Effects of Natural Resources Abundance on Genuine Saving

Submitted By
Fatma El-zahraa Ghazy El-said
Assistant Lecturer of Economics
Faculty of Commerce
Zagazig University

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Abstract

The study aimed to measure the impact of natural resources abundance on sustainable development in the countries of the MENA region, in addition to trying to answer the question of whether the level of corruption affects the natural resources role in achieving sustainable development. This is based on unbalanced panel data from 17 MENA region countries during the period (1984-2016). In order to achieve this, the study used the fixed effects method to allow individual differences between countries to appear. The study found a positive effect of natural resources abundance on the formation of a positive real wealth (Genuine saving). This includes that the MENA countries are creating their real positive wealth (by exporting their natural resources). The results also showed that the MENA countries are investing the proceeds of natural resources in infrastructure projects, social programs of education, health and others that support in one way or another the realization of real positive wealth for each individual. Transparency also increases the effectiveness of the positive impact of the abundance of natural resources on sustainable development. The study also showed that this effect is stable and robust.

إستهدفت الدراسة قياس أثر وفرة الموارد الطبيعية على التنمية المستدامة فى دول منطقة الميناء, بالإضافة إلى محاولة الإجابة على تساؤل هل يؤثر مستوى الفساد على دور الموارد الطبيعية فى تحقيق إستدامة التنمية. وذلك بالإعتماد على بيانات طولية غير متوازنة لعينة من (17) دولة من دول منطقة الميناء خلال الفترة من (1984-2016) . وفى سبيل تحقيق ذلك إستخدمت الدراسة إسلوب الأثار الثابتة لإتاحة الإختلافات الفردية بين الدول. وقد توصلت الدراسة إلى وجود تأثير إيجابى لوفرة الموارد الطبيعية على تكوين ثروة حقيقية موجبة مما يتضمن أن دول الميناء تقوم بتكوين ثروتها الحقيقية الموجبة (من خلال بيع مواردها الطبيعية) فى مقابل تدميرها لتلك الموارد الطبيعية المتوفرة لديها ولا تعمل على المحافظة عليها وصيانتها وزيادة مخزونها. كذلك أظهرت النتائج أن دول الميناء تعمل على إستثمار ريع الموارد الطبيعية فى مشروعات البنية الأساسية, والبرامج الإجتماعية من تعليم وصحة وغيرها والتى تُدعم بشكل أو بأخر تحقيق ثروة حقيقية موجبة لكل فرد. كذلك فإن الشفافية تُزيد من فعالية الأثر الإيجابى لوفرة الموارد الطبيعية على التنمية المستدامة. كما أظهرت الدراسة أن هذا الأثر مستقر وقوى.

Introduction

The sustainable development has become the current answer to absolving a lot of environmental and economic problem. As the sustainable development is the development that meets needs of the present without compromising the ability of the future generations to meet their own needs (Emas, 2015), and that cannot achieve without make sustain use of natural resources. As sustainability is that the human activity only uses natural resources at the rate at which it can be replenished naturally, so the sustainable development and natural resources are intimately connected.

Natural resources are the back bone of every economy, and provide two basic functions, the first: raw material for production good and service, and the second is raw material for environmental service. So, the main way to achieve sustainable development is to think about how to manage and make sustain use of natural resources (Mensha & Castro , 2004). As in using resources and transforming them, it has to add to the wealth of the present and future generations. So, there is a strong relationship between abundance of natural resources and sustainable development.

Accordingly, the aim of the study is to discover the casual relationship between sustainable development and abundance of natural resources, using one of macro-economic measures of sustainability which called genuine saving (GS), is a measure of net investment in produced natural and human capital, if GS is negative that means we have unsustainable development, while it positive mean we have sustainable development (Dietz , et al., 2007).

Problem settlement

The study tried to determine the impact of the abundance of natural resource on sustainable development.

The questions this study raises are the following:

- How to set target and assess progress in sustainable use and management of resources?
- How can be achieving sustainable development through natural resource?
- What is the determinant and challenge of sustainable development?
- How can we make best use of natural resources, or turning it to bless for society rather than curse?

- How can each of natural resource abundance, corruption and quality of institution effect on sustainable development
- ***Objectives of the Research:***

The main objective of the study is to explain the interaction or relationship between abundance of natural resource and sustainable development, and how to manage natural resources to make sustain consumption of natural resources, also how to minimizing environmental degradation to achieve sustainable development.

Key objective of the study could be summarized in the following point:

1) Make evolution of sustainable development, then explain its theories, indicators and determinants, also describe the challenges to achieve sustainable development, then illustrate the difference between sustainable development, development, and economic growth.
2) Describing the interaction and relationship between sustainable development and natural resources. Also, how to manage natural resources to achieve sustainable consumption of natural resources.
3) Measuring sustainable development by using genuine saving (GS) as measure of net investment in produced natural and human capital.
4) Determining lessons that can be learned from international experience as there are some countries poor in natural resources but have high growth rate like Malaysia, Norway, Botswana and Chile, on the other hand, there are some countries which are rich in natural resources but have low growth rate like Nigeria, Bolivia and Congo.
5) Perform survey and statistical analysis for MENA region countries' natural resources, and the structure of their natural resources.

Research Hypotheses

- There is a positive impact of natural resources abundance on sustainable development in the MENA region.
- ***Methodology***

This study will use two approaches:

The first: indicative approach

This approach depend on analysis or descriptive method to describe what is the efficient and sustainable use of natural resources then defined sustainable development and its theories and indicators, , and the linkage between natural resources and sustainable development, then Perform survey and statistical analysis for MENA region countries' natural resources, and the structure of their natural resources, also determine the impact of abundance of natural resources on sustainable development through genuine saving(GS) index in MENA region countries.

The second: Econometric approach:

1. **Variable used in the model:**

Dependent variables:

- **Sustainable development:**
  - Genuine Saving (GS)

Explanatory variables:

- Abundance of natural resources

Control variables:

- Institutions quality (corruption, rule of the law)
- The productive base of the economy (capital stocks)
- The shadow prices of these resources

2. **Model**

Using unbalanced panel data regression for 17 countries of MENA region for the period of (1984-2016).

The equation:

1. Genuine saving per capita index=f (abundance of natural resources, quality of institutions, capital stocks, shadow prices of resources)

2. Significance of the study

All studies concentrate on the relationship between economic growth and abundance of natural resources, but the aim of the study is to moves from economic growth to sustainable development, as sustainable development is important to add to the present as well as future generations.

So, the study aims to determine the casual relationship between sustainable development and abundance of natural resources, as the environment and sustainable development are intimately connected, so we have to minimizing environmental degradation by making efficient and sustain use of natural resources to achieve sustainable development. And determine the role and impact of nature resource in achieving suitable development in MENA region countries.

1 sustainable development concept

In recent years, in the universal discussion on future economic development, the concept or idea of sustainable development has turned into a focal element. Our way of life has changed quickly in this century due to the considerable advances of science and innovation and issues, for example, environmental problems are progressively critical in the discussion on characterizing future development models.

So, this section will portray the concept of sustainable development, the pillars of sustainable development, Goal of sustainable development (GSDs), Importance of sustainable development.

1.1 Concept of sustainable development

The World Commission on Environment and Development (1987) defined the term Sustainable Development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This idea or concept thinks about the right to improvement and the security of the earth. Sustainable Development thus intends to address present needs and meet short-term issues with the general objective of long-term Sustainability.

Development and preservation had been viewed as conflicting ideas, since conservation was comprehended as the protection of resources, and development as the misuse and depletion of resource. Presently the idea of sustainable development rose as a tradeoff between the ideas of development and preservation, which came to be viewed as related issues, sustainable development needed to enhance economic efficiency, protect and reestablish environmental systems, and improve the prosperity of all peoples (IISD, 2003). Sustainable development was intended to adjust and balance the limits to growth and the need for development.

1.2 Three pillars of sustainable development

- Environment(ecology)
- Economics
- Social justice or equity

1.2.1 Environment(ecology)

The ***ecological stability*** of human settlements is a piece of the connection among people and their natural, social and manufactured environments, also named ***human ecology*** (Andy & Scerri, 2010)

1.2.2 Economics

It has been prompted that due to rural poverty and overutilization, environmental resources ought to be treated as vital economic assets, referred to as natural capital (Barbier, 2006).

Economic development has historically needed a growth within the gross domestic product. This model of unlimited personal and GDP growth could also be over. sustainable development might involve enhancements within the quality of life for several however might necessitate a decrease in resource consumption (Brown, 2011).

1.2.3 Social Justice or Equity

Social equity is an idea of reasonable and only relations between the individual and society. This is estimated by the unequivocal and unsaid terms for the distribution of wealth, open doors for individual action, and social benefits (lark, 2015).

1.3 Importance of Sustainable Development

Sustainable development has kept on developing as that of securing and controls the world's resources. The substance of this type of improvement is a steady connection between human exercises and the natural world, which does not decrease the prospects for future generations to appreciate a personal satisfaction and enjoy a quality of life

Sustainability is important for many reasons including:

- Achieve Environmental Quality – In request to have healthy communities, we require clean air, natural resources, and a nontoxic domain.
- Growth – UNTHSC's enlistment keeps on developing, so we require more resource, for example, vitality, water, and space.
- Increase productivity and efficiency and lessen costs by utilizing green manufacturing.
- Increase business capacity to consent to regulation.

- Improving the nature of human life while living inside the conveying limit of supporting biological communities.
- Development dependent on the standard of inter-generational {i.e. passing on the equivalent or enhanced resource gift to the future that has been acquired), inter-species and inter-group equity.

1.4 Sustainable Development Indicators

Sustainable Development Indicators (SDI) are different statistical values that measure the ability to meet present and future needs, endeavor to measure sustainable development completely, considering the multi-dimensional and incorporated nature of sustainable development (Nation, 2013).

It enables us to understand our achievements and disappointments along the way, and recognize corrective measures and activities—in short; it enables us to complete things.

lead to better choices or decisions and more successful activities by simplifying, rearranging, clearing up and making aggregated data available and accessible to strategy producers, as Decision makers and organizers require indicators to identify and prioritize policy interventions, survey impacts, harmonize policies and activities, and configuration long-term development strategies.

indicator framework was developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) adopted by the General Assembly on Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. The list includes 232 indicators depend on the 17 goal of SD (SDGs). the next point will explain and summarize the most important indicator according to the study (worldbank, 2018).

1.4.1 Genuine Saving

Adjusted net saving (ANS) measures the genuine rate of saving in an economy after taking into considering investments in human capital, depletion of natural resources and harms caused by pollution. Adjusted net saving, referred to informally as genuine saving, is an indicator that means to evaluate an economy's sustainability dependent on the ideas of expanded national accounts (bank, 2012).

if the value of GS positive we have sustainable development. And vise verse when it negatives we have unsustainable development.

Adjusted net savings ANS (genuine savings) is calculated as:

ANS = GNS – CFC + EDU – NRD – GHG – POL

Where:

ANS = Adjusted Net Saving;

GNS = Gross National Saving

CFC = Consumption of fixed capital

EDU = Current public expenditure on education

NRD = Natural resource depletion

GHG = Damages due to carbon dioxide emissions

POL = Damages due to exposure of a country's population to air pollution

2 Theoretical Overview of The Relationship between Natural Resources and Sustainable Development

Developing pressures on environment, from economic activities because of populace growth have driven after some time to damage the natural environment. That lead to ecological crisis which can be interpreted as a complex phenomenon of incompatibility natural environment to meet the requirements of household consumption. The requirement for food was guaranteed by intensive agriculture. Purchaser prerequisites have prompted expanding energy consumption utilized in every aspect of creation of products and services. Hub environment was influenced by the issue of gas greenhouse we feel today (MÜLLER, BOOS, 2012).

Economic development without ecological considerations can cause environmental damage thus debilitating the quality of life of present and future generations. Sustainable development endeavors to strike a harmony and balance between the requests of the economic development and the requirement for protection of the environment. It looks to combine the components of intergenerational equity, economic efficiency, social concerns and ecological security.

2.1 Environmental Kuznets Curve Linkage Between Sustainable Development and Natural Resources

An environmental Kuznets curve (EKC) is a hypothesized relation between economic development and environmental quality, this curve indicates that economic development initially damages environmental quality, but with further development the relationship seems to reverse and environmental degradation begin to diminish. This relationship delivers an inverted U-shaped curve where environmental degradation first rises and after that falls with increasing economic development (Hervieux MarieSophie, 2013).

3.2.1 Approaches of Environmental Kuznets Curve

There are three approaches were seen at aiming to shed light on the inverted U-shaped connection among pollutants and output. (Gara, 2018)

•***The scale effect***: presumes that emissions are probably going to increment as the number and variety of economic activity rise.

•***The composition effect:*** assumes that emissions would diminish as long as the goods produced in an economy become cleaner.

•***The technique effect:*** considers that emissions would diminish as the information inferred in manufacturing becomes less polluting.

3.2.2 EKC as a linkage between sustainable development and natural resources

There are some studies use EKC to illustrate the relationship between sustainable development and natural resources. By using the relationship among carbon dioxide (CO2) emissions, income, energy consumption (NR), trade openness, financial development and institutional quality.

The outcomes support the EKC hypothesis, which assumes an inverted-U shaped connection among income and environmental degradation. Other empirical results indicate that energy consumption, trade openness, financial development and institutional quality are significant variables in explaining CO2 emissions (Cüneyt Kılıç, 2018).

Others use what called Modified Environment Kuznets Curve (MEKC), and demonstrate that there is an inverted U-shape connection among sustainability and human development (HD). The connections are molded by different factors, for example energy, trade, manufacture added value and the role of law. More interestingly, discoveries from the estimation demonstrate that EKC hypothesis, HD

and sustainability are crucial to build effective environmental policies (Sahbi Farhani, 2014)

3.2.2.1 Environment Kuznets Curve between Genuine Saving (GS) and Natural Resources

Utilizing Modified Environment Kuznets Curve (MEKC) in order to consider a more extensive idea of development instead of pure economic growth, including well-being aspects and sustainability of the development process. Utilizing a macroeconomic measure of sustainability for example, the World Bank's Genuine Saving and a measure of well-being such as the United Nations' Human Development Index, utilizing model so as to investigate linkages between higher welfare levels and natural resources consumption, verifying the sustainability of human development (Valeria Costantini, 2006).

The results approve the hypothesis of environmental Kuznets curve the relation between sustainable development (GS), and consumption of natural resources is inverted U shape.

The first stages of sustainable development are concerned with achieving the welfare of individuals on the expense of the environment. and at a certain level of development, accompanied by increased cultural awareness of the population and governments, also comprehensive change in society as the whole, at this level institutions are pressed by public opinion to include environmental protection in the policy agenda, therefore playing an active role to designate policy actions (and regulations) oriented towards sustainable development path.

Here the turning point occurs and find that as sustainable development increases, the destruction of the environment (resource consumption) begins to decline.

3 Natural Resources Abundance and Sustainable Development: An Empirical Analysis

As clear in previous section there are the relationship between natural resources and sustainable development. Therefore, this section aims to prove the role of natural resources abundance in achieving sustainable development in the MENA region, by using statistical analysis (econometrics models).

The study model was estimated using the fixed effects model, based on the statistical package E-Views (10).

3.1 Variables of Model

the study depending on 3 forms of variables:

- dependent variables
- independent variables
- control variables

3.1.1 dependent variables

the study uses 2 proxies to expresses sustainable development to complete each other as follows:

- **Genuine saving per capita (GSc)**

Also called adjusted net saving per capita and real wealth per capita the study uses Genuine saving per capita (GSc)

GSc used as indicator of sustainable development. As it considers a comprehensive measurement of sustainable development, it takes into considering investments in human capital, natural capital and physical capital, also determine the depletion of natural resources and harms caused by pollution

if the value of GS positive we have sustainable development. when it negative, we have unsustainable development

3.1.2 independent variables

- **Abundance of Natural Resources (ANR)**

The study uses proxy for natural resources as *Total Natural Resources Rents (%of GDP)* The higher the percentage of natural resources rents from the gross domestic product, the greater the availability and abundance of these natural resources in the country.

3.1.3 Control variables

Since economic theory suggests that the change in average per capita real wealth (GSc) is a function of three main factors that govern it:

- **Institutions that governed resources allocation**
- **The productive base of the economy (capital stocks)**
- **The shadow prices of these resources**

➢ **Institutions that governed resources allocation**

Represents one of the main and important dimensions of achieving sustainable development, only good institutions can plan, draw and pursue sustainable economic and financial policies.

The study will use 3 proxies to express the institutions as follows:

- **Transparency indicator (Lack of Corruption)**

It is scaled from 0, which indicates low level of corruptions and 6 express high level of corruptions

- **Law and order**

It is scaled from 0, which indicates absence of rule of law and 6express full rule of law

- **Democratic accountability**

It is scaled from 0, which indicates the lowest Democratic quality and 6 express high Democratic quality

according to the economic theory, the high level of transparency (lack of corruptions), rule of law and democracy in any society is expected to lead governments to adopt appropriate economic and distribution policies that support the achievement of real positive wealth (GSc) for society as a whole.

➢ **The productive base of the economy (capital stocks)**

They act as a true injection factors for real wealth for any country, as the productive base for any economy which consist of level of human capital, investment, production, and so on. that lead to different level of real wealth (GSc) between country.

The study uses GDP per capita as a proxy for it.

➢ **The shadow prices of these resources**

It expresses the scarcity of natural resources. Also, it represents the opposite to productive base. as it acts as a Leakage factors for real wealth for any country. Means factor that lead to decrease the real wealth of the country (GSc).

The study uses Imports of goods and services (%of GDP) as a proxy for it.

3.2 Model Structure

To achieve the goal of the study by estimating the effect of natural resources abundance on sustainable development in MENA region, also to know if the MENA region exploit the rent of natural resources in investment, and the effects of corruption level on the rule of natural resources abundance in achieving sustainable development.

Following the main theme of literature with some modifications. The study will apply econometric modelling in which the relationship between natural resources abundance and sustainable development can be examined. The study will depend on unbalanced panel data for 17 countries of MENA region for the period of (1984-2016). the estimation of the model Depending on (E-Views 10) program.

The data obtained from various international organizations like WB, IMF, PRS group and so on. The sample has been selected based on the availability of data. The basic structure of the model is closely followed (Sach,Warner 1997, Dietz, Neumayer, Soysa 2007,Aidt 2010), this approach will provide an opportunity to investigate the linkage between natural resources abundance and sustainable development.

3.2.1 The basic model of the study

$$GS_{C_{it}} = \beta_{i0} + \beta_1 Abundance_{it} + \beta_2 Corruption_{it} + \beta_3 Law_{it} + \beta_4 Democracy_{C_{it}} + \beta_5 GDP_{C_{it}} + \beta_6 Public\ Invest_{it} + \beta_7 Imports_{it} + u_t$$

3.3 Descriptive Statistical of Variables

this point summarizes descriptive statistical for all variables included in the study functions, by measuring the mean, standard deviation, minimum value and maximum value for every variable in the study.

The next table displays these values:

Table 1: Descriptive statistics of the variables

	Obs.	Mean	Std. Dev	Min	Max
Dependent variables:					
Genuine saving per capita (GSc)	419	1533.9	4104.1	-13289	28631
Independent variables:					
Resources rents	548	14.802	15.578	0	64.111
Control Variables:					
Corruption	559	2.4905	0.8933	0.5	5
Law	559	3.7477	1.3235	1	6
Democracy	559	2.8103	1.4889	0	6
GDPc	548	9217.1	13255	257.65	88564
Imports_gdp	537	37.497	19.108	0.0156	125.71

Note: **The countries are:** Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, Turkey.

The average per capita genuine saving (GSc) within the MENA region is ($ 1534), with a standard deviation of (4104). It ranges from countries that have achieved a great negative real wealth, headed by the State of Oman, whose (GSc) has decreased to ($ 13289). And countries that have achieved a huge positive real wealth, headed by the State of Qatar, where (GSc) in Qatar is equivalent to ($ 28631).

As for the abundance of natural resources, note that most of the sample countries are characterized by abundant natural resources, especially oil resources, with the exception of the State of Israel, Jordan, Morocco, Turkey, Tunisia, Lebanon and Egypt. Average natural resource revenues within the sample are 14.8% of GDP. It ranges from countries without natural resources such as Lebanon, and many countries rich in natural resources, especially Iraq.

As for the *control variables*, we note the *low level of quality of the institutions* within the sample countries. The average level of transparency (corruptions level), rule of law and level of democracy were (2.49), (3.75) and (2.81) respectively, which is less than half the value of the index (With the exception of the rule of law which exceeded half by a small percentage). Of course, there are some countries that have achieved great achievements on some sub-axes of institutions, especially the State of Israel, which have achieved great achievements in the index of democratic accountability, where it is the only fully democratic state within the sample countries. Most of the Gulf countries have also made significant gains in the Rule of Law Index for most years.

Turning to the variables of the productive base of the economy, note the large disparity in average GDP per capita and the volume of public investments resulting from different countries of the sample in the abundance of natural resources (especially oil resources). The only exception is the State of Israel, which reached an average GDP per capita far above all oil-rich countries (except for the State of Qatar).

Finally, for the shadow prices of resources, the average ratio of imports of output within the sample of countries is 37.5%, with a standard deviation (19.1). In the sample data, note that the ratio of imports of output to the sample countries revolves around the general average, with the exception of the State of Bahrain, Jordan and Lebanon, where the proportion of imports of the product exceeds the general average, rising to about 70% in these countries.

3.4 Study Hypotheses

There is a positive impact of natural resources abundance on sustainable development in the MENA region

3.5 Model Estimation and The Results

3.5.1 Stationary Test

A unit root test is a prerequisite for econometrics analysis of different time series. The selection of the appropriate estimation method depends on the results of the stationary tests. If all the variables are static, at, I (0), it supports the use of the Pooled OLS method, the Fixed effects model, or the random effects model.

The Unit Root Test is one of the most common methods used for stationary tests. *the study will use four different tests to verify the strength of the results:*

- Augmented Dicky- Fuller (ADF)
- Phillips Perron (PP)
- Levin, Lin & Chut (LLC)
- Im, Pesaran, Shin (IPS)

The four tests show that all the variables were stationary at the level I (0). As a result, we can use the Pooled OLS method, the Fixed effects model or the Random effects model.

3.5.2 Diagnostic Testing

In order to avoid the misspecification in regression process, which have critical consequences on the result of regression models, diagnostic tests will be applied. Thus, integrating diagnostic testing in the model's specifications aims at determining whether the estimated model is an adequate describer for the underlying variables or not. Table (2) illustrate tests used in the study

Table 2: Diagnostic Tests

Diagnostic Tests	Tests used
Heteroskedasticity	Breusch –Pagan -Godfrey
Serial Correlation	Breusch-Godfrey LM test.
Cross-Section Dependence	Pesaran CD
Normality	Jarque-Bera
Function Form	Ramsey RESET Test
Breakpoint	Chow test
Volatility	ARCH test
Collinearity	Variance Inflation Factors (VIF)

The results of these tests indicated that the estimated econometrics models of (cross-section dependence) were missing, and that the models are adequately described (functional form). In addition, there is no trace (ARCH), mean that there are no fluctuations in the panel data used. (Chow) test also indicated that there was no (Breakpoint) in the panel data. The (VIF) test also showed no problem of Collinearity between independent variables. As the inflation factor for all independent variables in the study was less than 10.

On the other hand, the tests showed that the models used are suffering from the problem of serial correlation between the residual (Serial Correlation), as well as the problem of Heteroscedasticity, and that the residuals are not normally distributed.

3.5.3 Estimating Model by Using Fixed Effects Model (FEM)

To estimate the models of the study, the fixed effects model (FEM) was used, as the use of the fixed effects model allows the constant to be differ between countries, which makes us consider the individual differences of each country. However, we still assume that the regressions coefficients are constant for all countries.

- **Estimation regression for the model of the study**

The regression shows a positive effect at a significant level of 1% of the natural resource rents (%GDP) on (GSc) of the MENA countries. The coefficient is (76.161), which includes increasing the natural resource rents by 1% of the GDP of the MENA countries, would increase the (GSc)in the long term by an average of $ 76.2. The result is consistent with the sub-hypothesis of the study ($H_{1\text{-}1}$) and with the economic logic. The increase in the abundance of natural resources in the countries of the MENA region, especially the oil resources of the region, enables these countries to achieve huge financial savings from the sale of these natural resources. Which lead to increase spending on education, with the work of sovereign funds to exploit and invest the remainder of the financial surpluses in different production projects, both inside and outside the MENA region, which ultimately contributes to increasing per capita savings and spending on education more than the depletion cost of natural resources. Thus increasing (GSc).

As for **the control variables** in the regression confirms the stability of the results of these variables. The regression shows that there is a positive effect of the variables of the institutions, the productive base of the economy on the GSc, while the negative effect of the imports %GDP (shadow prices) on GSc. The result is

consistent with economic theory, with the exception of the Rule of Law variable, which was insignificant in its impact on the GSc, despite his positive singe.
Finally, *the major regression statistics indicate*:

- the increase in (R^2) of the fixed effects model in regression, where the models used explain more than 93% of the changes in GSc.
- Fisher's test (F-Stat) also indicates rejection of null hypothesis and acceptance of alternative hypothesis with statistical significance of the three regressions used as a whole at a significant level of 1%.

4 Conclusion

The current study aimed at measuring the impact of the abundance of natural resources on sustainable development in the countries of the MENA region, in addition to trying to answer the question of whether the countries of the region are exploiting the proceeds of these natural resources in increasing investment to sustain development, and whether the level of corruption affects the role of resources natural in achieving sustainable development.

The study starts by theoretical rooting of sustainable development and the relationship that arises between natural resources and sustainable development in economic thought and previous theoretical and applied literature.

The study was based on statistical analyses (econometrics method) to explain and illustrate this relationship. using unbalanced panel data for a sample of (17) countries in MENA region during the period (1984-2016). Using the fixed effects model to allow individual differences for each country to emerge, the study found that there was a positive impact of the abundance of natural resources on sustainable development in the MENA region.

Natural resources were expressed using proxy indicator as total natural resource revenues (as a proportion of GDP). On the other hand, sustainable development was expressed using the average real wealth per capita indicators.

The study found a clear positive trend between the abundance of natural resources and the real wealth of the MENA countries. The higher the level of availability of natural resources among the MENA countries, the higher the level of real wealth of the region's population,

An increase in the yield of natural resources by 1% of the MENA's GDP will lead to an increase in real wealth per capita in the long run by an average of $76.2.

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