

Good governance and sustainable human development: Evidence from the Egyptian experience

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Abstract:

This study aims to investigate the relationship between good governance and sustainable human development in Egypt from 1996 to 2019. This study examines this relationship in both the long term and short term. This study is one of the rare studies that investigate the relationship between good governance and sustainable human development at the global level. Moreover, Its construction of an indicator of sustainable human development through the principal component analysis (PCA). The study adopted the Johansen Co-integration method and the use of Error Correction Model (ECM) to measure the long-and short-term relationship between overall good governance and sustainable human development in Egypt. This study also uses the dynamic ordinary least squares (DOLS) method to obtain robustness in analyzing the relationship between overall good governance and sustainable human development. The method of generalized linear models (GLM) was also used with the use of the Bootstrap method in measuring the relationship between the components of good governance and sustainable human development in Egypt to determine the most significant factors of good governance that drive sustainable human development in Egypt. Results indicated that overall good governance only contributes to achieving sustainable human development in Egypt in the long term. There is no causal relationship between good governance and sustainable human development in the short term. Sustainable human development in the previous year contributes positively and significantly to its growth

in the current year. In addition, corruption control has a negative and significant relationship with the sustainable human development index. Moreover, this study helps policymakers to design public policies to achieve sustainable human development in Egypt.

Keywords:

Good governance, sustainable human development, Johansen Co-integration method, generalized linear models (GLM), The Egyptian experience

Introduction:

Developing countries, including Egypt, are constantly facing the challenges of achieving satisfactory levels of economic growth, and political and human development. Achieving economic, political, and human development requires good governance. The ultimate purpose of good governance is to improve human development. The goals of good governance cannot be achieved without improving human development Khan (2015). Therefore, development and governance are interrelated, where good governance can only ensure the sustainability of human development. Accountability, transparency, inclusiveness, and responsiveness are essential parts of good governance that are essential to healthy human development (Chaudhary, 2019). Good governance contributes to achieving sustainable human development by improving economic growth, reducing poverty and inequality (Stojanović, Ateljević, & Stević, 2016a), as well as combating pollution.

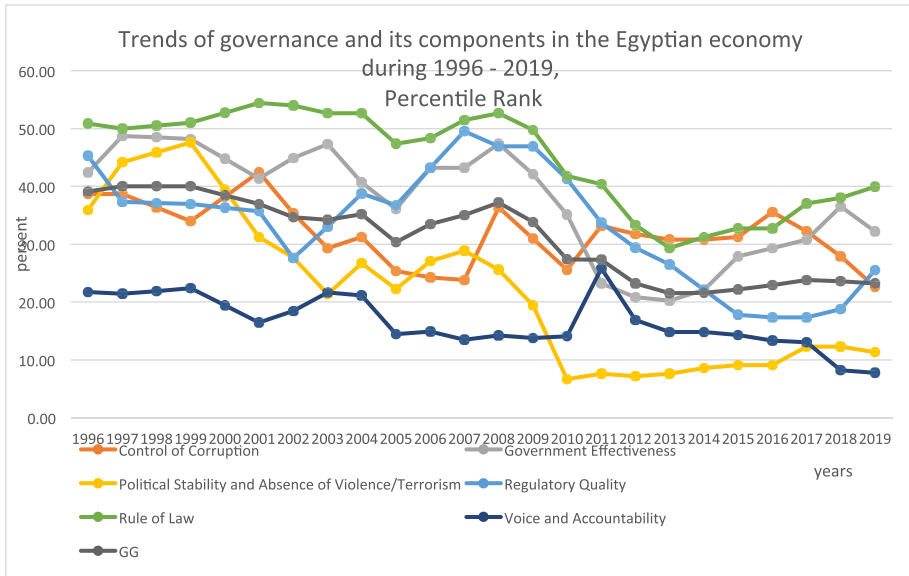
Good governance is the new approach that recognizes the role of the state in the economy where the joint participation of state and non-state actors, civil society, and the private sector is essential in the process of public governance (Stojanović, Ateljević, & Stević, 2016b). However, Murray and Overton (2011) argued that NGOs can be equally corrupt and self-interested as several NGOs obtain their financial resources without taking a long-term approach to implementing development projects.

By tracking the development of the World Bank's overall governance index in the Egyptian economy, there was a slight fluctuating improvement in the level of total governance (arithmetic average of the sub-indicators of governance) from 1996 to 2000 as shown in figure (1). In addition, there was a fluctuating decline from 2001 until 2010. A significant drop occurred with the revolution of January 25, 2011, and the decline continued to 2015. A gradual improvement began in the overall governance index from 2016 to 2019 with the gradual improvement in the stability of political and economic conditions. The significant decline

in the overall level of governance is due to the deterioration of political stability and the absence of violence that started in 2010 with the Arab Spring revolutions and was followed by the gradual improvement that continues until 2019.

Another source leading to the decline in the Egyptian governance index is the low index of voice and accountability in general in all periods of the study, in particular, the 2006 to 2011. It is one of the reasons for the January 25 revolution in 2011. A slight improvement occurred in 2012 followed by a continuous decline in the Voice and Accountability Index until 2019. One of the most important sources of strength in the Egyptian regime is the rule of law. The index remains the most stable despite a slight fluctuation in the study period, especially in 2014. The Regulatory quality index witnessed a continuous deterioration from 1996 until 2003, and then there was a fluctuating slight improvement until 2002 followed by a fluctuation that occurred from 2003 to 2010. In addition, a continuous decline from 2011 to 2018 occurred, and a slight improvement continued until the year 2019. Moreover, one of the most important sources of governance in Egypt is the effectiveness of the government as the index continued to fluctuate slightly from 1996 until 2010, then a significant decline happens from 2011 to 2014 followed by a continuous improvement in 2019. The Corruption Control Index shows that there was an improvement in the index from 1996 until 1998, then an up and down fluctuation from 1999 to 2005. From 2006 to 2008, there was a decrease and an up and down fluctuation until 2018, then a decrease in the Control of corruption in 2019. The governance index and its sub-indices showed a significant fluctuation, except for the rule of law index, which remained coherent. This requires the Egyptian government to give great attention to improving the level of good governance in Egypt so it can achieve the required economic and human growth and development.

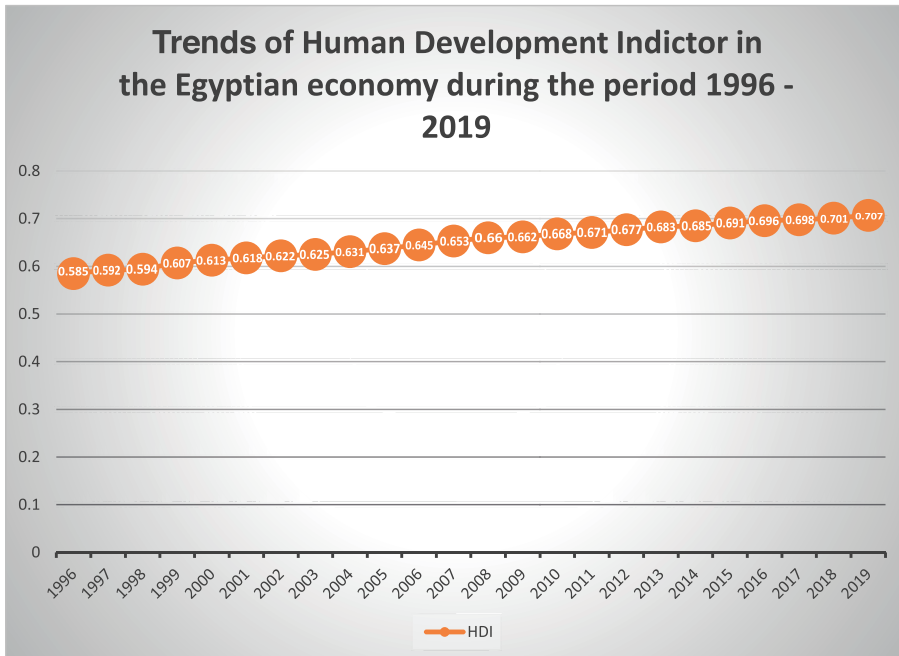
Figure No. (1)



Source: Worldwide Governance Indicators, the world bank database, [Worldwide Governance Indicators | DataBank \(worldbank.org\)](https://data.worldbank.org/ii/governance), downloaded in 10/7/2022.

The concept of human development has emerged through the human development reports issued by the United Nations Development Program since 1990. The United Nations Development Program defined human development as a process that aimed at increasing the choices available to people. These basic options focus on three things: that people live a long life free of disease, acquire knowledge, and obtain the necessary resources to achieve a decent standard of living. Figure No (2) shows a Continuous improvement in the human development index in Egypt, which confirmed that despite the low level of governance in the Egyptian economy, there is an improvement in the level of human development during the period from 1996 to 2019. This is due to the improvement in all the sub-components of the human development index, so there has been a continuous improvement in the indicators of the average number of years of schooling, the expected years of study, the expected years to live since birth, and the per capita gross national income.

Figure No. (2)

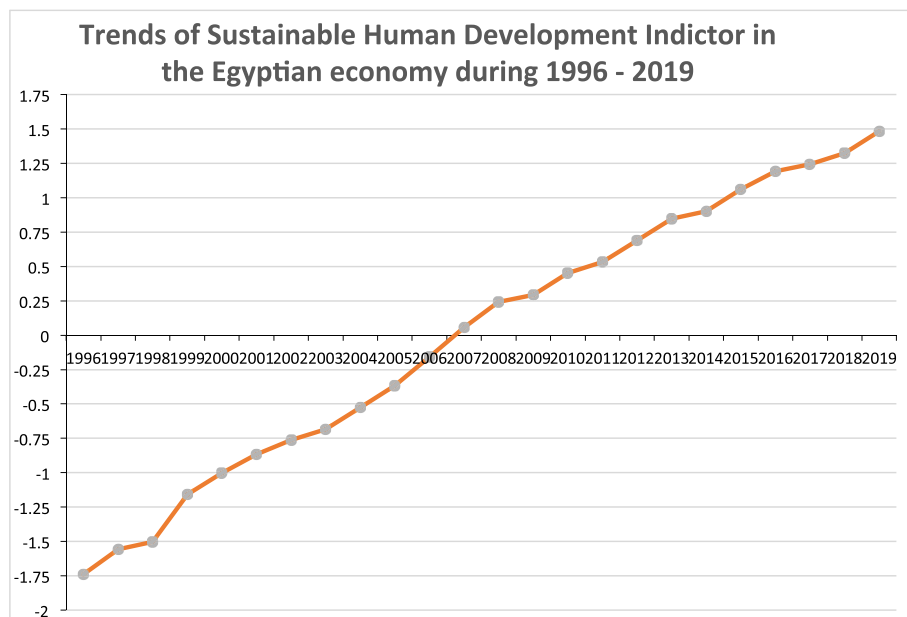


Source: UNDP, Human Development Reports, [Documentation and downloads | Human Development Reports \(undp.org\)](#), downloaded in 12/7/2022.

The concept of sustainable human development (SHD) is an expansion of the traditional widespread concept of human development (HD), where sustainable human development can be defined as a process of enhancing valuable human capabilities (opportunities) considering environmental and social sustainability. According to SHD, any development process should aim to reduce poverty, inequality, and conflict, but promote inclusion, participation, and environmental stress (Biggeri & Mauro, 2018). When considering the environmental dimension by constructing an indicator for sustainable human development through the Principal Components Analysis (PCA), the development of sustainable human development in the period 1996 to 2019 shows a continuous improvement in the compound sustainable human development indicator as shown in figure (3). This is due to an improvement in the human development

index and the savings index adjusted by adding the damages of particulate emissions as a percentage of the gross national income to express sustainability, as shown in Table (1).

Figure No. (3)



Source: Calculated by researcher.

Table No. (1)
Trends of the human development index and its components in the
Egyptian economy during 1996-2019

Year	Gross national income (GNI) per capita	Mean years of schooling	Expected years of schooling	Life expectancy at birth	HDI	Adjusted net savings, including particulate emission damage (% of GNI)	SHDI*
1996	6716.14	4.19	10.57	67.25	0.585	5.2278	-1.741102
1997	6943.99	4.33	10.73	67.68	0.592	6.77995	-1.556088
1998	7210.00	4.47	10.42	68.05	0.594	10.3643	-1.503228
1999	7464.91	4.61	11.05	68.36	0.607	8.38977	-1.159633
2000	7781.35	4.75	11.13	68.60	0.613	6.25284	-1.001051
2001	7916.14	4.92	11.22	68.80	0.618	9.26809	-0.868895
2002	7966.76	5.09	11.30	68.96	0.622	7.69791	-0.7631777
2003	8052.97	5.27	11.22	69.12	0.625	6.44752	-0.683886
2004	8236.24	5.44	11.37	69.27	0.631	6.24109	-0.5253042
2005	8372.65	5.61	11.53	69.43	0.637	4.93724	-0.3667208
2006	8859.15	5.80	11.70	69.61	0.645	6.18725	-0.1552789
2007	9360.09	5.99	11.87	69.79	0.653	7.93455	0.0561646
2008	9845.40	6.17	12.04	69.97	0.66	6.76225	0.2411781
2009	10039.04	6.36	11.80	70.16	0.662	4.51993	0.2940381
2010	10135.90	6.55	11.96	70.35	0.668	6.20024	0.45262
2011	10157.17	6.66	12.02	70.54	0.671	3.48854	0.5319117
2012	10044.78	6.77	12.43	70.74	0.677	1.63818	0.6904935
2013	10050.76	6.89	12.71	70.93	0.683	3.10925	0.8490769
2014	10099.32	7.00	12.71	71.12	0.685	2.20088	0.901937
2015	10382.83	7.11	12.97	71.30	0.691	2.87803	1.060519
2016	10645.59	7.22	13.09	71.48	0.696	2.62043	1.192671
2017	10799.58	7.22	13.10	71.66	0.698	0.146548	1.245532
2018	11079.25	7.33	13.13	71.83	0.701	2.91458	1.324822
2019	11466.15	7.43	13.33	71.99	0.707	5.71081	1.483406

* Calculated by researcher

Source: UNDP, Human Development Reports, [Documentation and downloads | Human Development Reports \(undp.org\)](#), downloaded in 12/7/2022.

Perhaps this confirms the idea put forward by (Boța-Avram, Groșanu, Răchișan, & Gavrilitea, 2018; Stojanović et al., 2016) that replacing bad institutions with good ones may lead to worse outcomes for society. They concluded that from the reality of the Moroccan experience in which King Mohammed VI who ascended to the throne in 1999, allowed the implementation of decentralization, and cooperated with local associations and the private sector. However, it has also helped boost the scope and appeal of grassroots Islamic groups, which have traditionally interfered in charitable work where the state fails to provide for its people. The main danger in Morocco is that excessive change in the institutions could destabilize the country and lead to a military coup or the seizure of power by religious anti-democracy militants. There are some other examples, such as Libya, Syria, Tunisia, Egypt, Brazil, and Ukraine, where attempts at democratic change have not provided good governance that achieves economic, political, and social sustainability. This confirms the absence of a one-size-fits-all model of good governance that achieves sustainable human development to overcome the current development challenges (Stojanović et al., 2016b).

Accordingly, this study concluded that good governance is a necessary condition for achieving sustainable human development, but it is not a sufficient condition. Therefore, it should be carefully analyzed the reforms that contribute to achieving good governance, and it has great importance for achieving sustainable human development. The study's contribution is to bridge the gap of a scarcity of studies that dealt with the relationship between good governance and sustainable human development, as well as the construction of an indicator of sustainable human development through the principal component analysis (PCA). The study also studied this relationship in the long term and the short term alike and attempted to discover the relationship between the various dimensions of good governance and sustainable human development in particular to determine the effective dimension of good governance that contribute to achieving sustainable human development in Egypt.

Based on the Egyptian experience, the government can set public policies that aim to achieve sustainable human development by focusing on the aspects of good governance that most affect it.

The study is organized as follows: the first part included the introduction followed by the second part reviews the literature, and the third part explain the study methodology, variables, and data sources. The fourth part presents the results and discussion, while the fifth and last part presents the conclusions and policy implications.

Literature review:

Good governance contributes to enhancing comprehensive development including sustainable human development, where it plays an effective role in providing social and public services. Human development gives the necessary capabilities to the citizens to improve their conditions and alleviate poverty. Governance includes a set of political, economic, and administrative aspects that interact together to create sound development. The rule of law, participation, public accountability, responsiveness, transparency, equity, inclusion, efficiency, and decentralization are key institutional frameworks for democratic and good governance (Chaudhary, 2019). Achieving sustainable human development requires the availability of sufficient authority, capabilities, economic resources, and good governance. Thus, the relationship between good governance and human development is interrelated and each of them affects the other.

Although governance has become the most significant factor in achieving economic growth and sustainable human development, few studies investigated the relationship between governance and human development, in addition to the scarcity of studies that dealt with the relationship between governance and sustainable human development. On the contrary, many studies deal with the relationship between governance, growth, and economic development (David, 2010; Fayissa &

Nsiah, 2013; M. H. Khan, 2006; Kraipornsak, 2018), and the relationship between governance and sustainable development (Dhaoui, 2019; Kardos, 2012; Omri & Mabrouk, 2020; Stojanović et al., 2016).

Although few studies have investigated the relationship between good governance and human development, studies have shown mixed results. Some of these studies confirmed the positive relationship between governance and human development (Davis, 2017; Pradhan & Sanyal, 2011), and others neglected this relationship (Quang, 2017). These studies differ in determining the most significant dimensions of governance that affect human development. Studies addressing the link between good governance and sustainable human development are rare (Davis, 2017).

Pradhan and Sanyal (2011) evaluated the effect of good governance on human development in fifteen Indian states. The study was based on the analysis of longitudinal data from 1981 to 2001. The study assured that good governance and previous human development helped in determining the current human development in India. Results showed that there is a significant improvement in the efficiency of governance, which helped the Indian states to improve their human development. It means that good governance can be considered one of the political variables that can achieve economic growth and high human development in India.

Ahmad and Saleem (2014) identified the significant governance indicators that affect human development. The study used a multi-layer perceptron model (MLP) and a stepwise neural network to measure this relationship. The study concluded that government efficiency, political stability, anti-corruption, and Regulatory quality have a significant effect on human development. The study also confirms that the multi-layer perceptron model (MLP) is the most dependable prediction model for predicting HDI.

The study of Tahtan Morda, Saadawi Moasi, and Omran (2014) aims to identify the relationship between human development and good

governance in 19 countries in the Middle East and North Africa (MENA) from 1996 to 2012. The study used the fixed effects model in estimating the study model, which consists of the human development index as a dependent variable and the six indicators of good governance as independent variables. It found that the most significant indicators that affect human development positively and significantly in North Africa and the Middle East (MENA) are the indicator of political stability and the absence of violence, the indicator of combating corruption. The study also examined the relationship between the six governance indicators and each of these indicators of life expectancy at birth, education, and income, each separately. Results showed that the variable of government effectiveness, voice and accountability has a positive and significant effect on the variable of life expectancy at birth, While the indicators of political stability, absence of violence, and the rule of law had a positive and significant effect on the education indicator. Unexpectedly, the six governance indicators did not have any significant effect on the per capita GDP.

H. Khan (2015) examined the relationship between good governance and human development in developing countries, especially in South Asia. The study used the World Bank data on good governance and the UN Program on human development data to conduct a regression to analyze the relationship between good governance and human development in all developing countries. It concluded that government effectiveness is the most influential on human development in developing countries. The study noted that improving health, education, and income depends on government effectiveness. It also showed that South Asia countries did a low performance in all indicators of governance of the World Bank, which put them in the second position in terms of the lowest level in all indicators of human development among all the different regions.

Davis (2017) focused on the role of good governance as a basis for sustainable human development and applied it in sub-Saharan Africa.

The study is based on many indicators to express good governance and sustainable human development. Results showed that there is a significant relationship between indicators of good governance and human development and confirmed that improving government effectiveness, political stability and controlling corruption have the greatest effect on achieving human development and reducing poverty in sub-Saharan Africa. Therefore, the study recommended adopting an integrated policy approach based on political development along with economic development to promote human development and reduce poverty in sub-Saharan Africa.

Quang (2017) stated the effect of the components of good governance on the components of human development in Vietnam by constructing a system of spatial equations across data for Indian provinces. The study concluded that there is a two-way relationship between the components of good governance and the components of human development in Vietnam. Results showed that institutions proved to be a spatial phenomenon in Vietnam, while the study proved that accountability has a negative impact on human development including political freedom, income, and health status. Moreover, political participation contributes to increasing political freedom negatively. The study investigated some indirect effects from governance and the components of human development that can attract some political considerations. The study showed that governance affects the modern components of human development such as political freedoms and political participation, but it has low effect on traditional components of human development such as income, health, and education.

Keser and Gökmen (2018) study examined the relationship between governance indicators and the level of human development from 2002 to 2012. The study is based on data analysis using the regression method of longitudinal data for thirty-three states in the European Union. The study concluded that three of the governance indicators have

significant positive coefficients in the regression model of longitudinal data; government effectiveness, Regulatory quality, and rule of law. The study confirmed that good governance performance in any country assists in achieving better performance at human development levels.

There are many studies dealing with the relationship between good governance, growth and economic development, good governance, and sustainable development, while the relationship between good governance and human development is few. The results of these studies were mixed and inconclusive. Therefore, the study aims to investigate the relationship between good governance and human development by considering the environmental dimension via the structure of a human development index that considers sustainability to study the relationship between good governance and sustainable human development. Therefore, this study contributes to revealing the relationship between good governance and sustainable human development as one of the pioneering studies in this field. The study is unique in constructing an indicator of sustainable human development that considers all the different dimensions of human development approved by the United Nations Development Program and adds a new dimension that reflects environmental sustainability.

Data and methodology:

Data:

The study depends on the governance index issued by the World Bank in the Global Governance Indicators (WGI) project, which has been developed by Kaufmann, Kraay, and Mastruzzi (2011) and published regularly since 1996. The Global Governance Index measures six sub-indicators: voice and accountability, Political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and corruption control. The global governance indicators are expressed in standardized normal units with a value ranging from -2.5 (very low score) to 2.5 (very high score). The global governance indicators for

each country can also be expressed in the percentile rank, which ranges between zero and 100. According to this indicator, the higher scores, the better performance is. This study uses the percentile rank in the analysis. Governance indicators were obtained from the World Bank website.

The study also used the Human Development Index issued by the United Nations Development Program (UNDP), which began prepared and regularly published in 1990. The Human Development Index (HDI) is a Brief measure of average achievement in the main dimensions of human development such as a healthy life, knowledge, and a decent living level. The Human Development Index is the geometric mean for all indicators and each of the three dimensions. The health dimension is measured by expecting age from birth, and the educational dimension is measured by the average years of schooling for adults aged 25 years and above, and the expected years of teaching children of school age. The level of living dimension is measured by the per capita national income. The HDI uses the logarithm of income to reflect the importance of decreasing income with the increasing GNI. The scores of the three dimensions of the human development index are collected in a composite index using the geometric mean. The data of the Human Development Index were obtained through the website of the United Nations Development Program (UNDP).

To obtain an indicator that expresses sustainable human development, the indicator was constructed by merging the components of the human development index and the adjusted net savings index, including particulate emissions damages (% of total gross income) that expresses sustainability. The adjusted net savings index was obtained from the World Bank website.

Study model:

The study depends on measuring the short- and long-term relationship between the variable of overall good governance and sustainable

human development by following the Johansen Co-integration method, then using Error Correction Model (ECM), during the period from 1996 to 2019. It also uses the dynamic ordinary least squares (DOLS) method to obtain robustness in analyzing this relationship. The good governance indicators were obtained from the Worldwide Governance Indicators through the World Bank. An indicator of sustainable human development has been composited by relying on data from the United Nations Development Program (UNDP) and the World Bank, using the Principal Components Analysis (PCA).

The relationship between overall good governance and sustainable human development can be expressed through the following equation (Cristina Boța-Avram, Adrian Groșanu, Paula-Ramona Răchișan, & Marius Dan Gavriletea, 2018):

$$SHD_t = \beta_0 + \beta_1 GG_t + \varepsilon_t \dots \dots \dots (1)$$

Whereas:

SHD_t Sustainable Human Development Index

GG_t The arithmetic mean of the indicators of good governance

The Sustainable Human Development Index was constructed using the Principal Components Analysis (PCA). The basic idea of principal component analysis is to reduce the dimensions of a data set in which there are many correlated variables while retaining as much variance as possible in the data set. This reduction is achieved by transforming into a new set of variables, called principal components, that are uncorrelated, which are arranged so that the first few retain most of the variance found in all the original variables. In other words, a large set of variables can be combined into a single variable that duplicates the original data. This is done by capturing the principal component of the maximum variance in the data set with linear inclusion of the set of variables with a higher Eigenvalue greater than one. Components with eigenvalues that are less than the variance in the composite index, which is less than one, are

ignored (Jolliffe, 2002). The sustainable human development index was constructed by sub-components; life expectancy at birth, the number of expected years of schooling and the average years of schooling, per capita gross national product, and adjusted net savings including particulate emissions damages (% of gross national income).

For further analysis to find out which aspects of good governance have the most impact on sustainable human development in Egypt during the period from 1996 to 2019, this study followed the equation (Kurul & Yasemin Yalta, 2017; Pradhan & Sanyal, 2011; Stojanović et al., 2016a):

$$SHD_t = \beta_0 + \beta_1 SHD_{t-1} + \beta_2 VA_t + \beta_3 PS_t + \beta_4 GE_t + \beta_5 RQ_t + \beta_6 RL_t + \beta_7 CC_t + \varepsilon_t \dots (2)$$

Whereas:

<i>SHD_t</i>	Sustainable Human Development Index
<i>SHD_{t-1}</i>	The first lag of the Sustainable Human Development Index
<i>VA_t</i>	Voice and accountability
<i>PS_t</i>	Political stability and the absence of violence
<i>GE_t</i>	government efficiency
<i>RQ_t</i>	regulation quality
<i>RL_t</i>	rule of law
<i>CC_t</i>	control corruption

Model estimation that was based on the Generalized linear models (GLM) method with the Bootstrap method. This method helps to overcome the estimation problems such as autocorrelation and heteroscedasticity and estimate non-linear regression.

Results and discussion

To measure the relationship between the sustainable human development index and all variables of (overall or detailed) good governance, the

stability of time series through the modified Dickey-Fuller test (ADF) and the Philip-Perron test (PP) are studied.

Table No. (2) showed that all variables are non-stationary in the level, whether in the presence of the constant only or with the constant and the trend together at the 5% level, both according to the modified Dickey-Fuller test (ADF) and the Philip-Perron test (PP). In the Philip Perron (PP) test, all variables are stationary in the presence of the constant when taking the first difference.

According to the modified Dickey-Fuller test (ADF), all variables are also stationary in the first difference except for the (PS) variable. To ensure the stationary of the variable (PS) in the first difference, the study is based on the Test for Equality of Variances. It confirms that the series is stationary in the first difference in the presence of the constant according to Levine's test. Some variables are still non-stationary after taking the first difference in the presence of the trend. There is no time trend because the time trend was not significant in all regressions. This study is based on the long-run relationship on unit root tests only in the presence of a constant, so all variables are integrated into the first degree I (1).

Table No. (2)
Unit root test results

Variables		AFD Test				PP Test			
		Constant		Constant and Trend		Constant		Constant and Trend	
		t-statistic	p-value	t-statistic	p-value	t-statistic	p-value	t-statistic	p-value
SHD	Level	-1.711	0.4254	-1.251(1)	0.8995	-1.974	0.2979	-1.600	0.7925
CC		-2.420(1)	0.1362	-2.827(0)	0.1873	-2.409	0.1392	-2.766	0.2098
GE		-1.805(2)	0.1362	-2.061(2)	0.5681	-1.525	0.5213	-2.429	0.3641
PS		-1.411(1)	0.5771	-2.949(3)	0.1468	-1.041	0.7380	-2.860	0.1757
RQ		-1.444(4)	0.5612	-2.112(4)	0.5396	-1.503	0.5321	-1.762	0.7228
RL		-1.123(2)	0.7058	-2.492(2)	0.3319	-0.992	0.7562	-1.821	0.6946
VA		-1.584(1)	0.4918	-3.399(0)	0.0515	-1.818	0.3716	-3.363	0.0566
GG		-0.860(1)	0.8010	-2.546(1)	0.3054	-0.706	0.8451	-2.484	0.3362
SHD	First DIF	-5.128(0)	0.0000	-5.546(0)	0.0000	-5.122	0.0000	-5.636	0.0000
CC		-3.275(2)	0.0160	-3.254(2)	0.0742	-5.590	0.0000	-5.440	0.0000
GE		-3.105(0)	0.0262	-2.942(0)	0.1489	-3.080	0.0281	-2.882	0.1684
PS		-2.262(4)	0.1844	-3.422(0)	0.0486	-3.537	0.0071	-3.380	0.0541
RQ		-3.415(0)	0.0105	-1.453(4)	0.8447	-3.353	0.0127	-3.256	0.0738
RL		-3.191(0)	0.0205	-3.107(0)	0.1046	-3.191	0.0205	-3.106	0.1048
VA		-5.707(0)	0.0000	-5.587(0)	0.0000	-6.003	0.0000	-5.864	0.0000
GG		-4.195(0)	0.0007	-4.076(0)	0.0068	-4.190	0.0007	-4.069	0.0070

Note: The Optimal lag Length, presented in brackets.

Source: Calculated by researcher

Consequently, Johansen tests for co-integration can be conducted to identify the existence of a long-term relationship between the variable of sustainable human development and the variable of overall good governance. The Table No. (3) shows that there is a long-term relationship between the two variables because statistic trace = 19.4992 is greater than critical value = 12.53 at 5% significance level at rank zero. It means

rejecting the null hypothesis of no co-integration and accepting the alternative hypothesis of co-integration and a long-term relationship between Sustainable human development and good governance. Table No. (4) also confirms the existence of the long-term relationship between good governance and sustainable human development.

The Johansen test confirms that there is only one co-integration relationship between the two variables so that the error correction model (ECM) can be measured to identify long and short-term relationships.

Table No. (3)

Johansen cointegration test using trace statistic

maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	4	-28.998677	.	19.4992	12.53
1	7	-19.280193	0.58666	0.0623*	3.84
2	8	-19.249053	0.00283		

Table No. (4)

Johansen cointegration test using max-eigen statistic

maximum rank	parms	LL	eigenvalue	max statistic	5% critical value
0	4	-28.998677	.	19.4369	11.44
1	7	-19.280193	0.58666	0.0623	3.84
2	8	-19.249053	0.00283		

Source: Calculated by researcher

Results of the error correction model (ECM) showed that there is a long-term relationship between good governance and sustainable human development because of the error correction term $_cel$ L1. = -0220449 has a negative and significant value. It confirms that there is a long-term relationship between good governance and Sustainable human development, and the speed of long-term adjustment to achieve the

balance that is 0.220449 shown in Table No. (5). The study used the test of the Coefficient in the Specific Equation is zero to evaluate the short-term relationship between good governance and sustainable human development. This shows in Table (6) including $p = 0.8022$ is greater than 0.05, which means that the null hypothesis cannot be rejected because there is no short-term relationship between good governance and sustainable human development.

Table No. (5)

Error correction model

Variables		Coef.	Std. Err.	Z	$p > z $
D_SHD					
	_cel L1.	-.0220449	.0044838	-4.92	0.00000
	SHD LD	-.2427285	.2273995	-1.07	0.286
	GG LD	.001584	.0063221	.025	0.802
D_GG					
	_cel L1	.1802203	.1622862	1.11	0.267
	SHD LD.	5.448771	8.230491	0.66	0.508
	GG LD.	.0741029	.2288207	0.32	0.746

Source: Calculated by researcher

Table No. (6)

The coefficient in the Specific Equation

$$[D_SHD]LD.GG = 0$$

$$Chi2 (1) = 0.06$$

$$Prob > chi2 = 0.8022$$

This study used the Lagrange-multiplier test to detect autocorrelation to ensure the validity of the model for measuring short and long-term relationships. In the table (7), the model does not have autocorrelation

because p is greater than 0.05 at the first and second lag. This means that the null hypothesis that the model does not suffer from autocorrelation cannot be rejected. It used also the Jarque-Bera test to detect whether the residuals are distributed normally or not. Table (8) revealed that p is greater than 0.05 referring to the null hypothesis that cannot be rejected and the residuals of the model are normally distributed.

Table No. (7)

Lagrange – multiplier test

Lag	chi2	df	Prob > chi2
1	6.5720	4	0.16031
2	3.1071	4	0.54006

H_0 : no autocorrelation at lag order

Table No. (8)

Jarque – Bera Test

Equation	chi2	df	Prob > chi2
D_SHD	0.325	2	0.85001
D_GG	3.629	2	0.16294
ALL	3.954	4	0.41230

Source: Calculated by researcher

From the above, the study concluded that overall good governance contributes to achieving sustainable human development in Egypt in the long term, and there is no causal relationship between good governance and sustainable human development in the short term. This showed that good governance needs a long time to affect sustainable human development in Egypt.

This study uses the dynamic ordinary least squares (DOLS) method to obtain robustness in analyzing the relationship between overall good

governance and sustainable human development. This analysis confirms our findings on the existence of a long-term relationship between overall good governance and sustainable human development in Egypt. This relationship is positive and significant in the long term, meaning that the impact of good governance on sustainable human development takes time, As shown in Table (9).

Table No. (9)

Results of DOLS

Variables	Coefficient	Robust Std. Err.	z	P> z
GG	-.1246217	.0144638	-8.62	0.000
SHD_FD.	-1.821353	.4622924	-3.94	0.000
SHD_D1.	-.1872795	.6496906	-0.29	0.773
SHD_LD.	.2402958	.5339933	0.45	0.653
GG_FD.	-.0592977	.0107966	-5.49	0.000
GG_D1.	.0622388	.0128263	4.85	0.000
GG_LD.	.0402193	.0102304	3.93	0.000
Constant	4.27767	.3233708	13.23	0.000
R-Squared	0.9071			
Adjusted R-Squared	0.9061			

Source: Calculated by researcher

Moreover, this study used the generalized linear models (GLM) method with the Bootstrap method for equation no. (2) to identify which aspects of good governance are more effective in achieving sustainable human development. This help in designing appropriate policies to improve sustainable human development in Egypt. Since there is a strong correlation among some aspects of good governance, government efficiency (GE) and the rule of law (RL) are excluded.

Result of equation No. (2) is shown in Table No. (10), where sustainable human development in the previous year contributes positively and

significantly to achieving sustainable human development in the current year. In addition, controlling corruption has a negative and significant relationship with the index of sustainable human development, which is consistent with (Cristina Boța-Avram, Adrian Groșanu, Paula-Ramona Răchișan, & Marius Dan Gavriletea, 2018; Stojanović et al., 2016b). According to political stability and the absence of violence, regulatory quality, voice, and accountability, they had no significant effect on sustainable human development in Egypt during the study period. The previous result showed that the governance system in Egypt has not reached the required level for improving sustainable human development in Egypt. This study conducted that the significant factor in achieving sustainable human development in Egypt is the level of sustainable human development in the previous year and the control of corruption. Moreover, it is necessary to strengthen the various aspects of good governance that have not yet reached a level that can affect good governance such as political stability and the absence of violence, regulatory quality, voice, and accountability.

Table No. (10)

Generalized linear models (GLM) with Bootstrap Method

SHD	Observed Coef.	Bootstrap Std. .Err	z	P> z
SHD_l1	.9916402	.0499223	19.86	0.000
CC	-.0080774	.0027568	-2.93	0.003
PS	.0020898	.0029661	0.70	0.481
RQ	-.0007666	.0021072	-0.36	0.716
VA	.0041207	.0052468	0.79	0.432
cons_	.3092723	.2045367	1.51	0.131

Source: Calculated by researcher

Conclusion

Egypt seeks to achieve a real renaissance in economic and political and human development. One of the most important challenges facing Egypt is providing a rational system of governance that can achieve sustainable human development. At the academic level, there is controversy among researchers about the relationship between good governance and human development. Some argued that good governance is necessary to achieve economic, social, and human development. The other argued that every country has its characteristics and obstacles, so there can be no single recipe for good governance that works for all countries. The relationship between good governance and sustainable human development does not have any interest.

Therefore, the study aims to investigate the relationship between good governance and sustainable human development by benefiting from the Egyptian experience that observed various systems of governance during the past two decades. The study presented the general and detailed relationship between aspects of good governance and sustainable human development in Egypt from 1996 to 2019. The study also contributed to constructing an indicator of sustainable human development by using the Principal Components Analysis (PCA).

The study depends on the Johansen Co-integration method and used Error Correction (ECM) in estimating this relationship in the short and long term at the overall level. Moreover, the dynamic ordinary least squares (DOLS) method was used to obtain robustness in the analysis. At a detailed level, it is based on the generalized linear models (GLM) with the use of the Bootstrap method. At the overall level, good governance contributes to achieving sustainable human development in Egypt in the long term only, but in short term, there is no causal relationship between good governance and sustainable human development in Egypt. This means good governance needs a long period to contribute to achieving sustainable human development in Egypt.

At a detailed level, sustainable human development in the previous year contributes positively and significantly to achieving sustainable human development in the current year. In addition, controlling corruption has a negative and significant relationship with the index of sustainable human development in Egypt. As for political stability and absence of violence, regulatory quality, voice and accountability, they did not have a significant effect on sustainable human development in Egypt. The previous result showed that the governance system in Egypt has not reached the required level to affect sustainable human development positively in Egypt. The basic obstacles faced by the study are the lack of long time series for good governance and sustainable human development. Therefore, the Egyptian government should set policies that aim at promoting governance, especially controlling corruption, because it is the most significant component in achieving sustainable human development in Egypt.

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الحكم الرشيد والتنمية البشرية المستدامة أدلة من الخبرة المصرية

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المستخلص

تهدف هذه الدراسة التحقيق في العلاقة بين الحكم الرشيد والتنمية البشرية المستدامة في مصر خلال الفترة من 1996 الي 2019، وذلك في كل من الاجل القصير والاجل الطويل. تعد هذه الدراسة أحد الدراسات النادرة التي تحقق في العلاقة بين الحكم الرشيد والتنمية البشرية المستدامة على المستوى العالمي. علاوة على ذلك، تقوم الدراسة ببناء مؤشر للتنمية البشرية المستدامة من خلال استخدام تحليل المكونات الرئيسية (PCA). تتبنى الدراسة أسلوب جوهانسن للتكامل المشترك واستخدام نموذج تصحيح الخطأ (ECM) لقياس العلاقة بين الحكم الرشيد الإجمالي والتنمية البشرية المستدامة في الاجل القصير والاجل الطويل. واستخدمت الدراسة أيضا طريقة المربعات الصغرى العادية الديناميكية (DOLS) لتقوية تحليل هذه العلاقة. كما استخدمت الدراسة طريقة النماذج الخطية المعممة (GLM) بواسطة البوتستراب لقياس العلاقة بين مكونات الحكم الرشيد والتنمية البشرية المستدامة في مصر، من اجل تحديد عوامل الحكم الرشيد الأكثر أهمية التي تقود التنمية البشرية في مصر. تشير النتائج الي ان الحكم الرشيد الإجمالي يساهم فقط في تحقيق التنمية البشرية المستدامة في مصر في الاجل الطويل. لذا، لا توجد علاقة بين الحكم الرشيد والتنمية البشرية المستدامة في الاجل القصير. تساهم التنمية البشرية المستدامة في العام السابق بشكل إيجابي ومعنوي في نمو التنمية البشرية المستدامة في العام الحالي. بالإضافة الي ذلك، التحكم في الفساد له علاقة سلبية ومعنوية مع مؤشر التنمية البشرية المستدامة. تساعد هذه الدارسة متخذي القرار علي تصميم السياسات التي تحقق التنمية البشرية المستدامة في مصر.

الكلمات المفتاحية:-

الحكم الرشيد ، التنمية البشرية المستدامة ، طريقة جوهانسن للتكامل المشترك ، النماذج الخطية المعممة (GLM) ، التجربة المصرية

