became clear that the independent variable (Food exports) explains 39.9% of the changes that occur in the dependent variable (Gross Domestic Production) and it is correct second hypothesis turned out that the more it increased Food exports level 1% is the Gross Domestic Production level has increased 930.029%

Table (15) impact of the Food exports on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
930.029	0.524	0.399	2.304	5.308	0.037

Third hypothesis: There is a statistically significant impact of the Exports of primary agricultural materials on Gross Domestic Production

In Table (16) The simple regression equation was significant at 0.05, Because (P-VALUE) is less than 0.05and there is a statistically significant impact of the Exports of primary agricultural materials on Gross Domestic Production, at 0.05 Because (P-VALUE) is less than 0.05 and a correlation between Exports of primary agricultural materials and Gross Domestic Production at 0.05 and the value of the correlation coefficient was 0.557 and it became clear that the independent variable (Exports of primary agricultural materials) explains 40.9% of the changes that occur in the dependent variable (Gross Domestic Production) and it is correct the third hypothesis it turned out that the more it increased Exports of primary agricultural materials level 1% is the Gross Domestic Production level has increased 3298.717%

Table (16) impact of the Exports of primary agricultural materials on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
3298.717	0.557	0.409	2.512	6.313	0.025

Fourth Hypothesis: There is a statistically significant impact of commercial service exports on Gross Domestic Product (GDP).

In Table 17, the simple regression equation was not significant at the 0.05 level, because (P-VALUE) is greater than 0.05 indicating that there is no statistically significant impact of commercial service exports on GDP. at 0.05 Because (P-VALUE) is less than 0.05 Furthermore, there is no correlation between commercial service exports and GDP at the 0.05 level, which invalidates the fourth hy-

pothesis.

Table (17) impact of the Exports of commercial services on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
55,463	0,203	0.143	0,777	0,604	0,450

Fifth hypothesis :There is a statistically significant impact of oil exports on Gross Domestic Product (GDP)

In Table (18) The simple regression equation was significant at 0.05, Because (P-VALUE) is less than 0.05and there is a statistically significant impact of the oil exports on Gross Domestic Product (GDP). , at 0.05 Because (P-VALUE) is less than 0.05 and a correlation between oil exports and Gross Domestic Product (GDP) at 0.05 and the value of the correlation coefficient was 0.916 and it became clear that the independent variable (oil exports) explains 79.9% of the changes that occur in the dependent variable (Gross Domestic Production) and it is correct the fifth hypothesis it turned out that the more it increased oil exports level 1% is the Gross Domestic Production level has increased 1.284%

Table (18) impact of the Oil exports on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
1,284	0,916	0.799	8,542	72,959	0,000

Sixth hypothesis: There is a statistically significant impact of the Natural gas exports on Gross Domestic Production

In table (19) The simple regression equation was significant at 0.05, Because (P-VALUE) is less than 0.05and there is a statistically significant impact of the Natural gas exports on Gross Domestic Production, at 0.05 Because (P-VALUE) is less than 0.05and correlation between Natural gas exports and Gross Domestic Production at 0.05 and the value of the correlation coefficient was 0.929 and it became clear that the independent variable (Natural gas exports) explains 80.7% of the changes that occur in the dependent variable (Gross Domestic Production) and it is cor-

rect the sixth hypothesis it turned out that the more it increased Natural gas exports level 1% is the Gross Domestic Production level has increased 16.371%

Table (19) impact of the Natural gas exports on Gross Domestic Production

B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	F (Significance of the model)	P-VALUE (Statistical significance)
16,371	0,929	0.807	9,395	88,264	0,000

Seventh hypothesis: There is a statistically significant impact of the Libyan exports on Gross Domestic Production

In table (20) The Multiple Regression equation was significant at 0.05, Because (P-VALUE) is less than 0.05 and it is correct the seventh hypothesis and It was found that the independent variables in the model explain (80.7%) of the changes that occur in the dependent variable (Gross Domestic Production) and there is a statistically significant impact of the oil exports on Gross Domestic Production, at 0.05 Because (P-VALUE) is less than 0.05and it turned out that the more it increased oil exports level 1% is the Gross Domestic Production level has increased 1.168% and It was found that there is no statistically significant impact of the model variables (Exports of manufactures, Food exports, Exports of primary agricultural materials, commercial services and Natural gas exports) on Gross Domestic Production at 0.05 Because (P-VALUE) for each variable is more than 0.05

Table (20) impact of the Oil exports on Gross Domestic Production

	B (Impact factor)	R (Correlation coefficient)	R^2 (Explanation factor)	T (Significance of the dependent variable)	P-VALUE (Statistical significance)	F (Significance of the model)	P-VALUE (Statistical significance)
Exports of manufactures	-8.808	0.991	0.983	-1.639	.136	86.489	0.000
Food exports	367.909			1.061	.316		
Exports of primary agricultural materials	432.256			.399	.699		
commercial services	17.774			1.395	.197		
oil exports	1.168			6.691	.000		
Natural gas exports	.997			.418	.686		

19.Conclusion

-Exports of Manufactures: There is no significant impact of exports of manufactures on Gross Domestic Product (GDP) at the 0.05 significance level. Therefore, the first hypothesis is not supported.

-Food Exports: There is a significant impact of food exports on GDP at the 0.05 significance level. A positive correlation exists between food exports and GDP at the 0.05 significance level. The second hypothesis is supported, indicating that a 1% increase in food exports is associated with a 930.029% increase in GDP.

-Exports of Primary Agricultural Materials: There is a significant impact of exports of primary agricultural materials on GDP at the 0.05 significance level. A positive correlation exists between exports of primary agricultural materials and GDP at the 0.05 significance level. The third hypothesis is supported, indicating that a 1% increase in exports of primary agricultural materials is associated with a 3298.717% increase in GDP.

-Exports of Commercial Services: There is no significant impact of exports of commercial services on GDP at the 0.05 significance level. Therefore, the fourth hypothesis is not supported.

-Oil Exports: There is a significant impact of oil exports on GDP at the 0.05 significance level. A positive correlation exists between oil exports and GDP at the 0.05 significance level. The fifth hypothesis is supported, indicating that a 1% increase in oil exports is associated with a 1.284% increase in GDP.

-Natural Gas Exports: There is a significant impact of natural gas exports on GDP at the 0.05 significance level. A positive correlation exists between natural gas exports and GDP at the 0.05 significance level. The sixth hypothesis is supported, indicating that a 1% increase in natural gas exports is associated with a 16.371% increase in GDP.

-It was found that the Libyan exports that have the greatest impact on GDP are Exports of Primary Agricultural Materials3298.717% () then Food Exports (930.029%) then Natural Gas Exports (16.371%) then Oil Exports (1.284%)

Libyan exports: there is a statistically significant impact of the oil exports on Gross Domestic Production, at 0.05 and it turned out that the more it increased oil exports level 1% is the Gross Domestic Production level has increased 1.168% and It was found that there is no statistically significant impact of the model variables (Exports of manufactures, Food exports, Exports of primary agricultural materials, commercial services and Natural gas exports) on Gross Domestic Production at 0.05

20.Recommendations

1.Focus on Agricultural and Food Exports: Prioritize the development and expansion of exports in primary agricultural materials and food products.

2.Develop the Manufacturing Sector: Identify and implement strategies to enhance the manufacturing sector in Libya to increase its contribution to GDP growth.

3.Improve Financial and Monetary Policies: Implement changes to enhance the effectiveness of financial and monetary policies in Libya. This will promote real economic development and achieve economic policy objectives.

Strategic Government Spending: Increase government spending in sectors that can stimulate rapid economic development while ensuring the sustainability of achieved growth rates.

Diversify Income Sources: Reduce dependence on oil by diversifying income sources for the Libyan economy. Develop and implement eco-

nomic and financial policies that support this diversification.

4.Encourage Research on Economic Diversification: Encourage and support research focused on diversifying the Libyan economy and reducing its reliance on oil.

21.References

1.Al-Khatib, Mamdouh Awad: (2014) article entitled "The Impact of Economic Diversification on Growth in the Saudi Non-Oil Sector," Arab Journal of Administrative Sciences, Volume 1, Issue 17.

2.Al-Qabbani, Nader: (2021) Research on "Economic Diversification in the Gulf: It is Time to Redouble Efforts" – Brookings Center – Doha.

3.Belalama, Asmaa: (2020), a study on "Economic Diversification and Establishing Economic Sustainability in the Arab Countries," Shuaa Journal of Economic Studies, Volume 4, Issue 2, pp. 79-94 - Algeria.

4.Kamal, Fakir: (2021) A study on "The impact of diversifying sources of income on economic growth" A case study of some developing countries for the period 1990-2018 "PhD dissertation - Department of Economic Sciences - Faculty of Economic, Commercial and Facilitation Sciences, Ahmed Deraya University - Adrar - Algeria, p. 2.

5.Laban Haddou Amna: (2020) "The impact of economic diversification on economic growth in non-oil sectors" - an econometric study on a sample of some Arab oil countries, doctoral thesis in economic sciences, Belhaj Bou Shuaib University, Ain Temouchent.

6.Marzouk, Atef Al-Fay and others: (2014) "Economic diversification, its concept and dimensions in the Gulf countries and the possibilities of achieving it in Iraq," Al-Ghari Journal of Economic and Administrative Sciences, No. 31, Volume 8, pp. 56-81, University of Kufa - Iraq.

7.Hadi, Sadiq: (2014) A study on "The role of economic diversification in achieving sustainable development in oil economies, a comparative study between Algeria and Norway during the period 2000-2012" - Doctoral thesis, Setif University, p. 4.

8.Albassam.A Bassam (2015): Economic Diversification in Saudi Arabia: Myth Or Reality?, Resources Policy, Vol 44, 2015.

9.Abdelkarim A. Guendouz, Saidi M. Ouassaf

(2020): The Economic Diversification in Saudi Arabia under Strategic Version 2030, Academy of Accounting and Financial Studies Journal.

Pshraf mishrif et yousuf al balushi,(2018) economic diversification in the gulf region, the political economy of the middle east, volume 01, p 23.

10.Economic Commission for Africa,(2007) - "Accelerating Africa's Development through Diversification", Economic Commission for Africa, economic report for Africa, Addis Ababa, Ethiopia, , p134-142.

11.Arab Development Report: (2018) "Economic diversification is an entry point for correcting the course and establishing sustainability in Arab economies," Arab Planning Institute, third edition - p.77