Indicators of human development in Iraq for the period (2004-2019)

Alaa Hatem Dhannoon[1]

[1]Prof. Dr. Norry Abdul-Rasool Al- Khaqany
[1]alaaecon@gmail.com

Abstract: The current research aims to know the extent to which people are involved in development as both a means and a goal, and what are the achievements made annually within the human development sectors in Iraq, in light of the human development index that is calculated according to the options available to people that are limited to three indicators in terms of application (live a life healthy and long-term, acquiring education and knowledge, and enjoying a decent standard of living, as it gives a relative gradation to countries), and Iraq was classified as one of the countries with medium human development for the period (2004-2019) in light of the challenges facing each indicator.

1. Introduction

The Human Development Index is a simple and concise measure to know the achievements made annually in all developed and developing countries, and it is calculated in light of three indicators: (Health: as a guide to life expectancy at birth), (Education: as an indicator of the number of schools and teachers) and (Income: as per capita of national income). Overall), Iraq was classified as one of the countries with medium human development due to the presence of many problems encountering each indicator: the decline of the health agreement and the spread of financial and administrative corruption, etc.) and (the inadequacy of the actual buildings for the educational and educational processes, etc.) and (the low per capita share Of gross national income, increasing unemployment rates and then increasing poverty rates, coupled with inequality in income distribution, etc.).

2. Methodology

Research methodology represents a series of organized steps undertaken by the researcher for the purpose of studying a specific topic and reaching results that contribute to solving problems. The methodology is the beacon that guides the researcher during his research and the roadmap that leads him. Towards satisfactory scientific results.

a. Research problem: The research problem is embodied in a specific question (what are the achievements in the human development sectors in Iraq for the period (2004-2019)؟.

b. The importance of the research: The importance of the research crystallized from the importance of the human development indicators represented in (health, education and standard of living) and their direct impact on the individual's life as a goal and a means for it.

C. The aim of the research: to study the human development indicators in Iraq for the period (2004-2019) and the procedures for their advancement, through:

-A review of the literature on human development in terms of its concept and measurement methods.

-Human development indicators and their obstacles in Iraq.

-Conclusions and recommendations.

d. Research hypotheses: There are challenges for each of the indicators of human development in Iraq, and for this reason, Iraq was classified as one of the countries with medium human development.

3. Literature Review

The concept of human development:

Human development means "the process of increasing options for individuals who represent the true wealth of nations"(nader, 2002: p2), developing human conditions and directing it towards the advancement of all fields in health, education, economic, social and political fields, and developing the intellectual and mental aspect as it is the influencing factor in raising the cultural and psychological level(undp, 2010: p16). The axis of development and their participation must have a major role in the development of development, and participation takes many forms, economic, political, social and cultural, and that freedom and the development of human and competitive capabilities are preconditions for participation (undp, 1995: p7).

Methods of calculating the human development index:

The Human Development Index contains three variables: the longevity (life expectancy at birth), the mortality of children under the age of five, or the death of infants. As for education, any improvement in it is measured by two variables: (perception of reading and writing, and the average number of years of schooling in educational institutions in and high). The welfare function is measured using income, which is the average per capita national income at constant prices adjusted by the ratio of household consumption to income, and it is assumed that the indicator is equal to the right one for the value of the components of the numerator to equal the value of the denominator, but it is rare for a country to reach The indicator is changed to the correct one, and this is adjusted by the amount of detracting from some components of education, health and the welfare of the use of income. Therefore, the maximum and minimum values of the indices composing the index are adopted. To calculate the human development index, it is necessary to know the method of calculating the three variables that express the elements of human development. The human development index is estimated in two stages, as follows (undp, 2011: p172):

1. The first stage: Sub-indices are formed for each variable, and a minimum and maximum value is determined for each main indicator, and the indicators are converted into a guide whose value ranges between zero and one.

A. longevity index (vie)(Ingrid, 2012: p3)

$$I_{vie} = \frac{Minimum\ life\ expectancy\ at\ birth - Actual\ life\ expectancy\ at\ birth}{Minimum\ life\ expectancy\ at\ birth - Maximum\ life\ expectancy\ at\ birth}$$

The life expectancy at birth represents the number of years the newborn is expected to live if the patterns of death rates recorded by age groups at the time of his birth remain the same throughout his life. A minimum value (20 years) was set for the indicator and a maximum value (83.2 years).

B. Education level indicator (education) (Boban, Zeljko &Nebojsa, 2020: P4):

It is based on measuring the knowledge variable, a composite index

❖ Guide to the expected average years of schooling for children (B)

$$B = \frac{The\ minimum\ average\ expected\ school\ years\ for\ children - The\ expected\ average\ years\ of\ schooling\ for\ actual\ children}{The\ minimum\ average\ expected\ school\ years\ for\ children - The\ maximum\ expected\ average\ years\ of\ schooling\ for\ children}$$

The expected average years of schooling for children represents the number of years of schooling that the child is expected to receive at the age of entering school, assuming that the patterns of enrollment rates according to age groups remain the same throughout the child's life. A minimum value (zero) and a maximum value (20.6 years) were taken. The Composite Guide to Education (0.978).

❖ Index of expected average years of schooling for adults (C) (Boban, Zeljko &Nebojsa, 2020: P5):

$$c = \frac{Minimum\ expected\ average\ years\ of\ schooling\ for\ adults - Expected\ average\ years\ of\ schooling\ for\ an\ actual}{Minimum\ expected\ average\ years\ of\ schooling\ for\ adults - Maximum\ expected\ average\ years\ of\ schooling\ for}$$

The expected average years of schooling for adults represents the average number of years of education obtained by persons at the age of (25 years) and above, depending on the level of the population's total achievement calculated in the years of schooling that the student is supposed to spend at each stage of education. For this indicator (zero) and the maximum value (13.2).

Based on the foregoing, to calculate the knowledge indicator, the geometric mean of the evidence mentioned above is calculated and then the dimension value equation is applied, using zero, which represents the minimum and maximum geometric mean of the evidence resulting from the period under study. For example (in 2010, the maximum limit was set at 0.951), from which:

$$I_{education} = \frac{\sqrt{BC} - 0}{0,951 - 0}$$

C. income level index (revenue) (Ernesto, Fabio &Alma, 2021: p8):

The index of the income variable uses the natural logarithm of the actual, minimum and maximum values, which is taken into account. The index of each of the dimensions represents a hypothetical indicator that measures the possibilities in each dimension, and the transformation function from income to potential is likely to be concave.

As for the per capita national income, it represents the sum of the added values that producers achieve in the economy, in addition to taxes on products (minus the subsidy), which is not included in calculating the value of

production, plus the primary income received from abroad (workers' compensation and property returns), divided by the population in the middle of the year. The minimum value for this indicator was set ($163) and the maximum value was set at ($108000,211000).

2. The second stage: carrying out a arithmetic operation by multiplying the sub-evidences in order to form the Human Development Index (HDI) by means of the values obtained from the three variables, as it is calculated as a geometric mean of the indicators of the elements that compose it and as shown in the following equations (undp, 2011: p168):

$$\textbf{HDI} = (I_{vie}^{1/3} \cdot I_{education}^{1/3} \cdot I_{revenu}^{1/3})$$

$$\textbf{HDI} = \sqrt[3]{I_{vie} \cdot I_{education} \cdot I_{revenu}}$$

This indicator is the main measure used to measure human development and represents a strategic element of the new approach to development and evaluates the degrees of progress and gives a relative gradation for countries and shows the level reached by each country according to the human development index whose values lie between (zero and the correct one) and is divided into four categories and as follows : (undp, 2020: p343-345)
•Low human development category (index value of 0.54 or less).
•Medium human development category (index value from 0.55 - 0.69).
•High human development category (index value from 0.70 - 0.79).
• Very high human development category (index value of 0.80 and above).

The human development index, like any overall measure, covers only a short part of what human development means because the human choices, their results and the indicators it contains are infinite over time, and human development was built by focusing on these indicators, as they are vital dimensions specific to the basic capabilities that must be provided for people to participate In building and developing society, and if these basic elements are not available, many opportunities remain elusive, in addition to that, the selection of these indicators was based on what came in the definition of human development from a descending sequence of human demands for healthy life, adequate knowledge and a decent standard of living.

The values of human development indicators in Iraq and its basic variables:

The index is distinguished by the serious presentation of the subject of human development at the global level, noting that there is a wide controversy about it, its calculation methods and its implications. At the national level, the Human Development Index is a good and accurate measure for calculating the differences between countries and regions, as well as differences in income, life expectancy and education. Since the early nineties, the index has been considered subject to correction, improvement and development as a result of the growing awareness of its shortcomings.

The index has an urgent need to build multiple measures in each country and compare that with other countries, and the index shows that the performance in a particular country is linked to the performance in other countries(undp, 2020: p344), and the human development index consists of three basic dimensions, and the index of life expectancy at birth represents the health dimension in the value of The index, which represents the average years of schooling and the expected average years of study after education in the value of the index, and the index of per capita gross national income, which reflects the economic and livelihood reality in the value of the human development index. Countries are classified according to the human development index into four groups. There is a very high human development that increases The value of the indicator is about (0.80) or more, and there is high human development in which the indicator value ranges between (0.70 - 0.79), and there is medium human development in which the indicator value ranges between (0.55 - 0.69), while Low human development, so the index value is less than (0.54), and Iraq is classified within the group of medium human development countries according to the global classifications of the human development index, and the index values can be clarified in the following table:

Table (1)
The values of human development indicators in Iraq

Year	HDI values Annual	growth rate
2004	**0.521**	**-**
2005	**0.552**	**5.95**
2006	**0.515**	**-6.70**
2007	**0.512**	**-0.58**
2008	**0.512**	**0**
2009	**0.565**	**10.35**

2010	**0.567**	**0.35**
2011	**0.573**	**1.05**
2012	**0.590**	**2.96**
2013	**0.642**	**8.81**
2014	**0.654**	**1.86**
2015	**0.649**	**-0.76**
2016	**0.656**	**1.07**
2017	**0.685**	**4.42**
2018	**0.689**	**0.58**
2019	**0.674**	**-2.17**

Source: Years (2004-2020) United Nations Development Program, Human Development Report.
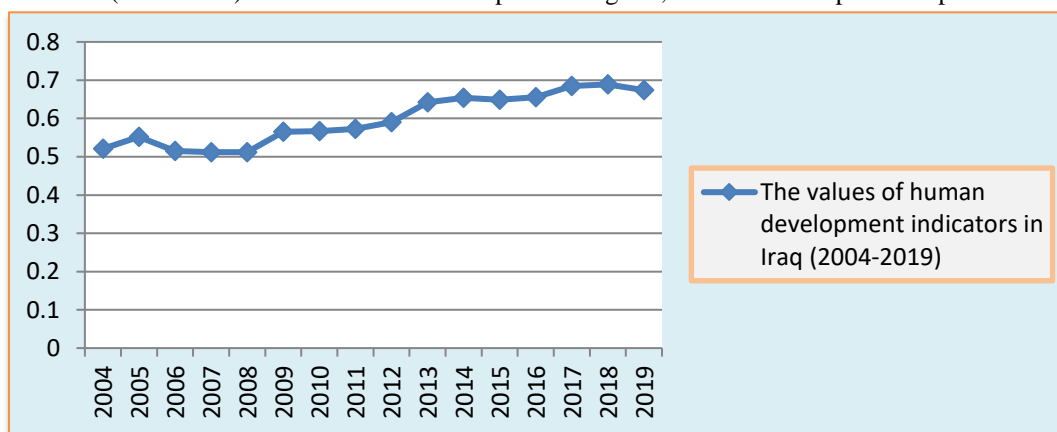

Figure (1)

Tracks of the values of the human development index in Iraq for the period (2004-2019)

It is evident from Table (1) and Figure (1) that the data of the value of the Human Development Index in Iraq is constantly increasing within the limits of average human development, and this indicates a slight improvement in the three dimensions of the indicator (health, education and income), and the following is a review of some of the basic indicators for each dimension. From the dimensions of the indicator for the period (2004 - 2019).

1. The health dimension in Iraq

Health is an essential element in building society and the state, as the results of a healthy health system are reflected in ensuring a better life for people free from diseases and diseases, and the outputs of health systems represent active elements in various aspects of educational, economic and cultural life... Any progress of the development process in a country is subject to The health of the people of that country, and sound health care programs of all kinds include providing food, preventing diseases, and spreading health awareness among the people. Previously, the government systems' view of health services was a view with a temporary dimension generated when financial resources were available in excess of the state's needs. But at the present time this view has changed, as it is not possible to implement development plans by relying on physical capital only, but should invest in human capital and pay attention to the health of individuals (Aamir, & Salih, 2009: p7-8).

❖ **Life expectancy at birth for the period (2004-2019)**

It is clear from the data of Table (2) that the indicator of life expectancy at birth, which reflects the health dimension in the human development index in Iraq, has experienced a slight gradual increase, resulting from the health awareness of some segments of Iraqi society, after it reached the lowest level in the year (2007), (68.13) the track improved to exceed the barrier of (69) in the years (2012-2015) to achieve a rise that reached (70) in the years (2016-2019), which reflects the slight improvement of this indicator. Figure (4) shows the path of improvement in an average indicator Life expectancy at birth in Iraq.

Table (2)
Average life expectancy at birth in Iraq for the period (2004-2019)

Year	Average life expectancy values at birth rate	annual growth
2004	**68.44**	**-**
2005	**68.27**	**0.24-**

2006	68.16	0.16-
2007	68.13	0.04-
2008	68.19	0.08
2009	68.34	0.21
2010	68.57	0.33
2011	68.85	0.40
2012	69.15	0.43
2013	69.44	0.41
2014	69.70	0.37
2015	69.93	0.32
2016	70.12	0.27
2017	70.29	0.24
2018	70.50	0.29
2019	70.60	0.14

2.   The educational dimension in Iraq

Education is one of the main pillars in raising human capabilities, as there is a close relationship between education and development, and any decrease in education levels results in a rise in illiteracy rates and low levels of educational attainment, and they represent the main reason for low incomes, so they are two manifestations of poverty and underdevelopment. The Universal Declaration of Human Rights states that education and the availability of educational opportunities are a right for every individual in society, and it is one of the guaranteed means to invest in the future, and to liberate marginalized groups in society from the framework of ignorance and poverty in order to contribute effectively and strongly to society, and that the educational system in Iraq is free It is guaranteed by the state and for all primary, secondary and university education stages, and for all members of society without exception. The government's responsibility is to develop educational policies, implement and supervise them, as follows:

Primary education in Iraq for the period (2004-2019). It is clear from the data in Table (3) that the rate of increase in the number of students for the period from (2004-2019) is estimated at a fixed rate of (3.70%) per year, while the rate of increase in the number of educational staff for the study period is (2.80%) as it indicates that the annual increase in students is greater than the increase in the members of the educational staff as well as for schools as follows:

Table (3)
Primary school data in Iraq for the period (2004-2019)

(2) number of students / Number of faculty members	(1) number of students / number of schools	Primary			school year
		number of schools	Number of faculty members	number of students	
20	339	11129	191852	3767369	2005/2004
17	333	11828	234139	3941190	2006/2005
18	342	12141	236968	4150940	2007/2006
18	346	12507	237130	4333154	2008/2007
18	342	13124	256832	4494955	2009/2008
18	341	13687	264604	4672453	2010/2009
18	346	14048	263412	4864096	2011/2010
19	349	14674	271734	5124257	2012/2011
19	353	15156	277792	5351319	2013/2012
19	352	15807	287502	5558674	2014/2013
19	397	10779	223310	4283044	*2015/2014
20	385	12973	247919	4997052	**2016/2015
21	387	14024	259836	5433997	***2017/2016
22	388	15965	286097	6197870	2018/2017
22	377	17235	290664	6501053	2019/2018

%0.63	%0.71	%2.95	%2.80	%3.70	compound growth rate

3. Living Dimension in Iraq (Income)

Gross national income (GNI) is one of the important indicators that are used to measure the level of economic activity in any country. The percentage of change in national income is used statistically to measure economic growth, in addition to using it with other indicators in drawing up the country's economic policy, as The standard of living of individuals is related to the level of their share of national income, the more there is an increase in national income and a greater percentage of the increase in the population, an increase in the level of per capita national income appears, which in turn is reflected in the level of economic and social well-being of members of society, taking into account the cases of inflation that may occur , and despite the importance of the national income indicator, there are some arguments against it, and one of them does not take into account the development of the quality of life when measuring the well-being of society. Therefore, it is preferable to use the per capita national income indicator as an expression of the standard of living of individuals in society.

The data contained in Table (31) and Figure (5) related to the total national income in Iraq and the average per capita national income, indicate that the total national income amounted to (46923315.7) million dinars in the year (2004) and the average per capita national income amounted to (1728962) dinars During the same year, then the national income continued to increase throughout the study period to reach (232508223.5) million dinars in (2019), with a positive annual growth rate of (11.2%), and this increase was accompanied by an increase in the average per capita national income to reach (5942263) dinars in the same year. This year, with a positive annual growth rate of (8.57%), as follows:

Table (4)
Gross national income in Iraq for the period (2004-2019)

Year	National income Million) (dinars	Annual Growth Rate	Population numbers in Iraq	Annual Growth Rate	Average per capita national income (dinar)	Annual Growth Rate
2004	46923315.7	-	27139585	-	1728962	-
2005	65798566.8	40.22%	27962968	3.03%	2353060	36.09%
2006	85431538.8	29.83%	28810441	3.03%	2965297	26.01%
2007	100100816.6	17.17%	29682080	3.02%	3372432	13.72%
2008	147641254.0	47.49%	30577798	3.01%	4828380	43.17%
2009	120429277.2	18.4-%	31664466	3.55%	3803294	21.23-%
2010	146453468.5	21.60%	32400205	2.32%	4520140	18.84%
2011	192237070.3	31.26%	33088782	2.12%	5809735	28.52%
2012	227221851.2	18.19%	33725178	1.92%	6737454	15.96%
2013	243518658.5	7.17%	34304693	1.71%	7098698	5.36%
2014	237554034.2	2.44-%	34819301	1.50%	6822481	3.89-%
2015	178908402.3	24.6-%	35212600	1.12%	5080806	25.52-%
2016	186397300.2	4.18%	36169123	2.71%	5153492	1.43%
2017	183436173.0	1.58-%	37139519	2.68%	4939110	4.15-%
2018	206636228.3	12.64%	38124182	2.65%	5420082	9.73%

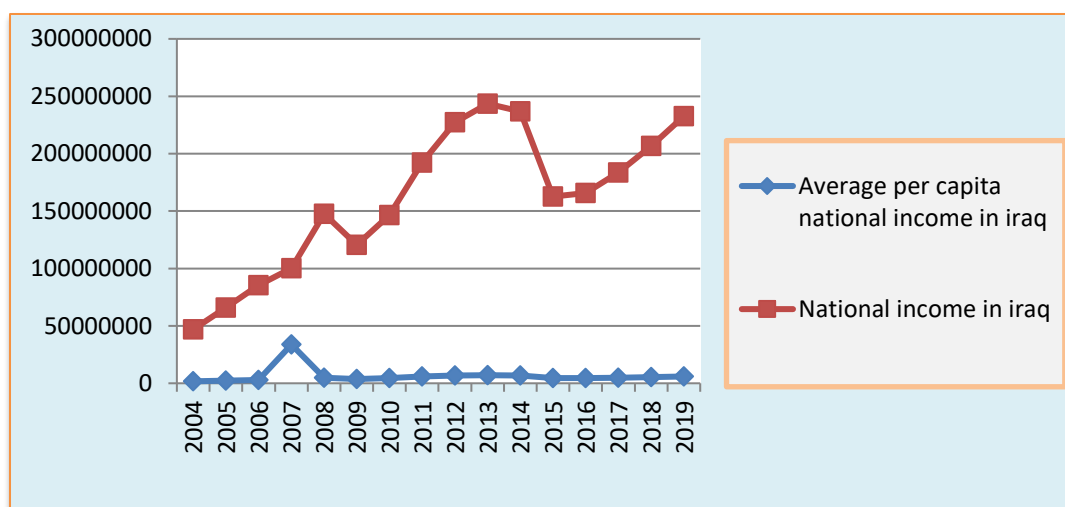| 2019	232508223.5	12.52%	39127889	2.63%	5942263	9.63%
compound growth rate	11.2%		2.46%		8.57%	

Figure (2)
Growth of national income in Iraq for the period (2004-2019)

It is worth noting that the rentier Iraqi economy depends primarily on oil and the financial returns it bestows on Iraq annually from its sale operations, and that oil revenues in Iraq after the year (2003) overshadowed its budgets, and that the increase in per capita national income in Iraq came From the increase in Iraqi oil revenues as well as the increase in oil prices, as well as the sudden rise in oil prices to reach their maximum in (2007-2008) at a price of (94) dollars per barrel (), and then the decline in prices as a result of the global financial crisis in (2009) Which is clearly reflected in the above figure on the per capita national income, as the annual growth rate was negative (-21.23), then the gross national income witnessed an increase until the year (2013) to reach (243518658.5) million dinars, but the Iraqi economy collided with the wall of terrorism A year (2014) for a decline in oil prices, as well as a decline in the contribution of the main economic sectors such as the industrial and agricultural sectors, which caused a decrease in national income and then a decline in per capita terms in the years (2014, 2015 and 2017) with negative growth rates (-3.89%, -25.52% and 4). 15%) then return to the national income in uniform The return to the year (2019) and the per capita share increased to (5942263) dinars.

As for the unemployment rate and what it entails of (poverty, ignorance and disease), it is one of the basic social indicators in development. The unemployment rate in Iraq can be explained in the following table:

Table (5)
Unemployment rates in Iraq for the period (2004-2019)

Year	Unemployment rate	Annual Growth Rate
2004	26.8	-
2005	17.9	33.20-%
2006	17.5	2.23-%
2007	11.7	33.14-%
2008	15.3	30.76%
2009	14.1	7.84-%
2010	12.2	13.47-%
2011	11.1	9.01-%
2012	11.9	7.20%
2013	12.1	1.68%
2014	10.6	12.39-%
2015	13.1	23.58%
2016	10.8	17.55-%

2017	**13.8**	**27.77%**
2018	**13.7**	**0.72-%**
2019	**15.2**	**10.94%**
compound growth rate	**%-3.71**	

It is noted from the data of Table (5) that the unemployment rate reached (26.8) in the year (2004), as it is the highest level of unemployment during the study period, and this is due to the events in Iraq after the year (2003) and the dismissal of large numbers of individuals in military and civil institutions such as (Departments of The security services, the diplomatic corps, the military industrialization institutions and others ...) In the year (2005) the unemployment rates began to fluctuate low, although it remained higher than the natural rate of unemployment, which is (5.5%) and represents the percentage at which the wage rates remain stable, to reach 15.2) year (2019), as a result of the new jobs launched by the Iraqi government after the lifting of economic sanctions on Iraq, especially in the security institutions, and with regard to the fluctuation in unemployment rates during the study period, the researcher believes that the reason is due to the deterioration of the security situation and the increase in terrorist operations and the subsequent displacement Internal and external displacement, which reflected negatively on all economic activities in the country, as well as poor coordination between the outputs of the educational sector and the strong absorption of the labor market (increased supply of work and the corresponding decrease in demand for work), and there are other reasons represented in corruption. Automatic and administrative crimes, economic crimes, general crimes, and the lack of an appropriate environment for foreign investment and private investment in productive projects.

4. Conclusions

The life expectancy at birth witnessed an improvement for the period (2004-2019) to increase the cases of live births in light of the population increase, as a result of the health awareness of some segments of Iraqi society, and the increasing interest of the state in the health aspect.

As for the educational aspect, the annual increase rate for primary school students is greater than the rate of increase in the members of the educational staff, despite the slight improvement in the primary stage, and this indicates that the education sector suffers from a shortage in the number of teachers during the study period, as well as for school buildings compared to the high Overpopulation rates, as it also suffers from a shortage of schools.

There is an increase in the average per capita income of Iraq from the gross national income during the period (2004-2019) as a result of the fact that the Iraqi economy is rentier and depends mainly on the proceeds of selling oil and the rise in oil prices globally and security stability "especially after the liberation of Mosul and the announcement of victory over ISIS on 2017/ 12/10", thus categorizing Iraq among the middle-income countries.

Based on the above, the value of the human development index in Iraq is constantly increasing within the limits of average human development as a result of the slight improvement in the dimensions of the three indicators (health, education and income).

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