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Sustainable Development Determinants in Egypt: Does Governance Matter?

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Abstract

The global transition to the Sustainable Development Goals (SDGs) has extensively guiding policies and funding until 2030. Since then, governance has become the way through which SD is built. Additionally, this transition was conducive to expanding the usage of the indicators criterion to measure development: Adjusted Net Saving (ANS) measures the degree of Sustainable Development (SD) of a country. Accordingly, the current research aims to empirically explore the main determinants of the SD in Egypt throughout the period (-1996 2021). In doing so, the Autoregressive Distributed Lag Model (ARDL) has been applied to test the Co-integration relationship between SD and selected variables that are seen to determine SD in Egypt. The research further employs the Error Correction Model (ECM) to explore the short-run relationship. The empirical results revealed that while Governance stimulated SD, it was not so for the Economic Freedom. The Error Correction Coefficient showed that 92% in imbalances in the SD will be adjusted through the next year. Building on that, this research recommends improving governance arrangements are crucial for delivering SDGs in Egypt by 2030. More specifically, additional attention should be paid to the governance aspects which have a downturn performance as the research will explain.

Keywords: Sustainable Development; Governance; Egypt; Autoregressive Distributed Lag Model (ARDL).

الحكومة كأحد محددات التنمية المستدامة في مصر

مستخلص:

إن التحول العالمي نحو أهداف التنمية المستدامة يوجه السياسات وكذلك التمويل، على نطاق واسع، حتى عام ٢٠٣٠. ومنذ ذلك الحين، فإن الحكومة أصبحت تمثل الطريق الذي يمكن من خلاله تحقيق التنمية المستدامة. بالإضافة إلى ذلك، كان هذا الانتقال مواتياً للتوسع في استخدام المؤشرات التي تقيس التنمية: فصافي الادخار المعدل يقيس درجة التنمية المستدامة للدول. وبالتالي، فإن الدراسة الحالية تسعى إلى بيان المحددات الرئيسية للتنمية المستدامة في مصر خلال الفترة (١٩٩٦-٢٠٢١). ولتحقيق ذلك، اعتمدت الدراسة على تطبيق نموذج الانحدار الذاتي بإبطاء موزع "ARDL" لاختبار العلاقة التوازنية طويلة الأجل بين التنمية المستدامة ومجموعة من المتغيرات التي يتوقع أن تؤثر على تحقيق هذه التنمية المستدامة. كما استخدم البحث نموذج تصحيح الخطأ "ECM" لاختبار العلاقة قصيرة الأجل بين المتغيرات محل الدراسة. وتشير نتائج التقدير إلى أنه بالنسبة للأجل الطويل فإن الحكومة تشجع على تحقيق التنمية المستدامة، بينما جاءت الحرية الاقتصادية لتؤثر سلباً على تحقيق التنمية المستدامة. وتشير نتائج الأجل القصير إلى أن نحو ٩٢٪ من الاختلالات في تحقيق التنمية المستدامة يتم تصحيحها في السنة التالية. وفي ضوء ما تقدم توصي الدراسة بتحسين الترتيبات المرتبطة بالحكومة، وتكثيف الجهود المبذولة في المجالات الفرعية للحكومة، التي تشهد أداءً متراجعاً، بما يعزز دورها في تحقيق أهداف التنمية المستدامة في مصر ٢٠٣٠.

الكلمات المفتاحية: التنمية المستدامة-الحكومة-مصر-نموذج الانحدار الذاتي بإبطاء موزع

I- Introduction

In September 17, 2015 key objectives, 169 sub-goals and 229 linked indicators have been formed to address the well-being of individuals and communities. Many countries worldwide have correspondingly committed to meeting the global goals by 2030: Sustainable Development Strategies (SDS) have been designed to support the transition to the new Agenda. With this shift, development has been taken as a very complex, broad and multi-faceted connotation; where objectives transformed from only promoting growth to broadly promoting well-being.

Furthermore, the level of development is no longer shorthanded to only one indicator such as the income level and, therefore, the usage of the indicators approach has been expanded to measure the achievement of the SDGs (Parris & Kates, 2003; Morgan & Bach, 2018). In this context, adjusted net saving (ANS) is regarded as an important indicator to measure the degree of the sustainable development (SD) of a country (Larissa et al., 2020).

On the other side, Sustainable Development Goals (SDGs) are extensively guiding policies and funding for the next 15 years of its declaration to end hunger and poverty as the top of their priorities (Petrenko et al., 2017). Importantly, governance principles have received a vital concern (Hanlin & Brown, 2013). More specifically and according to the multifaceted SD concept, which has reformulated in 2015 and the previous commitments made at the Rio Earth Summit in 1992 governance arrangements have become a crucial path in achieving SDGs; through coordinating the responded actions while achieving their goals.

In other words, governance is the way by which SD could be built: it facilitates and guarantees the societal transformation needed for meeting well-being. Therefore, achieving SDGs requires, as a prerequisite action, governance to pave the way for an enabling environment for collective action, guaranteeing accountability principles among involved stakeholders so as to cope with emerging complex trade-offs and counterproductive issues while achieving the goals. This gave rise to place governance as the “fourth pillar of sustainable development,” according to Bowen et al. (1). (2017)

In addition, good governance has not only been taken as a proactive measure against corruption, but it also increases the competitiveness of the economy, improves the institutions' performance, and effectively manages national resources, which in turn, support delivering SD in a more efficient way (National Management Institute - Governance Center, 2018).

Therefore, the importance of this research is revealed by exploring the relationship between Governance and Sustainable Development (SD) in Egypt, considering it one of the main determinants for achieving SD, which have not previously been used together in studies applied to Egypt, using annual data for the period (2021-1996). In addition, the study proposes a set of applicable recommendations to help decision-makers adopt sound policies that enhance SD requirements in Egypt.

I.1 Evolution of Development Notion and Measurement

It is arguably referred to as the practical and conceptual problems that usually exist in studying development related to the processes and measurement tools Jr. & Quintella (2008). Nonetheless, defining the meaning of development serves as a guide to evaluate or judge it.

¹ <https://www.iddri.org/>

Under the pure economic perspective, Gross Domestic Product or Gross National Income GDP/ GNI has been widely used as proxies in measuring and evaluating the overall level of national development and also welfare (Ames & Carlson, 1968; Barbier, 1987; Nafziger, 2006; Cypher & Dietz 2009; Todaro & Smith, 2012). As found in (Islam & Clarke, 2002). Using GDP as a measure of welfare is favorable to both economists and non-economists; this preference is due its tangibility and simplicity to be understood by many. As for the well-being, it was also traditionally measured in its economic aspect by relating it to the income level. Therefore, the rise of per capita income/ consumption reflects better well- being and vice versa (See for example: Acemoglu, 2009; Cypher & Dietz 2009). It has been also argued that the material wellbeing is closely correlated to the accomplishment of growth over the long term (Nafziger, 2006).

Proponents who claim that growth may be necessary but not sufficient for development go beyond the simple concern about economic aspect of development to broadly engage aspects; social, human, political and institutional (Nafziger, 2006). All economists recognize this, including those who use a nation's income per person as an index for the broader development ambitions (Cypher & Dietz, 2009).

Sachs (2015) pointed out that this traditional measure only captures one aspect of what determines human wellbeing. Furthermore, it could not reflect the distributional inequalities due to its biased nature and is considered misleading and unsatisfactory when measuring the material wellbeing because it is heavily weighted by income shares of the richer in society² and does not provide any information about the dispersion of actual incomes around this mean (Fielding et al., 2006; Cypher & Dietz, 2009). Increasingly, a given specific growth rate for the rich has much more impact on the economic growth rate than the impact of the same rate for the poor (Nafziger, 2006).

Due to these shortages, other alternative weighted measures have been emerged; and was conducive to considering "indicators approach"³ criterion to measurement. Accordingly, the UNDP has constructed the Human Development Index (HDI) at the beginning of the 1990s as an alternative measure to development and welfare; the ultimate purpose was to incorporate economic, social and human aspects in one index (Nafziger, 2006; Morgan & Bach, 2018). This Humanity approach has shifted the focus from only the economy to the person (Alkire & Deneulin, 2009). By this evolution, HDI as a composite index has partially substituted GDP/ GNI as a development and welfare measurement tool (Decancq et al., 2009).

Also, HDI has undergone certain changes from time to time. Just as the adjustments made to modify the traditional measure of the GDP/ GNI so as to provide a more reliable and credible standard, HDI has been modified to reflect better how gender equity, disparities in education, health, income, and political participation can influence social development (Cypher & Dietz, 2009). The main consequence was the establishment of GDI by the UN in 1995 to measure the gender- related development by taking the inequality in achievement between men and women (Islam & Clarke, 2002; Nafziger, 2006; Mahajan, 2013; Stewart, 2019). Increasingly, a Human Poverty Index (HPI)⁴ (Nafziger, 2006; Cypher & Dietz, 2009;

² It has been claimed that using mean income places a large weight on the income of the rich, because income distributions are left-skewed.

³ For more details about indicators criterion and its classifications, see for example (Wadeaa, 2002).

⁴ 1997 to directly capture the conditions living of the poor. The (HPI) provide information about the levels of relative deprivation of different countries to be complemented with HDI value.

Todaro & Smith, 2012; Stewart, 2019), and more recently, the Multidimensional Poverty Index (MPI) in 2010 (Morgan & Bach, 2018).

Furthermore, critics had also directed their attention to the HD measures due to the ignorance of the environmental aspect. Therefore, substantial changes were made to extend the scope away further from the social and health issues. With these broader and ambitious goals, level of development couldn't be captured by only one indicator. More importantly, the MDGs were an evolution of the Human-Centered Approach that had a prominent place in the 1990s. MDGs came with the beginning of the 2000s to expressly include human beings and their rights in development and to place them at the forefront of any development strategy (United Nations Human Rights, 2013).

Recently, the SDGs have been built on the eight of the MD to define the post2015- agenda and to broadly cover the sustainability consideration along with social and human factors, including this combination of the three pillars of sustainability; economic, social and environmental. In addition, SD constitutes new measurement challenges because development has been understood as a very complex, broad and multi-faceted notion. As a result, numerical 'indicators' were developed for each target to track the progress towards achieving these goals (Morgan & Bach, 2018). More specifically, literature has claimed that lots of effort have been initiated with the appearance of the SD concept at the beginning of the 1990s to find appropriate criteria that seek to integrate the sustainability approach; more than 500 sustainable indicators, according to Böhringer & Jochem (2007).

According to these evolutions of the thought, SDGs represent a holistic sense that has historically and incrementally crystallised from the contributions made in the decades after the war to involve multiple developmental aspects. By 2017, the UN agreed upon 230 sustainable development indicators with 169 targets and 17 goals (Morgan & Bach, 2018). Furthermore, the SDG index has been built in light of the ongoing and continuous efforts made by the UN Statistical Commission to set a global indicator framework for each of the mentioned targets and goals using the most recent published data.⁵

Building on this, GDP/GNI are no longer regarded as well-suited measures to development with these broader and ambitious development goals and the scope evolved and embodied in the SDGs. This is conducive to expanding the usage of the indicators approach and identifying a tool to measure the progress towards achieving the SDGs (Parris & Kates, 2003). This expansion is seen concerning the ratio of the goals to the mentioned indicators: HDI is 1:3, MDGs are 8:60 and, SDGs are 17:230 (Morgan & Bach, 2018). In this respect, Adjusted Net Saving (ANS) is regarded as an important indicator to measure the degree of sustainable development of a country (Larissa et al., 2020).

ANS was firstly introduced by the World Bank in the late 1990s to express a more comprehensive measure of national saving. As a composite index, it has been recently tackled as a new lens on development, providing a more accurate measure of the SD through the information it gives on the environment and natural resources, besides the socio-economic front. What's more, it ensures that economic growth is on a sustainable path. ANS further measures the extent to which savings and investment rates of a country compensate for a resource depletion of physical and natural capital and pollution damages. Most importantly, it

⁵ The official indicators proposed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs).

has been regarded as an adequate indicator regarding the national planning process, addressing the sustainability of the investment policies of a country. Thus, it helps policymakers take premature actions about correcting the country's path on sustainability (Hess, 2010; World Bank, website, <https://www.worldbank.org/>). Thereby, it is seen- by the researchers- as a best suited measure to the SD.

1.2 Development Background of Egypt

Egypt had turned to full state planning, taken over by government control under the belief in the imperative role of planning as a way out to solve socio-economic backwardness. Accordingly, comprehensive and central Planning as an approach had been assured by the declaration of the first comprehensive development plan of FY (1965/1964-1961/1960). The prime goal was to make the Egyptian economy self-sufficient, producing all products needed to deliver goods and services to the wider society groups. The broader goal was to achieve rapid economic development without suffering social pain (Mabro, 1974; Amer, 1981; Kamel, 1985).

During the seventies, the Open Door Policy (ODP) was implemented to manage economic and social development. The main objectives of the openness policy were to encourage domestic and foreign capital to participate in the development process, and to raise the economic growth rate to about 6.7%. In an attempt to get rid of the stringent rules of the previous restricted and socialist era on one hand, and to allow a greater role for the private sector, on the other, a generous package of incentives had been provided. In addition, partial liberalization of the trade sector and exchange rate regime were made (Weiss & Wurzel, 1998; Allam, 2003; El-Beshry, 2015).

In tandem, a ten-year plan (1982-1973) had been formulated to improve the country's economic conditions, double local income, and provide three million jobs (Amer, 1981). It is worth noting that the opening-up policy continued with the provision of FY plans at the beginning of the 1980s under the new political power for which economic policies were crafted on the free market economy (Sakamoto, 2013).

Some benefits resulted from adopting ODP, especially concerning achieving high growth rates. Despite that, it was not associated with income distribution and further negatively affected the pattern of development itself (Sakr, 1978). As a result, the pace of growth did not last long. Furthermore, the need for strengthening military spending to confront the requirements of the October War in 1973 slowed down planning efforts: medium-term plans were replaced by annual ones. Economic conditions, unfortunately prevented them from being implemented (Institute of National Planning, 1998; El-Beshry, 2015). Yet, by the beginning of the eighties, a new tendency to the national comprehensive planning approach and the formulation of the FY plans re-emerged.

According to these evolutions, a new development strategy was formulated at the beginning of the 1980s. The ultimate goal was to realistically deliver the goal of raising the standard of living of the mass population. The resultant FY plan (86-1982) was the first part of a long-term plan, which extended to 2002. Furthermore, another strategy was supposed to be designed and launched with the fourth FY plan (2002-1998) and finished by 2017 (El-Beshry, 2015).

Along with this, planning approach had to explicitly transform from being central-based on administrative decisions to another form of planning approach based primarily on policies

to motivate the economy, which is known as “indicative planning” (El-Beshry, 2015). Crucial efforts have been made to build the appropriate multi-sectoral model to be aligned with the new planning paradigm (Institute of National Planning, 1998).

In September 2000, Egypt -as one of the UN member states- was committed to achieving the MDGs within the fifteen years since its Declaration. Under this commitment, two FY plans were issued; (2007-2002) and (2011-2007). In addition, a participatory planning approach has been adopted to strengthen decentralization in the decision-making process by which all the stakeholders should participate in the planning process (Allam, 2003). Several goals have successfully been achieved at the national, regional and governorate levels. There was partial success towards others, however. On the other side, other goals were not met: partially due to the political, economic, and social circumstances the country faced during the period following the January revolution in 2011 (MoPMAR & UNDP, 2015).

It is worth mentioning that although all of the efforts have been exerted regarding achieving developmental goals, the Egyptian economy suffered from several internal and external structural imbalances. Additionally, most of the citizens benefited little from the pattern of growth even during the periods of achieving high-income growth rates; 7% for (2008-2006), and 5% between (2008 and 2010), on average. Despite these relatively high rates, they were not felt by the majority of citizens. In fact, poverty rose during the same period. The fact is that Egypt's economy was still suffering income inequality because income and resources were unequally distributed. Additionally, the high growth rates did not generate sufficient productive jobs opportunities for new entrants in the labour market. Furthermore, the business environment did not see marked improvement (MoPMAR, 2016a). This disappointing socio-economic performance called for adopting a new development agenda.

2- Sustainable Development and Governance, Economic Freedom, and External Debt in Egypt

According to the aforementioned, SDGs have been accepted as an overarching theme to Egyptian development until 2030 to confront socio-economic challenges. By 2014, Egypt has embarked on establishing Egypt Vision 2030 under the participatory planning approach as the basis for formulating Egypt's strategy and vision. All relevant development partners have actively participated in a large number of conferences and seminars involving local and international institutions, which lasted for about two years, witnessing conflicts, different views and debates (MoPMAR, 2016b).

Eventually, it has been agreed on a unified vision and strategy: Egypt Vision 2030 that takes into account the consistency between national goals and the global counterparts. The vision is currently formed as long-term development trends and organized framework for the consequent development plans emanating from the strategy. Also, it has been launched and prioritized in light of the previous progress achieved within about fifteen years of the MDGs: lessons learned, the challenges prevented their achievement, and the possibilities to overcome them.

Egypt's Strategy Vision's main dimensions are the same as the SD dimensions, which are Economic (four pillars), Social (four), and Environmental (two) dimensions. Additionally, main objectives, sub-objectives, KPIs, Quantitative targets for each KPI, challenges, newly suggested indicators, policies, programmes, and projects have been identified.

Consequently, the resultant SD plans have been prepared in the light of those pillars, objectives, and programs of the national Sustainable Development Strategy (SDS): Egypt Vision 2030, at the same time, the Government's Work Program and the Economic Reform Program. Additionally, the mentioned strategy has been modified since 2019 to align with the emerging circumstances at national, regional, and international levels.

In 2021, the MPED announced six SDGs that have been formulated in light of the globally seventeen and inclusive to them. (Next graph). In addition, it has been localized within the national context. (MPED, VNR, 2021).



FIGURE (1): UPDATING STRATEGY FRAME WORK (SDS)

Source: constructed by the researchers, based on (MPED,VNR report, 2021).

As per the above chart, enhancing the role of governance represents the sixth goal of the national goals. It is worth mentioning that governance role first attention has first been given in Egypt to support economic reform program (ERSAP) initiated in the early nineties (National Management Institute - Governance Center, 2018). Recently, it has received a strong attention from the Egyptian government in order to enhance decentralization and implement local administration reform. Most importantly, the six national SDGs has been localized at the governorate level to improve the role of governance and enhancing accountability (MPED, VNR, 2021).

In 2019, for example, a joint work between by UNDP and the Ministry of Local Development (MoLD) has been taken place to implement local administration reform and promoting decentralization in the fields of local planning, execution, monitoring and evaluation and good governance. The main objective is to inform social justice and promoting empowerment to the neediest citizens (Ministry of Local Development, Website: <https://mld.gov.eg/en/projects/details/1021>). Governance as well constitutes the fourth enablers of the reform program in Egypt (MPED, VNR, 2021).

Furthermore, it has further been recognized as a base through which development could be efficiently achieved. In this context, National Institute for Governance and Sustainable Development" (NIGSD) has been established in 2020 under the auspices of the MPED to serve Egypt's Vision 2030, aiming at setting national strategy and action plan in coordination with different GOE agencies and promoting the concepts of governance and good governance.

Moreover, one of the NIGSD aims is to promote human development, putting the human

aspect at the forefront of its priorities. Additionally, improve regulations concerning facilitating interactions with different public institutions and ensuring coordination between the relevant stakeholders.

2.1 Related indicators to governance with regard to the SDG 16: PEACE, JUSTICE, & STRONG INSTITUTIONS:

- WB data indicates that Worldwide Governance indicators covers six main sub- indicators, which primarily focus on the perception, as the following points describes:
- Control of Corruption that captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests.
- Government Effectiveness that focuses on the perceptions of public service quality and independence degree from political pressures. Also, the quality of policy formulation, and the credibility of the government’s commitment to such policies.
- Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.
- Regulatory Quality gives more attention to the perceptions of the government’s ability to formulate and implement sound policies and regulations that promote the private sector’s role in development.
- Rule of Law captures perceptions of how much agents have confidence in and abide by the rules of society, particularly the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
- Voice and Accountability measure perceptions of a country’s citizens’ ability to participate in selecting their government, as well as freedom of expression, freedom of association, and free media.

It is well known that strong institutions- transparent and efficient- are imperative for ensuring the inclusiveness of development. The next graph illustrates Egypt’s performance in governance arrangements’ related indicators.

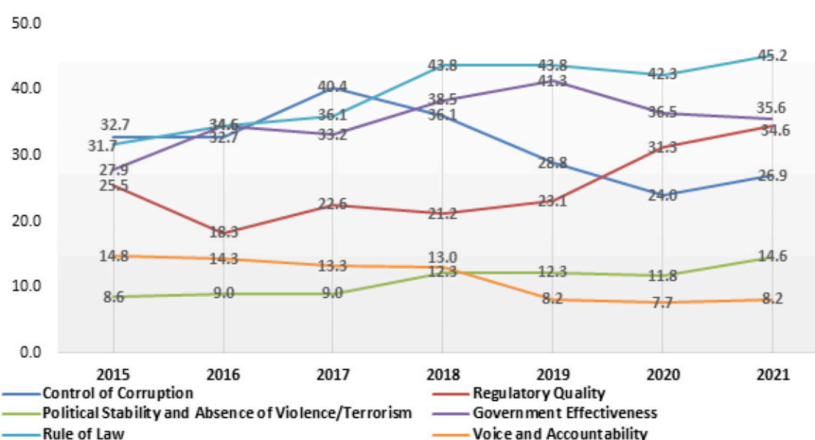


FIGURE (2): GOVERNANCE INDICATORS (PERCENTILE RANK)

Source: researchers based on (World Bank, 2022).

As per the above graph, Egypt has achieved progress regarding Political Stability & Absence of Violence/Terrorism, Rule of Law, and Regulatory Quality in 2021. Specifically, Egypt achieves a remarkable improvement in Regulatory Quality, jumping about 10 ranks, compared to 2015. Additionally, similar progress has been found regarding Rule of Law, and Political Stability and absence of violence and terrorism, which reached 54.2 and 14.6 percentile rank, respectively.

On the contrary, Egypt's performance has witnessed deterioration regarding Control of Corruption although the improvement achieved in 2017. A slight improve has been noticed in 2021. Similarly, Government Effectiveness has retreated by about 6 percentile rank from its rank in 2019 (World Bank, 2022). The main findings to be drawn here is that Egypt government should pay more attention regarding the weak performance of the mentioned three indicators and to maintain the improvements of the other three in order to pave the way towards the achievement of the SD. According to this, the research addresses the relationship between governance and SD performance throughout the research period.

2.2 Economic Freedom:

Economic Freedom as a concept, indicates that every human has a right to control labour and property, and thereby, greater prosperity could be brought about. Importantly, the Economic Freedom Index explains the positive relationship between economic freedom and a variety of positive social and economic aspects.

Therefore, the ideals of the index imply healthier societies, cleaner environments, greater per capita wealth, human development, democracy, and poverty elimination. Furthermore, the index is measured based on 12 quantitative and qualitative factors, with equal weight being given to each, which is graded on a scale of 0 to 100.

These factors are grouped into four broad pillars: Rule of Law (property rights, government integrity, judicial effectiveness); Government Size (government spending, tax burden, fiscal health); Regulatory Efficiency (business freedom, labour freedom, monetary freedom); and Open Markets (trade freedom, investment freedom, financial freedom).

Data indicates that Egypt's score on the economic freedom index moderately increased by about 3.7 points between 1996 and 2021. Despite the modest improvement, the score achieved in 2021 is still less than the highest level achieved across the total period by about 59.1 points in 2011. (Next Chart)

Furthermore, The Heritage Foundation data⁶ indicates that Egypt's Economic Freedom status is repressed, scoring 49.6, and occupying the economy the 151st⁷ freest in the 2023 Index. According to this, Egypt ranked 11th out of 14 countries in the Middle East and North Africa region. Importantly, the overall score is below the regional and world averages (Heritage Foundation, 2023).

⁶ https://www.heritage.org/index/pdf/2023/countries/2023_IndexofEconomicFreedom-Egypt.pdf

⁷ Out of 176 Countries in Economic Freedom Index 2023. This rank could be attributed to the Weak and low performance of some sub-indexes (such as: Fiscal Health "4.1", Judicial Effectiveness "22.1", Government Integrity "27.9", Labour Freedom "33.4", and Property Rights "39.7"). (Heritage Foundation, 2023).

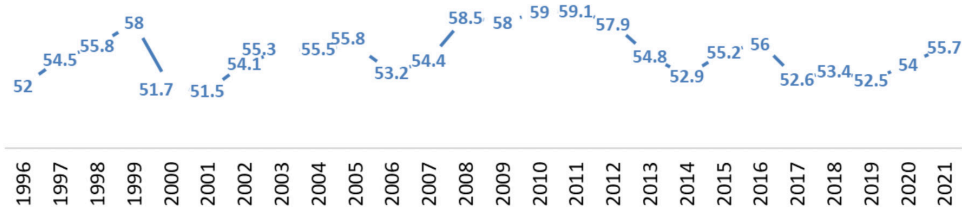


FIGURE (3): EVOLUTION OF ECONOMIC FREEDOM INDEX IN EGYPT DURING THE PERIOD (2021-1996)

Source: researchers based on (World Bank, 2022).

2.3 Egypt's External Debt

Given the fact that rising external debt burdens absorb a growing share of countries' resources. It is seen crucially to investigate its impact on the SD, considering it one of the main determinant in Egypt since debt stock has significantly surged between 1996 and 2021, recording about USD143.2 bn. in the last year, an increase of 354.6 % compared to 1996 (World Bank, WDI, 2023).

Egypt's external debt stock has significantly surged between 1996 and 2021, recording about USD143.2 bn. in the last year, an increase of 354.6 % compared to 1996 (World Bank, WDI, 2023). The following figure illustrates that the total debt service (% of GNI) in Egypt has increased by about 1.4 % between 1996 and 2021. This ratio takes a general upward trend throughout the total period (2021-1996), revolving around 2.4 %.

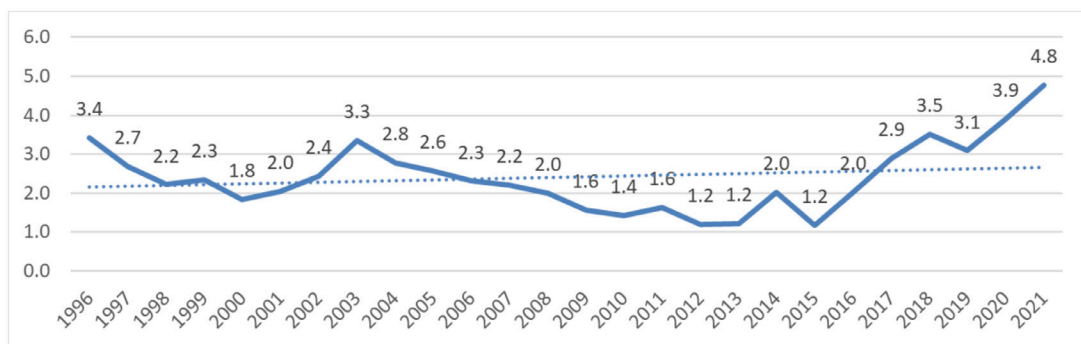


FIGURE (4): TOTAL DEBT SERVICE (% OF GNI) IN EGYPT DURING THE PERIOD (2021-1996)

Source: (World Bank, WDI, 2023)

3- Literature Review

Governance- as one of the main aspects of the sustainability connotation - would explain why some countries could achieve remarkable economic growth and at the same time protecting environment with a high-quality democratic system established, while others are lagged behind; for example, increasing poverty rates and environmental degradation. Literature revealed that governance and economic growth (generally development) are positively correlated, specifically the democratic aspect. What's more, improving governance is conducive to achieve economic growth, which thereby support government in investing

more to improve governance, according to Chong and Calderón ⁽⁸⁾(2000 Therefore, it is arguably taken not only as a main driver for promoting SD achievement but also, it is widely considered one of the main determinants by which this achievement could be met.

An empirical analysis has been conducted by Glass & Jens Newig (2019) to explore governance arrangements for the SDGs implementation at the national level, relying on a comparative approach and applied to 41 high and upper-middle-income countries. A multiple regression for Sustainable Governance Indicators, the Global SDG Indicators Database and other official sources has been used to test the influence of different aspects of governance. The results showed that among the estimated factors democratic institutions, participation, economic power, and education and geographic location serve to explain SDG achievement.

In a similar vein, Güney (2017) has quantitatively examined relationship between governance and sustainable development throughout the period (2012-1996) applied to 121 developed and developing countries. The research adopted the ANS to express the SD as a more holistic index that contain the three pillar of sustainability. The results showed that the level of SD rises as the governance level is high in all developed and developing countries included in the analysis. Despite that, the results investigated that effect of governance on SD in the developed is higher than in the developing ones (Güney, 2017).

Literature also addressed that Economic freedom is important to the SD. For instance, Mushtaq & Khan (2018) investigated the effect of economic freedom on SD, using sustainable development index for 58 countries and contained 39 variables classified according to the main sustainability pillars into economic, society and environment. Panel OLS has been applied for the years 2015-2000. A positive impact on sustainable development has been found.

Since financing SD has nowadays become a crucial issue, literature has also tackled the relationship between achieving sustainable development and External Debt in particular. In this context, Afolabi, et al. (2022) explored foreign debt stock and foreign debt servicing influence on SDGs in Nigeria using OLS. The main finding was that foreign debt servicing considerably contributes to SDGs in Nigeria. In addition, as long as the cost of foreign debt outweighs its benefit, the research assured its negativity on the economy.

In addition to the literature that examined the relationship between governance and SD, and between economic freedom and SD, other studies have explored the determinants of the SD using ANS (Pardi et al., 2015; Kaimuri & Kosimbei, 2017; Pardi, 2018). For example, Pardi et al. (2015), employed the Johansen test and VECM between 1971 and 2011 in Malaysia. The empirical results showed long-run and short-run relationships between the selected independent variables with the ANS.

Pardi and Nawi (2016) aimed empirically at investigating the factors that affect SD path in Malaysia during (2011-1972) using ARDL. The long run findings showed that total merchandise exports and the urban population tend to have a significant impact on the country's sustainability.

Furthermore, Kaimuri & Kosimbei (2017) applied ARDL to test the long-run and short-run relationships between SD and the variables that were expected to impact the SD in Kenya during (2014-1991). The estimation showed that household per capita consumption,

⁸ Gobel & Maslow.

https://www.sginetwork.org/docs/publications/Asia20%Study_Assessing_Pathways_to_Success.pdf

unemployment and energy efficiency negatively affected the SD.

In a similar place, Pardi (2018) found that valuation exports of manufactured goods and natural resources were the most significant determinants for the SD. Additionally, Koirala & Pradhan (2019), in their research that applied to 12 Asian countries during the period (-1990 2014), concluded that while GDP per capita and financial development positively affected SD, inflation and natural resources rent negatively impacted SD.

In more recent research, Sofrankova et al., (2021) similarly investigated some determinants on the SD within EU countries (2018-2011) employing panel regression. The selected variables, focusing on the institutional factors such as Global Innovation index, Human Development, Doing Business, Economic freedom, and Corruption. Researcher' results reveal that innovation, business environment, corruption and human development have influenced SD.

Research gap: It could be noticed, according to the literature reviewed, that the majority of the literature have paid lots of attention to the economic aspects that influence SD performance, the current research on contrary, focuses on the institutional factors that might affect SD performance in Egypt.

TABLE (1): LITERATURE REVIEW

Focus of analysis	literature
Explore the relationship between governance and SD	Güney (2017) - Glass & <u>Newig</u> (2019)
Explore the SD' other main requirements	Economic Freedom: (Mushtaq & Khan, 2018), External Debt: (Afolabi et al., 2022) (<u>Sofrankova</u> et al., 2021)
Explore the determinants of the SD using ANS	Pardi et al. (2015), Pardi and Nawi (2016), Kaimuri & Kosimbei (2017), Pardi (2018), & Koirala & Pradhan (2019)

Source: researchers

4- Questions, Hypotheses, and Objectives

In line with the above discussion, the current research addresses the following two questions: What are the main determinants of SD in Egypt? And, to what extent does particularly, governance- among the selected variables- have an impact on the SD?

The work, therefore, tests a key hypothesis: there is a significant long-run relationship between SD, proxied by ANS, as a dependent variable, and some explanatory variables (External Debt, Governance, and Economic Freedom) that are seen as main determinants to the SD during the period 2021–1996 according to the literature reviewed. The data will be obtained from the World Bank, World Development Indicators (WDI), and other relevant sources.

Bearing in mind the above discussion, the purpose of this research is twofold: firstly, explore the empirical relationship between SD and governance, as one of the main variables that are expected to have an impact on the SD in Egypt; secondly, formulate specific policy implications that help the decision maker to implement applicable policies to promote the achievement of the SD in Egypt by enhancing the role of governance.

Therefore, the study aims to empirically investigate the influence of the main selected variables (External Debt, Governance, and Economic Freedom) on the SD achievement in Egypt during the period (2021-1996), which have never previously been applied to the Egyptian case during the period of analysis.

To test the study's hypothesis, the current research employs the ARDL & ECM to test both long-run and short-run relationships among these variables.

5- Methodology

In order to test the study's hypothesis and answer the previously mentioned questions, the ARDL will be employed. In contrast to previous co-integration models, such as Johansen and Engle-Granger, ARDL tests the relationship between time series of different orders [0 or/and 1]. The model could further interpret the long and short-run relationships, yielding precise results, particularly with short time series (Pesaran et al, 2001; Hasan & Showman, 2013). Since the ARDL technique shifts from a general to a specific approach, it can tackle several econometric problems that could not be avoided using the traditional co-integration approach (i.e. serial correlation and endogeneity) (Ghouse et al., 2018). According to (Engle & Granger, 1987; Charemza & Deadman, 2002), the existence of an error correction mechanism (ECM) requires the time series to be co-integrated. The research proposes the following

$$\Delta sd_t = a_0 + a_1 sd_{t-1} + a_2 govind_{t-1} + a_3 ef_{t-1} + a_4 exs_{t-1} + \sum_{j=1}^p \gamma_1 \Delta sd_{t-j} + \sum_{j=1}^{k_1} \gamma_2 \Delta govind_{t-j} + \sum_{j=1}^{k_2} \gamma_3 \Delta ef_{t-j} + \sum_{j=1}^{k_3} \gamma_4 \Delta exs_{t-j} + e_t.$$

This is where the dependent variable (SD) denotes sustainable development proxied by ANS (% of GNI). The explanatory variables expected to have an influence on SD in Egypt for the period (2021-1996) are selected in light of the availability of data to bridge the existing gap in the literature. (govind) denotes governance indicator, percentile rank, as an average of the sub-indicators. (ef) denotes economic freedom (the values vary from 100-0, whereas 0 denotes the worst value and 100 refers to the best rank). (exs), denotes the total debt service (% of GNI). p indicates the number of lagged periods for the regressand. (k_1-k_3) denote the number of lagged periods for the regressors. α_s, γ_s denote the long-run and short-run coefficients, respectively.

The data for sustainable development and total debt service obtained from World Bank, World Development Indicators (WDI). Governance data calculated based on the World Bank, worldwide governance indicators dataset. Economic freedom data obtained from Heritage Foundation dataset.

The data for sustainable development and total debt service obtained from World Bank, World Development Indicators (WDI). Governance data calculated based on the World Bank, worldwide governance indicators dataset. Economic freedom data obtained from Heritage Foundation dataset.

5.1 Preliminary steps

Since ensuring the normal distribution of data is a pre-requisite before running the estimation. Table (2), shows that the probability values of Jarque-Bera statistic for all variables are more than the 5% significance level, supporting the statistically use of the data.

TABLE (2): DESCRIPTIVE STATISTICS

	Mean	Median	Max.	Mini.	Std. Dev.	Skew.	Kurtosis	Jarque-Bera	Prob.
SD	6.0753	6.5787	11.6801	0.8879	2.7236	0.0600	2.2416	0.6387	0.7266
govind	32.3261	34.0336	41.3295	22.9636	6.2601	-0.0812	1.5718	2.2382	0.3265
ef	55.0538	55.0000	59.1000	51.5000	2.2922	0.2674	2.0557	1.2757	0.5284
exs	2.4052	2.2587	4.7703	1.1677	0.8851	0.7361	3.2768	2.4312	0.2965

(Source: Eviews 12 Output)

After verifying the normal distribution of data, the paper seeks to test the stationarity of time series as a prerequisite before using the ARDL model. For this purpose, the study employed the augmented dickey-fuller (ADF) test to verify that all variables are integrated of order $I(0)$ or $I(1)$ or $I(0 \text{ and } 1)$. As indicated in Table (3), the time series for the variables sd, govind, ef, and exs are not stationary, as their critical values are greater than the absolute values of the calculated ADF test values. As a result, we cannot reject the null hypothesis of the existence of a unit root. However, after taking the first difference, these time series became stationary or integrated of the first order $I(1)$, where the critical values at the 1% significance levels are less than the absolute values of the calculated ADF test values. Consequently, we can reject the null hypothesis at the first difference and therefore run the ARDL model to test the long-run relationship between the variables.

TABLE (3):THE RESULTS OF ADF TEST

Variables	I (0)		I (1)		Sign. level
	Calculated values of ADF test	P-value	Calculated values of ADF test	P-value	
sd	-1.6182	0.4588	-7.3783	0.0000	1%
govind	-1.0406	0.7223	-4.6210	0.0013	1%
ef	-2.9606	0.0527	-4.8762	0.0007	1%
exs	-0.7051	0.8278	-4.5665	0.0017	1%

(Source: Eviews 12 Output)

5.2 Testing the long-run relationship using the ARDL

In this section, the study employs the Co-integration approach “ARDL & ECM” to analyse the SD function. The paper can do so using the following three steps.

The first step considers the determination of the optimal lag length. As shown in Table (4), the optimal lag is one period.

TABLE (4): DETERMINING THE OPTIMAL LAG LENGTH

Lag	Logl	LR	FPE	AIC	SC	HQ
0	-204.2030	NA	402.9992	17.3502	17.5465	17.4023
1	-147.2109	90.2375*	13.5649*	13.9342*	14.9159*	14.1946*
2	-135.7293	14.3518	22.4906	14.3107	16.0778	14.7795

(Source: Eviews 12 Output)

The second step aims at using the bounds test to verify whether the long-run relationship between variables exists or not. Pesaran Et al., (2001), identified three distinct cases by comparing the calculated value of the F-statistic with the critical upper and lower bounds at the 5% significance level. (a) If the calculated value of the F-statistic is higher than the critical upper bound, we can reject the null hypothesis of no long-run relationship. (b) If the calculated value of the F-statistic is less than the critical lower bound, we cannot reject the null hypothesis. (3) If the calculated value of the F-statistic falls between the critical lower and upper bounds, we cannot reject or accept the null hypothesis. As stated in table (5), F-tests seem robust since the calculated value of the F-statistic is 9.76 and exceeds the critical upper bound at significance levels. Consequently, we can reject the null hypothesis

$$(H_0: a_1 = a_2 = a_3 = a_4 = 0)$$

of no long-run relationship and alternatively accept the alternative hypothesis of the existence of a long-run relationship

$$(H_1: a_1 \neq a_2 \neq a_3 \neq a_4 \neq 0)$$

TABLE (5): BOUNDS TEST RESULTS

The F statistic value	Critical bounds values (restricted constant & no trend)		
	Significance	I(0)	I(1)
9.76	1%	4.61	5.96
	5%	3.27	4.3
	10%	3.58	2.52

(Source: Eviews 12 Output)

-since the sample is less than 30, the critical values developed by Pesaran et al (2001) are unlikely to be valid for the sample size. So, the study uses the critical values introduced by Narayan (2005) for small samples. These critical values are for upper and lower bounds at 30 observations.

The third step seeks to test the model stability over the sample period. In order to do so, the paper uses the two tests “CUSUM & CUSUM of Squares” suggested by Pesaran and Shin (1999) (Institute of National Planning, 2018). Figure (5) show that the cumulative sum and the cumulative of squares values remained between the critical bounds at the significance level of 5%. This result suggests that the models’ estimated coefficients are stable over time, and the residual variance is as well.

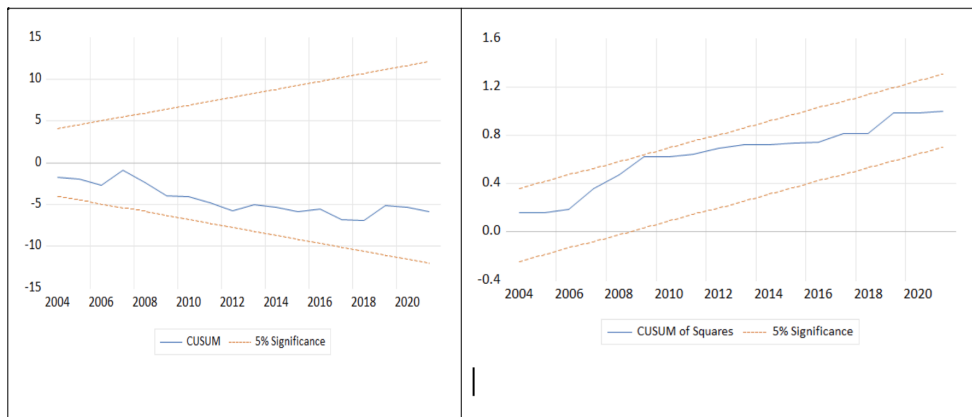


FIGURE (5): PLOTS OF CUSUM & CUSUM OF SQUARES

(Source: Eviews 12 Output)

5.3 Long-run estimation results

As shown in table (6), Adjusted R² is 0.81, revealing that the model explains 81% variation in SD in Egypt. Besides, the probability of the F-statistic is 0.000001, supporting the statistical significance of the ARDL results.

TABLE (6): LONG-RUN ESTIMATIONS

VARIABLE	Coefficient	Std. Error	t-Statistic	Prob.
SD(-1)	0.0757	0.1735	0.4362	0.6678
GOVIND	0.0450	0.1112	0.4046	0.6905
GOVIND (-1)	0.3009	0.1103	2.7264	0.0139
EF	0.0384	0.1309	0.2932	0.7727
EF(-1)	-0.5515	0.1374	-4.0138	0.0008
EXS	-0.5419	0.3346	-1.6197	0.1227
C	23.8616	8.3895	2.8442	0.0108
R ²	0.8645	Mean dependent var		6.0490
Adjusted R ²	0.8193	S. D. dependent var		2.7764
S. E. of regression	1.1801	Akaike info criterion		3.4006
Sum squared resid	25.0681	Schwarz criterion		3.7418
Log likelihood	-35.5075	Hannan-Quinn criter.		3.4952
F-statistic	19.1411	Durbin-Watson stat		2.0467
Prob (F-statistic)	0.000001			

(Source: Eviews 12 Output)

As shown in Table (7), govind and ef are statistically significant. While the coefficients of govind is positive, implying that the SD in Egypt is positively affected by governance (govind). The coefficient of ef is negative, indicating that the economic reform have a negative impact on the SD in Egypt.

TABLE (7): LONG-RUN ESTIMATIONS

Variables	Coefficient	Standard Error	t-statistic	p-value
govind	0.3742	0.0432	8.6584	0.0000
ef	-0.5551	0.1945	-2.8530	0.0106
exs	-0.5863	0.3934	-1.4903	0.1534

(Source: Eviews 12 Output)

5.4 Short-run estimation results

Considering testing the short-run relationship between the governance, economic freedom, external debt, and sustainable development in Egypt for the period (2021-1996), the paper used the Error Correction Model (ECM). As stated in Table (8), the error correction term (ECT) is significant with a coefficient of 0.92- which implies that 92% of the imbalances of sustainable development in Egypt in one year will be adjusted in the next year. Furthermore, the results show that adjusted R² is 0.73, indicating that the model explains 73% variation in sustainable development in Egypt in the short-run.

TABLE (8): SHORT-RUN RESULTS

VARIABLE	Coefficient	Std. Error	t-Statistic	Prob.
D(GOVIND)	0.0450	0.0914	1.1509	0.6287
D(EF)	0.0384	0.0983	0.3905	0.7007
ECT(-1)	-0.9242	0.1196	-7.7234	0.0000
R ²	0.7350	Mean dependent var		-0.1703
Adjusted R ²	0.7109	S. D. dependent var		1.9853
S. E. of regression	1.0674	Akaike info criterion		3.0806
Sum squared resid	25.0681	Schwarz criterion		3.2268
Log likelihood	-35.5075	Hannan-Quinn criter.		3.1211
Durbin-Watson stat	2.0467			

(Source: Eviews 12 Output)

5.5 Assessing model quality and stability

As indicated in Table (9), the F-statistic's probability value of the Breusch- Godfrey (LM) test is insignificant at all levels of significance. Hence, we cannot reject the null hypothesis of no serial correlation between the estimated models' residuals. Besides that, the F-statistic's probability of the Breusch-Pagan-Godfrey test for heteroscedasticity is insignificant at all levels of significance. As a result, we cannot reject the null hypothesis of homoscedasticity

TABLE (9): TESTING SERIAL CORRELATION & HETEROSKEDASTICITY

Breusch - Godfrey (LM Test)	F statistic	0.1368	Prob.	0.7160
	<u>Obs* R²</u>	0.1996	Prob.	0.6550
Breusch- Pagan- Godfrey	F statistic	0.7023	Prob.	0.6516
	<u>Obs* R²</u>	4.7425	Prob.	0.5772

(Source: Eviews 12 Output)

According to Figure (6), the Jarque-Bera statistic is 3.4746 with a probability of 0.1759, indicating the insignificance at the 1%, 5%, and 10 % significance levels, supporting the acceptance of the null hypothesis. Thus, the residuals are normally distributed.

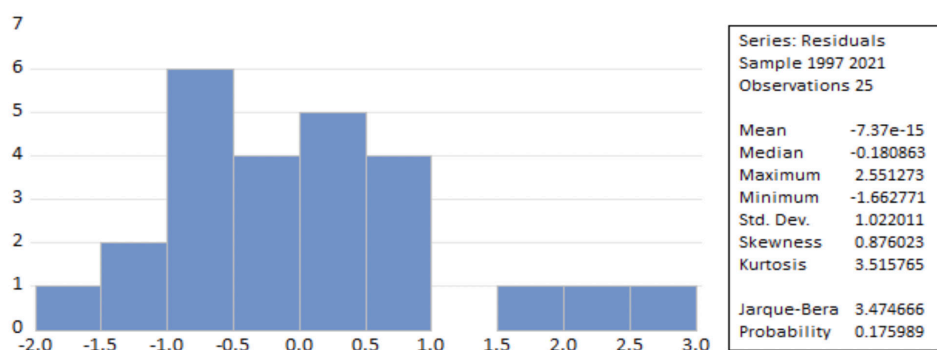


FIGURE (6): JARQUE-BERA TEST FOR NORMAL DISTRIBUTION OF THE RESIDUALS

(Source: Eviews 12 Output)

6- Conclusion and Policy Recommendations

This work addressed the literature gap by testing the long-run and short-run relationships between SD as a dependent variable and some explanatory variables that are expected to have an impact on achieving SD in Egypt according to the literature reviewed, which are Governance, Economic Freedom, and External Debt, during the period (2021-1996).

The long-run results showed that Governance positively affects SD. SD, on the contrary, has been negatively affected by Economic Freedom, which is aligned with the literature for the purpose. These findings shed light on the crucial role that governance can play in achieving SD in Egypt.

In this context, promoting governance arrangements/dimensions “political stability, regulatory quality, control on corruption, government effectiveness, voice and accountability, and role of law” will positively influence SD achievement in Egypt. In addition, enhancing economic freedom in Egypt is a milestone in promoting the business climate and achieving the SD in Egypt.

Therefore, it could be said that despite the efforts have been recently taken to improve governance; whether in the national SDGs and their enablers as well as or the reform programme’ main enablers, Egypt performance still needs lots of effort in order to meet the SDGs by 2030.

Building on this, enhancing the imperative role of governance throughout the SD plans will help government in boosting the sustainability requirements as well as implement the second phase of the reforms known as “the structural reforms” aimed at supporting certain sectors and increasing the competitiveness of the Egyptian economy.

On the other side, as long as the research findings showed that Economic freedom is insignificant, due to the week performance of the index, the research recommends enhancing fiscal health, judicial effectiveness, Government integrity, labour freedom, and property rights which could help Egyptian government in promoting the SD requirements.

Furthermore, the results showed that external debt is insignificant. This could be explained

by the fact that the debt has been utilized by projects that might not be properly to achieve the SD in Egypt and might be directed to an unsustainable development path. Therefore, the research recommends adopting an effective debt management strategy to ensure efficient debt usage, by which the sustainability path should be paved (Obianuju, 2021).

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