

Measuring the Impact of Exports on the National Income in Iraq for the Period (1990-2021)

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ABSTRACT

Exports are an important part of macroeconomic, through which dealings with the outside world are equalized, foreign exchange is accumulated, the economy becomes stronger, and the economic surplus rises. research aims to know the extent of the impact of Iraqi exports on national income in the long term, as it is an important step towards addressing the output imbalance and the high rates of poverty and unemployment. research problem the Iraqi economy owning exports, but there is a decline in most macroeconomic variables such as employment, consumption, investment etc., which may be negatively reflected in the national income. importance of the research is that the improvement of exports could be the right step towards addressing the imbalance in the structure of the Iraqi economy and the weak productivity of the productive sectors, as well as the possibility of achieving sustainable development. The research found that there is a long-term positive effect of exports on the national income, the research recommends the importance of tracking the structure of exports and diversifying it to constitute an important addition to the Iraqi national economy.

Keywords:

Commodity and service exports, national income, ARDL model, stationary test.

Introduction

The Iraqi economy suffered in the early nineties of the last century from an economic blockade, which affected the local production sectors, and the weakness of the Iraqi economy's connection with the outside world. The Iraqi economy began to open up to the outside world, and the export of crude oil began, but the mismanagement of the economy caused the wasting of financial surpluses that were achieved as a result of selling crude oil, and the lack of optimal allocation of available economic resources. Thus, Iraqi exports went through a series of light and violent fluctuations during the research period due to Iraq's trade policy and the economic and political conditions surrounding it.

Research Problem

The Iraqi economy has exports, but there is a decline in most of the macroeconomic variables such as employment, consumption, investment

and others, which may be negatively reflected in the national income.

Research Importance

The improvement of exports could be the right step towards addressing the imbalance in the structure of the Iraqi economy and the weak productivity of the productive sectors, as well as the possibility of achieving sustainable development.

Research Hypothesis

The development of exports improves the national income in the long run, and this would address the high rates of poverty and unemployment and the distortion of the structure of domestic production.

Research Objective

Knowing the extent of the impact of Iraqi exports on national income in the long term, as it is an important step towards addressing the output imbalance and the high rates of poverty and unemployment.

Research Methodology

Adopting the deductive approach in analyzing the dimensions of the relationship in question, based on the standard quantitative analysis to prove the validity of the hypothesis, through books, bulletins, research and official statements issued by international institutions and organizations.

Theoretical Framework for Exports and National Income

Several studies have emphasized the importance of the relationship between exports and economic growth, as the increase in exports is a reflection of the boom in economic activities (Dhawan and Biswal, 1999).

While (Mallick, 1996) emphasized the existence of a strong relationship between wealth and exports, he used the causal technique to prove the long-term relationship in India, and thus he was able to prove the relationship between income and exports. Mishra, (2011) also proved the existence of a long-term relationship between exports and some macroeconomic variables, using time series data, in which he demonstrated the ability of export growth to enhance economic growth.

Ghatak and Price (1999) study emphasized the relationship between exports and GDP, and then national income. Keong et al. (2005) has built a standard model using vector error correction technology, and it has been proven that exports are the key to economic prosperity and improved performance of macroeconomic variables. Shah and Yuosf (1990) study also reinforced the reality of the relationship between exports and economic growth and achieving sustainable development.

There are some studies that have proven an inverse relationship between exports and economic growth, as production growth was the cause of the decline in export growth in the United States of America (Krugman & Obstfeld, 1994). Alam & Alam (2021) study emphasized that the prosperity of economic activities, and consequently exports, would enhance the paths of economic development and improve the local production environment.

Results and Discussion

It is clear from Table (1) that Iraqi exports amounted to (13888387097) dollars in 1990 and that the imposition of the economic embargo caused a decline in these exports to (526,2247.8) dollars in 1991, and thus their values fluctuated throughout the nineties of the last century until they reached in 1999 (36235417839) dollars.

The first decade of the third millennium witnessed an improvement in Iraqi exports after the resumption of the export of Iraqi crude oil in 2004, as it reached (20610853097) dollars, and it increased due to the extraction and export of crude oil until it reached in 2015 (57560660439) dollars, and it decreased in 2021 (50222068965) dollars due to The repercussions of the Corona pandemic and the institutional closure due to quarantine. As for the national income, it witnessed the same details of the conditions of exports, which led to the spread of poverty and unemployment due to the decline in wages and real income during the period of the economic blockade due to the rise in inflation to high rates, but after 2004 the national income gradually improved due to the increase in employment in the public institution, and with the crises Global economic and the failure of macroeconomic policies The local economy collapsed, production sectors lagged behind, and economic relations were distorted, which allowed for an increase in poverty, social problems and unemployment. Where the national income in 1990 amounted to (177707096774) dollars and after the embargo we find a significant decrease in the national income, which reached (401547550) dollars in 1991, and it continued to fluctuate until the gradual improvement began in 1996 following the application of the oil-for-medicine and food memorandum. It is improving well, as it reached in 2010 (54598900000) dollars and reached in 2015 (57560660439) dollars, in 2020 it decreased (50188790940) dollars due to the Corona pandemic and until 2021.

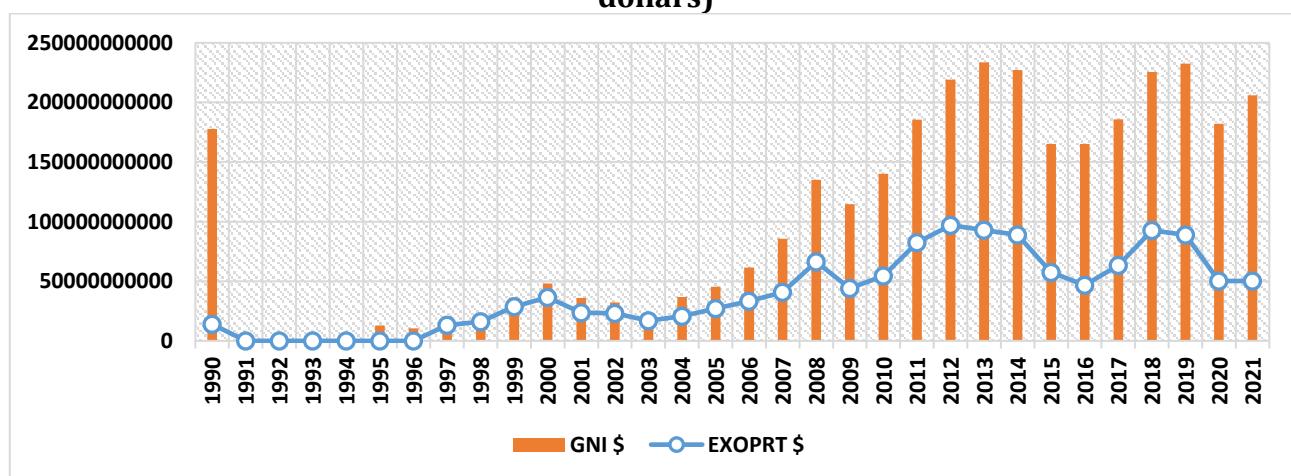
Table (1): exports and national income in Iraq for the period (1990-2021) (current prices) (US dollars)

Years	Exports	National Income	Years	Exports	National Income
1990	13888387097	1.77707E+11	2006	33242283055	61594655251
1991	5262247.8	401547550	2007	40776065461	85770188555
1992	3224627.2	547518519	2008	66239316547	135099654258
1993	779620.7	1031899965	2009	43993210285	114752590928
1994	1419562.9	3991350245	2010	54598900000	140109922650
1995	693280.9	12890451788	2011	82505400000	185512664444
1996	955911.8	10429801146	2012	97029493670	219061488972
1997	13257740143	20493266654	2013	93065600000	233577245129
1998	16060750015	20342220550	2014	88949000000	227112056175
1999	28632988389	36235417839	2015	57560660439	165257902945
2000	36613563338	48059388966	2016	46829500000	165041288748
2001	23613582831	35918504943	2017	63496860304	185776960051
2002	23237627426	32363890129	2018	92771934475	225613098288
2003	16965698493	21945812155	2019	88902900000	232469897800
2004	20610853097	36680330189	2020	50188790940	182171806544
2005	27149419158	45427690353	2021	50222068965	206086533724

Source: World Bank, International Indicators, various years.

As shown in Figure (1), both exports and national income began to improve and gradually recover after 2004, affected in the previous period by the economic embargo. The improvement in exports as a result of the export of crude oil and the improvement of the national income, is to be faced with a decrease in poverty

and unemployment rates, and this did not happen in most years of research due to the unstable security and political conditions, which left serious social problems and the sharpening of the disparity in the distribution of incomes among the segments of society.

Figure (1): Iraq's exports and national income for the period (1990-2021) (current prices) (US dollars)

Source: Table 1 data.

It is clear from the stationary test after choosing the double logarithmic formula of the model, that the time series of national income was stable at the level in the formula of the fixed term and the time trend. Therefore, the null hypothesis will be rejected and the alternate

hypothesis accepted because the time series is stable. As for the time series of exports, it was unstable at the level in all forms. So the first difference was taken for her and she became stable. So the integral becomes $I(0), I(1)$. This allows the ARDL model to be used.

Table (2): Stability test according to the Phelps-Perron test

Variables	Level			1 diff.		
	Int.	Int. & Trend	non	Int.	Int. & Trend	non
Y	0.6	*0.0003	0.3			
X	0.4	0.1	0.6	0.0000*	0.0000*	0.0000*

Source: program output Eviews 10. *= (1%), **= (5%), ***= (10%).

Where: (Y) national income, (X) exports.

Bound test indicates the existence of a co-integration relationship of the model, where the test value reached (13) which is higher than the upper and lower bounds at the level of

significance (1%). The probability of the estimated parameters in the long term is less than (0.05), which is good and statistically significant.

Table (3): Bound test and long-term parameters of the model

ARDL Long Run Form and Bounds Test				
Dependent Variable: D(LOGY)				
Selected Model: ARDL(3, 0)				
Case 4: Unrestricted Constant and Restricted Trend				
Sample: 1990 2021				
Included observations: 29				
Conditional Error Correction Regression				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	5.474208	2.489947	13.63049	C
0.0009	3.792187	0.018035	0.068391	@TREND
0.0001	-4.934020	0.137723	-0.679530	LOGY(-1)*
0.0200	2.499018	0.035811	0.089493	LOGX**
0.0635	1.950001	0.195554	0.381331	D(LOGY(-1))
0.0081	2.900103	0.051396	0.149054	D(LOGY(-2))
* p-value incompatible with t-Bounds distribution.				

** Variable interpreted as $Z = Z(-1) + D(Z)$.				
Levels Equation				
Case 4: Unrestricted Constant and Restricted Trend				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0012	3.693260	0.035659	0.131698	LOGX
0.0000	8.258548	0.012187	0.100645	@TREND
$EC = LOGY - (0.1317 * LOGX + 0.1006 * @TREND)$				
Null Hypothesis: No levels relationship	F-Bounds Test			
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
4.49	4.05	10%	13.01769	F-statistic
5.15	4.68	5%	1	k
5.83	5.3	2.5%		
6.73	6.1	1%		

Source: program output Eviews 10.

The error correction parameter that was negative and its probability is less than (5%) indicates that the speed of correcting the

shortest deviation in the relationship between exports and national income was good, as it reached (67%).

Table (4): Error Correction Test for the Model

ARDL Error Correction Test for the Model				
	ARDL Error Correction Regression			
	Dependent Variable: D(LOGY)			
	Selected Model: ARDL(3, 0)			
Case 4: Unrestricted Constant and Restricted Trend				
	Sample: 1990 2021			
	Included observations: 29			
ECM Regression				
Case 4: Unrestricted Constant and Restricted Trend				
Prob.	t-Statistic	Std. Error	Coefficient	Variable

0.0000	6.581291	2.081489	13.6988 8	C
0.0032	3.289103	0.115938	0.38133 1	D(LOGY(-1))
0.0053	3.078978	0.048410	0.14905 4	D(LOGY(-2))
0.0000	- 6.515288	0.104298	- 0.67953 0	CointEq(-1)*
0.2045 05	Mean var	dependent	0.66844 7	R-squared
0.4087 62		S.D. dependent var	0.62866 1	Adjusted R-squared
0.1854 33	Akaike criterion	info	0.24909 0	S.E. of regression
0.3740 26		Schwarz criterion	1.55114 0	Sum squared resid
0.2444 98	Hannan-Quinn criter.		1.31121 8	Log likelihood
1.8663 39	Durbin-Watson stat		16.8009 1	F-statistic
			0.00000 3	Prob(F-statistic)

Source: program output Eviews 10.

The results of the model indicate that exports positively affect national income by (8.9%) at a probability level of less than (5%), which is of good statistical significance, with an interpretation coefficient of (97%) and an average interpretation coefficient of (96%). And a high statistic for the Fisher test, which means the model is significant in general. The amount of impact, although small, indicates the

possibility of employing Iraqi exports in the service of national income in the long term, and that the structure of Iraqi exports suffers from an imbalance in favor of the oil sector, and that oil surpluses can be the means to support the financing of economic activities to recover and increase their productivity, as a result, the national income improved, and poverty and unemployment rates decreased.

Table (5): ARDL Test Results

Dependent Variable: LOGY				
Method: ARDL				
Sample (adjusted): 1993 2021				
Included observations: 29 after adjustments				
Maximum dependent lags: 3 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (2 lags, automatic): LOGX				
Fixed regressors: C @TREND				
Number of models evaluated: 9				
Selected Model: ARDL(3, 0)				
Prob.*	t-Statistic	Std. Error	Coefficient	Variable
0.0004	4.122245	0.170247	0.701800	LOGY(-1)
0.2606	-1.153330	0.201396	-0.232276	LOGY(-2)
0.0081	-2.900103	0.051396	-0.149054	LOGY(-3)
0.0200	2.499018	0.035811	0.089493	LOGX
0.0000	5.474208	2.489947	13.63049	C
0.0009	3.792187	0.018035	0.068391	@TREND
24.8227	Mean dependent var	0.970200	R-squared	
1.363441	S.D. dependent var	0.963721	Adjusted R-squared	
0.323364	Akaike info criterion	0.259694	S.E. of regression	
0.606253	Schwarz criterion	1.551140	Sum squared resid	
0.411962	Hannan-Quinn criter.	1.311218	Log likelihood	
1.866339	Durbin-Watson stat	149.7611	F-statistic	
		0.000000	Prob(F-statistic)	

Source: program output Eviews 10.

All econometric tests indicate the integrity of the model from standard problems, as (Breusch-Godfrey) test indicates that the model

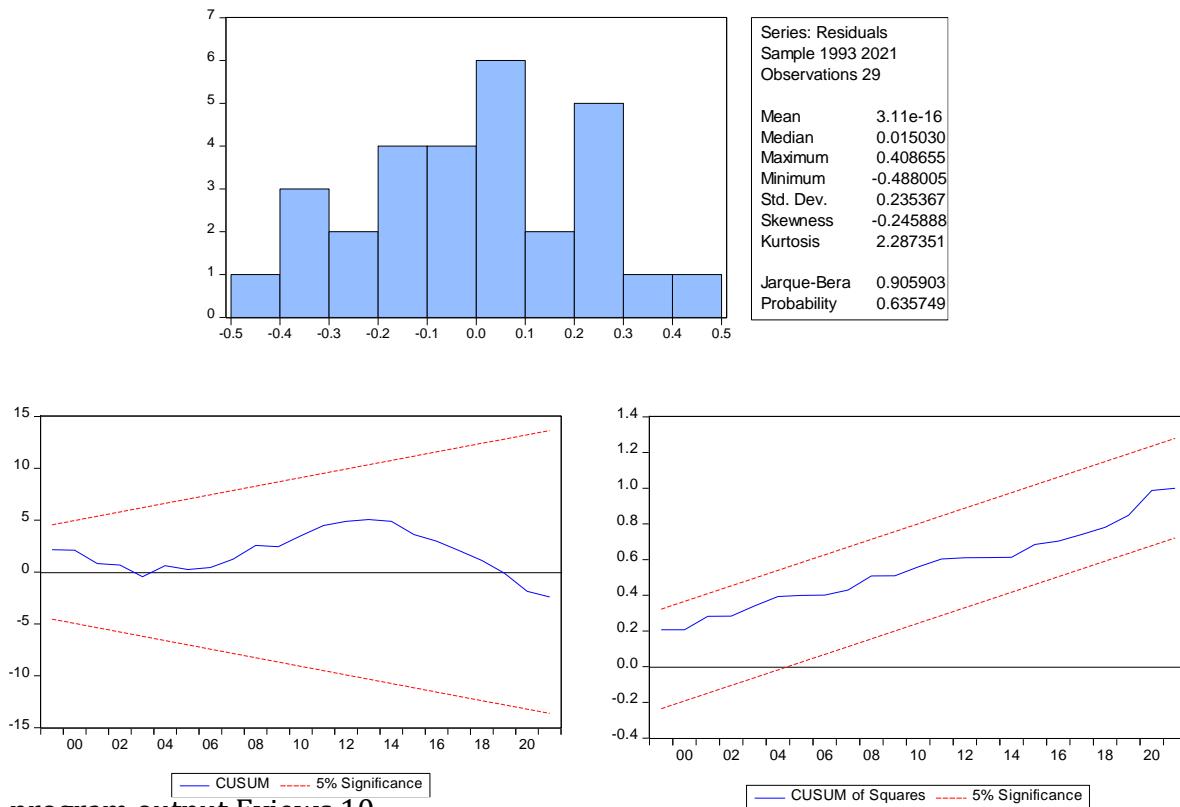
is free from the problem of autocorrelation to the random error limit, and (Variance Inflation Factors) test indicates the integrity of the model

from the problem of multilinearity, and (Breusch-Pagan test) indicates the integrity of the model from the problem of multilinearity. - Godfrey) to the integrity of the model from the problem of instability of homogeneity of

variance, and that (Jarque-Bera) test refers to the normal distribution of residuals, and test (CUSUM) indicates the stability of the model at the level of (5%).

Table (6): Econometric Tests for the Model

Breusch-Godfrey Serial Correlation LM Test:			
0.1303	Prob. F(2,21)	2.24888 9	F-statistic
0.0775	Prob. Chi-Square(2)	5.11556 5	Obs*R-squared
Variance Inflation Factors			
Date: 07/06/22 Time: 15:15			
Sample: 1990 2021			
Included observations: 29			
Centered	Uncentered	Coefficient	
VIF	VIF	Variance	Variable
30.6985 1	7583.91 0	0.02898 4	LOGY(-1)
55.0476 0	10444.6 9	0.04056 0	LOGY(-2)
3.55064 4	679.678 7	0.00264 2	LOGY(-3)
7.73783 3	299.382 3	0.00128 2	LOGX
NA	2665.97 0	6.19983 8	C
9.79028 7	50.2101 9	0.00032 5	@TREND
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
0.5173	Prob. F(5,23)	0.86825 9	F-statistic
0.4660	Prob. Chi-Square(5)	4.60466 7	Obs*R-squared
0.8676	Prob. Chi-Square(5)	1.86433 9	Scaled explained SS



Source: program output Eviews 10.

Conclusions

- 1- Fluctuation of the values of exports and national income during the research period, but their level after 2004 is much higher than the previous period, due to the repercussions of the economic blockade, which resulted in the suspension of exports, the deterioration of national income and the rise in poverty and unemployment rates to very high levels.
- 2- Positive impact of exports on national income during the research period, but with a weak effect because oil exports dominated the structure of Iraqi exports, and that this natural resource was not exploited in the service of the local economy, so the imbalance in the structure of the output and distortion of economic relations continued.
- 3- Direct relationship between exports and national income established in a record, should have reduced the level of poverty and unemployment, and this was not achieved due to the chaos of the Iraqi economy, and the spread of administrative and financial corruption, nepotism, and partisan and factional interests, which finished off all economic relations, despite the improvement of national

income after 2004, however, the rates of poverty and unemployment witnessed a significant increase, which indicates the sharpening of the inequality in the distribution of incomes, which paved the way for the formation of the fragile state.

Recommendations

- 1- Diversifying the structure of Iraqi exports to include all productive activities, which improves the overall productivity of the local industry, and develops the industrial and productive base for all branches of the overall economy.
- 2- Benefiting from the financial surpluses as a result of exporting crude oil in building a strong economy and advanced economic relations that support local production branches and enhance forward and backward links and sustainable development.
- 3- Strengthening the link between exports and national income, improving the investment and production environment, reducing poverty and unemployment rates, increasing employment and increasing the economic surplus in order to achieve economic stability.

References

1. Alam, M. Q., & Alam, M. S. (2021). Financial development, economic growth, and poverty reduction in India. *Etikonomi: Journal Ekonomi*, 20(1), 13–22. <http://doi.org/10.15408/etk.v20i1.18417>
2. Dhawan, U., & Biswal, B. (1999). Re-examining export-led growth hypothesis: A multivariate cointegration analysis for India. *Applied Economics*, 31, 525–30. <https://doi.org/10.1080/000368499324246>
3. Ghatak, S., & Price, S. W. (1997). Export composition and economic growth: Co-integration and causality evidence for India. *Weltwirtschaftliches Arch*, 133, 538–553. <https://doi.org/10.3923/jas.2007.3649.3658>
4. Keong, C. C., Yusop, Z., & Sen, V. (2005). Export-led growth hypothesis in Malaysia: An investigation using the bound test. *Sunway Academy Journal*, 2, 13–33
5. Krugmam, P. R., & Obstfeld, M. (1994). *International economics: Theory and policy* (3rd edn.). New York, USA: Harper Collins College.
6. Mallick, S. K. (1996). Causality between exports and economic growth in India: Evidence from cointegration based error-correction model. *Indian Journal of Economics*, 76(302), 307–320. <https://www.jstor.org/stable/4192939>
7. Mishra, P. K. (2011). The dynamics of the relationship between exports and economic growth in India. *International Journal of Economic Sciences and Applied Research*, 4(2), 53–70. http://ijbesar.teiemt.gr/docs/volume4_issue2/exports_india.pdf
8. Mohammad SUBHAN and Others, Relationship between Exports, Economic Growth and Other Economic Activities in India: Evidence from VAR Model, *Journal of Asian Finance, Economics and Business* Vol 8 No 12 (2021) 0271–0282. <http://doi.org/10.1080/2795-7659.2021.1993246>
9. Shah, M., & Yuosf, M. B. (1990). Export and economics growth: A case of Malaysia. In B. Mohammed (Ed.), *Trade and development in Malaysia* (pp. 83–92). Malaysia: Yuosf University Pertanian. <http://koreascience.kr/article/JAK0202133452462046>