



## MODEL OF THE REPERCUSSIONS OF TRADE POLICY ON THE VOLUME AND DIRECTION OF FOREIGN TRADE IN IRAQ FOR THE PERIOD (2004-2021)

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**Abstract:** In this research, the researcher tried to know the implications of trade policy on the volume and direction of Iraqi foreign trade for the period (2004-2021), where we initially presented the commodity and geographical structure of exports and imports, and then we tried to give a standard quantitative analysis for this research through modeling for each of the commodity structure And international exchange according to the commodity structure and the geographical distribution of each of the exports and imports separately, and testing the stability of the time series of the variables under consideration, and finally we carried out the process of estimating the standard models, and after obtaining statistical reconciliation and acceptable economic results, we tested the structural modification on the models.

### Introduction

One of the problems facing the foreign trade of any country is the state of instability in its indicators as a result of several factors directly related to the structure of the economy of the concerned country, and for developing countries, their unilateral economy on the one hand and the nature of the commercial commodities they deal with on the other hand were and still are among the factors of instability The stability of its foreign trade indicators. It is known that most of these countries' exports are raw materials and are highly sensitive to the conditions of global markets. Therefore, their imports are also subject to fluctuation and instability. With regard to Iraq, the fluctuation in the volume of its trade is a reflection of its economic structure, which it dominates to a very large extent. Crude oil exports, which affects the volume of its imports.

After the era of political change in 2003, there was an important turning point in the Iraqi economy, and this importance comes through the transformations and new directions that were adopted in the framework of managing the Iraqi economy, as the economic environment faced many challenges, represented by the need to shift to a market economy on the one hand, and the legacy Heavy from the past (structural problems in all of its economic sectors, disruption of productive capacities and widespread unemployment) and the necessities of reform on the other hand.

Research problem: What are the repercussions of trade policy after the economic and political transformation that Iraq witnessed in 2003 on the volume and direction of foreign trade as a record?

Research objective: The research aims to build a model for the foreign trade sector through which we explain the basic variables controlling exports and imports, and based on this model we determine the implications of trade policy changes on the volume and direction of exports and imports.

Research hypothesis: The research stems from the hypothesis that Iraq's trade policy did not result in any changes in terms of the size and type of commodity composition and the direction of its geographical exchange and expansion.

The importance of the research: The importance of this research is due to the growing interest in trade policies because they reflect the set of tools that would affect the volume and direction of exports and imports and the extent of the Iraqi economy's willingness to adapt to the outside world.

First: Commodity composition of Iraqi exports and imports for the period (2004-2021)

### 1- Commodity composition of exports

Statistics related to Iraq's foreign trade showed that Iraq's exports consist of two main groups: oil exports and non-oil exports. Oil exports represent a large percentage of the value of total exports, while non-oil exports consist of major groups, as shown in Table (1).

Table (1) Commodity structure of Iraqi export values for the period (2004-2021) (million dollars)

year	Food and animals	Non-food raw materials other than fuel	Mineral fuels and related lubricants	Materials chemical	Goods made and classified by material	Machinery and equipment Transfer	Goods and transactions not classified by type
2004	33	47.7	17455	0	30	0	0
2005	59	44	23199	0	15	0	0
2006	88	51	29708	2	16	72	9
2007	111	59	37771	4	20	95	8
2008	131	68	61883	0	28	81	0
2009	110	59	38964	4	20	95	8
2010	145	78	51453	5	26	124	10
2011	223	120	79407	8	40	191	16
2012	264	141	93778	9	47	226	19
2013	251	135	89349	9	45	215	18
2014	210	101	83538	4	8	32	0
2015	122	65	43058	4	22	104	9
2016	19	22	40493	7	18	17	8
2017	29	13	57489	0	1	28	0
2018	9	26	86258	0	82	8	0
2019	16	29	81412	0	128	0	12
2020	12	33.2	46473	0	92.5	0	0
2021	22	51	72603	0	146	0	0

Source: Central Bank of Iraq, Annual Statistical Bulletin for the years (2004-2021), separate pages.

Through the data of Table (1), it is clear that (the mineral fuels and related lubricating oils item) had the largest value of the total exports, as the rise in crude oil prices in the world markets had a clear impact on the increase in the proceeds of oil exports, which constitute a large proportion of Iraqi exports. As for the paragraph (foodstuffs and live animals), it ranked second in terms of its contribution to the total value of exports. As for the third place in terms of contribution to the total value of exports, it went to the paragraph (non-food raw materials except fuel), while the paragraph (manufactured and classified goods According to the article) it ranked fourth in terms of its contribution to the total revenues, while the rest of the paragraphs that make up the structure of the value of Iraqi exports were modest and sometimes non-existent.

The policies of the successive governments in Iraq were content with crude oil exports and neglected to encourage non-oil exports, due to the lack of defining criteria for economic development, neglect of the private sector, and failure

to encourage investment in industries that are alternative to imports. The door to foreign imports to bridge the growing gap between the increase in consumer demand and domestic production.

## 2 Commodity composition of imports

The analysis of the commodity structure of imports in Iraq is of great importance to identify its pattern and the extent to which it responds to the requirements of development. The study of the import structure is also of great importance as it reflects to a large extent the real strategic directions of economic development followed, prevailing protection, and global price levels.

Some believe that the structure of imports is a measure of the degree of economic development that a country reaches, and for this purpose we try to know the type of imported goods, whether they are consumer, intermediate, or productive goods. In Iraq, the first type occupies a large part in the structure of its imports, due to the high marginal propensity to consume its population, and the failure of its production apparatus to meet local needs or internal demand, unlike the imports of developed countries, in which intermediate commodities come to occupy the first place, and as a result of the reconstruction operations in Iraq, productive commodities began to dominate the components of its imports, and these commodities are distinguished by their high prices and the dominance of industrialized countries over their trade, and Table ( 2) Shows us the reality of the commodity structure of Iraq's imports.

Table (2) Commodity structure of import values in Iraq (2004-2021) (million dollars)

year	Food and animals	Non-food raw materials other than fuel	Mineral fuels and related lubricants	Materials chemical	Goods made and classified by material	Machinery and equipment Transfer	Goods and transactions not classified by type	Food and animals	Non-food raw materials other than fuel	Mineral fuels and related lubricants
2004	1008	616	373	2100	1322	1232	1578	9139	3326	608
2005	807	308	414	2320	1604	1552	1960	10201	3695	671
2006	716	209	351	2060	1235	1304	1547	7686	3005	595
2007	1093	364	554	1989	1286	1383	3287	7799	3187	574
2008	1917	461	639	3479	2272	2378	4047	13665	5608	1029
2009	2276	563	696	3967	2860	2675	4998	15998	6173	1215
2010	2371	571	790	4304	2811	2942	5006	16907	6939	1274
2011	2581	622	860	4685	3059	3203	5450	18403	7553	1386
2012	3186	767	962	5683	3676	3854	6627	20544	9223	1711
2013	3205	772	1.068	5716	3798	3877	6766	22495	9377	1721
2014	2872	691	957	5212	3403	3563	6062	20472	8402	1542
2015	2109	508	703	3826	2499	2616	4451	15032	6169	1132
2016	1579	495	666	3377	2199	2322	3900	13270	5461	992
2017	2045	492	782	3711	2423	2337	4317	15577	5983	1098
2018	2470	595	823	4482	2927	3064	5214	17609	7226	1326
2019	3139	756	1046	5698	3721	3895	6628	22383	9186	1686
2020	2600	626	866	4718	3082	3226	5489	18538	7608	1396
2021	2199	530	733	3992	2607	2729	4644	15684	6437	1181

Source: Central Bank of Iraq, Annual Statistical Bulletin for the years (2004-2021), separate pages.

### - Imports on the basis of CIF

The data in Table (2) indicates that the imports of machinery and transport equipment, including cars, still outperform all other imports in terms of importance. The most important characteristic of the import policy in Iraq is the lack of import controls, and the non-subordination of import operations to the needs and requirements of the development of the Iraqi economy. It also reflects the weakness of the manufacturing sector, in which the consumer industries, especially the food and textile industries, are still the main ones. In addition, many units of this sector operate below their production capacity.

Second: The geographical distribution of Iraqi exports and imports for the period (2004-2021)

### 1- The evolution of the geographical distribution of exports

The geographical distribution of exports means the study of the geographical structure of exports according to countries or international aggregates in order to identify these countries to which exports are directed, and that the geographical distribution of exports depends to a large extent on the nature of the commodity composition of exports. With regard to Iraq, it is noted that the pattern of geographical distribution of Iraqi exports continued during the period from (2004-2021) in favor of the industrialized countries, and that there has been a change in the relative arrangement of the main countries from it, as the data of Table (3) on the geographical distribution of Iraqi exports indicate that the countries of the Americas represent the first trading partner For Iraq, as their markets absorbed the largest value of Iraqi exports, and after them, the European Union countries come as the second trading partner for Iraq, from 2004 until 2009, to decline after that in favor of Asian countries, as they became the first trading partner for Iraq, and table (3) represents the geographical distribution of the values of exports Iraqi with the most important trading partners.

Table (3) Geographical distribution of export values by regional groups for the period (2004-2021) (\$ million)

year	Arab countries	Americas countries	Europe Union	European countries the other	Countries Asian	The other countries	the total
2004	1311	10819	3127	134	2155	19	17565
2005	763	13185	6277	393	2292	407	23317
2006	949	16663	7106	611	4227	382	29938
2007	1437	20433	9104	321	6212	517	38024
2008	2294	33432	15167	510	10005	828	62191
2009	871	19152	10310	1.124	5047	2.504	39008
2010	1155	15749	11155	1.289	21953	326	51627
2011	2853	24024	13801	2.226	36310	414	79628
2012	3156	25314	15688	405	46784	2.704	94051
2013	3501	18122	13465	629	53758	90	89565
2014	3023	16124	14781	252	49121	420	83721
2015	1564	8341	7646	130	25391	217	43249
2016	1836	5084	9193	169	24299	3	40584
2017	1729	9227	12740	402	33603	3	57704
2018	1369	11091	17427	624	55868	4	86383
2019	2498	6342	17213	524	55318	2	81897
2020	1515	2332	5996	322	36436	9	46610
2021	2512	3627	9328	502	56838	15	72822

Source: Central Bank of Iraq, Annual Statistical Bulletin for the years (2004-2021), separate pages.

We conclude from the data of Table (3), the dominance of the countries of the Americas and the European Union over Iraq's exports until 2009, which is related to the political change that took place in Iraq in 2003, and the subsequent significant change in the directions of Iraqi economic policy, which documented the economic relations between Iraq and both the United States and the countries of the European Union, especially in increasing the value of Iraqi oil exports to it, so a kind of horizontal integration arose between them. In fact, the dominance of the countries of the Americas and the European Union is also due to the nature of the economies of these countries, as they control the global industrial production, and they monopolize scientific and technical knowledge, and they own, through their multinational companies, channels of transportation and financing, so dealing with them within the framework of economic intertwining. The current international becomes inevitable.

While the group of Asian countries became the first trading partner after 2009, as the value of Iraqi exports to these countries increased from (2155) million dollars in 2004 to (36436) million dollars in 2020. As for the volume of exports from Iraq to Arab countries, no progress was recorded. It was remarkable and was very modest, reaching a maximum of (3501) million dollars in 2013.

## 2- The evolution of the geographical distribution of imports

In terms of the geographical distribution of Iraqi imports, the situation is hardly different from the situation of exports, especially for the main countries, and it appears from the study of the geographical distribution of Iraq's imports after 2003 that the European Union countries were the most important trading partners for Iraq in 2004, as the value of Iraq's imports from these countries reached ( 9064) million dollars, but from 2005 to 2009 the Arab countries became the most important countries of origin for imports from Iraq, as the value of imports from them increased from

(7198) million dollars in 2005 to reach (14068) million dollars in 2009, and the reason for this is due to the improvement of political relations with it .

As for the years from (2010 to 2013), other European countries were the most important trading partner for Iraq, as the value of imports from these countries increased from (13253) million dollars in 2010 to (19585) million dollars in 2013, but after that the imports from these countries began to decline Significantly until it reached (1066) million dollars in 2020, while the Asian countries became, from 2014 until 2021, one of the most important trading partners for Iraq, as the value of imports increased from (26589) million dollars in 2014 to reach (41212) million dollars in 2019, then decreased to (28,890) in 2021, as shown in Table (4).

Table (4) Geographical distribution of import values in Iraq by regional groups for the period (2004-2021) (million dollars)

year	Arab countries	Americas countries	Europe Union	European countries the other	Countries Asian	The other countries	the total
2004	2373	1861	9064	2621	3984	1399	21302
2005	7198	3546	2685	6975	2530	598	23532
2006	6855	1650	2762	5.226	2194	21	18708
2007	9303	2554	2305	4764	2520	70	21516
2008	16399	3976	2307	8590	4082	141	35495
2009	14068	5001	4348	9475	7104	1.515	41511
2010	10399	5248	5885	13253	8432	698	43915
2011	11903	4101	4881	13925	12615	377	47802
2012	12816	4190	5403	18929	14606	289	56233
2013	14184	3324	6028	19585	14956	718	58795
2014	12603	3509	6753	3404	26589	318	53176
2015	9254	2576	4959	2499	19523	243	39045
2016	2267	2451	5082	1684	22627	168	34279
2017	2611	2746	4977	2450	25823	158	38765
2018	4046	3280	6199	2039	29800	372	45736
2019	3601	3767	7910	1441	41212	207	58138
2020	3664	2380	6677	1066	34148	214	48149
2021	3100	2159	5565	851	28890	171	40763

Source: Central Bank of Iraq, Annual Statistical Bulletin for the years (2004-2021), separate pages.

Third: Data Analysis and Study Results:

1- Building the search form:

In this aspect of the study, the proposed models for the study will be formulated and the analytical framework for the impact of the independent variables on the dependent variables will be discussed according to the economic theory. By analyzing the impact of the commodity structure of imports and its impact on total imports, while the third model will be concerned with studying changes in the impact of the geographical structure of exports on total exports, while the fourth model will focus on the impact of the geographical structure of imports and its impact on imports in the Iraqi economy for the period (2004-2021). And depending on the logic of economic theory, the research models were chosen as follows:

The first model / impact of the commodity structure of exports on total exports

1 - The form of the function

$$EX = f(EXa, EXb, EXc, EXd, EXe, EXf, EXg)$$

2- The Standard Model

$$EX = \beta_0 + \beta_1 \sum EXa + \beta_2 \sum EXb + \beta_3 \sum EXc + \beta_4 \sum EXd + \beta_5 \sum EXe + \beta_6 \sum EXf + \beta_7 \sum EXg + Ut$$

whereas:

EX: the volume of total exports in the Iraqi economy for the period (2004-2021)

EXa: the volume of exports of foodstuffs and live animals

EXb: the volume of exports of non-food raw materials, excluding fuel

EXc: Export volume of mineral fuels and lubricating oils.

EXd: the volume of exports of chemicals.

EXe: Export volume of manufactured goods classified by material.

EXf: the volume of exports of machinery and transport equipment.

Exg: The volume of exports of unclassified goods and transactions.

$\beta_0$ : constant limit

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ : rated parameters

Ut: the random variable

The second model / impact of the commodity structure of imports on total imports

1 - The form of the function

$$IM = f(IMa, IMb, IMc, IMd, IMe, IMf, IMg, IMh, IMk, IMl)$$

The Standard Model

$$\begin{aligned} EX = & \beta_0 + \beta_1 \sum IMa + \beta_2 \sum IMb + \beta_3 \sum IMc \\ & + \beta_4 \sum IMd + \beta_5 \sum IMe \\ & + \beta_6 \sum IMf + \beta_7 \sum IMg + \beta_8 \sum IMh + \beta_9 \sum IMk + \beta_{10} \sum IMl + Ut \end{aligned}$$

whereas:

IM: the volume of total imports in the Iraqi economy for the period (2004-2021)

IMa: Import volume of foodstuffs and live animals

IMb: the volume of imports of beverages and tobacco.

IMc: the volume of imports of non-food raw materials, excluding fuel

IMd: Import volume of mineral fuels and lubricating oils.

IMe: the volume of imports of animal oils and fats.

IMf: the volume of imports of chemicals.

IMg: the volume of imports of manufactured goods classified by material.

IMh: the volume of imports of machinery and transport equipment.

IMk: the volume of imports of various manufactures.

IMl: the volume of imports of unclassified goods and transactions.

$\beta_0$ : constant limit

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ : rated parameters

Ut: the random variable

The third model / the impact of the geographical structure of exports on total exports

1 - The form of the function

$$EX = f(EXar, EXus, EXeu, EXur, EXas, EXwo)$$

The Standard Model

$$EX = \beta_0 + \beta_1 \sum EXar + \beta_2 \sum EXus + \beta_3 \sum EXeu + \beta_4 \sum EXur + \beta_5 \sum EXas + \beta_6 \sum EXwo + Ut$$

whereas:

EX: the volume of total exports in the Iraqi economy for the period (2004-2021)

EXar: the volume of exports with Arab countries

EXus: the volume of exports with the countries of the Americas

EXeu: Export volume with the European Union.

EXur: the volume of exports with Europe.

EXas: the volume of exports with Asian countries.

EXwo: Export volume with the rest of the world

$\beta_0$ : constant limit

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ : rated parameters

$U_t$ : the random variable

The fourth model / the impact of the geographical structure of imports on total imports

1- The form of the function

$$IM = f(IMar, IMus, IMeu, IMur, IMas, IMwo)$$

The Standard Model

$$IM = \beta_0 + \beta_1 \sum IMar + \beta_2 \sum IMus + \beta_3 \sum IMeu + \beta_4 \sum IMur + \beta_5 \sum IMas + \beta_6 \sum IMwo + U_t$$

whereas:

IM: the volume of total imports in the Iraqi economy for the period (2004-2021)

IMar: the volume of imports with Arab countries

IMus: Volume of imports with the countries of the Americas

IMEu: the volume of imports with the European Union.

IMur: the volume of imports with Europe.

IMas: the volume of imports with Asian countries.

IMwo: the volume of imports with the rest of the world

$\beta_0$ : constant limit

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ : rated parameters

$U_t$ : the random variable

In order to use the appropriate mathematical formula, the measurement program (12.Eviews) was used to estimate the linear formula and the double logarithmic formula. in statistical tests.

2- Unit root tests (the rest of the time series for the study variables):

The condition of static is essential in the study and analysis of time series, and if the time series is not static, it is not possible to obtain sound and logical results, but rather false and shady results, (Ahmed: 2013, 385) and among the preliminary indicators that indicate that the estimated regression from time series data False high coefficient of determination, and high statistical significance of the estimated parameters to a large extent with an autocorrelation that appears in the low value of the DW coefficient (Abdul Latif, Ali: 2013, 176), so the model variables must be subjected to a stability test, and there are a set of tests that can be relied upon in This field, and the Dickey-Fuller test (GLS), and the Kwiatkowski, Phillips, Schmidt, Shin (Kpss) test (Nazih, Kawthar: 2015, 307) were used in this study to determine the stability of time series according to unit root tests, since the expected relationship between The independent variables and the dependent variable have a linear relationship and there is no time lag in it, i.e. it is of the simple type. Figure (1) Graph of the independent variables (commodity environment for exports) and the dependent variable (total exports) for the period (2004-2021)

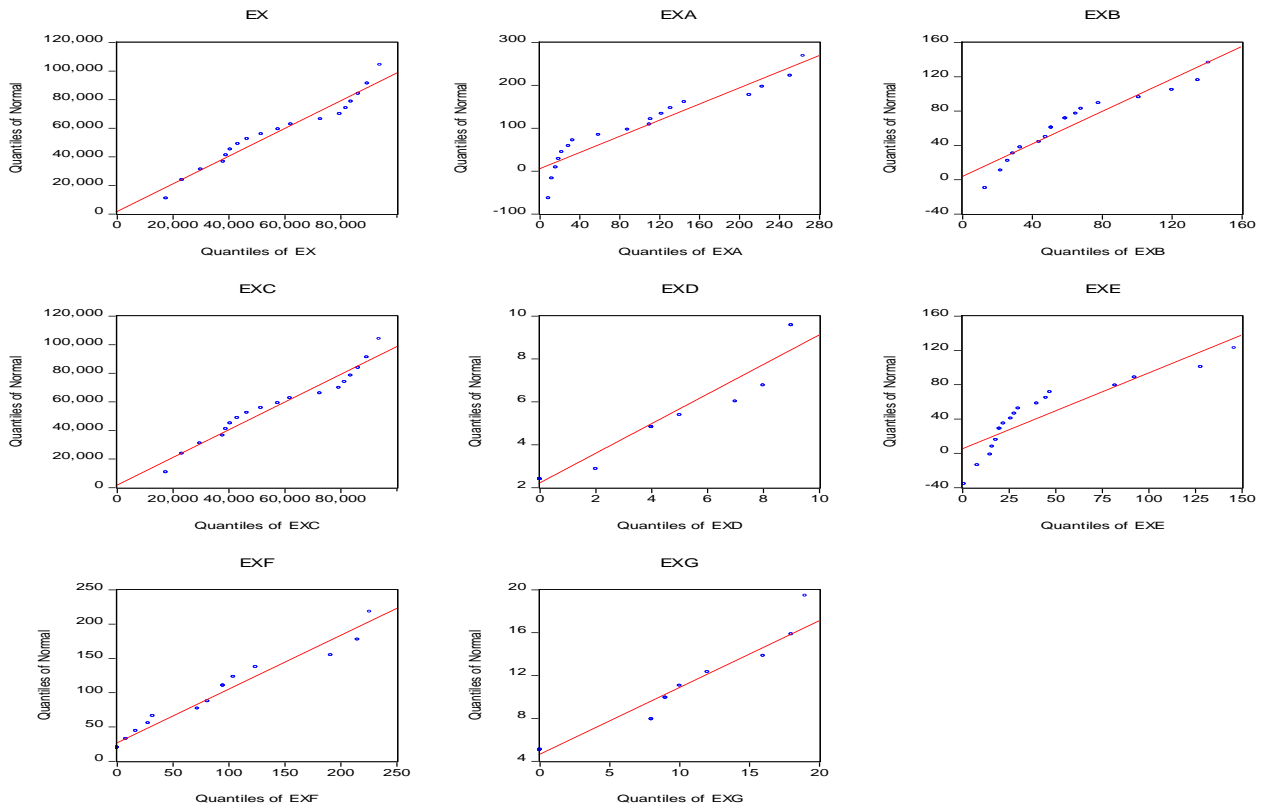
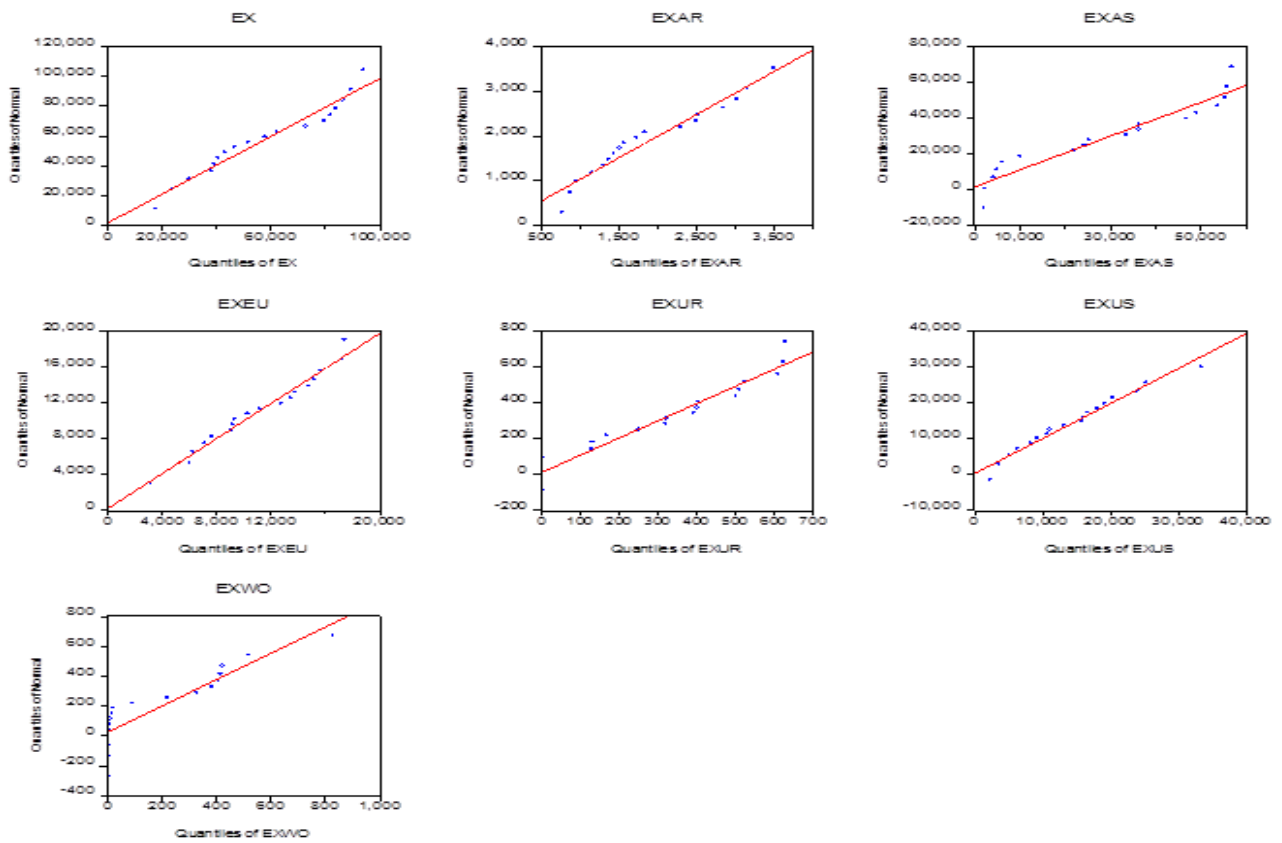


Figure (2) Graph of the independent variables (geographical environment for exports) and the dependent variable (total exports) for the period (2004-2021)



It is clear from Figure (1) and Figure (2) the growth of total exports as a dependent variable and the independent variables associated with it over time, and this indicates the possibility of static over time, (Abdul Majeed, Ahlam:



2007, 2) and then we resorted to a static test to ensure that The static time series of the variables was tested through the unit root test for all models proposed in the study during the period (2004-2021) and using the DF (GLS) and kpss test as follows:

1- DF(GLS) and kpss test results for exports and associated independent variables:

Table (5) DF (GLS) and kpss test results (at level)

variables the study	DF (GLS) test (at level)		kpss level test	
	fixed limit	Fixed limit and direction	fixed limit	Fixed limit and direction
Ex	2.073840-	-2.419912	0.352557	0.134537
Exar	-2.339494	-2.557154	0.225213	0.114530
Exas	-1.161271	-3.184934	0.555283	0.094458
Exeu	-2.639025	-2.926789	0.273108	0.126689
Exur	-2.835424	-2.928768	0.191938	0.076318
Exus	-1.458095	-2.661252	0.423235	0.157061
Exwo	-2.887433	-4.801820	0.453683	0.206278
Exa	-2.001524	-2.310558	0.181519	0.154349
Exb	-3.069970	-3.330264	0.170788	0.129690
Exc	-2.070247	-2.415292	0.352643	0.134815
Exd	-1.805117	-1.974251	0.175816	0.167352
Exe	-1.665890	-2.577007	0.417019	0.132591
Exf	-1.654566	-2.023465	0.208247	0.158203
Exg	-2.739932	-2.960859	0.172798	0.161137
critical values	1% at the level 5% at the level 10% at the level	1% at the level 5% at the level 10% at the level	1% at the level 5% at the level 10% at the level	1% at the level 5% at the level 10% at the level
	-2.708094 -1.962813 -1.606129	-3.770000 -3.190000 -2.890000	0.739000 0.463000 0.347000	0.216000 0.146000 0.119000

Source: Prepared by the researcher based on the (12.Eviews) program.

In the same way with the other variable imports and the independent variables associated with it through time

Figure (3) Graph of the independent variables (commodity environment for imports) and the dependent variable (total imports) for the period (2004-2021)

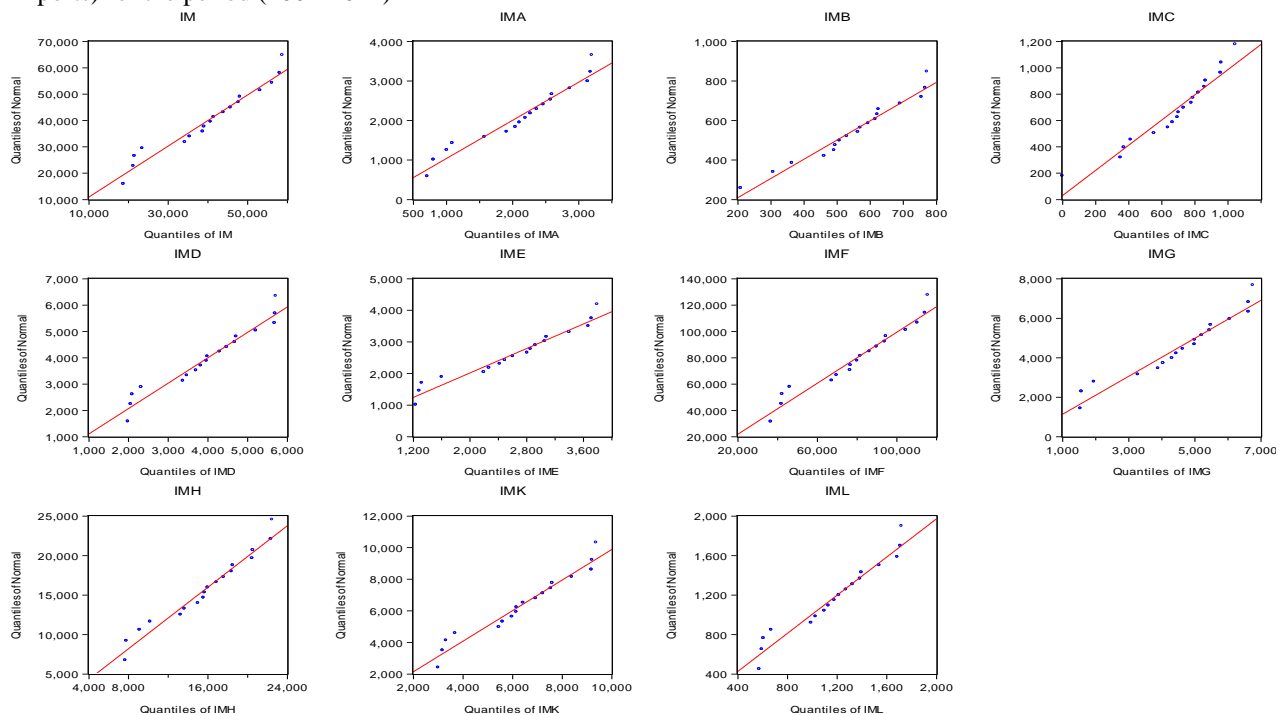
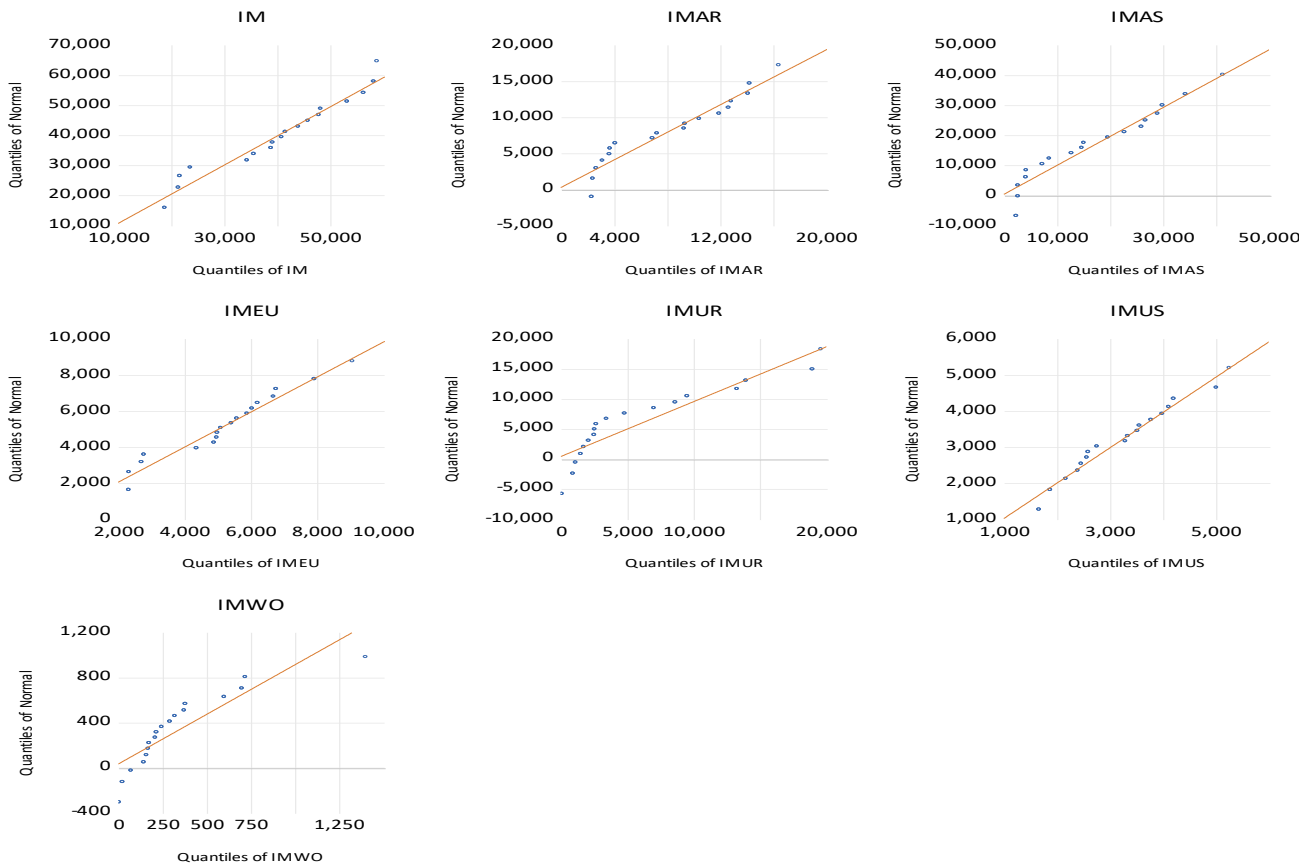


Figure (4) Graph of the independent variables (the geographical environment for imports) and the dependent variable (total imports) for the period (2004-2021)

Figure (3) and Figure (4) showed the possibility of static of these variables over time and therefore we resorted to a static test.



1- DF(GLS) and kpss test results for imports and their associated independent variables:

Table (6) DF (GLS) and kpss test results (at level)

variables the study	DF (GLS) test (at level)		kpss level test	
	fixed limit	Fixed limit and direction	fixed limit	Fixed limit and direction
Im	-2.164112	-2.534077	0.374354	0.132463
Imar	-1.418572	-2.277145	0.278438	0.154540
Imas	-0.793680	-3.446071	0.526583	0.111833
Imeu	-2.633520	-4.447818	0.284383	0.070208
Imur	-1.640247	-1.954865	0.204546	0.138685
Imus	-1.576227	-1.700539	0.145094	0.125687
Imwo	-3.169438	-4.022599	0.206740	0.077198
Ima	-2.592808	-2.818051	0.360246	0.132437
Imb	-3.566003	-3.459732	0.262532	0.109035
Imc	-3.733302	-5.254105	0.488261	0.107513
Imd	-2.104258	-2.433933	0.368501	0.130971
Ime	-2.108311	-2.511162	0.359113	0.132301
Imf	-2.013765	-2.372767	0.371935	0.133403
Img	-1.982694	-2.173518	0.377019	0.144530

Imh	-2.054704	-2.509321	0.380816	0.128032
Imk	-2.084374	-2.419528	0.370313	0.131213
Iml	-2.154034	-2.478509	0.361120	0.131869
critical values	1% at the level	1% at the level	1% at the level	1% at the level
	5% at the level	5% at the level	5% at the level	5% at the level
	10% at the level	10% at the level	10% at the level	10% at the level
	-2.708094	-3.770000	0.739000	0.216000
	-1.962813	-3.190000	0.463000	0.146000
	-1.606129	-2.890000	0.347000	0.119000

Source: Prepared by the researcher based on the (12.Eviews) program.

The static test was carried out using the unit root test, which was obtained using the DF (GLS) methodology and the kpss test, as follows:

We note from Table (5) and Table (6) that the DF(GLS) values calculated for the unit root are less than the critical value, and then the null hypothesis was rejected at the level of significance of 1%, 5%, and 10%. The null hypothesis was rejected, and then we accept the alternative hypothesis That all variables are stable at the same level. Hence, it is an integral of degree I(0). (Nadwa: 2011, 274) Also, the results of the Kpss test showed that the calculated LM values are less than the critical values, which means that there is no unit root, i.e. the variables are stable at the significant level of 1%, 1%, 5%, and 10%. Since all series included in the model are integrated of the same degree (0)I, then we can use the proposed models in the estimation process.

### 3 - The results of the standard models assessment process:

After we studied the stability of the time series of the study variables, we estimated the study models with a sample size of 18 using the statistical program 12 Eviews, and its outputs were as follows:

The first model: the impact of the commodity structure of exports on total exports

#### 1- Estimation results for the first model

The results of the estimation of the first model, Table (7), indicate that the value of (t) calculated for the variables of the volume of exports of mineral fuels and lubricating oil EXc, the volume of exports of chemicals EXd, and the volume of exports of unclassified commodities and transactions EXg is greater than the corresponding critical value at a level less than 1% And 5%, and (Prob) had (0.000, 0.018, and 0.048), respectively, which indicates the significant impact of these variables on the volume of total exports EX, and it represents 99% of the effect, as indicated by the value of R2 and R-2, while there is no significant effect for the rest of the variables. The model as a whole is statistically significant, as the calculated F value is greater than the tabular value and at a significant level of less than 1% (Prob) for it (0.000). On the other hand, the value of Darbin Watson indicates that the model does not suffer from The problem of autocorrelation with a value of (2.329).

Table (7) results of estimating the first model of the impact of the commodity structure variables of exports on total exports in Iraq for the period (2004-2021)

Source: Prepared by the researcher based on the (12.Eviews) program.

Dependent Variable: EX				
Method: Least Squares				
Date:                    Time:				
Sample (adjusted): 2004 2021				
Included observations: 18 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXA	2.383261	1.695802	1.405389	0.1902
EXB	-3.518320	3.303549	-1.065012	0.3119
EXC	1.000909	0.001369	731.3088	0.0000
EXD	-34.79165	12.33085	-2.821513	0.0181
EXE	0.815743	1.256960	0.648981	0.5310
EXF	-0.732734	0.669612	-1.094267	0.2995
EXG	18.13921	6.509699	2.786490	0.0192
C	132.5215	58.97844	2.246948	0.0484
R-squared	0.999996	Mean dependent var	57660.22	
Adjusted R-squared	0.999993	S.D. dependent var	24391.01	
S.E. of regression	66.24871	Akaike info criterion	11.52581	
Sum squared resid	43888.91	Schwarz criterion	11.92153	
Log likelihood	-95.73230	Hannan-Quinn criter.	11.58038	
F-statistic	329195.3	Durbin-Watson stat	2.329001	
Prob(F-statistic)	0.000000			

On the other hand, the outputs of the estimation of the exports model according to the commodity composition show that there is a direct relationship between the volume of exports EX and each of the volume of exports of mineral fuels and lubricating oil EXc and the volume of exports of unclassified commodities and transactions EXg and is affected mainly by commodities of mineral fuels and lubricating oil, where if these increase The latter by one unit, the volume of exports increases by 1.00, while the increase of classified commodities by one unit, the volume of exports increases by 18.13.

1- The degree of response of the dependent variable

The flexibility of changes for the dependent variable, i.e. the degree of response (total export volume) to the three independent variables, is shown in Table (8):

Table (8) The degree of response of the dependent variable (total exports) to changes in the independent variables (the commodity environment for exports)

Source: Prepared by the researcher based on the (12.Eviews) program.

As the above table indicates that more than 99% of the changes in total exports in Iraq for the period (2004-2021) are the result of changes in the volume of exports of mineral fuels and lubricating oil EXc.

2- The equation of the first form:

The final equation of the form can be written as follows:

$$EX = 93.33 + 1.00 EXc - 32.44 EXd + 15.75 EXg$$

The second model: the impact of the commodity structure of imports on total imports

1- The results of the assessment for the second model

The results of the estimation of the second model, Table (9), indicate that the value of (t) calculated for the variables of the volume of imports of foodstuffs and live animals (IMa), the volume of imports of beverages and tobacco (IMb), the volume of imports of chemicals (IMf), the volume of imports of manufactured goods classified according to material IMg, and the volume of imports of machinery and equipment Transport IMh, volume of imports of miscellaneous manufactures IMk, volume of imports of unclassified goods and transactions IML. Greater than the corresponding critical value at a level of less than 1% for all of them except for the variable and the volume of imports of goods and unclassified transactions IML, as it was at a level less than 5% and its (Prob) was (0.000 and 0.003), respectively, indicating the significant impact of these variables On the volume of total imports IM, which represents more than 99% of the effect, as indicated by the value of R2 and R-2, while there is no significant effect for the rest of the other variables on the volume of total imports, and the model as a whole is significant from a statistical point of view, as the calculated value of F is greater than the tabular value At a significant level of less than 1% (Prob), it has (0.000). On the other hand, the value of Darbin Watson indicates that the model does not suffer from the problem of autocorrelation, as its value reached (1.326).

Table (9) results of estimating the second model of the impact of the commodity structure variables of imports on total imports in Iraq for the period (2004-2021)

Dependent Variable: IM				
Method: Least Squares				
Date:		Time:		
Sample: 2004 2021				
Included observations: 18				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMA	0.731024	0.050486	14.47965	0.0000
IMB	1.082736	0.043217	25.05347	0.0000
IMC	0.019154	0.022893	0.836665	0.4304
IMD	0.389691	0.471399	0.826670	0.4357
IME	0.273078	0.264281	1.033285	0.3358
IMF	1.036771	0.153450	6.756423	0.0003
IMG	1.202551	0.012023	100.0174	0.0000
IMH	1.099652	0.026721	41.15256	0.0000
IMK	0.891823	0.040720	21.90128	0.0000
IML	4.110899	1.563140	2.629898	0.0339
C	21.38701	21.62692	0.988907	0.3557
R-squared	1.000000	Mean dependent var	40381.11	
Adjusted R-squared	0.999999	S.D. dependent var	12756.53	
S.E. of regression	9.206151	Akaike info criterion	7.555381	
Sum squared resid	593.2725	Schwarz criterion	8.099497	
Log likelihood	-56.99843	Hannan-Quinn criter.	7.630408	
F-statistic	3264056.	Durbin-Watson stat	1.326139	
Prob(F-statistic)	0.000000			

Source: Prepared by the researcher based on the (12.Eviews) program.

On the other hand, the outputs of estimating the imports model according to commodity composition show that there is a direct relationship between the volume of total imports IM and each of the volume of imports of foodstuffs and live animals IMA, the volume of imports of beverages and tobacco IMb, the volume of imports of chemicals IMf, and the volume of imports of manufactured goods classified by article IMg, the volume of imports of machinery and transport equipment IMh, the volume of imports of various manufactures IMk, the volume of imports of unclassified goods and transactions Iml. Where each of the previous independent variables by one unit will lead to an increase in the total import volume by (0.73, 1.08, 1.03, 1.20, 1.09, 0.89, 4.11), respectively.

1- The degree of response of the dependent variable

The flexibility of changes for the dependent variable, i.e. the degree of response (the volume of total imports) to the independent variables, is shown in Table (10):

Table (10) The degree of response of the dependent variable (total imports) to changes in the independent variables (the commodity environment for imports)

Source: Prepared by the researcher based on the (12.Eviews) program.

Scaled Coefficients			
Date:	Time:		
Sample: 2004 2021			
Included observations: 18			
Variable	Coefficient	Standardized Coefficient	Elasticity at Means
IMA	0.722049	0.045329	0.037920
IMB	1.098284	0.013247	0.015028
IMF	1.221513	0.084194	0.080921
IMG	1.204374	0.154071	0.135822
IMH	1.126646	0.410909	0.436178
IMK	0.851119	0.138018	0.134142
IML	5.464696	0.162444	0.158913
C	43.41478	NA	0.001075

Table (10) indicates that more than 43% of the changes in the volume of total imports in Iraq for the period (2004-2021) are the result of changes in the volume of imports of machinery and transport equipment IMh, and that 15% of the changes are the result of changes in the volume of imports of goods and non-transportation Classified IML and 13% of the changes are due to the change in the volume of imports of manufactured goods classified according to the article IMg and 13% also to the volume of imports of various manufactures IMk and 8% of the changes due to the change in the volume of imports of chemicals IMf and 3% as a result of the change in the volume of imports of foodstuffs and animals live IMA and only 1% as a result of the change in the volume of imports of beverages and tobacco IMb, which indicates the greater impact of the variable machinery and transport equipment.

1- The equation of the second form:

The final equation of the form can be written as follows

$$IM = 43.41 + 0.72IMA + 1.09IMb + 1.22IMf + 1.20IMg + 1.12 IMh + 0.85 IMk + 5.46IMl$$

The third model: the impact of the geographical structure of exports on total exports

1- Estimation results for the third model

The results of the estimation of the third model, Table (11), indicate that the value of (t) calculated for the variables of the volume of exports with Asian countries EXAs, the volume of exports with the European Union EXeu, the volume of exports with Europe EXur, the volume of exports with the countries of the Americas EXus, and the volume of exports with the rest of the world EXwo is greater than the corresponding critical value At a level of less than 1% and 5%, and its (Prob) was (0.000, 0.026, and 0.015), respectively, which indicates the significant impact of these variables on the volume of total exports EX, and they represent 99% of the effect, as indicated by the value of R2 and R-2. While there is no effect of the variable volume of exports with Arab countries compared to other variables, and the model as a whole is significant from a statistical point of view, as the calculated F value was greater than the tabular value and at a significant level of less than 1% (Prob) for it (0.000), and on the other hand, the value indicates Darbin Watson, that the model does not suffer from the problem of autocorrelation, as its value reached (1.917).

Table (11) results of estimating the third model of the impact of the geographical structure of exports variables on total exports in Iraq for the period (2004-2021)



Dependent Variable: EX  
 Method: Least Squares  
 Date: Time:  
 Sample: 2004 2021  
 Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXAS	1.029572	0.022935	44.89133	0.0000
EXAR	0.393991	0.359188	1.096895	0.2961
EXEU	0.965292	0.074476	12.96113	0.0000
EXUR	-1.831955	0.715426	-2.560647	0.0265
EXUS	1.168198	0.040571	28.79375	0.0000
EXWO	-2.390643	0.837141	-2.855722	0.0156
C	421.2672	456.7209	0.922374	0.3761
R-squared	0.999632	Mean dependent var	57660.22	
Adjusted R-squared	0.999431	S.D. dependent var	24391.01	
S.E. of regression	581.8882	Akaike info criterion	15.85573	
Sum squared resid	3724532.	Schwarz criterion	16.20199	
Log likelihood	-135.7016	Hannan-Quinn criter.	15.90348	
F-statistic	4976.432	Durbin-Watson stat	1.917718	
Prob(F-statistic)	0.000000			

Source: Prepared by the researcher based on the (12.Eviews) program.

On the other hand, the outputs of the estimation of the export model according to the geographical structure show that there is a direct relationship between the volume of total exports EX and each of the volume of exports with Asian countries EXAs, the volume of exports with the European Union EXeu, and the volume of exports with the countries of the Americas EXus, and it is mainly affected by the volume of exports with Asian countries, where if The latter increased by one unit, as the volume of total exports increases by 1.02, while increasing the volume of exports with the countries of the Americas by one unit, the volume of total exports increases by 1.16, and increasing the volume of exports with the European Union by one unit will increase the volume of total exports by 0.96, and the model indicates an inverse relationship with the volume Exports with Europe EXur and the volume of exports with the rest of the world EXwo and increasing it by one unit will lead to a decrease in total exports by (1.83, 2.39) respectively.

1- The degree of response of the dependent variable

The flexibility of changes in the dependent variable, i.e. the degree of response (total export volume) to the independent variables, is shown in Table (12):

Table (12) The degree of response of the dependent variable (total exports) to changes in the independent variables (geographical environment for exports

Scaled Coefficients  
 Date: Time:  
 Sample: 2004 2021  
 Included observations: 18

Variable	Coefficient	Standardized Coefficient	Elasticity at Means
EXAS	1.049965	0.888304	0.531735
EXEU	0.927887	0.158811	0.178378
EXUR	-1.921918	-0.017130	-0.010986
EXUS	1.197634	0.405396	0.298935
EXWO	-2.300668	-0.023215	-0.008116
C	579.6626	NA	0.010053

Source: Prepared by the researcher based on the (12.Eviews) program.

As the above table indicates that more than 53% of the changes in total exports in Iraq for the period (2004-2021) are the result of changes in the volume of exports with EXAs Asian countries, and that more than 29% of the changes are the result of changes in the volume of exports with the countries of the Americas EXus and 17 % of the changes are due to the change in the volume of exports with the European Union EXeu and 1% as a result of the change in the volume of exports with Europe EXur and less than 1% to the change in the volume of exports with the rest of the world EXwo, which indicates the significant impact of the first three variables, which have a direct relationship with total exports and the effect is very simple For the last two variables, which have an inverse relationship to total exports in Iraq.

1- The equation of the third form:

The final equation of the form can be written as follows:

$$EX = 579.6 + 1.04 EXas + 0.92 EXeu - 1.92 EXur + 1.19 EXus - 2.30 EXwo$$

The fourth model: the impact of the geographical structure of imports on total imports

1- The results of the assessment of the fourth model

The results of the estimation of the second model, Table (13), indicate that the value of (t) calculated for the variables of the volume of imports with Arab countries EXAr, the volume of imports with Asian countries EXAs, the volume of imports with the European Union EXUr, and the volume of imports with Europe EXEu is greater than the corresponding critical value at a level less than 1% For all of them, their (Prob) was (0.00), which indicates the significant impact of these variables on the volume of total imports IM, and it represents more than 99% of the effect, as indicated by the value of R2 and R-2, while the calculated value of t is less than the tabular value for it with respect to the variable of volume Imports with the countries of the Americas EXUs and the volume of imports with the rest of the world EXwo, as it was at a level higher than the critical values at the level of 5% and its (Prob) was (0.106 and 0.113) respectively, and the model as a whole is statistically significant as the calculated F value was greater From the corresponding tabular value and at a significant level of less than 1% (Prob) to it (0.000). On the other hand, the value of Darbin Watson indicates that the model does not suffer from the problem of autocorrelation, as its value reached (2.303).

Table (13) Results of estimating the second model, the impact of the variables of the geographical structure of imports on total imports in Iraq for the period (2004-2021)

Dependent Variable: IM  
Method: Least Squares  
Date:           Time:  
Sample: 2004 2021  
Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMAR	0.964119	0.105302	9.155715	0.0000
IMAS	0.876174	0.049205	17.80656	0.0000
IMEU	1.582047	0.349466	4.527048	0.0009
IMUR	0.991518	0.075856	13.07098	0.0000
IMUS	0.665603	0.378819	1.757047	0.1067
IMWO	-3.052829	1.777621	-1.717368	0.1139
C	2234.363	1346.162	1.659803	0.1252
R-squared	0.995280	Mean dependent var		40381.11
Adjusted R-squared	0.992705	S.D. dependent var		12756.53
S.E. of regression	1089.520	Akaike info criterion		17.11016
Sum squared resid	13057583	Schwarz criterion		17.45642
Log likelihood	-146.9915	Hannan-Quinn criter.		17.15791
F-statistic	386.5786	Durbin-Watson stat		2.303845
Prob(F-statistic)	0.000000			

Source: Prepared by the researcher based on the (12.Eviews) program.

On the other hand, the outputs of estimating the imports model according to the geographical structure show that there is a direct relationship between the volume of total imports IM and each of the volume of imports with Arab countries EXAr, the volume of imports with Asian countries EXAs, the volume of imports with Europe EXEu, and the volume of imports with the European Union EXUr. Where if each of the previous independent variables increased by one unit, it would lead to an increase in the volume of total imports by (0.96, 0.87, 1.58, 0.99), respectively.

1- The degree of response of the dependent variable

The flexibility of changes for the dependent variable, i.e. the degree of response (the volume of total imports) to the independent variables, is shown in Table (14):

Table (14) The degree of response of the dependent variable (total imports) to changes in the independent variables (the geographical environment of imports)

Scaled Coefficients  
Date:           Time:  
Sample: 2004 2021  
Included observations: 18

Variable	Coefficient	Standardized Coefficient	Elasticity at Means
IMAR	1.100309	0.411637	0.221987
IMAS	0.958352	0.923221	0.397701
IMEU	1.084535	0.158602	0.139942
IMUR	0.995131	0.490312	0.155468
C	3428.430	NA	0.084902

Source: Prepared by the researcher based on the (12.Eviews) program.

As the above table indicates that more than 39% of the changes in the volume of total imports in Iraq for the period (2004-2021) are the result of changes in the volume of imports with the Asian countries IMas, and that 22% of the changes are the result of changes in the volume of imports with the Arab countries IMar and more than 15 % of the changes are due to the change in the volume of imports with European countries IMur and more than 13% to the volume of imports with the European Union IMeu, which indicates that the effect is distributed among the four independent variables and their impact on total imports in Iraq for the period (2004-2021).

1- The equation of the fourth form:

The final equation of the form can be written as follows:

$$IM = 3428.4 + 1.10IMar + 0.95IMas + 1.08IMeu + 0.99IMur$$

Conclusions:

1- At the level of the commodity composition of exports and imports, we found that there was no noticeable change in the commodity structure of exports and imports despite the total changes in the tools of foreign trade policy, meaning that mineral fuel exports (crude oil) remained dominant over the commodity composition of exports, and machinery and equipment remained Transport ranks first in the list of the commodity composition of imports.

2- At the level of geographical distribution of trade exchange, we found that the first and main partner for Iraq, whether in terms of exports or imports, was the Asian countries.

3- Despite the occurrence of a change in the Iraqi foreign trade policy after 2003, we did not find any difference between the commercial policy methods applied in the stage of monopoly by the state or the stage of liberation on the volume and direction of foreign trade, except in the magnitude of the financial exaggeration between the two stages.

Recommendations:

1- To achieve commercial policies that reflect positively on the direction and volume of foreign trade, not dependent on price and regulatory procedures and measures, and international treaties, but rather on policies that lead to an increase in production in the quantity and quality required internally and externally, through the development of the agricultural sector and the industrial sector outside the oil sector.

2- The geographical factor plays a major role in competition for foreign markets, so Arab countries should establish policies based on trade cooperation as much as possible, and work to improve the level of exchange between them, by studying foreign markets and getting close to them to take advantage of the opportunities for freedom of exchange between them.

3- Preparing appropriate structures to supervise and monitor the implementation of trade policies, in order to provide Iraqi products of their own, in quantity, quality, and required quality in foreign markets.

4- The governmental authorities should develop trade policies that are appropriate to their economic and commercial conditions, and not what is dictated by international organizations that are looking for markets to sell their products.

5- Attempting to mix methods of protectionist and liberal trade policies in order to achieve the national interest from the foreign trade sector.

References

1- Ahmed Sultan Ahmed, Testing the stability of time series of cross-sectional data of large industrial facilities in Iraq, Journal of Economic and Administrative Sciences, Issue 70, Volume Nineteen, 2013.



- 2- Abdel-Majeed Hamza Nasser, Ahlam Ahmed Jumaa, Comparing some tests of the unstable first-order natural autoregressive model, Iraqi Journal of Statistical Sciences, Issue (12), 2007.
- 3- Abd al-Latif Shoman, Ali Abd al-Zahra, Analysis of the long-term equilibrium relationship using unit root tests and the method of integrating self-related models and slowing down (ARDL) models, Journal of Economic Sciences, Issue 34, Volume IX, 2013.
- 4- Nazih Abbas Al-Mashhadani, Kawthar Khader Al-Zaidi, Comparison of Unit Root Test Methods with a Proposed Method for the Stability of the Time Series Using Simulation, University College of Heritage Journal, Eighteenth Issue, 2015.
- 5- Nadwa Khazal Rashad, Using the Cranger test in the analysis of stable time series, Iraqi Journal of Statistical Sciences, Issue (19), 2011.
- 6- The Central Bank of Iraq, the annual statistical bulletin for the years (2004-2021).