Measuring The Long-Term Relationship Between Population Growth and Economic Growth Under Sustainable Development

By

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Abstract

Developing countries have abundant population that can be employed in the production process in order to support production plans and economic activities, and then finance sustainable development plans. The hypothesis of the research is that the population increase in Iraq reaped the negative impact and lost the positive impact in order to build the economy and support sustainable development. The importance of the research is to study the long-term relationship between population growth and economic growth in order to attract the attention of decision-makers, to care for the workforce and develop public health and education at its various levels. Econometrics method was used in order to prove the validity of the relationship in the long term between the research variables for the period (2004-2018). The research concluded that there is a long-term and influential relationship between population growth and economic growth. The research recommended attention to primary education and establishing an appropriate environment for training and rehabilitating the currency hand to benefit from it in building the economy.

Keywords: population growth, economic growth, human capital, ARDL model, sustainable development.

Introduction

Financial and economic resources are rare in nature, and this is what triggered the economic problem, and that the problem of the population extension is one of the most serious obstacles decision-makers encounter in fighting poverty and ignorance, Most of the countries in the developed and developing world suffer from this problem, as the increase in population is often linked as the desire and conviction of the family, ideological or religious factors, intellectual impulses, and human instincts, therefore, population abundance uncontrolled. Population increases may be regional or in rural areas, which allows for transfer to enhancing the living situation. As well as the liberalization of the movement of labor internationally. Therefore, supports the knowledge economy, which good affects economic growth and supports of sustainable development plans.

The importance of the study is to study the long-term relationship between population growth and economic growth in order to attract the attention of decision-makers, to care for the workforce and develop public health and education at its various levels. if Iraq suffered during

the period (2004-2018) a significant increase in aggregate of demand because to the high population surplus, with Deterioration services, education and health, and the ongoing battles with criminal gangs, which claimed thousands of people killed. *a problem statement* is the continued increase in population growth will natural resources exhausted and thus economic growth. ***The hypothesis of the study*** is that population growth negative GDP effect and then economic growth, which impedes sustainable economic development plans. *The study aims* the impact of population growth in economic growth in Iraq, because Iraq after 2003 have dangerous economic developments, and a turbulent macroeconomics environment that caused wastage of financial resources, despite the security instability, moreover a significant increase population growth.

Theoretical Side

Economic growth defining (increased in per capita share abd/or the labor component's share GDP) (Michel Todaro, 2006, p. 175). Milton Friedman, he defined (the expansion of the productive apparatus without any changes in social and economic structure) (Said Al-Khudari, 1989, p. 9).

Economic literature Presents several theories that explain the reasons for the increase in population, and the effects of that increase, such as (Malthus' theory, the theory of optimum population size, Marx's theory). (Al-Siriti, 2007, p. 148).

There was a debate between population growth and economic growth relationship, as population growth is an increase in employment, then a positive effect in order to economic growth increase, and it is a cause of poverty of society, and per capita income and GDP decrease. Population growth exerts influence in economic growth by effect in national savings, local total investment, and the efficiency with which the national economy operates. (Al-Tarrah et al., 2020, p. 224).

Population growth was a demographic phenomenon that characterizes the all economy in global, and that the population surplus dramatically leads to a threat to food security, the study of population growth supports to develop the workforce and benefit it in the production process. (Al-Dabousi, 2007, p. 23).

Sources of economic growth, first: the sources of direct growth, which are related to the accumulation of GDP to the production process, and the effect on its productivity), second: the sources of indirect growth, which are linked to the economic and political systems in any country in the world, as well as, the institutions supporting the process of economic growth, and the effect of customs and norms in every community. (Hamza, 2015, p. 69).

Results

(ADF) and (KPSS) tests results indicate the economic growth variable (Y) is stable at the level with the three formulas available in (ADF) test, and (LM) value in (KPSS) test is less than the critical value at a significant level (1%), meaning that the time series of economic growth is stationary. population growth variable (X): according (ADF) and (KPSS) tests it is non-stationary at the level, and it has stabilized after the first difference was made, therefore the stability tests paved the way for conducting the (ARDL) Model.

Border test: the value of the statistic (F) was (12.8), a higher than the lower and upper limits at the level of significance (1%), therefore, null hypothesis rejected, and alternative hypothesis accepted, that mean is a co-integration relationship between the model variables.

Table (1). *(ADF) and (KPSS) Stationary Tests for Iraqi model*

	Unit Root Test (ADF)					
	Level			**1 difference**		
variables	Constant	Constant & Trend	Non	Constant	Constant & Trend	Non
	Prob.	Prob.	Prob.	Prob.	Prob.	Prob.
Y	0.01	0.03	0.001	--	--	--
X	0.058	0.9	0.8	0.1	0.000	0.01

	Unit Root Test (KPSS)					
variables	LM Cont.		LM Cont. & Trend		critical values	
		0.7		0.2	1%	
Y	0.38	0.4	0.117	0.14	5%	Level
		0.34		0.119	10%	
		0.7		0.2	1%	
X	1.2	0.4	1.6	0.14	5%	Level
		0.34		0.119	10%	
					1%	
Y	--		--		5%	1 diff.
					10%	
		0.7		0.2	1%	
X	0.4	0.43	0.3	0.14	5%	1 diff.
		0.34		0.119	10%	

Source: EVIEWS RESULTS. Version 10.

Table (2): Border Test

	F-Bounds Test			
I (1)	I (0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.28	2.44	10%	12.81651	F-statistic
4.11	3.15	5%	1	k
4.92	3.88	2.5%		
6.02	4.81	1%		

Source: EVIEWS RESULTS. Version 10.

the model's long-term parameters were good, whether in their current or lagged based in the probability, they are less than the level (0.05). And (t) test the significance of each variable, whether in its current or lagged values based. The interpretation coefficient was (R-squared) reached (86%), meaning population growth explains (86%) of the changing or fluctuations in path of economic growth. modified interpretation coefficient was (86%).

Table (3). *Long-Term Test*

	ARDL Long Run Form			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y (-1)	-0.22011	0.043511	-5.05875	0.000
X	0.454526	0.169355	2.683871	0.0096
D(Y (-1))	0.411681	0.080294	5.127197	0.000

Source: EVIEWS RESULTS. Version 10.

Population growth affects economic growth positively by (0.45), which means that population growth, and what it represents of surplus labor for the labor market in the Iraqi local markets for the public and private sectors, GDP affects, then consumption effect or by numbers

that constitute part of the labor market.

The Iraqi markets are facing a significant increase in the supply of force work (presented high unemployment rates), This puts economic policies in front of great challenges, due to the superiority of quantity over quality, and macroeconomics productivity deterioration in an unsatisfactory and unstimulating for GDP, which suffers from an imbalance in structural, to oil sector, and agricultural and industrial sector a low contribution.

(F) probability for (Breusch-Godfrey) test was (0.56), which is greater than the level of significance (0.05), which mean that there is no autocorrelation problem in the relationship, and (F) probability of (ARCH) test was (0.66), which is greater than the level of significance (0.05), which mean that there is no problem of heteroscedasticity in the model.

Error correction test refers to the speed of adjustment in the deviation in the model variables by the long term, it was (22%) to every three months. It is a fit correction speed for the error that occurs in the equilibrium values level of the model variables in the short term. It came a negative and statistical significance as the following table (4):

Table (4). *ECM Test*

ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Y(-1))	0.411681	0.078581	5.238914	0.000
CointEq(-1)*	-0.22011	0.043085	-5.10873	0.000
R-squared	0.683925	Mean dependent var		-0.99409
Adjusted R-squared	0.67828	S.D. dependent var		5.079692
S.E. of regression	2.881218	Akaike info criterion		4.988177
Sum squared resid	464.8793	Schwarz criterion		5.059227
Log likelihood	-142.657	Hannan-Quinn criter.		5.015853
Durbin-Watson stat	2.143452			

Source: EVIEWS RESULTS. Version 10.

CUSUM Test shown in Figure (1), that the model is completely stationary at the (0.05) significance.

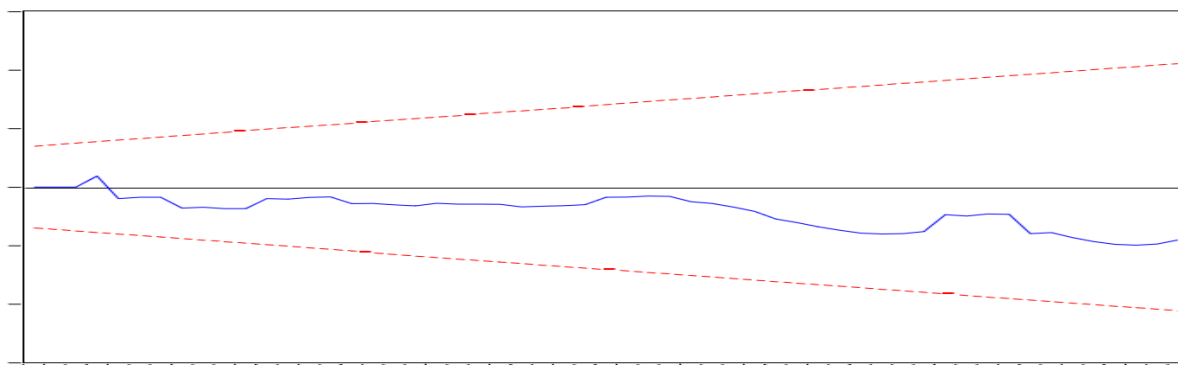**Figure (1):** *CUSUM Test*
Source: EVIEWS RESULTS. Version 10.

Conclusions

1-Despite the unstable political and social conditions in Iraq, and the expansion of the phenomenon of displacement among the population, the population growth was

increasing.

2-The increase in economic growth in the general trend came due to the increase in the export of crude oil, which is the main component of the output in Iraq.

3-The cumulative effect of population increase has a positive effect on economic growth in Iraq over time, and this is what was proven by the econometrics study.

4-The increase in population growth with the disruption of economic activities and the migration of the private sector to the local economy, has caused a rise in the phenomenon of poverty and a widening of class differences between the population, which led to an increase in administrative and financial corruption and non-compliance with the law.

Recommendations

1-Develop a surplus workforce in order to absorb them into the labor market, and increase their efficiency, talents and experiences in order to allow them to be employed in the available economic activities.

2-Supporting the private sector in order to finance the creative activities of youth energies and refine their knowledge of the business world and give them confidence in carrying out the activities they desire.

3-treating weak production activities and structural imbalances in the real economy, in order to benefit from the surplus labor force in production processes and revive local markets.

4-Reforming the Iraqi economy will give it the ability to absorb the impact of external shocks, or at least mitigate their local impact, in order to support the temporal trend of economic growth and support sustainable development.

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