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| RESEARCH ARTICLE

Measuring and Analyzing the Impact of Government Public Spending on Higher Education and Its Role in Achieving Sustainable Development in Iraq for the Period (2003-2020)

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| ABSTRACT
Higher education institutions, especially universities, are an intellectual and scientific cultural center. The function of these institutions lies in behavioral and scientific aspects, such as building generations and developing scientific and cultural awareness in society, as higher education represents the most important pillars of the development of human societies and tools for their advancement due to the position it occupies in creating and preparing the technical and scientific frameworks qualified to achieve economic and social development. Developing and developed countries devote special efforts to supporting and developing the education sector, including Iraq, which gave increasing interest in the education sector, especially after 2003. This interest is attributed to the Iraqi government's awareness that the reason for the country's weak economic performance is the lack of cadres and levels of skilled labor that keep pace with the developments taking place. The world has led to a technological and knowledge gap with the developed world, and in order to achieve the process of sustainable development, education must be developed and expanded in its various stages and types, as it is the main source for providing the needs of the economic development sectors and supplying them with labor to implement sustainable development plans and in order to raise the educational level. Spending on the education sector must be increased to confront the rapid population growth, which leads to increased demand for educational services, which are among the rights guaranteed by the state to every individual, in addition to the need of developing countries, including Iraq, for specialized technical staff. The main problem for those countries is the role of education in achieving development in general and whether spending on education constitutes a burden on the sustainable development process in Iraq in particular. The results of the research indicated that there is a weakness in the process of government spending on higher education in Iraq, as the results showed research shows that the time series for the two variables are stable to the same degree; that is, there is a cointegration relationship between general government spending and spending on education, and the results were consistent with economic theory, as the relationship was positive and significant.

| KEYWORDS
Government spending, education, higher education, sustainable development, education indicators, education financing

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1. Introduction

1.1 Research problem

The research problem stems from the following question: Is there a role for spending on higher education in achieving sustainable development, Iraq in general, for the period from (2003-2020)?

1.2 Research hypothesis

The research was based on the hypothesis that (spending on the higher education sector in Iraq is one of the most important indicators of achieving sustainable development and that there is a co-integration relationship between general government spending and spending on education)

1.3 Research objective

This research aims to evaluate the reality of government spending on higher education in Iraq and to identify the extent of Iraq's interest in the process of spending on human resources due to the importance of this in creating development breakthroughs that can bring society to a stage of well-being through optimal exploitation of resources. By getting to know the following:-

1- The concept of national income, national expenditure, sustainable development, and higher education
2- The concept of spending on education and the development taking place therein
3- The contribution of the higher education sector to building the economy and achieving the sustainable development process
4- Evaluating the government spending policy (general) on education in Iraq and the possibilities for measuring and analyzing it in light of the financial indicators provided to it.

2. Research Methodology

The research is based on measuring and analyzing indicators of government spending on higher education, achieving the research objectives, and testing its hypotheses as the researcher attempts to combine the descriptive and inductive approach, which is based on following up on changes in the aspect of spending policy and its role in influencing higher education and analyzing them.

2.1 The first topic

2.1.1 The theoretical and conceptual framework for the study: government public spending, the concept of higher education, and the concept of sustainable development

First: The concept of government public spending

It is important to define the concept of public spending, its components, and objectives as follows:

Government spending can be defined as (a group of expenditures that the state spends in the form of a specific amount of money during a specific period of time, the goal of which is to satisfy the specific needs of the society organized by this state) (Abdul Muttalib Abd al-Hamid, 2004-2005, p. 173).

Government spending is also one of the tools of financial policy, as the state spends to achieve its economic and social goals (Al-Sayyid Abdel Mawla, n.d., p. 57).

Government spending can be defined as (the amounts spent by the state to provide services to citizens or to purchase goods in order to be able to provide its services, assist a group of society, or establish various economic and social projects) (Abdul Majeed Al-Takriti, 1986, p. 126).

It can be defined as "a monetary amount that a person of public law is ordered to spend in order to satisfy a public need" (Muhammad Jamal Thneibat 2003, p. 62).

Government spending is defined as "a sum of money released from the financial assets of the state or any organization, with the intention of satisfying a public need" (Hamid Abdel Majeed Daraz, 1989, p. 475). It is also defined as "all the cash amounts that a public person spends to meet a public need, or those financial amounts that are disbursed by the public authority (the government and local groups) with the intention of achieving a public benefit" (Karim Boudkhad, 2010, p. 30).

We cannot consider the cash amounts spent to perform a specific service as public expenses unless they are issued by a public person. Public persons mean the state, its political divisions, and local communities, including public bodies and institutions with a legal personality.

Public expenditure is also defined as a monetary amount paid by a public person in order to satisfy public needs, and this definition is the prevailing one among economists who agree on its meaning (Mahmoud Al-Wadi, Zakaria Azzam, 2007, p. 117), so it represents the extent of government intervention and taking care of burdens. Public expenditures by the state or one of its public bodies are thus one of the most important tools of economic policy approved by the state (Walid Ayeb, 2010, p. 100-101), as public expenditures represent the total uses in the state budget (2008, p. 496, Dwight H. Perkins) and it appears from this definition that public expenditure is based on three basic elements:

2.2 The monetary form of public expenditure:

State intervention in economic activity is embodied through public expenditures, which have a monetary nature, meaning that their spending appears in the form of cash flows, and this eliminates all the traditional uses that were previously used by the state, such as in-kind means and providing moral benefits, as it was provided to individuals who They perform these services in kind or intangible, such as granting part of the state's property, titles, and medals, with the aim of obtaining its needs for public services that it provides to society. However, contemporary thought has witnessed an expansion in the use of money. In-kind means have been replaced with cash as the method of payment in all government transactions. To satisfy the needs of society, thus transcending the era of the in-kind economy and the barter method of exchange. This method has several advantages:

1- Achieving the principle of equality between individuals when evaluating their efforts and estimating their salaries and wages.
2- Achieving the principle of justice in distributing financial burdens for the benefit of community members when covering public expenses.
3- There are no obstacles or administrative difficulties when implementing this method, and there is the ease of monitoring it.

2.3 Issuance of public expenses by the state or one of its bodies:

The financial sums that the state spends in order to implement its projects and exercise its public functions in accordance with its sovereignty and commanding authority are considered public expenses, with the exception of the expenses that the state spends when it undertakes productive economic activities similar to the activities of individuals. Opinions differ about their nature.

2.4 Legal standard:

The Classic used the legal standard in classifying the nature of the expenditure, which depends on the legal nature of the spending entity, regardless of the nature of this expenditure, so that the evaluation of the nature of the expenditure depends on the person carrying out the expenditure. If the expenditure is issued by public law persons, it is the state, ministries, central and local public administrations, and institutions. Public, it is a public expense, and if the alimony is issued by persons of private law, then the alimony is considered private without taking into account the objectives and purpose of this alimony.

Relying on the classical legal standard, spending is considered public if it is issued by a public person who is subject to the rules of public law, such as the state, its structures, and its local communities, in accordance with the sovereignty and authority it enjoys. Therefore, the legal standard does not classify expenditures issued by private law persons, even if they seek to achieve Public benefit (Mehrzi Abbas, 2008, pp. 58, 59).

2.5 Job standard:

A- This standard classifies expenditures based on the functional nature of the person who is the source of the expenditure so that not all expenditures issued by the state or one of its bodies constitute public expenditure, with the exception of state expenditures that aim to achieve a public interest (Walid Muhammad Ayeb, previously mentioned reference, p. 102), If the state delegates to private sector individuals what allows them to use its authority in their private activities that seek, in addition to maximizing their profits, to achieve a public benefit, then it is a public expense provided that these public expenses are a result of the use of this authority.
B- As a result of the importance of public expenditures in achieving economic and social development, it is necessary to expand spending by the state and its various national and local public institutions without adhering to a specific standard, that is, regardless of the sovereign capacity, the commanding authority, or even the functional nature of the spending party, because of this to keep pace with the development and expansion of the state (Mehrzi Abbas, 2008, pp. 60, 61).

2.6 The goal of public expenditure is to satisfy a public need:

Public expenditure is built with the aim of satisfying a public need, meaning that expenditures issued by a public person, but their benefit and purpose do not affect the general public, but rather are due to a specific person or a specific group of society to the

exclusion of the rest of the members of society, are not public expenditure, because this would constitute a move away from achieving The primary goal of public expenditure is to meet public needs, and therefore we find that the state authorities have created restrictions on the right to propose expenditures so that public money is not exploited for personal purposes, so the competent administrative agencies misuse this right. They have also adopted oversight tools for these agencies when they use public funds so that these expenses do not deviate from their specific goal (Fathi Awad, 2013, pp. 60-61).

2.7 Second: The concept of higher education, its nature and importance

2.7.1 Higher education

Higher education is the last stage of formal education, which aims to provide the individual with knowledge, skills, and abilities that serve him and society as a whole. Below, we will discuss the concept of higher education and enrollment .

2.7.2 The concept of higher education:

Higher education means education that takes place within colleges or university institutes after obtaining a secondary school certificate. The duration of study in these institutions varies from two to four years, and it is the last stage of formal education (International Arab Encyclopedia, 1999, Part 7, p. 25). "It is all types of studies, training or training that take place after the secondary stage at the level of a university institution or other educational institutions recognized as institutions of higher education by the official authorities of the state" (1, 1998, UNESCO). The names of these educational institutions vary, as there are (university, college, academy).

The university is the highest known institution in higher education, and other names are given to the university and its affiliated institutions, such as college, institute, academy, graduate studies; and these names cause confusion in understanding because they carry different meanings from one country to another. Although the word "college" is used to refer to an institute of higher education, we find that countries that follow the British or Spanish traditions use the word "college" to refer to a private secondary school. Likewise, the academy may indicate an institute of higher education or a school (International Arab Encyclopedia, Part 8, 1999, p. 146). The university is distinguished from other institutions of higher education in the wide range of its academic courses and the multiplicity of its specializations. The prevailing pattern in the university provides many opportunities for students to specialize in the fields of natural sciences, social sciences, humanities, and others. In contrast to universities, the familiar types of educational institutions Other higher institutions are colleges and academies, focusing on one or two fields of knowledge (Al-Abadi Hashim Fawzi, 2008, pp. 62-63).

It is clear from the above that universities provide specialized education to their students in various fields, which then qualifies them to enter the labor market and contribute to all political, economic, and social activities. Therefore, countries strive to provide sufficient educational seats to receive these students who represent the backbone of the development movement in society.

2.7.3 The demand for enrollment in higher education and its importance

The increasing demand for higher education (this demand was the result of the belief that a university degree enables its holder to improve his economic and social situation and contribute to strengthening his status) is the main factor that led to the change and formation of higher education during the second half of the twentieth century. Increasing this demand is an inevitable result, given that this certificate is the key to economic and social success in many countries of the world. This has led governments to closely monitor the process of enrolling in higher education. Universities accept students who have successfully completed secondary school and who hold a certificate proving this or its equivalent, regardless of who the student is and regardless of any other considerations (gender, race, religion...). It is also necessary to ensure that they have studied certain subjects in order to direct them to the appropriate specialization. Due to the differences in the courses in the secondary stage between those studying in the scientific, literary, or technical sections, students in secondary schools are often guided to the type of specialized university studies that they wish to pursue in the future. So that they can meet the special requirements for admission to a program for a specific university major; in countries that conduct a general examination upon completion of secondary education, universities depend on the results of that examination to accept students. In other countries, the university itself or any organization at the national level conducts a university admission examination to evaluate the candidates' ability to succeed in higher education.

The interest in the quality of educational service is also due to the emergence of competition, not only local but also global, as the demand for higher education is no longer limited to local demand only, but there is now demand from other countries, and this is a result of the globalization and internationalization of higher education, as universities face. International University receives

many requests from students annually, which requires it to provide additional seats and mobilize huge financial and material resources while monitoring the quality of education. The increase in the number of students in higher education necessitates the expansion of facilities and the provision of additional seats to accommodate everyone (James J.F., 2007, p3).

2.7.4 Third: The concept of sustainable development.

The term sustainable development gained global attention after the appearance of the Brudtland Commission report entitled Our Common Future, which was prepared by the World Commission on Environment and Development in 1987. The first definition of sustainable development was formulated in this report as "development that meets current needs without compromising the ability of future generations to meet their needs" (Mohamed Ghanayem, 2001, p. 7). In general, this definition defines the general framework of sustainable development that demands equality between Generations in terms of achieving basic needs without reducing the future levels of these generations.

The fourth goal of the sustainable development goals (quality education) indicates that education is a human right, and to ensure this right, governments must guarantee quality learning opportunities in a fair and comprehensive manner for all, and this is free and compulsory, without social or economic discrimination. Why education? It has a pivotal role in developing human mentality and thought and promoting the meanings of tolerance and peace. (United Nations Educational and Cultural Organization, 2017, 9)

Many global economic units and many organizations searched for a more specific definition of the concept of sustainable development. The United Nations Conference on Environment and Development, which was held in Rio de Janeiro in 1992, defined sustainable development as "the necessity of realizing the right to development" so that it ensures achieving a balance in development needs. And the environment is equally for present and future generations. In order for sustainable development to be achieved, the environment must be an integral part of the development process, and economic well-being cannot be thought of in isolation from it (Mostif Douglas, 2000, p. 17).

The Dictionary of the World of Forecasting defines sustainable development as economic development that puts before it the environmental consequences resulting from economic activity and is based on the use of resources that can be replaced or renewed, and thus is not a depletion of resources (Dictionary of Ecology, (2005),).

Economists have identified some indicators of the state of sustainability that are alternatives to each other, even if there is overlap between them, including (Adnan Yassin Mustafa, 2000, p. 8.):

1- The situation in which the benefits do not decline over time.
2- Managing resources in a way that preserves and develops them in the future.
3- Natural capital reserves (forests, rivers, lands, etc.) are not subject to decline and deterioration over time.
4- The sustainable state must meet the minimum conditions of the ecosystem over time.
5- Resource management shall be in a sustainable manner in a way that maintains a continuous supply of services for these resources.

The authors of the previous indicators relied on some definitions provided by research centers or researchers in this field, including: UNESCO defined sustainable development as "each generation must leave behind water resources and pure, unpolluted soil as it was when it arrived, and leave behind samples of all the animals it found on Earth, undiminished" (Salem Al-Najafi, Iyad Al-Chalabi, 2003, pp. 39-40).

Therefore, there is a close relationship between the unification of the economy and the environment (Salem Al-Najafi, Iyad Al-Chalabi, previous source, p. 40.), as it is defined as "the ideal and effective use of all environmental resources in social life and the economy for the distant future, with a focus on a better life of high value for every individual." Of the members of society in the present and future" (Muntahā al-Nuaimi, 2005, p. 155).

Accordingly, sustainable development is a development that meets the needs of the present and the future without compromising the ability of future generations to meet their needs. Based on this perception, the pursuit of sustainable development requires the following (Laila Abu Al-Haja, 2001, p. 1):

1- A political system that ensures the effective participation of citizens in decision-making.
2- An economic system capable of creating surpluses and technical knowledge based on self-reliance and sustainability.
3- A social system that provides solutions to the tensions resulting from inconsistent development.
4- A production system that respects the duty to preserve the environmental base for development.
5- A technology system that is constantly searching for new solutions.
6- An international system that fosters sustainable patterns of trade and finance.
7- A flexible administrative system that has the ability to self-correct.

Sustainable development differs from development in general in that it is more complex and more complex, especially with regard to what is natural and social in development. Sustainable development is mainly directed at meeting the requirements and needs of the poorest segments of society and seeks to reduce the aggravation of poverty globally.

It can be concluded from the above that sustainable development is a state of development in which a kind of harmony is achieved between the developmental and environmental aspects, between production and consumption, and between the environment's ability to give and its ability to endure.

2.7.5 Fourth: Financing education

It is the administrative function that specializes in planning funds and obtaining them from appropriate funding sources to provide the financial needs necessary to perform various activities in a way that helps achieve the goals of these activities and achieve a balance between the conflicting desires of the groups influencing the success and continuation of the system. (Ahmed Othman, 1983, p. 27)

2.7.6 Sources of spending on education:

The source of financing education was not the same in all countries. Rather, the sources of funding varied according to the nature of governments and their economic activities, as well as the prevailing economic pattern in the country, in addition to the size of the organizations and the number of bodies that supervise education in them, and the extent of their contribution to financing education. The source of funding for the stages also differs. Different educational resources within a single country, as well as spending rates between different sources, vary from year to year, and funding sources can be generally summarized as follows (Al-Hamdan, 2002, p. 78)

1- Central government financing (the budget allocated to education) is done from the state budget, and all countries of the world agree that financing basic and compulsory education must be from the general budget.
2- Education taxes and fees.
3- Loans which are internal and external loans obtained by governments or educational institutions from the record of establishing specific educational projects or developing technical or vocational education. Foreign loans are often conditional, especially if they are provided by the World Bank or international organizations.
4- Gifts and donations, whether in kind or cash, are provided to educational institutions, such as a plot of land to build a school or donating a library to the school or university or educational equipment.
5- Private sources are the fees paid by the people nominally or in full, registration fees, examination fees, books, etc.
6- Grants and foreign aid (except loans), which are usually unconditional, and take place within cultural exchanges between governments or educational institutions of the two countries, such as providing scholarships or developing an educational system. The previous sources of funding have been used in various countries of the world, and each country has adopted a source or More to finance education at its various levels and at different rates.

2.7.7 Financing University Education

It is the total financial resources allocated to university education from the state's general budget or some other sources such as agencies, donations, student fees, or local and foreign aid, and managing them effectively with the aim of achieving the goals of university education within a specific period of time. (Al-Sayyid Al-Buhairi, previous reference, p. 69)

2.7.8 Spending on education

Interest in education and spending on it increased during the period immediately following the end of World War II. The increase in the volume of spending on education is mainly due to the continued expansion it and the increase in the number of people accepted at various levels and stages, although what Arab countries spend from developing countries is still small in comparison.

To their educational need, the gap appears wide and overwhelming between Arab countries and developed countries in terms of the volume of spending on education if we compare the average Arab per capita share of spending on education (Abdul Ghani Al-Nouri, 1988, p. 172).

Spending on education is defined as providing the necessary funds to build schools in order to provide them with their material and technical needs, such as classrooms, laboratories, playgrounds, a library, a prayer room, workshops, stationery, etc., in addition to paying the salaries of teachers and employees in the administration, which means that education is a financially expensive project that requires continuing to provide funding sources, as a result of Due to the increasing demand for education as an individual right in modern societies. (Muhammad Al-Musaylim, 2002, p. 81).

It also defines spending on education as the money that is included in government budgets, whether they are central or local governments or other official bodies. The role of governments in spending on education is a major role in developing countries. However, in developed countries, the role of governments is relatively less, and the role of the private sector is greater. However, the role of governments in spending on education remains influential in these countries, and the role of governments in this regard varies from country to country. To another. (Mohammed Mahrous,)

The importance of spending on education in a country is measured by its ratio to the general budget. It is only an approximate measure that is not suitable for making historical studies or international comparisons, according to the difference in the structure and content of the budget from one place to another and even in one place from one stage of time to another. Therefore, we find that The best measure is the ratio of what is spent on education to national income. (Abdul Ghani Al-Nouri, previous reference, p. 173). Kevin Winn 1991 believes that applying market laws to higher education makes university production unrelated to central planning decisions and processes. Thus, UNESCO saw the importance of spending on higher education through:

1- Recognizing higher education as a social investment requires allocating the necessary funds from public funds.
2- Serious search for new sources of financing based on the participation of all those who benefit from higher education, including the economic sector, local communities, parents, and students.
3- There is a need to increase the effectiveness and efficiency of higher education institutions in rationalizing the use of available resources. (Abdullah Boubatana, 1995, pp. 150-170).

3. First: Analysis of indicators of spending on university and higher education in Iraq

Iraq is considered one of the leading Arab and developing countries in the field of spending on education. The state paid great attention to this aspect, especially in the seventies of the last century, i.e., the present time. Education in Iraq is currently based on the Iraqi Constitution, which guarantees educational opportunities for all members of society free of charge. This led to an increase in financial allocations despite the high costs.

In this section, we will attempt to review the most important economic indicators of the development of the Iraqi economy during the period under study. These indicators were chosen on the basis of their direct relationship to sustainable human development. The most important of these economic indicators are:

3.1 Spending on education and GDP in Iraq: -

The main source of the formation of high skills and expertise for human resources is education at all its stages and levels, which serves as the driving source for economic growth. Education affects the economy in many ways, the most important of which is its impact on the workforce by providing the needs of society and the economy with the specialized and trained workforce it needs. Through Table (1), we notice that spending on education in Iraq witnessed an increase (2003-2020), as educational spending rose from (71,598.5) million dinars in 2003 to (1,883,491) million dinars in (2004), and it rose in (2010).) to reach (7,665,608) million dinars, and continued to rise to reach the highest level of educational expenditures, reaching (10,912,647.3) million dinars in (2015). As for the gross domestic product, it increased from (29,585,789) million dinars in (2003) to (162,064,565.5) million dinars in (2010) and continued during the following years to fluctuate between rise and fall to reach the highest value (273,587,529.2) million dinars in (2013). The value of public spending fluctuated between increases and decreases, reaching (4,827,493) million dinars in 2003, and continued to rise to reach its highest value (119,127,556) million dinars in 2013. The number of graduates of primary university studies also increased from (74,676) male and female students in 2013. (2003/2004) to (77,898) in (2005/2006), and continued to rise to reach (81,557) in (2015). On the other hand, the number of graduates for postgraduate studies increased, reaching (4,346) male and female students in (2007), and continued to rise during subsequent years, reaching (8,302) in (2015),

addressing the number of graduates from primary and postgraduate university studies has a significant impact. The worker's skill and productivity are largely due to university education, and this is what most previous studies in this field have produced. When observing both the value of spending on education and the gross domestic product, we find that they are moving in the same direction (upward) and are dominated by noticeable fluctuations. We can say that there is a uniform trend between spending on education and the gross domestic product in most years of study, as shown in Table (1).

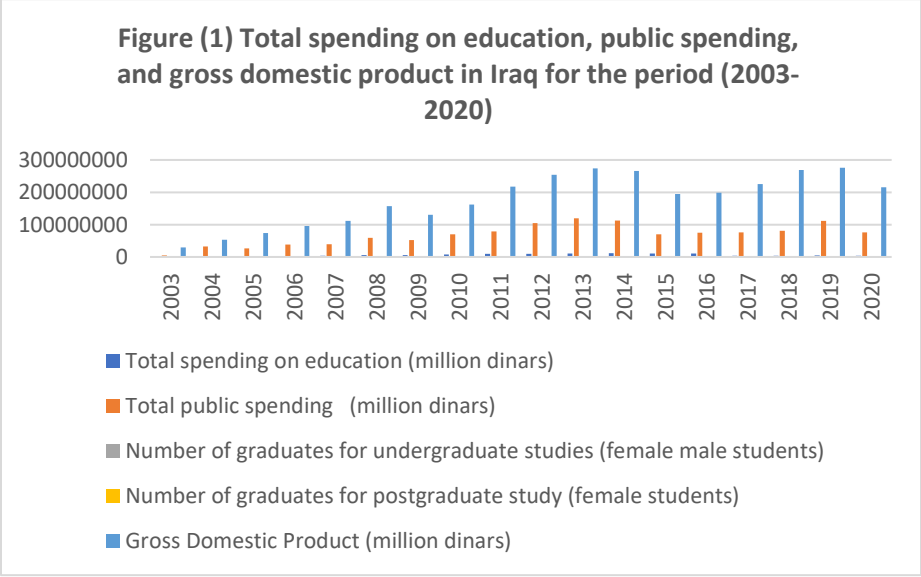
Table (1) Total spending on education, public spending, and gross domestic product in Iraq for the period (2003-2020)

Gross Domestic Product (million dinars)	Number of graduates for postgraduate study (female students)	Number of graduates for undergraduate studies (female and male students)	Total public spending (million dinars)	Total spending on education (million dinars)	year
29585789	4574	74676	4827493	71598	2003
53235385	4612	74037	32117491	1883491	2004
73533598	4511	74349	26375175	1953702	2005
95587954	5328	70417	38076795	2717723	2006
111455813	4346	63135	39031232	3487102	2007
157026061	4706	63752	59403375	5800163	2008
130643200	3827	68410	52567025	6192403	2009
162064565	4910	83716	70134201	7665608	2010
217327107	5846	85000	78757666	9884510	2011
254225490	6888	83496	105139576	10036506	2012
273587529	6485	76310	119127556	11047025	2013
266420384	8081	79335	112192124	11198576	2014
194680971	7547	81557	70397515	10912647	2015
198774369	7613	80426	75055865	10303119	2016
225722375	9345	90008	75490115	3907899	2017
268918874	11039	88028	80873189	4121195	2018
276157867	9827	91093	111723523	5053840	2019
215661516	_ _	_ _	76082443	3991824	2020

Source:-

1- **-1**Ministry of Planning, Central Bureau of Statistics and Information Technology, Directorate of National Accounts, Annual Statistical Bulletins

2- **-2**Ministry of Higher Education and Scientific Research, Department of Studies, Planning and Follow-up.



3.2 Second: A forward-looking reality about the development of spending on higher education in Iraq in light of sustainable development:

The state in Iraq sponsors spending on education, and government funding amounts to 90% of the total financial allocations needed by the educational process, as the Iraqi family's contribution to it was limited to simple supplies (Human Development Report in Iraq, 2014: 87).

Official data from the Ministry of Finance indicate a significant improvement in the proportion of public spending on education out of total government spending for the years 2006-2010, as previously mentioned, but it is still below the levels it reached in the second half of the sixties and the first half of the seventies of the last century, and the education share of the budget is Public (government operating and investment spending) is still far from what North African and Middle Eastern countries spend, amounting to 18%). Data indicate that most of the increase has gone towards meeting the needs of the current budget, which mostly consists of wages and salaries for employees in this sector.

There are a set of local and external challenges facing higher education in Iraq, as is the case in most countries, including the low level of compatibility with the needs of development and the labor market, the growing social demand for education, the reality of admission policy in higher education, weak funding, the qualitative level of curricula, the quality of programs, and the level of research. Scientific development, in addition to other challenges imposed by contemporary developments, is represented by developments in information and communications technology, globalization, global competition, and the impact of this on preparing graduates capable of global competition in the labor market, economic challenges, and others.
The following is a summary of the most important challenges facing higher education institutions in Iraq towards achieving sustainable development through alignment between higher education institutions and the needs of development and the labor market:

1. The level of compatibility between higher education institutions and the needs of development and the labor market
2. Enrollment rate in higher education.
3. The reality of admission policy in higher education.
4. Financing higher education.
5. Comprehensive quality in higher education institutions.

3.3 The level of compatibility between higher education institutions and the needs of development and the labor market:

One of the most prominent challenges facing most developing countries and Arab countries, including Iraq, is the alignment between educational institutions in general and higher education in particular. In Iraq, it is one of the fundamental challenges facing the education sector in general and higher education in particular. This is due to the weak matching of the outputs with the labor market requirements as a result of the nature of the curriculum, the low level of skills and work values of graduates, and their lack of sufficient flexibility to deal with the needs imposed by developments in the labor market resulting from wars and political instability, pumping outputs into specializations that the labor market does not need, and a shortage in specializations for which the need is increasing, as data in the Ministry of Higher Education and Scientific Research indicate an imbalance between graduates' specializations, as graduates of humanities specializations constitute a higher percentage than graduates of scientific specializations and applications required by economic development. (National Strategy for Education and Higher Education in Iraq (2012-2022), 2012).

Studies have indicated an almost complete disconnect between higher education institutions and the labor market, and as a result, huge numbers of unemployed graduates are accumulating who are rejected by the private sector due to their low quality and the lack of suitability of their abilities and competencies to the requirements of work in this sector. Studies add that what further exacerbates the problem is the entrenchment of the trend towards globalization, which emphasizes the freedom of movement of human capital and leads to intense competition for jobs available in the labor market. (Peril and Promise: 2000).

3.4 Enrollment rate in higher education:

This indicator expresses the ability of higher education institutions to accommodate students of the educational age group corresponding to the population. Although this percentage has developed over the last three decades, as the net enrollment ratio increased from about (8%) in the early 1980s to about (15%) in 2004, it is still low compared to neighboring countries and other

countries. This percentage is more than 50% in some Arab countries and ranges from 50% to 70% in developed countries (Al-Adly, 2013: 60).

Raising the level of this percentage does not fall solely on the responsibility of higher education institutions; Rather, it requires increasing the flow of students in the stages that precede the higher education stage, and expectations indicate an increase in the demand for higher education in the future as a result of demographic and economic factors and variables represented by the high growth rates of young people who are expected to enroll in higher education, and the economic factor that indicates the direct relationship between educational attainment and the availability of Jobs chances.

3.5 The reality of admission policy in higher education:

The central admission policy in higher education is one of the most prominent challenges that the higher education system in Iraq suffers from. The absence of a national strategy with clear goals that define fixed scientific and educational standards has led to the admission system being subject to the control of the factors of the absorptive capacity of higher education institutions and social and political pressure .

3.6 Financing higher education:

One of the important indicators that indicate the relative importance that the state attaches to the education sector is spending on education. As is the case in developing countries, government funding is the main source of financing education in Iraq, unlike in developed countries, in which the private sector contributes significantly to financing education. However, government funding remains influential, with the growing spending on education in Iraq in recent years.

3.7 Total quality in higher education institutions:

Total Quality Management is defined as an intellectual, cultural, administrative, and organizational approach that should be applied in universities in general to achieve integration and coordination between the efforts of university employees in its various colleges and departments and their participation in the process of continuous improvement of the outputs provided by the university to meet the needs and desires of individuals to achieve the goals that the university administration seeks in Survival, stability, and growth. In Iraq, the Ministry of Higher Education and Scientific Research realized this and took the initiative to establish specialized units for quality management in Iraqi higher education institutions. However, despite this, the analysis of the reality of higher education contained in the National Strategy for Education and Higher Education in Iraq clearly indicated the antiquity of curricula and technology and the weakness of Its connection to the needs of social and economic development and the requirements of the labor market.

4. Measuring the impact of general government spending on higher education using the OLS least squares method

4.1 First: Testing the stability of variables

We will test the stability of the research variables using the Eviews13 program. Conducting the expanded Dickey-Fuller (ADF) test in order to determine whether the variables are stable or unstable, i.e., they contain a unit root with the integration order determined. After conducting the test for the variables, we obtained the outputs shown in Table (2):

4.1.1 First: Description of the model

The model includes three independent variables and two dependent variables, as shown in Table (2)

Table (2)
Description of the variables of the standard model

Description	*The variable*
Dependent variable	Total spending on education
Independent variable	Total public spending

4.1.2 Second: Description of the standard model

We note from the table above that the model consists of an independent variable, meaning that the studied relationship will be represented through an equation linking the dependent variable according to the following formulas:

1- $\text{Total spending on education} = \alpha_1 + \alpha_2 \text{Total public spending} + U_1$

In order to estimate this relationship, the model must pass a number of tests, including the time series stability test and the cointegration test.

4.2 Second: Testing the stability of time series

The goal of conducting a time series stability test is to ensure that the studied time series is free of the unit root problem, which, when present, causes misleading and unrealistic standard results. For the purpose of detecting that these series are free of a unit root, several tests are used, including the expanded Dickey-Fuller (ADF) test and the Phelps-Perron (PP) test. Table (3) shows stability tests for the studied variables.

Table (3)

Results of testing the stability of the research variables

Variable	ADF			PP		
	Rank of Stationary	t-stat	Prob	Rank of Stationary	t-stat	Prob
Total spending on education	1st difference	*-3.294723*	*0.0027*	1st difference	*-3.291721*	*0.0001*
Total public spending	1st difference	-3.719587	*0.0010*	1st difference	*-3.713734*	*0.0010*

Source: Prepared by the researchers based on the results of the Eveiws13 program

We notice from Table (3) that when the Dickey-Fuller-Enkel test, the two variables stabilized at the first difference only, with a significance level of 1%, without a fixed limit, and towards the im pesarn test, which assumes an equal period for all sections, we also notice that the two variables stabilized to the same degree, I(1). This allows us to conduct a cointegration test between the variables.

4.3 Third: Estimating a model using the OLS least squares method

The least squares method is based on obtaining regression estimators, where α is the secant parameter, and β is the slope parameter so that the sum of the squares of the residuals is minimized to its lowest value. So, a component called the sum of squares of the residuals is defined and then proceeds to obtain α, β, so that this component is reduced to its lowest value. The least squares method gives us the regression estimates α, β, but it does not give us the variance estimate, and this is considered one of the weaknesses of the least squares method. Table (4) shows the following:

Table (4)

Estimating a model using the OLS least squares method to measure the effect of general government spending on spending on higher education

Dependent Variable: LOG(TOTAL SPENDING ON EDUCATION)
Method: Least Squares
Date: 07/18/24 Time: 08:47
Sample: 2003 2020
Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOTAL PUBLIC SPENDING	3.13E-08	5.80E-09	5.395424	0.0001
C	12.99016	0.457394	28.40037	0.0000

R-squared	0.645316	Mean dependent var	15.27994
Adjusted R-squared	0.623148	S.D. dependent var	1.178955
S.E. of regression	0.723740	Akaike info criterion	2.295669
Sum squared resid	8.380784	Schwarz criterion	2.394599
Log likelihood	-18.66102	Hannan-Quinn criter.	2.309310
F-statistic	29.11060	Durbin-Watson stat	1.251331
Prob(F-statistic)	0.000059		

Source: Prepared by the researchers based on the results of the Eveiws13 program

LOG(TOTAL_SPENDING_ON_EDUCATION) = 3.1272315859e-08*TOTAL_PUBLIC_SPENDING + 12.9901585098

The statistical results of the simple regression equation shown indicate the quality of the model estimated through the estimated coefficients. They were significant, indicating the explanatory power of the model; that is, the value of the corrected coefficient of determination reached 0.64, which is a good percentage indicating that the change in spending in education is 64% of the effect of general government spending. As for the remaining 36% of the interpretation, it is due to other factors not included in the model, as an increase in general government spending by 1 leads to an increase in spending on education by 3%, meaning that there is a direct relationship between general government spending and spending on higher education, while the D-W test It reached (1.25), and this confirms that there is no problem of autocorrelation in the model. In general, the estimator model as a whole was significantly significant. We find that the calculated (F) reached (29.11060) with a significance level of (0.000059), which is greater than the tabulated value that was extracted from Fisher's table at 1% significance. This indicates the quality of the model in expressing the direct relationship between general government spending and spending on higher education, which is one of the indicators of development.

4.4 Fourth: Standard diagnostic tests

These tests are used to confirm whether the standard problems in the model have been passed or not through the following:

4.4.1 Breusch-Godfrey Serial Correlation Test:

This test is used for the purpose of determining that the estimated model is free of the problem of serial autocorrelation between the residuals through the use of the (Breusch-Godfrey) test. The results of Table (5) show that the model is free of the problem of autocorrelation, that is, the value of Prob. The Chi-Square reached (0.6849), which is greater than the level of significance (5%), so we accept the null hypothesis, which states that the residuals are not autocorrelated.

Table (5) Breusch –Godfrey Correlation **LM** Test

Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.307342	Prob. F(2,14)	0.7402
Obs*R-squared	0.757069	Prob. Chi-Square(2)	0.6849

Source: Prepared by the researchers based on the results of the Eveiws13 program

4.5 Heteroscedasticity Test:

To ensure that the residuals do not suffer from the problem of homogeneity of variance, we find that the Prob chi-square parameter has reached (0.8246), which is greater than the level of significance (5%). Therefore, we accept the null hypothesis, which states that the variance of the estimated model residuals is homogeneous, and we reject the alternative hypothesis, which asserts that there is no Homogeneity of variance of the residuals, as shown in Table (6).

Table (6)

Test for homoscedasticity of variance

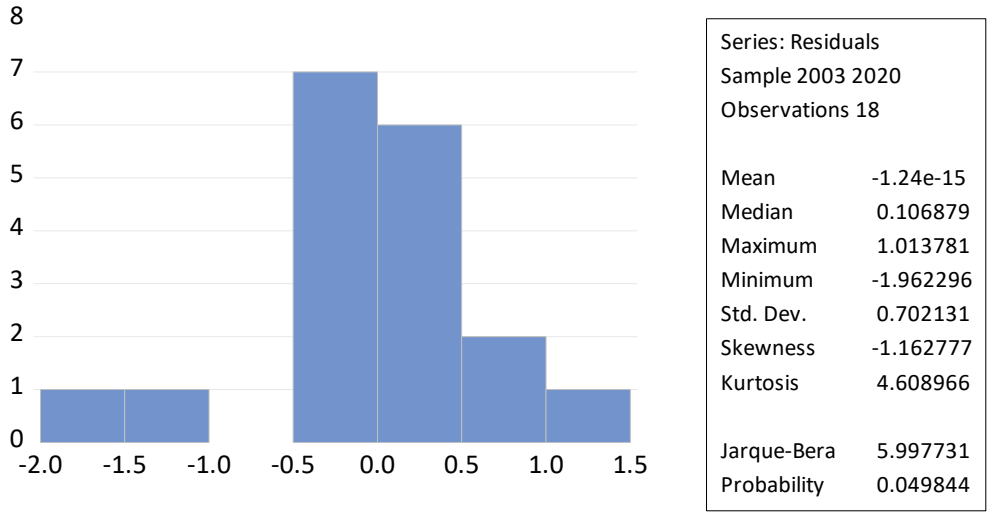
Heteroskedasticity Test: ARCH			
F-statistic	0.043464	Prob. F(1,15)	0.8377
Obs*R-squared	0.049117	Prob. Chi-Square(1)	0.8246

Source: Prepared by the researchers based on the results of the Eveiws13 program

4.6 Normal distribution test

The results of Figure (2) show that the Jarque-Bera test reached (5.997731) with a probability level of (0.049844), that is, accepting the alternative hypothesis, which states that the residuals are normally distributed, and rejecting the null hypothesis, which states that the residuals are not normally distributed, meaning the model has passed the test. This is desirable in such models and enhances the acceptability of the model and the reliability of the results.

Figure (2)
a test Jarque-Bera



Source: Prepared by the researchers based on the results of the Eveiws13 program

5. Conclusions and recommendations

5.1 Conclusions

At the end of the research, several conclusions were reached, the most important of which are as follows:

1- There is a direct and positive relationship between spending on higher education and sustainable development in Iraq despite the fluctuation of public revenues.
2- Oil revenues are the determining factor for spending on education and the main source of public revenues in Iraq, as the decline in crude oil prices is the main reason for the fluctuation in public revenues.
3- The volume of spending on education as a proportion of total expenditure varies throughout the research period, as is the case with the volume of spending on education as a proportion of gross domestic product.
4- The study showed that despite the continuous increase in the volume of government spending on the education sector in Iraq, it did not have an effective role in reducing the severity of the problems faced by the performance of the educational sector.
5- One of the outcomes of the expansion of higher education after 2003 in Iraq is the doubling of the number of accepted students in less than a decade and the high annual growth rates in the number of students.
6- The study showed that the volume of spending on research and development in Iraq does not meet the basic requirements for establishing its infrastructure. In addition, vocational training in Iraq has not received the attention required, as it is limited to awareness of the importance of training and its role in developing skills for individuals.
7- The results of the research showed that the time series for the two variables are stable to the same degree; that is, there is a cointegration relationship between general government spending and spending on education. The results were consistent with economic theory as the relationship was positive and significant.
8- The results indicate that the estimated model has explanatory power, meaning that the value of the corrected coefficient of determination reached 0.64, which is a good percentage, indicating that the change in spending on education is 64% of the effect of general government spending, while the remaining percentage of the explanation, 36%, is due to other factors not included in the form.

5.2 Recommendations

Recommendations can be made in light of the above conclusions as follows:

1- Spending on education must be diversified, as the continued dependence of Iraqi public universities for their funding almost entirely on general budget allocations makes them lose an important part of their independence and their ability to make important strategic decisions.
2- Financial allocations for higher education must be increased, as the allocations originally allocated for higher education, which range between 2-3% of the general budget, are weak.

3- Working to create a kind of consistency and compatibility between educational outcomes and the needs of the labor market by carrying out analytical studies and research in order to know the market need for the required expertise, competencies, and abilities while creating job opportunities for all graduates that are compatible with their specializations and skills.
4- Governments must ensure quality learning opportunities in a fair and comprehensive manner for all individuals, in line with the fourth goal of sustainable development goals.

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