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FOREIGN DIRECT INVESTMENT AND GROSS DOMESTIC PRODUCT: STIMULATING EXPORT GROWTH IN SELECTED INTERNATIONAL ECONOMIES (2001-2023)

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Abstract

This research explores the significant relationship between Foreign Direct Investment (FDI) and Gross Domestic Product (GDP) in stimulating export growth in both developed and developing economies. The study aims to identify the economic variables affecting domestic export growth in China and the UAE, as well as the determinants of export performance in these countries. Furthermore, it seeks to examine the relationship between export performance, economic growth, and foreign direct investment, considering the influence of FDI. Employing an econometric approach, the study posits that a long-run equilibrium relationship exists, relying on a co integration test between the dependent variable and the independent variables in the standard model for each country. The findings indicate that the equilibrium relationship between Chinese exports (the dependent variable) and FDI and GDP (the independent variables) is indeed a long run relationship. Both foreign investment and domestic output demonstrate co-integration with Chinese exports, thereby correcting short-run imbalances in the Chinese economy and achieving integration over time. Consequently, foreign investment emerges as a key driver of growth in the Chinese economy. Additionally, the study finds co-integration between foreign direct investment and exports in the UAE economy, indicating a long-run balance between the independent and dependent variables. The results of the impact test and maximum value test suggest that the independent variables significantly affect UAE exports and are capable of rectifying imbalances that may arise in these exports over the long term.

Keywords: *Foreign Direct Investment, Economic Growth, Exports, Co-Integration.*

INTRODUCTION

Some developing countries that have achieved successive growth have adopted a focus on trade balance and the promotion of trade freedom policies. This approach has been instrumental in stimulating the trade balance, particularly by enhancing exports through foreign direct investment (FDI), supported by a stable investment-friendly environment, geographical advantages, and proximity to raw materials in both the industrial and service sectors. Therefore, the researchers focused on two key variables that affect exports: foreign direct investment and the creation of value added in the economy through GDP and the role of commodity sectors. The Chinese economy has dominated the global market, achieving a significant surplus in its trade balance, especially in the production of goods. In contrast, the economy of the United Arab Emirates (UAE) has emphasized the production of services, with a primary focus on the service sector, unlike China, which relies more on production in commodity sectors (industrial and agricultural).

The economic outcomes align with the researchers' vision, as both economies emphasize the importance of trade balance in achieving economic growth. The results of the co-integration test indicated that there is a

long-run equilibrium relationship in the two selected economies, demonstrating that both models can achieve balance over time and address structural imbalances that may arise.

Problem: It leads to a major question: What is the nature of the relationship between foreign direct investment, GDP, and exports in both the Chinese and UAE economies?

Objective: The research aims to know and identify the variables that affect export performance, and the determinants of this performance, and then test the relationship between export performance, economic growth and foreign direct investment in selected countries in light of foreign direct investment.

Hypothesis: The study assumes there are exists a long-run equilibrium relationship based on the Cointegration test between the dependent variable (EX) and the independent variables (FDI and GDP) in two models.

1- Foreign Direct Investment and Export Development in the Economic Literature

Regardless of the nature of economic systems and their prevailing philosophies internationally, economies in different countries face numerous challenges that hinder the achievement of their development goals. Consequently, there is a need to formulate economic policies that ensure a comprehensive understanding of the mechanisms and issues involved for economic decision-makers. This is especially important in light of the economic effects manifested in the problems of the international economy, which are evident across all sectors at the national level. Hence, the role and importance of international finance, from the perspective of international economic relations, lie in financing the movement of international trade in goods and services, thereby promoting the export sector, which serves as the engine of growth. Notably, FDI significantly contributes to opening new markets for export.

1-1- Foreign Direct Investment (FDI)

Investments, in general, are tools employed by countries to modify their economic situations; they represent indicators of economic growth and progress, there by highlighting their role in achieving living standards and social welfare. The primary objectives of investments are to generate returns or profits through the utilization of funds, in addition to creating and developing wealth, meeting expected needs, and providing liquidity to satisfy those needs. Foreign direct investment is defined as the employment of foreign capital in fixed assets within certain countries, implying a long-run relationship that benefits the foreign investor, who may be an individual, company, or institution. This investor retains the right to manage their assets from their home country or the country of residence **(Al-Shammari and Hamza, 2015: 167)**.

According to the IMF's Manual on Statistics of International Trade in Services (MSITS), "it is a type of international investment that reflects the objective of an entity resident in one economy to acquire a permanent interest in an enterprise resident in another economy." Accordingly, the financial transactions of direct investment consist of **(International Monetary Fund, 2002: 53)**:

A. Paid-up capital from a direct investor to a direct investment institution.

B. Capital received by a direct investment institution from a direct investor. It is important to note that in the economy where the investment is made, this capital includes funds provided directly by the direct investor, as well as funds from other direct investment institutions affiliated with the direct investor.

The advantages provided by foreign direct investment (FDI) have prompted developing countries, emerging economies, and transitional economies to undertake numerous measures aimed at liberalizing their FDI

systems. This includes the challenge of developing effective economic policies that attract this type of investment. It is widely recognized that maximizing the benefits of FDI for the host country can be substantial, encompassing indirect effects such as technology transfer, human capital development alongside physical capital, enhancement of the competitive business environment, contributions to international trade integration, and improved development of economic projects. FDI also significantly contributes to improving environmental and social conditions in the host country by enabling the transfer of "cleaner" technologies and encouraging more socially responsible corporate practices. Together, these advantages foster economic growth, which acts as a key mechanism for alleviating poverty in these economies **(Kastrati, 2013: 26)**.

1-1-1 Advantages of Foreign Direct Investment

Foreign direct investment (FDI) can positively contribute to the host country through its significant role in the redistribution and optimal allocation of economic resources. This is particularly evident in its capacity to improve productivity growth and exports through the presence of multinational companies. The advantages of FDI for host countries can be summarized as follows **(Nunthirapakorn, 2020: 219)**:

A. Technology Transfer and Localization: FDI facilitates technology transfer, especially in the form of new types of capital inputs that cannot occur through financial investments or intangible trade. Additionally, in the domestic input market, FDI enhances competition.

B. Human Capital Development and Job Creation: FDI flows to host countries contribute to the development of human capabilities by providing training for local workers during the operation of new businesses. This process enhances human capital, as multinational companies transfer and utilize the skills, scientific knowledge, and administrative expertise of their employees in local companies. The employment impacts associated with FDI are both direct and indirect. In countries with job shortages, job creation resulting from FDI either directly or indirectly represents one of the most significant impacts of this type of investment. The direct impact on employment arises when foreign companies hire nationals of the host country. The indirect impact occurs when jobs are created at local suppliers due to the investment, or when increased local spending by multinational companies results in job creation.

C. Physical Capital Development: Multinational companies invest in long-run projects, taking risks and reaping profits only when these projects yield returns. Many economists advocate for the free flow of capital, as multinational companies, due to their size and financial strength, have access to financial resources that may not be available to local companies. Some researchers emphasize several advantages associated with international flows of unrestricted capital, including the reduction of risks faced by capital owners through diversification of lending and investments. Furthermore, the international integration of capital markets contributes to the dissemination of best practices in corporate governance, accounting standards, and legal traditions.

1-1-2 Types of Foreign Direct Investment

The types of foreign direct investment (FDI) vary according to the level of economic development in the host country, which in turn influences the characteristics of foreign companies, including their size, workforce, and the nature of the economic activities they engage in. Generally, FDI can be categorized into the following forms **(Al-Asraj, 2005: 13)**:

A. Investment in Economic Resources: This type aims to benefit from the economic resources available in the host country, particularly raw materials. Such investment encourages the export of raw materials, especially in the extractive industry.

B. Market Expansion Investment: This type seeks to capitalize on reduced transportation costs by establishing projects in the host countries and producing locally rather than exporting from the home country. This form of investment contributes to increasing economic growth rates in host countries, particularly through its expansive effects on trade in production and consumption by boosting exports.

C. Converted Investment for Productive Activities: This type aims to transfer part of the production processes from the exporting home country to the host countries to take advantage of lower labor costs. This form of investment helps develop local workers' skills and increases exports in those countries, thereby enhancing their ability to access international markets.

1-2 Concept of Export Development

Exports represent one of the main pillars of trade policy, serving as a crucial source of foreign currency necessary for achieving economic development. They contribute to raising levels of economic development and constitute a significant percentage of national income. Therefore, the stability of export earnings in a country will inevitably reflect in the enhancement of economic activity across various sectors, providing an appropriate environment for distinctive economic activities within different economic units **(Fahd, 2009: 92)**. On the other hand, the goal of diversifying exports and increasing their growth is a key economic policy aimed at achieving high economic growth rates, as it lays the groundwork for faster economic expansion alongside other economic policies **(Saidi, 2002: 4)**. In particular, the policy of import substitution involves the state imposing strict customs and non-tariff barriers to protect and encourage local industries. However, the shortcomings of this type of policy, along with its incompatibility with the international economic system based on the liberalization of trade and the removal of trade restrictions, have become obstacles to achieving its objectives. Such policies tend to raise the prices of goods competing with imports and redirect resources from export industries to import-competing sectors. This often leads to difficulties in exporting both primary and industrial products, as it favors import-competing industries at the expense of export-oriented ones, resulting in a narrow local market that cannot reach optimal production levels, often leading to surplus capacity **(Kreinin, 2010: 198)**.

Due to the deficiencies inherent in this type of policy, countries have begun to adopt export development strategies. This includes reforming the incentive system to favor exports and reducing or eliminating biases against them. Countries can offer various financial incentives that enhance exporters' revenues, such as export subsidies or reductions in exporters' costs, including lowering customs duties on imports used as inputs in the export industry or reducing income tax rates. Some countries allow the import of inputs without customs duties, from which final products are exported abroad, as seen in free industrial zones **(Kreinin, 2010: 199)**.

The trend among different countries to diversify and develop their exports through appropriate plans and strategies aims to enhance productive efficiency and, consequently, economic efficiency. This involves improving the quality of goods as well as increasing the degree of diversification and development, which ultimately encourages commodity exports and facilitates access to global markets **(Ministry of Planning, 2021: 34)**. To achieve this goal, states employ various domestic tools, such as granting subsidies through cash or in-kind benefits to exporters to help them penetrate foreign markets **(Shehab, 2007: 148)**. Additionally, they may adopt international economic policies aimed at attracting foreign direct investment by facilitating the establishment of multinational companies and investment projects that increase productive capacity within the economy, thereby enhancing exports.

2- FDI Development and Export Growth in Selected Economies

Foreign direct investment flows, along with export growth, are among the main pillars for achieving high economic growth rates. Foreign direct investment enhances the exports of host countries by facilitating the entry of technology, providing workforce training, and improving technical and administrative skills. This, in turn, contributes to increasing production efficiency and competitiveness in the international market **(Qadri and Mohammad, 2018: 368)**.

2-1- Development of FDI and Exports in the UAE Economy for the period (2001-2023)

During the period (2001-2023), the UAE economy witnessed a remarkable recovery, achieving high growth rates across all economic and social sectors in line with the state's vision for economic diversification (Figure 1). This aimed to create a more balanced and stable economy. Several positive factors contributed to revitalizing the non-oil economic sectors and increasing their contribution to GDP. Among the most significant of these factors are the revenues derived from the oil sector, the UAE's reliance on a market-driven economy to determine essential economic data, and the prominent role of the private sector. This approach has limited the state's role to formulating economic policies that reflect the strategy of a market economy.

Figure 1: UAE Economic Growth (2001-2023) (%)

Source:
https://data.albankaldawli.org/indicator/NY.GDP.MKTP.KD.ZG?end=2020&locations=AE&most_recent_year_desc=false&start=2002

The UAE is a prime example of effectively utilizing its oil revenues for the benefit of its national economy, despite its small area, limited population, and recent establishment. Since its inception, the UAE resembled countries with primitive economies in the early 1970s, where the main sources of income were fishing, pearling, grazing, and simple agriculture, reflecting the nature of its land and terrain. Additionally, its geographical location and commercial position significantly aid in optimizing the use of its natural resources **(Al-Duraihi, 2014: 107)**. Over the past few decades, particularly at the beginning of the new millennium, the UAE economy has experienced remarkable development, resulting in growth across all economic activities. This growth has been supported by substantial oil revenues due to high international prices, which have accelerated economic activity through the implementation of large-scale government projects **(Al-Hayti, 2009: 113)**. The economy exhibits unique characteristics, leaning heavily toward a market economy. It relies on expatriate workers, oil revenues, investments across various economic, production, and service sectors, and foreign trade with minimal state intervention. This indicates an open economic policy toward

the outside world, with a prominent role for the private sector, while the government's role is primarily focused on formulating overarching economic policies **(Ameera, 2002: 4)**. Regarding developments in the international trade sector, particularly concerning FDI and exports, the value of exports increased from 48.77 billion dollars in 2001 to 552.73 billion dollars in 2023, as shown in Figure 2, which illustrates the growth of UAE exports (2001-2023). Despite the rise in oil exports, their percentage contribution to total export revenues has declined due to structural changes across all economic sectors, which have reduced the proportion of oil revenues in total exports. The policy of diversifying income sources has significantly contributed to the development of non-oil sectors, particularly through the crucial role of foreign direct investment in enhancing non-oil exports and re-export activities.

The UAE economy is among the most significant international destinations for FDI. In 2019, it ranked 23rd globally on the attractiveness index, and in 2020, it improved to 19th globally on the confidence index for foreign direct investment. The diversity of foreign direct investment in the UAE reflects positively on its ability to attract investors, thanks to the government's commitment to economic diversification, innovation, infrastructure development, and ease of doing business **(Linda and Mohammed, 2021)**. Table 1 presents the developments in FDI (net inflows) for the period (2001-2023).

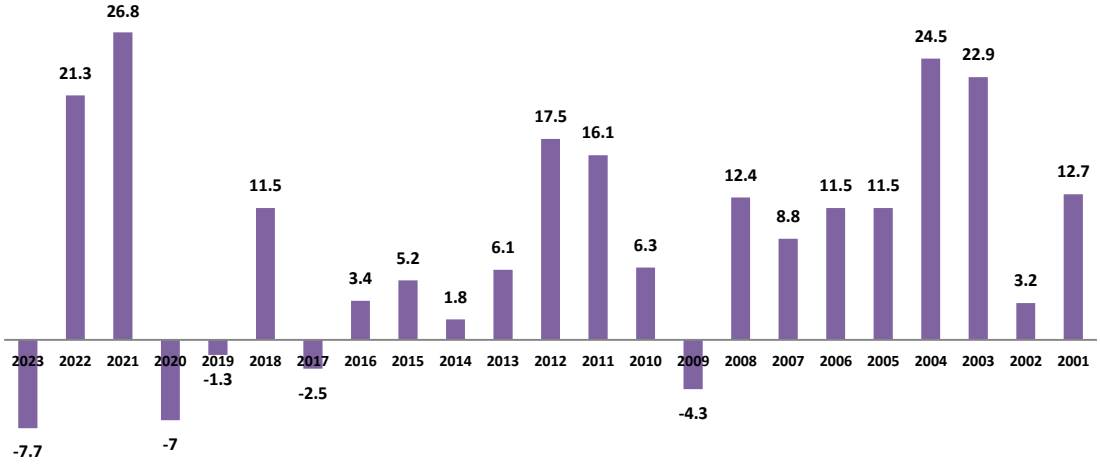

Figure 2: Growth of UAE Exports (2001-2023) (%)

Source:
https://data.albankaldawli.org/indicator/NY.GDP.MKTP.KD.ZG?end=2020&locations=AE&most_recent_year_desc=false&start=2002

Table 1: Developments in Foreign Direct Investment in the UAE (Net Inflows) for the Period (2001-2023)

(Billion Dollars)

Year	2001	2003	2005	2007	2009	2012
FDI Net Inflows	1.18	4.26	10.9	14.19	1.13	9.57
Year	2014	2016	2018	2020	2021	2023
FDI Net Inflows	11.07	9.6	10.39	19.88	20.67	30.69

Source:
https://data.albankaldawli.org/indicator/BX.KLT.DINV.CD.WD?end=2023&locations=AE&most_recent_year_desc=false&start=1999

From Figure 2 and Table 1, we can make the following observations:

A. The significant developments in the trade sector, particularly in exports, are primarily due to the economic vision adopted by the UAE, which emphasizes diversifying its exports and enhancing foreign trade activities. This includes direct trade within the country and trade through free zones, which are among the most prominent free trade areas in the Middle East and North Africa. The increase in export activity is mainly attributed to a rise in re-exports, particularly from these free zones.

B. The significant developments in the country in terms of attracting foreign direct investments are due to the government policies that were implemented in 2019, which allowed foreign ownership of (100%) in (13) economic sectors, which made the UAE one of the most attractive foreign destinations for foreign investments in the world.

2-2- Developments of FDI and Exports in the Chinese Economy for the period (2001-2023)

China has taken significant steps toward liberalizing its trade regimes, linked to the adoption of stabilization and structural adjustment policies, as well as the pursuit of certain domestic policies and the opening of markets abroad. Since 1978, China has been implementing a new economic policy based on reform, opening-up, and modernization through various means, combining a comprehensive planning approach with a free market economy known as a socialist market economy. Key aspects of the reform included the diminishing role of central planning and an increased reliance on market forces for resource allocation, price setting, and output **(Abdul Ghaffar, 2002: 314)**.

One of the most notable results of this policy has been the development of GDP and the achievement of substantial economic growth, which is among the highest in the world. In 2023, China's economy ranked as the second strongest in the world, following the United States, in terms of GDP value, reaching 17,790 billion dollars. Figure 3 illustrates China's economic growth for the period 2001-2023.

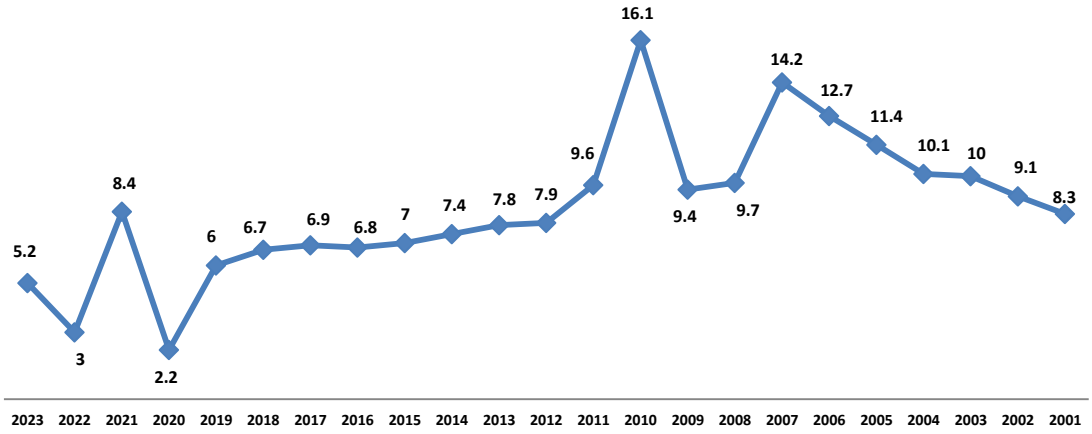

Figure 3: China's Economic Growth (2001-2023) (%)

Source: https://data.albankaldawli.org/indicator/NY.GDP.MKTP.KD.ZG

The high economic growth achieved in China is primarily due to its superior export performance, which stems from the growth of foreign direct investment (FDI) flows in the export sector. Consequently, China presents an economic model showcasing the significant transformation of its foreign investment system through the implementation of its open-door policy. This policy has led to the development of numerous

economic sectors and remarkable advancements in exports, particularly at the beginning of the twenty-first century. The value of exports increased from 272.06 billion dollars in 2001 to 3380.02 billion dollars in 2023. This growth is illustrated in Figure 4, which depicts the rise in Chinese exports for the period (2001-2023). With the expanding volume of exports and a high economic growth rate, China has enhanced the Chinese Yuan's prospects of transitioning from a local currency for settling domestic and regional payments to a major currency competing with the dollar and the euro. This shift aims to position the Yuan as a key player at the international level.

In terms of foreign direct investment, China is one of the leading economies in attracting FDI, particularly due to the availability of essential factors such as advanced infrastructure and significant technological development. This is evident from the increase in the value of inward foreign direct investments, which peaked at 344.07 B.D. in 2021, despite a decline in 2023 attributed to geopolitical tensions and rising interest rates elsewhere. In response, China has reduced interest rates to stimulate its economy. Developments in foreign direct investment (net inflows) for the period (2001-2023) are shown in Table 2.

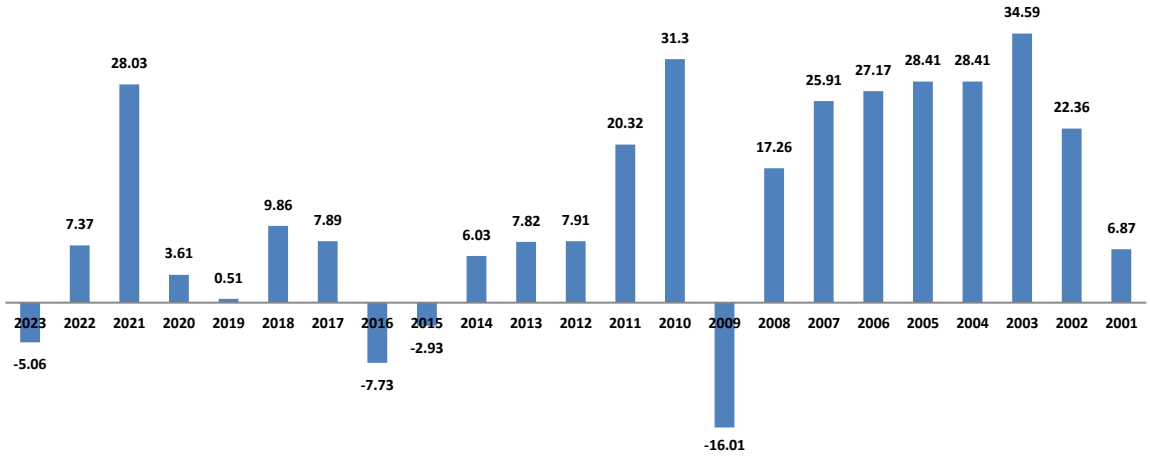

Figure 4: Growth of Chinese exports for the period (2001-2023) (%)

Source:
https://data.albankaldawli.org/indicator/NE.EXP.GNFS.CD?end=2020&locations=CN&most_recent_year_desc=false&start=2000

Table 2: Developments in Foreign Direct Investment in China (Net Inflows) for the period (2001-2023)

(Billion Dollars)

Year	2001	2003	2005	2007	2009	2012
FDI Net Inflows	47.05	57.9	(0.104)	156,25	131	.241
Year	2014	2016	2018	2020	2021	2023
FDI Net Inflows	268.1	174	235	253	344	+0.73

Source:
https://data.albankaldawli.org/indicator/BX.KLT.DINV.CD.WD?end=2020&locations=CN&most_recent_year_desc=false&start=2000

From Figure 4 and Table 2, we can make the following observations:

A. The major developments faced by the trade sector, particularly in exports, are fundamentally attributed to the efforts made by China to devalue its currency as an economic policy aimed at increasing exports. This has contributed to making its exports cheaper, thereby raising the demand for them through the necessary measures taken to reduce its value. China's adoption of the Yuan devaluation policy was one of the strategies aimed at encouraging exports and achieving economic growth rates.

   This growth primarily stems from the flexibility of domestic production of exportable goods and services, thereby enhancing the production capacity in response to the depreciation of the exchange rate. It should be noted that such devaluation inevitably prompts retaliatory measures from other countries, as they respond to the exports of the devaluing country with actions that restrict their entry into those markets.

B. The significant increase in the volume of foreign direct investments flowing into China, particularly the period (2001-2021), is largely attributable to the economic opening-up policy implemented in China. This policy has positively impacted FDI attraction through logistical, economic, administrative, and legal incentives. Tax and customs exemptions are particularly appealing, along with the availability of natural resources, which have significantly attracted capital seeking high-tech investments.

   These investments often align with what are known as high-tech incubators **(Al-Aswad, 2024: 502)**. The decline in the value of incoming FDI in 2023 can be attributed to foreign companies withdrawing funds from the Chinese market due to a number of geopolitical factors and rising interest rates in other countries outside of China, particularly in advanced economies that have become more attractive to investments.

3- Analysis of Time Series Stability for Study Variables

3-1 Stability Analysis of Time Series in the UAE

Time series are considered to be in a state of stationary and stability if they are free from the presence of a unit root. The stability test of the variables, based on the PP test, is shown in Table 3, with the results as follows:

1- **EX in the United Arab Emirates:** After conducting a stability test on the variable at the integration level I_0 and the level I_1 at 5%, it was found that the variable is stationary at level I_1 and has an integrated order I(1).

2- **FDI in the United Arab Emirates:** The test results indicated that the variable contains a unit root at level I_0, while at level I_1, the variable was stationary at 5%, confirming that it is integrated of order I(1).

3- **GDP in the United Arab Emirates:** When the test was conducted on GDP, the results were similar to those of the previous variables, showing that the variable is non-stationary at level I(0). However, after taking the first difference, the variable became stationary at a significant level of 5%, indicating that it is integrated of order I(1).

Table 3: Time Series Stability Test in the UAE

	UNIT ROOT TEST RESULTS TABLE (PP)				
Null Hypothesis: the variable has a unit root					
At Level					
		GDP	**EX**	**FDI**	
With Constant	t-Statistic	-1.0620	-1.7326	-0.1235	
	Prob.	***0.7116***	***0.4008***	***0.9350***	
		n0	n0	n0	
With Constant & Trend	t-Statistic	-2.2307	-3.9425	-1.2306	
	Prob.	***0.4510***	***0.0274***	***0.8783***	
		n0	**	n0	
Without Constant & Trend	t-Statistic	1.5865	0.7888	1.2992	
	Prob.	***0.9681***	***0.8754***	***0.9458***	
		n0	n0	n0	
At First Difference					
		d(GDP)	**d(EX)**	**d(FDI)**	
With Constant	t-Statistic	-4.7246	-4.7465	-4.0098	
	Prob.	***0.0014***	***0.0013***	***0.0062***	
		***	***	***	
With Constant & Trend	t-Statistic	-4.8075	-5.0013	-3.3849	
	Prob.	***0.0054***	***0.0037***	***0.0818***	
		***	***	*	
Without Constant & Trend	t-Statistic	-3.8221	-4.3414	-3.6009	
	Prob.	***0.0006***	***0.0002***	***0.0010***	
		***	***	***	

Source: Outputs from E-Views.

3-1-1 Co-Integration of the Study Variables in the UAE

The impact test Trace is compared with Critical Value, while the Max-Eigen test is also assessed relative to the Critical Value, which typically aligns with the Prob. If the C.V. exceeds the calculated value, we accept the null hypothesis, that there is no co integration between the variables in the UAE. Conversely, if the opposite is true, we accept alternative hypothesis. According to Table 4, the results of the co-integration test for the UAE model are as follows:

1- It is noted that the calculated value of $\lambda_{Trace} = 29.9$ is greater than the critical value at a significant level of 0.05, which is equal to 29.7, that there is co integration among the variables.

2- As for the Max-Eigen value test, it showed that the calculated values $\lambda_{Max} = 24.9$ are greater than the Critical Value of 21.1, indicating co-integration among the variables. Therefore, it can influence other variables to achieve long-run equilibrium. Consequently, we reject the null hypothesis and accept the alternative hypothesis.

3- The co-integration Test explains the complementary relationship between exports in UAE, FDI and GDP in the long-run.

Table 4: Co-Integration Test in the Estimation Model for the UAE

Date: 12/19/24 Time: 15:01				
Sample (adjusted): 2003 2023				
Included observations: 21 after adjustments				
Trend assumption: Linear deterministic trend				
Series: EX GDP FDI				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.695688	29.94724	29.79707	0.0480
At most 1	0.197758	4.963488	15.49471	0.8127
At most 2	0.015884	0.336238	3.841466	0.5620
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.695688	24.98375	21.13162	0.0136
At most 1	0.197758	4.627250	14.26460	0.7879
At most 2	0.015884	0.336238	3.841466	0.5620
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Outputs from E-Views.

3-1-2 Estimating the Long-Run Regression Equation According to the OLS Model

The researchers tested the estimation of the regression equation. The logarithmic formula that yielded the best results for the model's performance was selected, resulting in R^2 value of approximately 0.71. This indicates that 71% of variation in the dependent variable is explained by the explanatory variables, while the remaining 29% reflects the influence of other factors not included in the model. Additionally, calculated F-statistic was found to be significant for overall function, as its calculated value exceeds the critical value, with a capacity of 28. Regarding the Durbin-Watson (D.W.) value of 2.04, it falls within the acceptance region, indicating that the issue of autocorrelation was not detected **(Yule. G., 2012: 176)**. For example, the rate of export growth in the United Arab Emirates is heavily dependent on foreign direct investments in the petrochemical industries and the service sector. This indicates a significant impact of investments on UAE exports, suggesting that most changes in exports are attributable to changes in foreign direct investment, as demonstrated by the estimation of the model parameters as follows:

(1) After estimating the parameters of the model, it was found that a one-unit change in GDP affects UAE exports with an elasticity coefficient of 1.2. This illustrates the interdependent nature of the UAE economy, characterized by forward and backward linkages, as a significant portion of GDP is allocated to exports.

(2) Foreign investments in the United Arab Emirates are primarily aimed at exports, particularly in the service sector, petrochemical industries, and food industries. Thus, a one-unit change in foreign direct investment affects exports with an elasticity coefficient of 1.6. This characteristic distinguishes the UAE economy as an attractive destination for investment, capable of creating a suitable and conducive environment.

Table 5: Estimation of the Regression Equation for the UAE Economy

Dependent Variable: EX				
Method: Least Squares				
Date: 12/19/24 Time: 19:17				
Sample: 2001 2023				
Included observations: 23				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-90.08691	51.50977	-1.748929	0.0956
Log GDP	1.203439	0.204038	5.898120	0.0000
Log FDI	1.647699	0.393647	4.195524	0.0026
R-squared	0.741409		Mean dependent var	274.8317
Adjusted R-squared	0.715550		S.D. dependent var	161.4098
S.E. of regression	86.08611		Akaike info criterion	11.86968
Sum squared resid	148216.4		Schwarz criterion	12.01779
Log likelihood	-133.5013		Hannan-Quinn criter.	11.90693
F-statistic	28.67109		Durbin-Watson stat	2.478602
	0.000001			

Source: Outputs from E-Views.

3-2 Analysis of the Stationary of Time Series for the Study Variables in China

Time series are considered stationary and stable if they are free from a unit root. Each variable's degree of stability can be individually tested using appropriate methods. In this study, the researchers employed the Phillips-Perron (PP) test at both the level and the first difference, as detailed in Tables 2 and 3. These tests are particularly important for economic variables, which are often viewed as unstable time series at the level, potentially leading researchers to encounter spurious results and errors in forecasting future trends.

To obtain valid estimates, it is crucial to determine the degree of integration and stability. This is achieved by testing the null hypothesis, which posits the presence of a unit root, against the alternative hypothesis, which asserts its absence. The PP test is utilized to examine the stability of the series $\boldsymbol{X_t}$, for example, in the estimation of models using the following Ordinary Least Squares (OLS) method **(John Wiley, 2008: 413)**:

$$\Delta \boldsymbol{Xt} = \boldsymbol{\lambda}.\boldsymbol{y_{t-1}} - \mathbf{1}\sum_{\boldsymbol{j=2}}^{\boldsymbol{p}} \phi \boldsymbol{j}\ \boldsymbol{\Delta Xt - j + 1} + \varepsilon \boldsymbol{t} \ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{1})$$

$$\Delta \boldsymbol{Xt} = \boldsymbol{\lambda}.\boldsymbol{y_{t-1}} - \mathbf{1}\sum_{\boldsymbol{j=2}}^{\boldsymbol{p}} \phi \boldsymbol{j}\ \boldsymbol{\Delta Xt - j + 1} + \boldsymbol{c} + \varepsilon \boldsymbol{t} \ldots\ldots\ldots\ldots\ldots (\mathbf{2})$$

$$\Delta \boldsymbol{Xt} = \boldsymbol{\lambda}.\boldsymbol{y_{t-1}} - \mathbf{1}\sum_{\boldsymbol{j=2}}^{\boldsymbol{p}} \phi \boldsymbol{j}\ \boldsymbol{\Delta Xt - j + 1} + \boldsymbol{c} + \boldsymbol{bt} + \varepsilon \boldsymbol{t} \ldots\ldots\ldots (\mathbf{3})$$

Table 4 presents the stability test of the variables based on the Phillips-Perron (PP) test, with the following outcomes:

1- **Chinese Exports (EX):** After conducting the test on the variable at both the levels (I_0, I_1), it was found that the variable exhibits the presence of a unit root at the level in all cases for both tests at 5%. However, after taking the first difference, the variable was determined to be stable without a constant and trend, indicating that Chinese exports are considered stable in the first difference.

2- **FDI in China:** The test results indicated that this variable exhibits the presence of a unit root at I_0, leading to the acceptance of the null hypothesis. Conversely, at the first difference (I_1), the variable was stable in all cases at 5%, indicating that it is integrated of order I(1).

3- **GDP in China:** The results for this variable were consistent with those of the previous variables, as it was found to be unstable at level I_0 in all cases. After taking the first difference, the variable was stable both with and without a constant and trend at 5%. Therefore, GDP is also stable and integrated of order I(1).

Table 6: Time Series Stability Test

UNIT ROOT TEST RESULTS TABLE (PP)				
Null Hypothesis: the variable has a unit root				
At Level				
		FDI	**EX**	**GDP**
With Constant	t-Statistic	-1.7749	-0.2949	2.0386
	Prob.	***0.3822***	***0.9109***	***0.9997***
		n0	n0	n0
With Constant & Trend	t-Statistic	-0.5645	-2.5655	-5.8379
	Prob.	***0.9711***	***0.2973***	***0.0005***
		n0	n0	***
Without Constant & Trend	t-Statistic	-0.7499	2.5899	4.0527
	Prob.	***0.3799***	***0.9962***	***0.9999***
		n0	n0	n0
At First Difference				
		d(FDI)	**d(EX)**	**d(GDP)**
With Constant	t-Statistic	-3.1498	-6.2957	-4.8650
	Prob.	***0.0380***	***0.0000***	***0.0009***
		**	***	***
With Constant & Trend	t-Statistic	-3.6811	-5.9208	-6.6469
	Prob.	***0.0467***	***0.0005***	***0.0001***
		**	***	***
Without Constant & Trend	t-Statistic	-3.2954	-3.0712	-2.3056
	Prob.	***0.0022***	***0.0039***	***0.0236***
		***	***	**

Source: Outputs from E-Views.

3-2-1 Co-Integration of the Study Variables in China

The co-integration test of the model variables, all of which were stable at the first difference, is conducted to examine the long-term dynamics of the variables and to forecast the future of Chinese exports to international markets. The co-integration test reveals the nature of the relationship between Chinese exports, foreign direct investment in China, and GDP, indicating that part of the GDP is directed toward global markets based on the policy of competitive devaluation of the Chinese currency. Additionally, it suggests that the variables can adjust their dynamics to achieve equilibrium in the long run. The test utilized two indicators to ascertain whether co integration is present: the Trace statistic and the maximum eigenvalue statistic (λ, Max), according to the following two formulas **(Louis, 2005: 158):**

$$\propto \boldsymbol{Trace} = -\boldsymbol{n} \sum_{\boldsymbol{i=t+1}}^{\boldsymbol{x}} \mathbf{log}(\mathbf{1}-\propto \boldsymbol{i}) \dots\dots\dots\dots\dots\dots (\mathbf{4})$$

$$\propto \boldsymbol{Max} = -\boldsymbol{nlog}(\mathbf{1} - \boldsymbol{xr} + \boldsymbol{i}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{5})$$

The Trace test is evaluated against its critical value, while the Max-Eigen test is compared to its corresponding critical value, which consistently aligns with prob. value. If the Critical Value exceeds the calculated value, the null hypothesis is accepted, that is no co integration between the variables. Conversely, if the calculated value is greater, the alternative hypothesis is accepted. The results of the co integration test are presented in Table 7:

(1) Noting that the calculated value of $\lambda_{Trace} = 29.6$ exceeds the critical value of 25.6 at 5%, indicating co integration between the variables.

(2) The Max-Eigen value test reveals that the calculated values $\lambda_{Max} = 20$ is greater than the Critical Value of 14.2, further indicating co integration between the variables. These variables can influence each other in order to achieve long run equilibrium. Consequently, we reject the null hypothesis and accept the alternative hypothesis.

(3) The co integration test provides evidence of a long run complementary relationship between EX and both (FDI and GDP) in China.

Table 7: Co-Integration Test

Date: 11/28/24 Time: 19:56				
Sample (adjusted): 2003 2023				
Included observations: 21 after adjustments				
Trend assumption: Linear deterministic trend				
Series: EX FDI GDP				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None	0.604634	29.68556	25.79707	0.0384
At most 1	0.251852	6.198721	15.49471	0.6720
At most 2	0.005010	0.105480	3.841466	0.7453
Trace test indicates 1 cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None	0.604634	19.48684	21.13162	0.0736
At most 1	1.251852	20.09240	14.26460	0.0013
At most 2	0.005010	0.105480	3.841466	0.7453
Max-eigenvalue test indicates 1 cointegration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Outputs from E-Views.

3-2-2 Estimation of the Long-Run Regression Equation According to the OLS Model

After conducting unit root tests, it was found that all variables are integrated of the first order. Therefore, the researchers relied on estimating the regression equation using the OLS methodology. The estimation revealed that changes in the independent variables directly and indirectly affect the dependent variable **(Kindal and J.B. Ratner, 2000: 234)**.

The researchers tested the regression equation estimation and selected the logarithmic formula that provided the best results for the model's capabilities. The value of R^2 was approximately 0.96, indicating the proportion of variance in the dependent variable explained by the explanatory variables, while the unexplained variance accounted for 0.04. The calculated F- statistic was found to be significant for the overall function.

Additionally, the value of the Durbin-Watson statistic (D.W) was 2.05, which falls within the acceptable range, indicating that the problem of autocorrelation did not arise **(R. Halvorsen and R. Palmquist, 2016: 351)**.

For example, the growth rate of Chinese exports does not require a lag period for foreign direct investment and GDP to be reflected in exports. This growth in exports suggests that most of the changes in Chinese exports resulted directly from changes in the two variables included in the model, as indicated by the estimation of the model parameters **(S. McNees, 2008: 749)**.

Model indicates that the independent variables are both significant and influential in relation to the dependent variable, as shown in the following results:

A. The impact of Chinese exports of goods and services is significant in that each one-unit change in GDP affects exports with an elasticity coefficient of 0.16. This suggests that not all domestic production in China is directed toward internal markets and consumption; rather, some goods are manufactured for export.

B. Foreign investments in China significantly and effectively influence Chinese exports, with an elasticity coefficient of 0.63. This indicates that foreign direct investment affects exports four times as much as GDP. Therefore, a one-unit change in foreign direct investment results in a 64% change in Chinese exports. This illustrates the reality of the Chinese economy, which attracts foreign investments and directs its products to international markets, demonstrating a substantial impact on exports.

Table 8: Regression Equation Estimation

Dependent Variable: EX				
Method: Least Squares				
Date: 12/19/24 Time: 13:24				
Sample: 2001 2023				
Included observations: 23				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	203.4257	92.48633	2.199522	0.0398
GDP	0.164499	0.008291	19.84098	0.0000
FDI	1.632968	0.538994	3.029659	0.0066
R-squared	0.969989		Mean dependent var	1907.963
Adjusted R-squared	0.966988		S.D. dependent var	1036.618
S.E. of regression	188.3466		Akaike info criterion	13.43555
Sum squared resid	709488.6		Schwarz criterion	13.58366
Log likelihood	-151.5088		Hannan-Quinn criter.	13.47280
F-statistic	323.2076		Durbin-Watson stat	2.021571
Prob(F-statistic)	0.000000			

Source: Outputs from E-Views.

4- Conclusions & Recommendations

4-1 Conclusions

A. There is a long-run equilibrium relationship between Chinese exports (the dependent variable) and foreign direct investment and GDP (the independent variables). Foreign investment and domestic output, in conjunction with Chinese exports, can correct short-run imbalances in the Chinese economy, ultimately serving as the engine of growth.

B. There is a co-integration between foreign direct investments and UAE exports, indicating a long-run equilibrium between the independent and dependent variables. This is supported by the impact test and the maximum value test, both of which yielded results greater than the critical value. This implies that the independent variables significantly affect UAE exports and can correct long-term imbalances through reliance on foreign investment.

C. The Fisher test revealed that both models are significant, as evidenced by the calculated F-value for the Chinese economy, which is greater than the tabulated value. The calculated F-value for the Chinese economy was 223, with a probability of 0.0000, exceeding the tabulated value. In contrast, the F-value for the UAE economy was less than the calculated value of 28, though it remained significant with a probability of 0.000, indicating that the model is robust and free from other issues.

4-2 Recommendations

A. Governments should enhance the foreign direct investment (FDI) environment by simplifying administrative procedures and introducing tax incentives. These measures will facilitate investment flows and lead to increased exports.

B. Countries should improve their transport and logistics infrastructure to enhance their capacity to export products effectively and reduce costs. Additionally, investing in research and development should be prioritized to boost export competitiveness.

C. The Chinese economy should develop strategies aimed at correcting short-run imbalances, such as supporting sectors that experience weak exports through financial or technical assistance programs. Strengthening partnerships with other countries will also enhance trade cooperation, opening new markets and increasing Chinese exports.

D. The UAE economy should capitalize on opportunities in emerging markets by expanding its exports to these regions. Additionally, it should enhance trade policies by reducing both tariff and non-tariff barriers to facilitate access for UAE products to global markets.

References

1) Abd Rabboh, Nashwa Mohammed. (2020). **The Impact of Foreign Direct Investment on Egyptian Exports in the Short and Long Run Using the ARDL Model**, Scientific Journal of Trade and Finance, Faculty of Commerce, Tanta University, Vol. 40, Is. 1.

2) Abdul Ghaffar, Hana. (2002). **Foreign Direct Investment and International Trade: China as a Model**, Bayt Hekma, Baghdad, Euphrates Press.

3) Al-Asraj, Hussein Abdul-Mutalib. (2005). **Policies for Developing Foreign Direct Investment in Arab Countries. Kuwait: Industrial Bank of Kuwait**, Industrial Bank Series, Vol. 83.

4) Al-Aswad, Ghida Sadiq Salman. (2024). **The Effectiveness of Foreign Direct Investment in Enhancing Information Technology Exports: The Case of China**, Al-Kout Journal for Economic and Administrative Sciences, College of Administration and Economics, Wasit University, Vol. 16, Is. 54.

5) Al-Duraihi, Hamdan Rashid Ali. (2014). **The Story of Oil in Abu Dhabi: Coinciding with the End of One of the Longest Oil Concessions in the World (1939-2014)**, UAE: Dar Kuttab for Publishing and Distribution.

6) Al-Hayti, Nawzad Abdulrahman. (2009). **Sustainable Development: The General Framework and Applications in the United Arab Emirates**, Abu Dhabi: Emirates Center for Strategic Studies and Research.

7) Al-Shammari, Ma'ih Shbib, and Hamza, Hassan Karim. (2015). **International Finance: Theoretical Foundations and Analytical Methods**, Najaf Al-Ashraf: Al-Diya Printing and Publishing House.

8) Ameera, Mohammed Saad. (2002). **The Economy of the United Arab Emirates: Achievements and Future Aspirations**, Journal of Economic Cooperation Among Islamic Countries, Statistical, Economic, and Social Research and Training Centre for Islamic Countries, Organization of Islamic Cooperation.

9) Fahd, Nasr Hamoud Maznan. (2009). **The Impact of Economic Policies on the Performance of Commercial Banks**, Amman: Dar Safa for Publishing and Distribution.

10) International Monetary Fund. (2002). **Guide to International Trade in Services Statistics**, Series M, No. 86. Geneva: Department of Economic and Social Affairs, Statistics Division.

11) J.D. Sargan and a.s. Bhargave. (2008). **Testing Residuals from the Least-Square Regression for Being Generaed by the Gaussian Random Walk**, Econometeica, Vol. 92, p165.

12) John Wiley. Rao. (2008). **Linear Statistical Inference and Its Applications**, New York, p 413.

13) Kreinin, Mordechai. (2010). **International Economics: A Policy Approach**, Riyadh: Dar Al-Mareekh for Publishing.

14) Linda, Hassan, and Mohammed Haddad. (2021). **Free Zones as a Mechanism for Promoting Non-Oil Exports and Integration into Global Value Chains: A Case Study of the United Arab Emirates and Future Prospects in Algeria**, Economic Studies Journal, Algeria, Vol. 21, Is. 2.

15) Louis. (2005). **A Primer on Cointegration with an Application to Money and Income**, Economic Review, Federal Reserve Bank of April 2005, p158.

16) Ministry of Planning. (2021). **Exports and Their Impact on Some Economic Variables: A Model Study**, Baghdad: Economic and Financial Policies Department.

17) Mohammed, Wisan Shakir, and Muhaimid, Khitab Said. (2021). **Geopolitical Characteristics of the Egyptian Economic Structure for the Period (2000-2018)**, Adab Al-Farahidi Journal, Tikrit University, Vol. 13, Is. 47-3.

18) Nunthirapakorn,Thakol . (2020). **Effects of Foreign Direct Investments on the Host Country**, Nida Business School, National Institute of Development Administration (Nida), Bangkok, Vol. 26.

19) Qadri, Mohammed, and Daoudi, Mohammed. (2018). **Measuring the Causal Relationship Between Foreign Direct Investment, Exports, and Economic Growth in MINA Countries: A Time Series Study for the Period (2000-2016) Using VECM**, Al-Montada Journal for Economic Studies and Research, Zian Achour University, Algeria, Vol. 3.

20) Robert Halvorsen and Raymond Palmquist. (2016). **The Interpretation of Dummy Variables in Semilogarithmic Equations**, American Economic Review, vol.89, p 351.

21) S. McNees. (2008). **Forecasting Accuracy of Alternative Techinquison: A Comparison of US Macroeconomic Forecasts**, Journal of Business and Economic Statistics, Vol. 43, p 749.

22) Saidi, Wasef. (2002). **Export Development and Economic Growth in Algeria: Reality and Challenges**, Al-Bahith Journal, Qasdi Merbah University, Faculty of Economic and Commercial Sciences and Management Sciences, Ouargla, Is. 1.

23) SelmaKurtishi-Kastrati. (2013). **The Effects of Foreign Direct Investments for Host Country's Economy**, European Journal of Interdisciplinary Studies, Vol. 5, Is. 1.

24) Shehab, Magdy Mahmoud. (2007). **Contemporary International Economics**, Alexandria: Dar Al-Jamia Al-Jadida.

25) T. Kindal and J. B. Ratner. (2000). **Regional Forecasting Models with vector Autoregression: The case of New york state**, Department of Economics, state University of new york at Aibany, p 234.