The Effect of Fertility Rate on the Economic Growth-Iraq as an Example for the Period of 2007-2022.

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Abstract

Every country due to the process of development will experience changes in some social structures. One of them is the fertility rate. Fertility rate can affect growth in both directions positive and negative. Iraq is no exception in this regard. It has many economic problems such as high rates of unemployment versus low rates of growth. Focusing on the last 15 years (2007-2022) the objective of this article is mainly to reveal the effect of the fertility rate on economic growth (GDP per Capita as a proxy-GDPPC) in Iraq, also to predict their trends in the future. For this purpose, the ARDL model of regression has been applied and GCF, GEXP, and COVID-19 variables are also included in the regression model. Findings show that fertility has negative effects on the GDPPC in the short run but positive effects in the long run. GCF has a positive effect in the short-run, GEXP has a positive effect in the short-run but its effect is negative in the long-run. GDPPC and FR have an opposite trend in forecasting prediction. The paper concludes that women's empowerment is necessary in order to control the fertility rate. This needs government intervention at least through providing more opportunities to access education and healthcare services alongside offering financial support. Future work is recommended in further detail with different models and measurements.

Keywords: Economic growth, fertility, Government Expenditure, Gross Capital Formation, ARDL.

Introduction

The ultimate goal of any country is to improve the overall level of the economy to persuade prosperity and social justice to its society. Many factors contribute to achieving that goal, one of which is the fertility rate, which determines population growth along with other indicators. Based on the publication of National Institution of Statistics and Economic Studies defines the fertility rate as "the fertility rate is the ratio between the number of live births in a year and the whole female population of childbearing age (average number of women between 15 and 50 years of age over the year)" (Insee, 2021).

Based on the UN reports, the global fertility rate is expected to be 2.2 children per woman by 2050 and life expectancy to be 77 years (United Nations Department of Economic and Social Affairs, 2020). In the long term, the low fertility rate will lead to a shortage of young workers in the labour force, who participate in economic activities by a great portion and the ratio of elder people in the labour force will increase. This means more pensions have to be paid after retirement, increasing health expenditure due to the increase of elderly people's rate, and decreasing the labour force because of having the higher level of retirement. As a consequence, this may lead to declining productivity and slowing down the growth rate of the economy.

Furthermore, the economic performance of a country is influenced a great deal by its demographic change. The theory of development sees fertility behaviour as a vital challenge because a high level of population growth dilutes the stock of physical capital (Doepke & de la Croix, 2005). Based on the Solo model theory of economic growth, when the country reaches the steady state point, all of the rate of population, technology and investment rates are optimal (Mankiw, 2016). From this connotation, the higher rate of population growth, which means a high rate of fertility, contributes to a diminishing rate of return per capita. By contrast, the consequence of the lower fertility rate is the higher capital per worker; thus productivity will increase accordingly.

Iraq has come across many social and economic transmissions, especially after 2003. Some of them have become obstacles in front of the development process. For example, population growth has changed from 3.1% in 2003 to 2.2% in 2022, the gross domestic production per capita decreased from 4.9% in 2006 to 4.7% in 2022 (worldbank.org, 2023), the fertility rate decreased from 4.71% in 2003 to 3.49% in 2022 (population.un.org, 2023). The unemployment rate has risen from 9% in 2003 to over 15.5% in 2022 (data.worldbank.org), and the poverty rate increased from 20% in 2018 to 31% during Covid-19 (unicef.org, 2020). The importance of this study comes from the idea that Iraq has come through many obstacles and changes, especially in the last two decades. Determining the size and direction of the effect of fertility will help the government and related organizations to direct their policy which promotes economic growth. Thus, the problem is when there is unmanaged growth in population unemployment may increase especially when there is not sufficient job creation in the economy to absorb the increased labour force, economic growth will be slow, and the poverty rate also increase. The objectives of this study are to determine how economic growth and fertility are related. And how fertility rate has affected economic growth in Iraq? Also, forecasting the rate of economic growth and fertility rate in Iraq for 2030. The hypothesis is that the rate of fertility negatively affects economic growth.

The structures of upcoming sections are; the literature review, methodology and data collection, results from empirical study, discussion, and finally the conclusion of the study.

Literature Review

The relationship between population and economic growth is grounded in both classical and contempo-

rary economic theories. Malthusian theory posits that population growth can impede economic progress due to resource constraints (Malthus, 1798). Conversely, modern growth theories, such as those proposed by Becker and Barro (1988), suggest that population growth can enhance economic development through increased human capital and innovation. Additionally, endogenous growth theory highlights how a larger population can contribute to a larger market and greater economies of scale (Romer, 1986). These theories underscore the complex, multifaceted nature of the population-economic growth nexus.

The topic of the effect of fertility rate on economic growth has taken considerable attention in literature and studied with many other related variables, such as; wage rate, women participation rate in the labour force, skilled and unskilled workers, education, .. etc. Based on the field of study and the methodology used in analysing those variables, studies are divided into two main areas; micro and macro studies. The purpose of this section is to introduce studies carried out on the link between fertility rate and economic growth at the macro level.

Despotoviĉ et al. (2022) investigate the relationship and effect between economic growth per capita and fertility in six chosen transition countries for the period of 2000-2018. They used OLS panel regression model. The findings suggest that for any increment of fertility rate by 0.1%, the rate of GDP growth per capita will decrease by 0.53%.

In the empirical study of "The Nexus of Economic Growth, education, Fertility Rate and female labour supply: Empirical Evidence in Malaysia" which is conducted by Hwa and et al. (2020), authors focused on the long relationship between female labour supply, education, fertility, and economic growth and also the causality relationship between these variables. The bounds test and Granger non-causality methodology have been applied to show the interrelationships between the variables. The results indicate that there is a strong long-run relationship among variables. Inverted U-shaped between women's employment and economic growth have been found. Also, there is unidirectional Granger causality from economic growth and fertility to female labour supply and from economic growth to fertility as well.

Others studied the interaction between economic growth and non-regular employment of women by using the overlapping-generation model in Japan. A negative relationship has been between number of children, the cost of childcare, and education has been found. Furthermore, households in which only the husband works are in a decreasing rate. However, there is a similarity in educational background and ability to work between men and women but most women become non-regular employees after marriage and childbirth, which leads to the reduction in the household's income as well as the fertility rate. The study suggests that the Japanese government should raise the wage rate for non-regular employment under the public pension policy. If it is not so, that will affect the Japanese economic growth negatively (Murata, 2018).

In the study: "The Effect of Fertility Decline on Economic Growth in Africa: a Karra and et al. (2017) state that the fertility rate can affect economic growth. The demographic-economic macro-simulation model has been used for Nigeria as an example. Four models have been studied, for instance; fertility effect on saving; education to fertility feedback; fertility effect on health; and the three-sector model effect with market imperfections. The results show that lowering the fertility rate to one child per woman will double income per capita by 2060. However, the decline in fertility is not enough to have the desired rate of economic growth. Infrastructure, technology, education, health, and governance shall be improved in order to achieve sustainable economic growth.

The following table will summarize the results and approaches of the studies discussed:

Table (1): Summarizing the literature review

Authors	Title	Time Span	Approach	Result
DespotoviĆ et al., 2022	Fertility and Economic Growth of Selected Transition Countries	2000-2018	OLS Panel	Negative Effect
Hwa et al., 2020	The Nexus of Economic Growth, Education, Fertility Rate and Female Labour Supply: Empirical Evidence in Malaysia	1990-2018	APRIL	Positive Effect
Murata, 2018	Non-regular Employment of Women, Fertility Rate, and Economic Growth	2000-2012	Overlapping-Generations Model	Negative Relationship
Karra et al., 2017	The Effect of Fertility Decline on Economic Growth in Africa	2005-2100	A Macrosimulation Model	Positive Effect

Source: Prepared by researchers, based on Literature Review.

To sum up, although there are many studies conducted in this field, there is no study in the literature that is being conducted on the economic growth and fertility in Iraq. The contribution of this article is through the study of fertility in relation to economic growth in Iraq.

Methodology and Data Collection

This article relies on four major variables which are; Gross domestic production per capita (GDPPC) as a proxy of economic growth, fertility rate (FR), Gross capital formation (GCF), and government expenditure (GEXP) for the period of (2007-2022) and Covid-19 as a minor variable. The econometric analysis will be relied on.

GDPPC: is at a constant rate, and its percentage change in order to indicate the economic growth in Iraq and its value is in dollars. This is because GDPPC at a constant rate can be used as a proxy for the actual value/percentage of economic growth. Data for the GDPPC is obtained from the World Bank data stream (data.worldbank.org, 2023).

Fertility rate (FR): This variable is a composition of all age-specific fertility rates. Thus, it will contain all the imaginary numbers of children that a woman would have during her childbearing life. Therefore, the data is not affected by the composition of age-specific. The data for this variable has been taken from the United Nations Department Population Division (population.un.org, 2023).

Government expenditure (GEXP) represents all government expenditures on consumptions, investments and transfer payments in dollars. This variable has been included in the model to act as a supporting variable. With regard to Gross capital formation in constant term (GCF) is included to determine how this variable affects the GDPPC?

The last variable is Covid-19. This is included to control the effect of each explanatory variable when the pan-

demic spreads out. In the time of Covid-19, all variables experienced extraordinary shocks. Thus, Covid-19 will help to correct such trends.

The empirical analysis will be conducted through the following model

$$GDPPC = f(FR, GEXP, GCF, Covid - 19)$$

$$GDPPCt = \propto + \beta_1 FRt + \beta_2 GEXP_t + \beta_3 GCF_t + \beta_4 Covid_t + \varepsilon t$$
$$GDPPCt = \propto + \beta_1 FRt + \beta_2 GEXP_t + \beta_3 GCF_t + \beta_4 Covid_t + \varepsilon t \dots\dots\dots \quad \text{Main} \quad \text{Model}$$

t = 1,2,3,…tn

GDPPC = Gross domestic production per capita.

FR = Fertility rate.

GEXP = Government expenditure.

GCF = Gross capital formation.

Covid = covid-19.

β = coefficient of variables (indicates the degree of effect of independent variables on the dependent variable).

ε = Error term for the regression model.

For the estimation, the model of Auto Regressive Distributed Lag (ARDL) has been used. This is by using the statistical computer package E-view (V.9).

Results

Before estimating the coefficients through the regression model, critical tests regarding time series data have to be done. The first one is a stationary test. As it has been illustrated in the table (1), it can be seen that all variables, after transforming all of them to log type, are stationary:

Table (1): Result of Stationary test for all variables

P-Perron test at first difference		
Variables	**Adj. t-test**	**Prob.**
D_GDPPC	-3.7187	0.0167**
FR	-3.9558	0.0385**
D_L_GEXP	-3.2359	0.0394**
D_L_GCF	-7.5811	0.0000***

*significant at 10%, **significant at 5%, ***significant at 1%

D with variables indicates the first difference

L with variables indicates log form

Source: Prepared by researcher based on statistical results

The p-Perron test indicates that all variables are stationary. GDPPC, FR, and GEXP are stationary at the 5% level of significance and GCF is stationary at the 1% level. The next procedure is to determine the correlation between variables as shown in Table (2):

Table (2): The result of the Correlation test for all variables

Variable	GDPPC	FR	GEXP	GCF
GDPPC	1.000000	-0.52399	0.41788	0.82684
FR	-0.52399	1.000000	-0.30217	-0.67865
GEXP	0.41788	-0.30217	1.000000	0.56421
GCF	0.82684	-0.67865	0.56421	1.000000

Source: Prepared by researcher based on statistical results

As can be observed from the results, there is a positive relationship between GDPPC, GEXP and GCF (0.4178, 0.8268) respectively. However, the correlation between GDPPC and FR is negative (-0.5239), which indicates a negative relationship between them. Also, the relationship between FR, GEXP and GCF are negative (-0.3021, -0.6786) respectively. Furthermore, there is a positive relationship between GEXP and GCF (0.5642). The next test is the co-integration test by the Johanson method for all variables, to reveal the long relationship between them. The result is as illustrated in the table (3):

Table (3): The result of the Johansen Co-integration test for all Variables

Sample (adjusted): 2009 2020			
Included observations: 14 after adjustments			
Trend assumption: Quadratic deterministic trend			
Series: GDPPC FR GEXP GCF			
Lags interval (in first differences): 1 to 1			
Unrestricted Cointegration Rank Test (Trace)			
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.991313	115.0797	55.24578	0.0000***
At most 1 *	0.832781	48.63702	35.01090	0.0010***
At most 2 *	0.591221	23.59868	18.39771	0.0085***
At most 3 *	0.546626	11.07454	3.841466	0.0009***
Trace test indicates 4 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		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.991313	66.44267	30.81507	0.0000***
At most 1 *	0.832781	25.03834	24.25202	0.0393**
At most 2 *	0.591221	12.52414	17.14769	0.2079
At most 3 *	0.546626	11.07454	3.841466	0.0009***
Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			
significant at 10%, **significant at 5%, ***significant at 1%			

Source: Prepared by researcher based on statistical results

As it can be seen that there are four (4) co-integrations based on trace statistics between variables at the level of 5% significant (p-value = 0.0000, 0.0010, 0.0085, 0.0009 <trace>), however, based on Max-Eigen there are three co-integrations (0.0000, 0.0393, 0.0009<Maximum Eigenvalue>). This means three of the variables in the long run are related to each other and have a long relationship. This is the condition preceding the time series regression model which must have at least one co-integration.

Now, after these tests for variables, the ARDL model has been preceded to estimate the coefficients in the short and long run of the regression model. The results are shown in table (4).

Table (4): ARDL Estimation Results

ARDL Cointegrating And Long Run Form			
Dependent Variable: GDPP			
Selected Model: ARDL(1, 1, 1, 1, 1)			
Sample: 2007 2022			
Included observations: 14			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GCF)	0.269403	0.046272	5.822191	0.0101**
D(FR)	-2.133677	0.117852	-18.104726	0.0004***
D(GEXP)	0.178964	0.026596	6.729036	0.0067***
D(COVID)	1.512529	0.096281	15.709611	0.0006***
D(@TREND)	0.518193	0.021234	24.404285	0.0003***
CointEq(-1)	-1.249608	0.030053	-41.580236	0.0000***
Cointeq = GDPP - (-0.0754*GCF(1) + 1.1636*FR -0.4737*GEXP + 0.2598*COVID – 3.6400 + 0.4147*@TREND)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GCF	-0.075419	0.061023	-1.235906	0.3044
FR	1.163604	0.057742	20.151918	0.0003***
GEXP	-0.473662	0.040401	-11.724028	0.0013***
COVID	0.259780	0.154173	1.684983	0.1906
C	-3.639979	0.116531	-31.236225	0.0001***
@TREND	0.414685	0.015748	26.332939	0.0001***
R-Squared = 0.9981	Adjusted R-Squared = 0.9921	S.E. of reg. = 0.083744	Sum squared resid = 0.021039	F-statistic = 165.5366 (0.0006)***
Akaike info Criterion = -2.091128				
*significant at 10%, **significant at 5%, ***significant at 1%				

Source: Prepared by researcher based on statistical results

It can be seen from the table that the regression model has an Adjusted R-square of (0.99), which measures the proportion of variance in the dependent variable that is defined by the variance of independent variables, and relatively this is high and has a significant F-stat at 1% level, which indicates the good fitness of the regression line. The S.E. of regression with the value of (0.083744) is relatively low.

In the short-run: the positive coefficients of GCF, GEXP and COVID (0.27, 0.17, and 1.51) respectively are significant at a 5% level and their positive sign indicates a positive effect on GDPPC. The coefficient of FR (-2.13) is significant at a 5% level and has a negative effect, which it approves the hypothesis of this research. Also, this result is consistent with (Davalos & Morales, 2017; Despotovič et al., 2022) works. In the long run, GCF and COVID coefficients (-0.07 and 0.26) are not significant at any level. FR coefficient (1.16) is significant at a 1% level and has

a positive effect on GDPPC. This result is consistent with (Hwa et al., 2020; Karra et al., 2017b) works. However, the GEXP coefficient (-0.47) is significant at the 1% level but hurts GDPPC in contrast with the short-run effect. The regression has a negative and significant coefficient for CointEq(-1) (-1.249) at a 1% level, which indicates the speed of adjustment of the dependent variable when independent variables change.

It is worth mentioning that the regression model has a significant intercept at a 1% level with a value of (-3.64), and has a significant coefficient of trend (0.41) at a 1% level in the long run. Now, the regression model has to pass the checking problem. The following table summarizes all those tests:

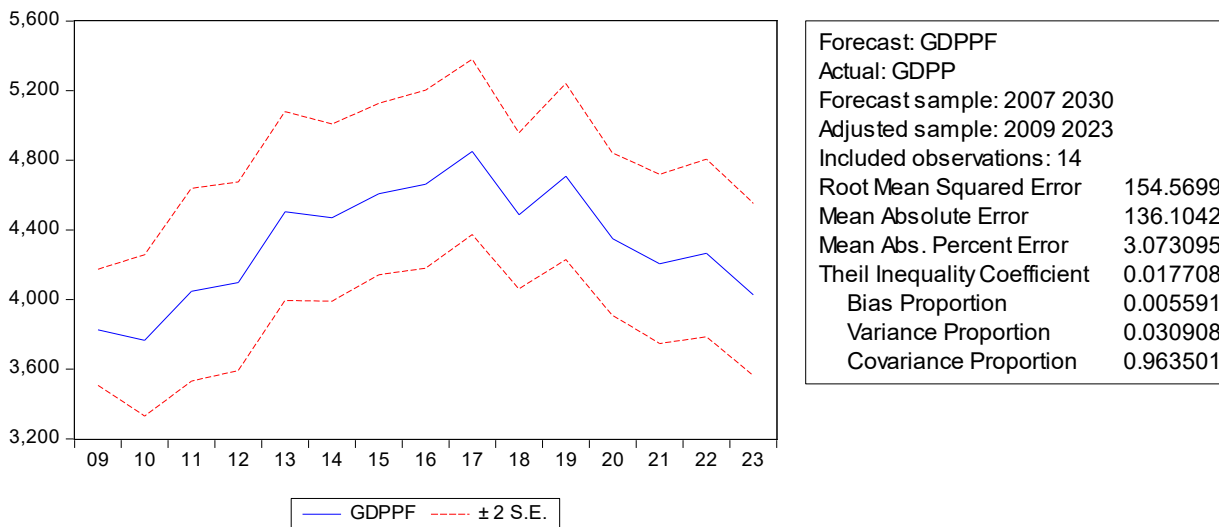Table (5): Summary of Results for All Checking Problem

Normality	Autocorrelation	Hetero	Multicollinearity	Identification
Jarque-Bera	LM-test	ARCH	VIF	RAMSEY RESET
1.768945	3.793256	0.003152	2.81	0.036723
(0.412932)	(0.1501)	(0.9552)		(0.8528)
*significant at 10%, **significant at 5%, ***significant at 1%				

Source: Prepared by researcher based on statistical results

From the table, the results show that the model is out of problems. All tests statistically are not significant at any level. Also, the test of VIF indicates that the model has no collinearity because the maximum value is smaller than 5.

The next step is to forecast the rate of growth in the GDPPC in Iraq as it has been shown in Figure (1), as well as the forecasting for the FR as shown in Figure (2) for the period of 2022 to 2030):
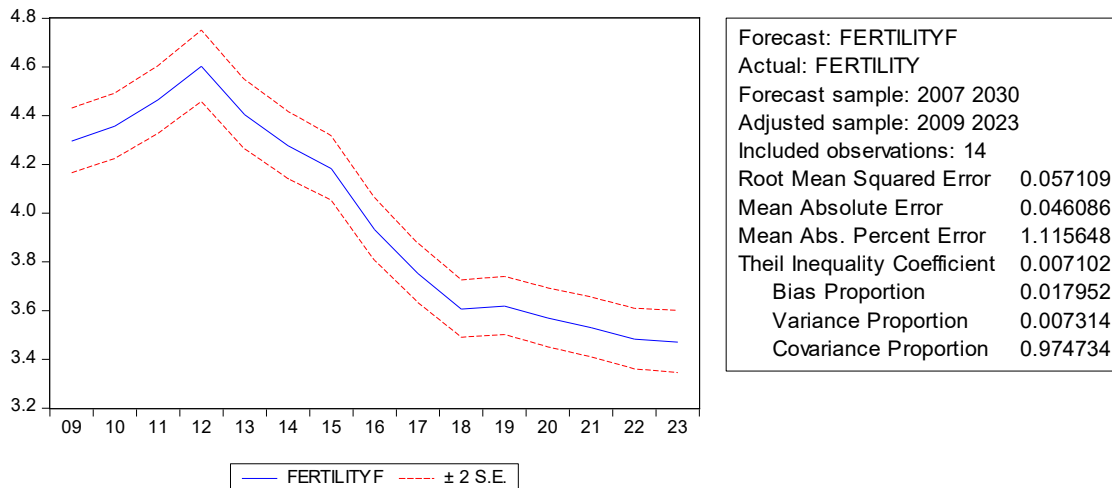
Figure (1) GDPPC Forecasting from 2020 to 2025

Forecast: GDPPF	
Actual: GDPP	
Forecast sample: 2007 2030	
Adjusted sample: 2009 2023	
Included observations: 14	
Root Mean Squared Error	154.5699
Mean Absolute Error	136.1042
Mean Abs. Percent Error	3.073095
Theil Inequality Coefficient	0.017708
Bias Proportion	0.005591
Variance Proportion	0.030908
Covariance Proportion	0.963501

Source: Prepared by researcher based on statistical results

From graph (1) it can be seen that the GDPPC increases and then falls down. The model has a relatively low Theil Inequality coefficient with a rate of (0. 0177) and with a relatively low bias proportion rate of (0.005). These indicate the goodness of the model for forecasting. The lower those rates the better the model for prediction.

Figure (2) FR Forecasting from 2020 to 2025

Forecast: FERTILITYF	
Actual: FERTILITY	
Forecast sample: 2007 2030	
Adjusted sample: 2009 2023	
Included observations: 14	
Root Mean Squared Error	0.057109
Mean Absolute Error	0.046086
Mean Abs. Percent Error	1.115648
Theil Inequality Coefficient	0.007102
Bias Proportion	0.017952
Variance Proportion	0.007314
Covariance Proportion	0.974734

Source: Prepared by researcher based on statistical results

From graph (2) it can be seen that the FR has a relatively sharp decreasing rate. The model has a relatively low Theil Inequality coefficient with a rate of (0. 0071) and with a relatively low bias proportion rate of (0.0179).

The outcomes of the forecasting for determined variables (GDPPC and FR) are as the following table:

Table (6): The outcome of the Forecasting

Year	GDPPC	FR
2023	4029.57	3.9
2024	3897.83	3.92
2025	3784.79	3.93
2026	3697.31	3.95
2027	3640.44	3.96
2028	3617.22	3.98
2029	3628.80	3.99
2030	3674.53	4.00

Source; Based on the forecasting model

As can be seen that the trend of GDPPC is in decreasing pattern from ($4029) in 2023 to be ($3674) in 2030, this is opposite to the trend of FR which is in increasing trend from (%3.9) in 2023 to be (%4) in 2030.

Discussion

Based on the results, GDPPC is positively affected by gross capital formation (GCF) in the short run. As (GCF) increases the GDPPC tends to increase as well. One reason for this is that GCF participates in increasing productivity, which will lead to an increase in the overall level of gross domestic production (GDP), and the per capita share of GDP increases consequently. Thus, the growth of GDPPC increases hand in hand with the increase of GCF increase, holding other variables fixed.

Regarding with fertility rate (FR), in the short-run the statistical result shows that it affects the GDPPC negatively. As FR increases the GDPPC also decreases. However, in the long run, when FR increases the growth rate of GDPPC increases as well. This can be interpreted as follows: An increase in the population rate will lead to an increment in the young labour force in the country, which causes GDP to rise. Also, in the long-run job creation

and job finding will increase. Finally, the workforce, including the new entries into the labour market, has plenty of time to adjust to the needs of the market through training courses, which contribute to raising their productivity as discussed in the literature review. All these factors will lead to an increase in the growth rate of GDP and GDPPC as well.

Regarding the government expenditure (GEXP), in the short-run, it has affected the GDPPC positively. When government spending increases, also the GDPPC increases, at least through the expenditure multiplier. In contrast, the long-run result shows that this variable (GEXP) hurts GDPPC. The major reason is that a great portion of it goes to current or consumption expenditure for example; the maximum rate of investment expenditure to total expenditure reached 39% in 2013. After that, it declined to 23% in 2020 (Abdullah R. T., 2023). This will limit the investment expenditure, holding other factors fixed. Another reason is that the trade balance is in favour of imports in which Iraq's import volumes are higher than exports excluding oil revenues instant; in 2023 Iraq had more than 8$ billion dollars whereas its value for export was less than 3$ billion for goods (census, 2024). Consequently, significant amounts of capital in terms of hard currency are going abroad. Thus, increasing GEXP, in the long run, has a negative effect on GDPPC, holding other factors fixed.

The result for COVID-19 in the short-run shows that; this variable has a positive effect on GDPPC. When the country experienced this pandemic, GDPPC was on the growing trend. Also, Iraq is depending on oil exporting to feed its economy, and this sector is not much affected by this virus. However, its long-run effect is not significant, as the country will adjust to its equilibrium.

Interestingly, the constant term in the regression tells that at least (-3.64) rate of growth in the GDPPC is necessary to compensate for the depreciation in the economy. After that rate, there is effective growth which can be relied on to improve other economic and social indicators in the economy. Finally, the result of forecasting indicates that the GDPPC will fall in 2030 to be ($3674), but the rate of FR is anticipated to increase to be (4%) in 2030.

All in all, GDPPC in Iraq is highly and negatively sensitive to the rate of fertility (FR) in the short-run, other things being equal.

Conclusion

Examining the effect of fertility on the economic growth in Iraq for the period of 2007 to 2022 is the main objective of this paper. GDP per capita has been chosen as a proxy for economic growth. The ARDL model has been used to estimate the effect of fertility rate on the GDPPC and GEXP, GCF, and COVID-19 variables have also been included in the regression model to act as helping variables. Fertility has had a relatively high and negative effect on the GDPPC in the short run but positively affects it in the long run. GCF, GEXP, and COVID-19 have a positive effect in the long run. However, in the long run, only GEXP was significant and had a negative effect on GDPPC. It is expected that FR to increase in 2030 to be at the rate of (4%), meanwhile, holding other factors fixed, the GDPPC will fall to the value of ($3674) in the same preceding year.

Several actions can be taken by the Iraqi government. First, the Ministry of Planning should reconsider the supportive system for women who give birth, especially in the public sector. Second, the Ministry of Finance has to evaluate its policy regarding fiscal policy which increases the government expenditure to enhance economic growth, because its effect is temporary and will have a negative feedback effect in the long run. Third, the media

can have a significant role in educating people about birth control.

It shall be noted that the article has its limitations: most notable is the availability of data for some variables to obtain from official sources was one of the difficulties. The time interval is small, and other models may measure the estimations in a better way upon increasing the time series and by comparing it with other countries.

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Unemployment rate:

https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?locations=IQ

Fertility Rate:

https://population.un.org/wpp/Download/Standard/Fertility/

Appendix:

Variables and Observations

Year	GDPPC ($)	FER %	GCF ($)	GEXP ($)
2007	3532.08	4.37	8540854005.39	25957595014.8
2008	3749.77	4.34	15029043142.91	28869882274.4
2009	3739.46	4.36	11353459698.81	28022438440.5
2010	3854.69	4.43	17314062084.07	30501972980.4
2011	4003.05	4.54	19608136377.66	40275136455.6
2012	4360.75	4.48	18007985831.46	37436554269.5
2013	4479.47	4.38	29079138282.71	41619443827.7
2014	4333.82	4.28	27354568293.41	40866892971.4
2015	4416.94	4.09	33954626908.61	31130218826.7
2016	4903.82	3.9	28019121108	30880336848
2017	4702.4	3.73	27916470848.07	30764294722.2
2018	4710.98	3.66	28658130302.78	36209022102.2
2019	4854.39	3.6	39730101159.63	45326675455.6
2020	4170.39	3.55	25854854886.2	41014150003.3
2021	4141.39	3.5	27642499624	42925022439.8
2022	4335.78	3.47	33580736899.53	33307892913.9
2023	4029.57	3.9		
2024	3897.83	3.92		
2025	3784.79	3.93		
2026	3697.31	3.95	Forecasted Values	
2027	3640.44	3.96		
2028	3617.22	3.98		
2029	3628.80	3.99		
2030	3674.53	4.00		

الملخص:

نتيجةً النمو والتقدم، ستشهد كل دولة تغيرات في عدة جوانب اجتماعية، منها معدل الخصوبة. يعاني العراق حالياً من مجموعة من المشاكل الاقتصادية، مثل البطالة وتراجع معدل النمو. تم اختيار الفترة (٢٠٠٧-٢٠٢٢) لتكون موضوعاً للتحليل في العراق. كان هدف هذا البحث بشكل رئيسي هو الكشف عن تأثير معدل الخصوبة على النمو الاقتصادي في العراق، وكذلك التنبؤ باتجاهاته المستقبلية من خلال التنبؤ. ولهذا الغرض، تم تطبيق نموذج الانحدار ARDL، وتم إدراج متغيرات نصيب الفرد من الناتج المحلي الاجمالي (كمؤشر قياس نمو الاقتصادي) واجمالي تكوين راس المال الثابت و النفقات الحكومية و كوفيد-١٩ أيضاً في نموذج الانحدار. تشير النتائج إلى أن معدل الخصوبة له تأثيرات سلبية على نصيب الفرد من الناتج المحلي الإجمالي في المدى القصير ولكن له تأثير إيجابي في المدى الطويل. ويُظهرايضاً ان اجمالي تكوين راس المال الثابت له تأثيراً إيجابياً في المدى القصير، وفي نفس الوقت تشير النفقات العامة الى تأثيراً إيجابياً في المدى القصير ولكن تأثيره سلبي في المدى الطويل. نصيب الفرد من الناتج المحلي الاجمالي لها توجه عكسي مع معدل الخصوبة في نموذج التنبؤ. لذا على الحكومة العراقية يقوم بإعادة النظر في نظام الدعم للنساء اللاتي يلدن، ويجب على وزارة المالية تقييم سياستها فيما يتعلق بالسياسة المالية التي تزيد من الإنفاق الحكومي لتعزيز النمو الاقتصادي، لأن تأثيرها مؤقت وسيكون لها تأثير سلبي في المدى الطويل. ويقترح البحث بإجراء دراسات مستقبلية بمزيد من التفاصيل باستخدام نماذج وقياسات المتنوعة.

الكلمات المفتاحية: نمو الاقتصادي ، معدل الخصوبة ، الانفاق الحكومي، اجمالي تكوين راس المال الثابت، ARDL.

پوخته:

هەموو وڵاتێک لە ئەنجامی گەشەکردن و پێشکەوتن، گۆڕانکاری لە چەند لایەنێکی کۆمەڵایەتیدا بەخۆیەوە دەبینێت، لەوانە ڕێژەی مندالّبوون. لە ئێستادا عێراق بەدەست کۆمەڵێک کێشەی ئابووریيەوە دەنالّێنێت، وەک بێکاری و دابەزینی ڕێژەی گەشەکردن. ئەم تویژینەوەیە کە ماوەی (٢٠٠٧-٢٠٢٢) وەک بابەتی شیکاری لە عێراقدا هەلّبژاردووە ئامانجێتی تیشک بخاتە سەر کاریگەرییەکانی تێکڕای مندالّبوون لەسەر گەشەی ئابووری لە عێراق، هەروەها پێشبینیکردنی ڕەوتی داهاتووی لە ئابووری عێراقدا. بۆ ئەم مەبەستەش مۆدێلی ARDL بەکارهێنراوە، هەروەها گۆڕاوەکانی پشکی تاک لە داهاتی گشتی ناوخۆ، پێکهێنانی سەرمایەی گشتی جێگیر، خەرجییەکانی میری، و کۆڤید-١٩ لەم مۆدێلەدا بەکارهێنراون. ئەنجامەکانی تویژینەوە ئاماژە بەوە دەکەن کە ڕێژەی مندالّبوون کاریگەری نەرێنی لەسەر کۆی بەرهەمی ناوخۆیی لە کورتخایەندا هەیە بەلّام لە درێژخایەندا کاریگەری ئەرێنی هەیە. هەروەها ئەوە نیشان دەدات کە پێکهێنانی سەرمایەی گشتی جێگیر بە گشتی کاریگەری ئەرێنی هەیە لە ماوەی کورت خایەندا، و لە هەمان کاتدا خەرجییەکانی میری کاریگەری ئەرێنی هەیە لە ماوەی کورتخایەندا بەلّام کاریگەری نەرێنی دروستدەکات لە درێژخایەندا. بە پێی مۆدێلی پێشبینیکردن هەردوو گۆڕاوەکانی پشکی تاک لە داهاتی گشتی ناوخۆدا و ڕێژەی مندالّ بوون ئاراستەی پێچەوانەی هەیە. بۆ ئەو مەبەستەش پێویستە حکومەتی عێراق بە سیستەمی پاڵپشتی بۆ ئەو ژنانەی کەتوانای مندالّیان هەیە بچێتەوە،هاوکات وەزارەتی

دارایــش دەبێـت سیاسـەتی دارایـی خـۆی بەجۆرێـك هەڵسـەنگێنێت كـه خەرجـی حكومـەت زیـاد بـكات بـۆ بەرەوپێشـبردنی گەشـەی ئابـووری، چونكـه كاریگەریەكـەی كاتییـه و لـه داهاتـوودا كاریگـەری نەرێنـی دەبێـت. تۆژینەوەكە پێشـنیاری ئەنجامدانـی تۆژێینەوەی زیاتـر لـه داهاتـوو دەكات بەشـێوەی وردتـر و بـه بەكارهێنانی مۆدێـل و پێوانـه جۆراوجـۆرەكان.

وشـەی سـەرەكی: گەشـەی ئابـووری، تێكـڕای منداڵبـوون، خەرجیەكانـی حكومـەت، پێكهاتـەی سـەرمایەی گشـتی جێگیـر، ARDL.