The impact of Urbanization on Sustainable Development in Africa by applying to Egypt and South Africa (a comparative study)

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أثر التحضر على التنمية المُستدامة في أفريقيا
(مصر – جنوب أفريقيا)
دراسة مُقارنة

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مُلخص:

لا تنطوي عملية التحضر على مُجرد الهجرة من الريف إلى المُدن ، ولكن يجب أن يرافقها توطين لعمليات التصنيع في تلك المُدن ، مع تعزيز الخدمات العامة وتوفير البُنى التحتية لضمان تحقيق أهداف التنمية المُستدامة ، حيثُ أصبحت المُدن في العصر الحالي نواة لعملية التنمية كونها تُوفر الأرض ، البشر ، و الصناعة كنشاط اقتصادي رئيسي للتنمية ، فضلاً على ذلك يعيش أكثر من نصف سكان العالم في مناطق حضرية ولا يزال هذا العدد في ازدياد ، ووفقًا لتقارير الأمم المتحدة التي تفيد بأن حوالي ٦٠ في المائة من الناس سيعيشون في مدن حضرية. يمثل التحضر بحلول عام ٢٠٣٠ في قارتين آسيا وأفريقيا مليار شخص، والتحضر في هاتين القارتين هو عملية تحول ستُغير بشكل دائم مساراتهما الاقتصادية والبيئية والاجتماعية والسياسية. نصت أهداف التنمية المستدامة على ضرورة وجود مُدن آمنة وشاملة ومرنة ومستدامة ومخطط لها بدقة لمواجهة العديد من المخاطر: تأثيرات المناخ ، وإدارة النفايات ، ومخاطر الكوارث البيئية ، والتلوث ، والجريمة ، والصراعات الاجتماعية ، والنقل ، ومشاكل المرور ، بالإضافة إلى الآثار البيئية والاقتصادية والسياسية والاجتماعية والثقافية للتوسع الحضري طويل الأجل ، مما يجعل التحضر أحد أكثر التحديات العالمية إلحاحًا لضم : المستدامة قد أوضحت مُخرجات برنامج EVIEWS 12 باستخدام اختبار ARDL ان التحضر في المدى القصير له تأثير معنوي على مؤشرات التنمية المستدامة في مصر ، في بُعديها الاقتصادي والاجتماعي ، حيثُ بلغت قيمة R2=99 ٪، كما اتضح وجود تأثير معنوي سلبي على الجانب البيئي ، حيثُ بلغت قيمة R2 =٦٣٪ ، أما على المدى الطويل فتبين وجود تكامل مُشترك حيثُ كانت قيمة F المحسوبة١٤,٣٢٠٣٧ وهى أكبر من Upper Critical Bound (UCB) قيمة الحد الأعلى(I_1) عند مستوى معنوية ١% ، في حين كان لمُؤشرات التحضر تأثيراً إيجابياً كبيراً في الأجل القصير في جنوب افريقيا على العمر المتوقع عند الميلاد (التنمية المستدامة في بُعدها الاجتماعي) ، حيثُ بلغت قيمة R2 = 99 ٪ ، كما اتضح وجود تأثير سلبي أيضا على انبعاثات الكربون للفرد (الجانب البيئي) ، ولكنّ تأثيرها لم يكن واضحاً على المدى الطويل على متوسط نصيب الفرد من الناتج المحلى ، وذلك لعدم وجود تكامل مُشترك، حيث بلغت قيمة F المحسوبة٢,٥٥٣٤١٤ وهى أقل من الحد الأدنى (I_0) .

الكلمات المفتاحية: التحضر، التنمية المُستدامة، مصر، جنوب أفريقيا، تقدير العلاقة.

The impact of Urbanization on Sustainable Development in Africa by applying to Egypt and South Africa (a comparative study)

Dr. Amany Salah Mahmoud

Abstract:

The urbanization process does not involve mere migration from the countryside to cities, but must be accompanied by the settlement of manufacturing operations in those cities, with the strengthening of public services and the provision of infrastructure to ensure the achievement of sustainable development goals. And industry as a major economic activity for development, more than half of the world's population lives in urban areas and this number is still increasing, and according to United Nations reports that about 60 percent of people will live in urban cities. Urbanization by 2030 in the continents of Asia and Africa will represent one billion people, and urbanization in these two continents is a process of transformation that will permanently alter their economic, environmental, social and political trajectories. The Sustainable Development Goals state that cities must be safe, inclusive, resilient, sustainable and meticulously planned to address many risks: climate impacts, waste management, environmental disaster risks, pollution, crime, social conflict, transportation and traffic problems, as well as environmental, economic, political, social and cultural impacts The results of the EVIEWS 12 program using the ARDL test showed that urbanization in the short term has a significant impact on the indicators of sustainable development in Egypt, in its economic and social dimensions. R^2 = 99%, and it was found that there was a negative moral effect on the environmental side, where the value of R^2 = 63%, and in the long run, it was found that there was a co-integration where the calculated F value was 14.32037, which is greater than the Upper Critical Bound (UCB) limit value The highest (I_1) at a significant level of 1%, while the indicators of urbanization had a significant positive effect in the short term in South Africa on life expectancy at birth (sustainable development in the dimension of (the

social aspect), where the value of R^2 = 99%, and it was also clear that there was a negative impact on carbon emissions per capita (environmental aspect), but its impact was not clear in the long term on the average per capita GDP, due to the lack of cointegration, as it reached The calculated F value is 2.553414 which is less than the lower limit (I_0).

Key words: urbanization, sustainable development, Egypt, South Africa, relationship estimation.

I. **Introduction**:

Urbanization has become an essential feature of structural change and growth in the world in general, especially in low-income countries, where urbanization aims to achieve three basic objectives: creating productive jobs, connecting firms to markets, and linking workers to firms. Through these jobs, urbanization can create value and increase productivity, which leads to more economic growth**.**

The United Nations defined urbanization as "the demographic process whereby an increasing share of the national population lives within urban settlements." Settlements are also defined as urban only if most of their residents derive the majority of their livelihoods from non-farm occupations. throughout history, urbanization has been a key force in human and economic development. According to the UN population bureau (2010), Africa's population reached more than 1 billion in 2009, of whom around 40% lived in urban areas. it is expected to grow to 2.3 billion by 2050, of whom 60% will be urban. This urbanization is an important challenge for the next few decades. urbanization helps poverty reduction in other regions also. However, the picture appears to be different now and Africa has been growing at the same rate as the rest of the world, if not better in the recent few years (Lynch, Amy J., 2011). In 2012, six of the fastest economic growth countries in the world were in Africa. Rapid urbanization and investment in human capital seems to be modifying the pattern of economic growth in Africa in the recent period.

II. Purpose of the study :

This study aims to show the impact of [Urbanization level(x_1), urban population(x_2)] on sustainable development [GDP per capita, CO_2 emissions (metric tons per capita) (y2), Life expectancy at birth, total (years) (y3)]. In both Egypt and South Africa.

III. the importance of the Study:

Urbanization is increasing at a significant rate in the continent of Africa from other continents, and there is no doubt that it affects and interacts with many other variables, including the rate of per capita GDP at constant prices, life expectancy at birth, carbon emissions, and all these variables fall under the name of sustainable development. The importance of the research comes in its attempt to identify the relationship that links urbanization in Egypt and South Africa to the dimensions of sustainable development, which is one of the main objectives of Egypt (Egypt Vision 2030), especially in light of the urban development that Egypt is witnessing at the present time.

IV. Research Hypotheses:

The study revolves around one hypothesis:

V. There is no significant relationship with statistical significance for urbanization on sustainable development in both Egypt and South Africa,

VI. Limitation of the study:

This study measures the relationship between urbanization level and sustainable development in both Egypt and South Africa which are among the first civilized countries on the continent in 1950 with a rate of 25%, and this is the reason for choosing the two countries, within a period of time (1990- 2020) according to the availability of data according to time periods and by using the modern scientific method (ARDL) .

VII. Methodology:

The researcher examines the relationship between urban expansion and sustainable development in Africa applicable to Egypt and South Africa, by testing the relationship between independent variables (urbanization level – urban population)which represent urbanization, and dependent variables (GDP per capita, co_2 emissions, Life expectancy at birth) which represents sustainable development , according to the availability of data within time periods (1990-2020) in both Egypt and south Africa by using the modern scientific method.

VIII. Data sources:

- World Bank Economic Development Reports until 2020[1] .
-United Nations reports until 2020[2].
- UN-HABITAT reports for several years.[3]

IX. Terminology of the study:

Urbanization: "is a complex socio-economic process that transforms the built environment, converting formerly rural into urban settlements, while also shifting the spatial distribution of a population from rural to urban areas. It includes changes in dominant occupations, lifestyle, culture and behavior, and thus alters the demographic and social structure of both urban and rural areas" (United Nations,2019).

level of urbanization: "is typically expressed as the percentage of population residing in urban areas, defined according to criteria used by national governments for distinguishing between urban and rural areas" (United Nations,2019).

[1] https://data.albankaldawli.org/
[2] https://www.un.org/ar/esa/hdr/pdf/hdr06/indicators.pdf
[3] https://unhabitat.org/knowledge/research-and-publications

X. literature review:

1. study (**Bai X.et al,2012**) "Landscape Urbanization and Economic Growth in China: Positive Feedbacks and Sustainability Dilemmas".

this study aimed to test the relationship between landscape urbanization and economic growth at the provincial and urban level in China, the researcher examined how to built-up area and economic growth changed in different Chinese cities, and test causality analysis (Granger) between built-up area and GDP per capita for three periods, the first consists of 174 cities within (1990-1998). the second (1997-2006) consists of 135 cities. the third (1990-2006) consists of 121 cities, then the result shows Causal Effects between Built-up Area and Income Growth in China, Granger perform causality test to further verify the existence and direction of causality between built-up area and GDP per capita in China further verify short-run& long- run causality. about statistical significance of test were made on a 5% level.

2. **study (El Hedi ,2014)** "Effects of urbanization on economic growth and human capital formation in Africa".

this study examined the impact of urbanization on economic growth in Africa, by analyzes the relationship of urbanization on human capital and economic variables using Granger causality. then, tested relationship between the variables such as education and health variables, and real GDP per capita on urbanization variables and other explanatory variables, by using panel data from African countries. and the results showed a casualty relationship between urbanization and economic growth.

3. **study (Chen,2014)** "The Global Pattern of Urbanization and Economic Growth: Evidence from the Last Three Decades".

his study aimed to test the correlation between both of the level and speed of urbanization and economic growth. according to Two key indicators are selected to measure development level: the real gross domestic product (GDP) per capita, and level of urbanization. and the

empirical data cover 226 countries and regions of the world, within period (1960- 2012), and the analyze showed that some countries will be unable to obtain the expected economic benefits of urbanization, while others such as South Korea and China, have achieved rapid level of urbanization and dramatic economic growth together, what creating a global miracle.

4. **Study (Soheila,2019)** "CO_2 emissions, urbanization and economic growth: evidence from Asian countries "

This study aims to study the relationship between carbon emissions, urbanization, and economic growth in a group of Asian countries using Granger causality, during the period (1980-2014), and by conducting the unit root of the variables, it became clear that all the variables are integrated of the first degree (of order 1). This means that the greater the urbanization, the greater the energy consumption, the greater the economic growth, and the emissions of carbon dioxide, which negatively affects the environmental quality in the long run.

5. **Study (Cao ,2020)** "The Educational Level of Rural Labor, Population Urbanization, and Sustainable Economic Growth in China"

This study aims to study the impact of the educational level of rural labor on the effectiveness of urbanization in China, using other intermediate factors such as the consumption capacity of the urban population, which is the main driver of economic growth, resulting from population urbanization, Industry structure change, and technological innovation as intermediate variables.

One of the most important results of the study was that the low level of education leads to a decrease in the consumption capacity, and therefore it does not achieve the goals of economic growth, and this appears in provinces such as Gansu, Yunnan and Qinghai. Where these provinces are characterized by low level of education. Analysis indicates that these counties have experienced urbanization without economic growth.

The results also indicate that basic education is critical for income and consumption growth, as rural workers move to urban areas, and the

government should improve compulsory basic education in rural Chinese areas in order to achieve proper urbanization.

6. **Study (Yunyang et al ,2020)** "Land Financialization, Uncoordinated Development of Population Urbanization and Land Urbanization, and Economic Growth: Evidence from China "

The author's aim in this study is to find the relationship between urban development financing and economic growth in China by comparing two main periods (1990-2000) and (2000-2015) based on the data of the Chinese Statistical Office for the year 2018. In the period (2000-2015) compared to the previous period (1990-2000), the largest proportion of urbanization was for the western provinces, followed by the provinces of central China. Urbanization financing represents the independent variable in the study, while the dependent variables represent each of the urbanization of the land (urban construction), urbanization of the population (urban residents), economic growth expressing values in the natural logarithm, and the author formulated 6 models to study the relationship between the variables by regression analysis and the Spatial Dubin model. Model (SDM) to test the indirect impact of the urbanization financing process on sustainable development.

The results showed that there is a close link between urbanization and development, in addition to the fact that financing the urbanization process and investment in cities can only achieve the sustainable development goals when the width of the land matches the direction of the population and industrial agglomeration, that is, promoting integration between cities and industry, and enhancing public service to ensure sustainable development for the urban economy.

7. **Study (Chimere et al,2021)** "Does economic growth, international trade, and urbanization uphold environmental sustainability in sub-Saharan Africa? Insights from quantile and causality procedures "

This study tests the impact of economic growth, international trade and urbanization on levels of CO_2 emissions in sub-Saharan Africa,

through the use of quantitative regression analysis of variables, and the results indicated a two-way causal relationship between economic growth, international trade and urbanization on the one hand, and levels of CO_2 emissions on the one hand. on the other hand, in sub-Saharan Africa, economic growth, international trade, and urbanization levels of CO_2 emissions.

XI. Contribution of the Study:

It is clear from the above that the previous studies unanimously did not address the issue of sustainable development, but were limited only to economic growth, which is the average per capita share of the gross domestic product. As for the current study, the most important thing that distinguishes it is measuring the impact of urbanization on sustainable development in its three dimensions: the economic dimension represented by In the average per capita GDP (at constant prices), the social dimension: represented in the life expectancy at birth, and finally the environmental dimension: represented in the average per capita carbon emissions, and the current study covers another time gap by studying the impact of independent changes on the variables The subsidiary during the period (1990-2020), which is a recent period in relation to previous studies, and it is also comparing between Egypt and South Africa, which is another third gap that previous studies did not address, and the current study also uses a standard model different from all previous studies represented in the modern scientific approach (EVIEWS). The ARDL model was used to integrate first and second-order variables.

Theoretical backgrounds of Urbanization and Economic Growth:

There have been many theories that have dealt with the relationship of urbanization with economic growth since 1956, including the study (Berry, 1965), where he conducted an empirical research on 95 countries, and the results showed a significant positive relationship between the rate of urbanization in a country and economic growth, followed by the study of (Lucas, 1998) (Black, 1999) (Bertinelli, 2004) on the study of the

relationship between urbanization and development, all of which were positive.

There are other studies on urban planning (Jofrey-Monseny and MarinLópez 2012; Lin 2010), agglomeration (Ruhiiga2013a), sustainable cities (Shen et al. 2011; Solecki et al. 2013) and the knowledge economy.

Then, they were followed by the studies of (Shen, 2007), (Duan, 2009), (Ly, 2011), (Shen, 2016), all of which dealt with the impact of urbanization on economic growth in China in particular, all of which also came with positive results.

XII. The reality of urbanization globally:

Globally, more people live in urban areas than in rural areas, with 55 per cent of the world's population residing in urban areas in 2018. In 1950, 30 per cent of the world's population was urban, and by 2050, 68 per cent of the world's population is projected to be urban. There is significant diversity in the urbanization levels reached by different geographic regions. The most urbanized geographic regions include Northern America (82 per cent living in urban areas in 2018), Latin America and the Caribbean (81 per cent), Europe (74 per cent) and Oceania (68 per cent. The level of urbanization in Asia is now approximating 50 per cent. In contrast, Africa remains mostly rural, with 43 per cent only of its population living in urban areas .(United Nations, 2018, p: 30)

The United Nations report in 2018 indicated that the rate of urbanization in low-income countries is greater than the rates of urbanization in other developed and emerging countries during the period 1950-1970, as well as the period 1970-1990, and it continues in this way until 2050, followed by the rate of urbanization in countries The lower middle-income countries to which Egypt and South Africa belong, and in which the urbanization rate will reach 1.14% by 2050, then the upper middle-income countries, in which the urbanization rate will reach 0.50% by 2050, and finally the developed countries, which will reach Urbanization rate 0.26% by 2050.

Table (1) Percentage Urban and Rate of Urbanization of The World, By Income Group, Selected Years and Periods, 1950-2050

	Percentage urban						*Rate of urbanization (per cent)*				
Income group	*1950*	*1970*	*1990*	*2018*	*2030*	*2050*	*1950-1970*	*1970-1990*	*1990-2018*	*2018-2030*	*2030-2050*
World	29.6	36.6	43.0	55.3	60.4	68.4	1.06	0.80	0.90	0.74	0.62
High-income countries	58.5	68.7	74.4	81.5	83.9	88.4	0.80	0.40	0.32	0.25	0.26
Middle-income countries	19.9	27.8	36.7	52.6	59.0	68.3	1.68	1.39	1.28	0.96	0.73
Upper-middle-income countries	22.1	32.2	42.9	66.6	74.8	82.6	1.89	1.44	1.57	0.96	0.50
Lower-middle-income countries	17.2	22.6	30.0	40.6	47.0	59.0	1.36	1.42	1.08	1.20	1.14
Low-income countries	9.3	15.7	22.8	32.2	38.3	50.2	2.60	1.87	1.24	1.44	1.35

Source: United Nations Department of Economic and Social Affairs/World Urbanization Prospects: The 2018 Revision Population Division p: ٢٣.

The 2018 United Nations report, which divided the stages of urbanization from 1950 to 2050 into four stages:

1. Urbanization in 1950.
2. Urbanization in 1990.
3. Urbanization in 2018.
4. Urbanization in 2050.

The report stated that Singapore, China (Macao) and Belgium were at the forefront of the world in urbanization in 1950, with the urbanization rate reaching 99.4, 96.9, and 91.5, respectively, while in 1990 Singapore and China (Macao) were at the fore. China (Hong Kong), Kuwait, Belgium, Qatar, where the urbanization rate reached 100%, 99.8, 99.5, 98, 96.4, 92.8, respectively. In 2018, China (Macao) topped the world countries, followed by Kuwait, then China (Hong Kong), Qatar, where the urbanization rate reached 100% for all countries except Qatar, where the urbanization rate reached 99.6%. It is expected that Kuwait will become at the top of the list of countries in the world in 2050, followed by China

(Hong Kong), then China (Macau), Singapore, Qatar (United Nations, 2018, p: 38).

XIII. **Urbanization in Africa**:

Trends and regional differences Although the rhythm of urbanization in Africa is the highest in the world, the continent is still the least urbanized region in the world. By 2008, the whole of Africa had only 39.1% of its population living in urban areas. This proportion is far behind that of the Arab States, Latin America and the Caribbean, Eastern Asia, and OECD (respectively, 55%, 77%, 43% and 75%). Furthermore, urban population is growing by nearly 3.4% a year making Africa's urban population the fastest growing in the world. Predictions are for about 700% increase over 2000– 2030. By 2030, it is projected that one-half of the African population will reside in urban areas, According to Un-Habitat (2010), urban population in Africa is expected to increase from 395 million people in 2010 to one billion in 2040. For instance, the city of Lagos, home to 8 million in 2000 is anticipated to exceed 16 million by 2015.

Table (2) African countries clustered into groups according to their levels of structural transformation

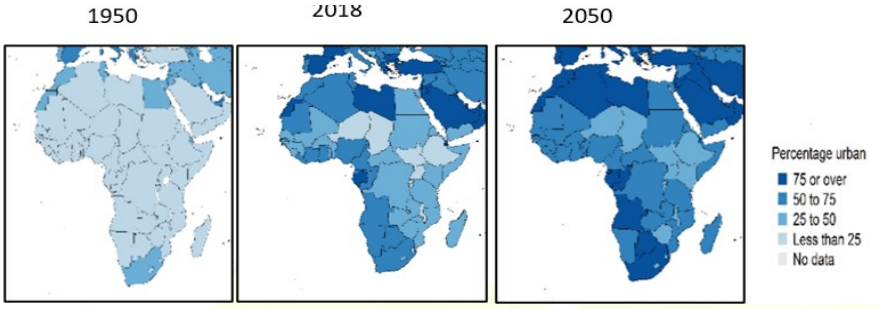
Non-resource-based countries				**Resource-based countries**
Diversifiers Advanced in fertility transition, urbanised	**Early urbanisers** Started fertility transition and urbanising	**Late urbanisers** Started fertility transition but not yet urbanising	**Agrarians** Have not started fertility transition nor urban transition	**Natural resources-based countries**
Egypt	Benin	Eritrea	Burkina Faso	Algeria
Mauritius*	Cameroon	Ethiopia	Burundi	Angola
Morocco	Côte d'Ivoire	Kenya	Chad	Botswana*
South Africa	Ghana	Madagascar	Central African Republic**	Republic of the Congo
Tunisia	Liberia	Mozambique	Malawi	Democratic Republic of the Congo
	Senegal	Rwanda	Mali	Guinea
	Togo	Sudan	Niger	Libya
		Tanzania	Sierra Leone**	Mauritania
			Uganda	Nigeria
				Somalia
				South Sudan
				Zambia
				Zimbabwe

source: World Cities report 2020. Op.cit. pp: 77-78.

It is observed from the previous table that the African countries have been divided into two groups. The first is countries that do not depend on resources. They have been divided into four groups (a country that is

leading in urbanization - a country in an advanced stage of urbanization - countries that are late in the urbanization process - countries that have not yet started the process of urbanization Urbanization) As for the second group, those countries that depend on resources such as Algeria, Angola, Libya, Guinea, Somalia, as it is also clear from the previous table that Egypt comes at the top of the civilized African country (the leader of urbanization), which walked confidently towards urbanization, followed by Mauritius, then Morocco, South Africa, and finally Tunisia, while Cameroon, Liberia, Senegal, and Togo are among the group of African countries that are at an early stage in the process of structural transformation towards urbanization, and on the contrary, the countries of Eritrea, Ethiopia and Sudan come in the list African countries are lagging behind in the process of urbanization, and Burkina Faso, Burundi, Chad, Mali and Niger are among the African countries that have not started the urbanization process yet .

figer (1) Percentage of population residing urban areas in Africa 1950,



Source: United Nations Department of Economic and Social Affairs/World Urbanization Prospects: The 2018 Revision Population Division p: 36.

The previous figure shows that both Egypt and South Africa are among the first civilized countries on the continent in 1950 with a rate of 25%, but the figure shows the urban progress of many other countries on the continent in 2018, such as Libya, Western Sahara and Gabon, and it is

expected that by 2050 they will be Libya, Algeria, Tunisia, Morocco, South Africa and other countries are among the most urbanized countries in the continent.

Urbanization in south Africa:

Although the major role played by urbanization in changing the social and economic forces in South Africa, resulting from rural and urban migrations, which in turn affected the income distribution in the capital city, Johannesburg and other urban areas, the implementation of the urban policy followed by South Africa is not considered an organized policy. And it is not characterized by administrative efficiency, as continuous urbanization is witnessing the expansion of low-cost informal settlements in the urban edge, a development that runs counter to the long-term sustainable development goals. (Ruhiiga ,2013), that the best areas in South Africa are: Pretoria (Tshwane), Johannesburg, Ethekwini (Durban), Nelson Mandela Bay (Port Elizabeth), Buffalo City, Mangaung and Cape Town. Most of them are coastal areas located on the state border except for the capital, Johannesburg. This is what is wrong with the urbanization policy in South Africa.

also acknowledged that the urbanization policy in South Africa needs to be reviewed, as it requires adequate planning and restructuring, and that most projects are defective due to the inefficiency in providing public services.

Bond (2002) also explains that the process of urbanization in South Africa is based on a kind of apartheid, and this contradicts the sustainable development goals, which are concerned with gender equality and women's empowerment.

One of the components of effective urbanization is that urbanization is closely related to the expansion of industrialization, and this can be seen by analyzing the relationship between the level of urbanization and the average share of manufacturing industries in GDP. Its share of manufacturing in GDP remains constant at around 10 percent, which is called urbanization without an industry. (2017, Lall et al).

African cities are characterized by their fragmented and separate urban space, which hinders the ability to provide public services, prevents labor market matching, and prevents companies from reaping imports on a large scale (agglomeration), which is known as the "non-commercial trap", all of which push us towards more policies Aiming to connect companies with markets, and improve logistics services.

XIV. The relationship between urbanization and sustainable development:

There are three main dimensions that have affected the transformation of societies since the industrial revolution, which are industrialization, urbanization, and globalization, and these three dimensions have close relations with each other, as industrialization leads to an increase in domestic product, which leads to economic growth, as well as increases opportunities for urban expansion in countries. It is also noted that all developed countries are characterized by higher rates of urbanization, and GDP per capita. (Chen et al. 2014, p: 1), also, urbanization stimulates promoting growth by removing barriers to rural–urban mobility, supportive policies, markets and infrastructure investments (Chen. M, et al ,2014, p:11)

XV. Urbanization and national income :

it was observed that the level of urbanization tends to increase across groups of countries classified by the level of income, with high income countries in 2018 having a level of urbanization that is well over twice that in the low-income countries (81 per cent compared to 32 per cent). It described the association between national income and the process of urbanization as complex, noting that the causal relationship between the two is likely bidirectional and that effective planning and policies are needed in order for urbanization and economic development to go hand in hand.

XVI. Investments in cities:

Cities are economic centers as they contribute to creating jobs within the official economic sectors that are characterized by economies of scale. one of the most important current investments is urban development represented in building and construction, building communication channels, and providing infrastructure.

XVII. objectives for urban policy:

Urbanization has become an essential feature of structural change and growth in the world in general, especially in low-income countries, where urbanization aims to achieve three basic objectives: creating productive jobs, connecting firms to markets, and linking workers to firms. Through these jobs, urbanization can create value and increase productivity, which leads to more economic growth. (Page,2020, pp:6-10**)** Achieving these goals also requires progress in three main areas: accessibility, creating a business environment, and moving towards public sector governance, we will clarify the objectives of urbanization in three main points, as follows:

1. **Generating productive jobs**:

Job creation is one of the most important goals of urban development, which can only be achieved in cities where economies of scale and agglomeration within basic economic activities such as trade, manufacturing, and services, where cities, especially African cities, can contribute to the prosperity and growth of the national economy.

2. **Linking workers to firms**:

This means providing skilled and specialized labor suitable for companies and factories in the new cities, as companies will be attracted to areas where there are a large number of workers with specialized skills relevant to their industry such as designers, engineers and consultants. Improvements in transport and service infrastructure as well as land use are essential to connect workers and modern facilities (Collier and Venables, 2017).

3. **Connecting firms to markets**:

This goal depends on the ease of access of products and services to markets, depending on good infrastructure, and the increase in logistics services, represented by the lower costs of import and export logistics, Delivery of inputs in a timely manner, at high speed to the market. What contributes to increasing value and growth .

XVIII. The relationship between urbanization and Sustainable Development (SD) in Africa:

Urbanization can be an important driver of Africa's sustainable development. There are main channels through which urbanization can accelerate economic, social and environmental development, as well as the policy options to seize those opportunities for structural transformation. Good practices in Africa highlight the need for place-based and participative policies to develop more sustainable cities [4] .

Furthermore ,Urbanization affects sustainable development in two ways, the first is tangible, represented in the tangible value of sustainable urbanization through the creation of new urban formations that will bring about changes in the size and shape of institutions at the urban, metropolitan and regional levels, and another intangible is represented in the intangible values on which institutions are based, such as effective governance systems and urban culture, all of which facilitate a sense of belonging and collective values among city dwellers, and sustainable urbanization requires effective institutions of a formal nature (constitution, laws and regulations), and other informal (social norms, customs and traditions) capable of supporting policies and programs that enhance the social value of cities and make them livable For all (World Cities Report 2020, p p :166-167) .

Table (3) Contributions of urban-based sectors to GDP and land use, 2015

[4] https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEO_2016_Report_Full_English.pdf

	Developed regions	Ex-transition country	Asia	Latin America and the Caribbean	Oceania	Africa
Industry and services in (GDP)%	92.5	85.2	87.3	85.4	70.7	80.7
Urban land in total land (%)	5.3	1.6	4.2	2.4	10.1	1.1
Industry and services GDP (US $) / urban population	48.244	28.514	20.162	15.978	10.387	9.436

Source: united nation 2018 b, 2019d.

In Africa, significant efforts have been made towards the development of local plans and strategies aligned with the SDGs in countries such as Egypt, Benin, Kenya, Rwanda, South Africa and Togo, to increase local government capacities to effectively adapt the SDGs to local contexts, and promote the alignment of local plans with national strategies and the SDGs (World Cities Report 2020, p:210).

XIX. **Data and method**:

The researcher relied on the data received from the World Bank during the period (1990-2020) for Egypt and South Africa, in order to analyze the impact of urbanization indicators represented in the urban population, and the urbanization rate on sustainable development indicators, which are the average per capita GDP at constant prices, age Expected at birth, the average per capita carbon emissions, but before that, the stability of the time series is first verified using the EVIEWS 12 program, to determine the type of appropriate test, and the data were as follows:

Table (4) urban & sustainable development indicators of south (AZF) (1990-2020)

year	Urban population	Urban population	Urban population	Population in the	GDP growth	GDP per capita, PPP	CO2 emissions	Life expectancy
1990	19149880	3.42	54.29	11.2534	-0.32	6059.8	6.730	63.3
1991	19822818	3.45	54.72	11.1308	-1.02	5852.0	6.425	63.4
1992	20511179	3.41	55.22	11.0394	-2.14	5585.8	6.175	63.2
1993	21212381	3.36	55.69	10.9536	1.23	5517.5	6.218	62.9
1994	21906216	3.22	56.15	10.8844	3.20	5563.5	6.213	62.3
1995	22576689	3.01	56.64	10.8378	3.10	5615.3	6.376	61.6
1996	23218614	2.80	57.14	11.0082	4.30	5745.1	6.486	60.6
1997	23836114	2.62	57.63	11.2284	2.60	5792.1	6.721	59.5
1998	24431487	2.47	58.15	11.4366	0.50	5728.5	6.788	58.3
1999	25011820	2.35	58.67	11.6627	2.40	5779.2	6.281	57.1
2000	25582582	2.26	59.20	11.9048	4.20	5937.6	6.332	56.0
2001	26143327	2.17	59.74	12.1611	2.70	6017.2	7.035	55.1
2002	26720456	2.18	60.31	12.3220	3.70	6161.5	7.181	54.3
2003	27305505	2.17	60.87	12.4487	2.95	6266.0	7.558	53.7
2004	27898739	2.15	61.39	12.5794	4.55	6472.1	8.035	53.4
2005	28506191	2.15	61.87	12.7097	5.28	6729.8	7.887	53.4
2006	29131015	2.17	62.34	12.8401	5.60	7017.7	7.828	53.8
2007	29774437	2.18	62.81	12.9697	5.36	7299.0	8.080	54.5
2008	30442138	2.22	63.28	13.0969	3.19	7432.1	8.569	55.4
2009	31137755	2.26	63.76	13.2186	-1.54	7216.7	8.004	56.5
2010	31866173	2.31	64.23	13.3350	3.04	7328.6	8.300	57.7
2011	32630279	2.37	62.746	13.4447	3.28	7454.8	7.867	58.9
2012	33428280	2.42	63.272	13.5496	2.21	7500.2	8.077	60.1
2013	34248628	2.42	63.793	13.6542	2.49	7564.3	8.137	61.1
2014	35078456	2.39	64.312	13.7638	1.85	7582.9	8.213	62.0
2015	35905875	2.33	64.828	13.8830	1.19	7556.8	7.671	62.6
2016	36726640	2.26	65.341	14.0131	0.40	7476.1	7.564	63.2
2017	37540921	2.19	65.85	14.1541	1.41	7475.2	7.633	63.5
2018	38348227	2.13	66.355	14.3057	0.79	7432.0	7.497	63.9
2019	39149715	2.07	66.856	14.3938	0.15	7346.0		64.1
2020	39946775	2.02	67.354	14.4761	-6.96	6748.2		

Source: **https://data.worldbank.org/** Data. Country **.ZAF/En**

Table (5) urban & sustainable development indicators of Egypt (EGY) (1990-2020)

	Urban population	Urban population growth	Urban population (% of total	Population in the largest city	GDP growth (annual	GDP per capita, PPP (constant	CO2 emissions (metric	Life expectancy at birth,
1990	24406148	2.12	43.48	40.53	5.67	1557.6	1.547	64.6
1991	24890672	1.97	43.35	41.28	1.13	1539.7	1.557	65.0
1992	25351103	1.83	43.21	42.10	4.47	1574.5	1.573	65.4
1993	25795988	1.74	43.08	42.98	2.90	1587.3	1.534	65.8
1994	26238204	1.70	42.95	43.89	3.97	1617.6	1.415	66.3
1995	26687689	1.70	42.81	44.82	4.64	1659.0	1.474	66.8
1996	27145813	1.70	42.68	45.77	4.99	1707.1	1.522	67.2
1997	27681744	1.96	42.66	46.14	5.49	1765.0	1.602	67.7
1998	28270159	2.10	42.70	46.16	5.58	1826.6	1.651	68.1
1999	28862915	2.08	42.75	46.20	6.05	1899.5	1.698	68.4
2000	29457843	2.04	42.80	46.25	6.37	1981.8	1.640	68.6
2001	30055505	2.01	42.84	46.32	3.54	2013.3	1.782	68.8
2002	30659221	1.99	42.89	46.40	2.39	2023.0	1.787	69.0
2003	31267887	1.97	42.94	46.48	3.19	2049.1	1.802	69.1
2004	31879899	1.94	42.98	46.58	4.09	2094.3	1.924	69.3
2005	32495529	1.91	43.03	46.70	4.47	2148.8	2.126	69.4
2006	33111796	1.88	43.07	46.82	6.84	2255.5	2.200	69.6
2007	33700834	1.76	43.08	47.01	7.09	2373.4	2.329	69.8
2008	34289704	1.73	43.06	47.21	7.16	2498.4	2.375	70.0
2009	34919602	1.82	43.04	47.36	4.67	2566.9	2.409	70.2
2010	35603060	1.94	43.02	47.47	5.15	2646.0	2.374	70.3
2011	36347578	2.07	43.00	47.50	1.76	2636.3	2.385	70.5
2012	37114895	2.09	42.95	47.54	2.23	2636.0	2.458	70.7
2013	37919407	2.14	42.89	47.54	2.19	2633.2	2.380	70.9
2014	38737024	2.13	42.84	47.55	2.92	2649.4	2.396	71.1
2015	39551545	2.08	42.79	47.58	4.37	2704.9	2.444	71.3
2016	40359122	2.02	42.73	47.65	4.35	2762.6	2.477	71.5
2017	41185808	2.03	42.71	47.71	4.18	2818.5	2.475	71.7
2018	42030815	2.03	42.70	47.76	5.31	2908.6	2.502	71.8
2019	42895825	2.04	42.73	47.76	5.56	3010.2		72.0
2020	43781728	2.04	42.78	47.74	3.57	3058.3		

Source: https://data.worldbank.org/ Data. Country **.EGY/En**

The area of the Arab Republic of Egypt is 1,001.5 million square meters, which is close to the area of South Africa, which has an area of 1,219.1 million square kilometers. However, the population of Egypt exceeds the population of South Africa, where The population of Egypt reached 56.13 million people in 1990 , of which the urban population represented 24,406,148 people in 1990, which represented 43.48% of the total population, while their number increased to reach 102.33 million in 2020, and the urban population of them represented 4,3781,728 people, which represented 42.78% Of the total population, the percentage of the population of large cities in Egypt such as Cairo, Alexandria and other cities represented 40.53% of the total population in 1990, and their percentage increased to 47.74% of the total population in 2020 .

While The population of South Africa reached 36.80 million people in 1990, and its urban population represented 19149,880 people in 19905, which represented 54.29% of the total population, then increased to 59.31 million people in 20201, and its urban population represented 399,46775 people in 2020. It represents 67.354% of the total population, and the proportion of the population of large cities in South Africa such as Johannesburg and other cities represented 11.25% of the total population in 1990, and their percentage increased to 14.47% of the total population in 2020[6].

It is clear from the data table (4&5) despite the increase in urbanization rates in Africa than in Egypt, where the urbanization rate reached 3.42% in 1990, then it became 2.02% in 2020 in South Africa, while it was 2.12% in 1990, then it became 2.04% In 2020 in Egypt, however, urbanization in South Africa does not have a real impact on economic growth, as the growth rates of the GDP in it are lower than their counterparts in Egypt, where the growth rate of the gross domestic product reached -0.32% in 1990, then it became -6.96% in 2020 In South Africa, while it was 5.67% in 1990, then it became 3.57% in 2020 in Egypt, and

[5] https://databank.worldbank.org/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=ZAF

[6] : https://data.worldbank.org/ Data. Country .ZAF/En

therefore South Africa must move towards urbanization driven by industrialization and increase government spending to develop roads and infrastructure, to take advantage of the advantages of urbanization in achieving sustainable development .

Urbanization is closely related to the expansion of industrialization, and this can be seen by analyzing the relationship between the level of urbanization, and the average share of manufacturing industries in GDP, and we see South Africa the opposite, where with African economies reaching 60 percent of urbanization, their share of manufacturing in GDP the total remains constant at around 10 percent, which is called urbanization without an industry. (Lall et al,2017).

Table (6) Dependent and independent variables

independent variables (urbanization variables)	
Urbanization level(x1)	is the ratio of urban to total population
Urban population(x2)	refers to people living in urban areas, as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects.
Dependent variables (Sustainable development variables)	
GDP per capita (y1)	gross domestic product with fixed prices divided by number of populations.
CO2 emissions (metric tons per capita) (y2)	carbon emissions per capita are measured as the total amount of carbon dioxide emitted by the country as a consequence of all relevant human, emissions are expressed in metric tons of carbon per Capita.
Life expectancy at birth, total (y3)	indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

Stationary Tests:

The Augmented Dickey-Fuller (ADF) , Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests will be used to determine the degree of integration of the variables, and after performing the Unit Root Tests to determine whether the time series of the variable data is stationary or not, to avoid the problem of Superior Regression, where the value of R^2 is higher than the true, and the results of the tests are The significance of F, T is significant and it is incorrect, because the results of the quality of the equation's fit are true only in the case of normal distribution, mean stability and variance. according to that analysis, it becomes clear to us that the time series are stable at the level (I_0) and at the first difference (I_1), which prompts us to use the ARDL test.

Table (7) stationary of time series data for variables (ADF) and (KPSS) analysis for South Africa (1990-

Var.	Augmented Dickey–Fuller						) KPSS(			
	level			First difference			level		first difference	
	interce pt	intercep t &trend	none	intercept	intercep t& trend	none	intercept	intercept & trend	intercept	intercept & trend
X1(u.l)	-0.8071	-1.85101	6.407873	-5.330561	-5.29324	-1.61753	0.727094	0.143113	0.116839	0.074389
X2(u.p)	3.85992	-0.76931	3.393495	-2.365904	-4.86477	0.04061	0.733322	0.176676	0.444362	0.147404
Y1(GDP)	-1.6668	0.153768	-0.21	-1.436111	-1.35055	-1.54178	0.611793	0.116174	0.236469	0.210167
Y2(co_2)	1.1717	1.47419	0.33450	-5.477013	-5.47202	-5.49215	0.520663	0.128847	0.166820	0.141549
Y3(age)	-0.2971	-0.87737	0.736389	-4.519058	-6.08151	-4.54180	0.182086	0.180401	0.415280	0.099151
	critical values (tabular)									
1%	3.689194	-4.339	-2.754	-3.699871	-4.33933	-2.65340	0.739000	0.216000	0.739000	0.216000
5%	2.971853	-3.587	-1.970	-2.976263	-3.58752	-1.95385	0.463000	0.146000	0.463000	0.146000
10%	٢,٦٢٥ ١٢١-	-3.229	-1.603	-2.627420	-3.22923	-1.60957	0.347000	0.119000	0.347000	0.119000

*** is stable at 1%, * * is stable at 5%, *** is stable at 10%**

Unit root tests The starting tests that study the inactivity of functional chains as an initial step towards analyzing the regression relationship between independent and dependent variables, and testing the inactivity of a functional series to temporary chains, due to the phenomenon of "pseudo-regression" phenomenon of "pseudo-regression" pseudo-regression Where the model variables are not fixed in their levels, then this data is used in the model parameters, hence the results are preferred or spurious, which is deferred (1974) Newbold, Granger .The tests were tested in three stages:

1. Fixed limit phase without intersection time trend.
2. Fixed-limit phase and time-trend direction and intercept.
3. Phase without constant and time trend without.

Table (8) stationary of time series data for variables (ADF) and (KPSS) analysis for Egypt (1990- 2020

Var.	Augmented Dickey–Fuller						(KPSS)			
	level			First difference			level		first difference	
	intercept	intercept &trend	none	intercept	intercept & trend	none	intercept	intercept & trend	intercept	intercept& trend
X1(u.l)	-4.77784	-4.941458	0.047874	-2.335581	-2.268134	-2.563355	0.203616	0.091190	0.20422	0.132439
X2(up)	3.447613	1.037174	3.154564	-0.748024	-3.324086	1.587231	0.729832	0.194449	0.669750	0.089679
Y1(GD P)	4.258535	1.908035	4.178179	1.255173	-2.228129	2.67	0.549	0.192226	** 0.635	0.109380
Y2(co_2)	-1.343973	0.196129	0.431256	-1.783560	-4.128976	-1.713514	*** 0.43	0.138950	0.219636	0.162974
Y3(age)	-4.420*	5.09780	2.517191	-2.200551	-3.391478	-0.541478	0.567913	0.141768	0.271695	0.098093
	critical values (tabular)									
1%	-3.959	-4.728	-2.728	-4.004	-4.800	-2.740	0.739	0.216	0.739	0.216
5%	-3.018	-3.759	-1.966	-3.098	-3.971	-1.960	0.463	0.146	0.463	0.146
10%	-2.681	-3.329	-1.605	-2.690	-3.342	-1.604	0.347	0.119	0.347	0.119

*** is stable at 1%, * * is stable at 5%, *** is stable at 10%**

The researcher conducted the ARDL test in order to determine the co-integration between the independent and dependent variables in both Egypt and South Africa, where the urban population and the urbanization rate express the independent variables, while the variables (per capita GDP at constant prices, life expectancy at birth, and the share of per capita carbon emissions) for the dependent variables, which represent indicators of sustainable development.

XX. Results:

The researcher tested the relationship between the independent variables represented in the level of urbanization, and the dependent variables represented in the indicators of sustainable development in both Egypt and south Africa both short and long run, and the result showed:

First: Measuring the impact of urbanization indicators on indicators of sustainable development in Egypt:

1. Measuring the impact of urbanization indicators represented in the urban population, the urbanization percentage on the average per capita GDP at constant prices.

The results showed that:

In the short run, initial test showed that there is a significant relationship between the average per capita GDP and the urbanization indicators, where the value of R2 reached 99%, which means that the urbanization indicators in Egypt explain 99% of the changes in the average per capita GDP at constant prices. The Durbin-Watson statistic was 2.181554, and the F value = 2440.226.

Then, the Bounds test (ARDL Long Run Form and Bounds Test) showed a co-integration between the dependent variable and the independent variables, where the value of F = 4.650883, which is significant at the level of 2.5%, which leads us to reject the null hypothesis and accept the alternative hypothesis, which states that there is a cointegration between urbanization and economic growth It is expressed as the average per capita GDP at constant prices.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob(F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the absence of error variance. And the absence of problems with the remaining unfounded morale.

2. **Measuring the impact of urbanization indicators represented in the urban population, urbanization percentage on life expectancy at birth.**

The results resulted in the following:

In the short run, the initial test showed that there is a strong significant relationship between the life expectancy at birth and the urbanization indicators, where the value of R2 reached 99%, which means that the urbanization indicators in Egypt explain 99% of the changes in the life expectancy at birth, and the statistical value reached Durbin-Watson = 2.739274, the value of F = 1538945.at significant 1%.

Then, the Bounds test (ARDL Long Run Form and Bounds Test) showed the existence of a cointegration between the dependent variable and the independent variables, where the equation of the long run Bounds test was

EC = AGE - (0.0000*UP -0.2387*UPC + 74.5788)

The value of F = 14.32037, which is significant at the level of 1%, because it greater than all values of Bound I_1, that leads us to reject the null hypothesis and accept the alternative hypothesis, which states that there is a co- integration between urbanization and the social dimension of sustainable development, which is expressed in the life expectancy at birth.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob(F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the absence of error variance. And the absence of problems with the remaining unfounded morale.

3. **Measuring the impact of urbanization indicators represented in the urban population, the urbanization percentage on the average per capita share of carbon emissions.**

In the short run, the initial test showed that there is a significant relationship between the average per capita carbon emissions and the urbanization indicators, where the value of R2 reached 63%, which means

that the urbanization indicators in Egypt explain 63% of the changes in the average per capita carbon emissions.

, as the statistical value reached Durbin-Watson = 3.289370, and the F value = 2440.226.

Then, the bounds test (ARDL Long Run Form and Bounds Test) showed the existence of a co-integration between the dependent variable and the independent variables, where the equation of the long-term boundary test was

EC = CO2 - (0.0000 * UP + 0.0120 * UPC - 10.2438)

The value of F = 8.052284, which is significant at the level of 1%, leads us to reject the null hypothesis and accept the alternative hypothesis, which states that there is a cointegration between urbanization and development in its environmental aspect, which is expressed in the average per capita carbon emissions.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob(F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the existence of error variance. And the presence of problems with the remaining morale. through the equation

CointEq(-1)* -0.042769 0.006610 -6.470848 0.0001

Which prompts us to measure the stability of errors by testing Method: Least Squares Which showed the stability of the results.

Second: Measuring the impact of urbanization indicators on indicators of sustainable development in South Africa:

1. **Measuring the impact of urbanization indicators represented in the urban population, the urbanization percentage on the average per capita GDP at constant prices**.

The results showed that:

In the short run, the initial test showed that there is a significant relationship between the average per capita GDP and the urbanization indicators, where the value of R^2 reached 96%, which means that the

urbanization indicators in Egypt explain 96% of the changes in the average per capita GDP at constant prices. The Durbin-Watson statistic was 2.181554, and the F value = 2440.226

Although, there is a significant relationship between urbanization and GDP per capita, the Bounds test (ARDL Long Run Form and Bounds Test) showed a co-integration between the dependent variable and the independent variables, where the value of F = 2.553414, It is less than (Bound I0), which indicates the acceptance of the null hypothesis that there is no co-integration relationship between urbanization indicators and per capita GDP at constant prices.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob (F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the absence of error variance. And the absence of problems with the remaining unfounded morale.

2. **Measuring the impact of urbanization indicators represented in the urban population, urbanization percentage on life expectancy at birth.**

The results resulted in the following:

In the short run, the initial test showed that there is a significant relationship between the life expectancy at birth and the urbanization indicators, where the value of R2 reached 99% , which means that the urbanization indicators in Egypt explain 99% of the changes in the life expectancy at birth, and the statistical value reached Durbin-Watson = 3.289370, the value of F = 2440.226.

Then, the Bounds test (ARDL Long Run Form and Bounds Test) showed the existence of a co-integration between the dependent variable and the independent variables, where the equation of the long run Bounds test was

EC = age _ - (-0.0000*UP +1.1416*UPC - 0.3433)

The value of F = 4.247114, which is greater than (Bound 1) at 5% significant, that leads us to reject the null hypothesis and accept the

alternative hypothesis, which states that there is a cointegration between urbanization and the social side of sustainable development, which is expressed in the life expectancy at birth.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob(F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the absence of error variance. And the absence of problems with the remaining unfounded morale.

3. **Measuring the impact of urbanization indicators represented in the urban population, the urbanization percentage on the average per capita share of carbon emissions.**

In the short run, the initial test showed that there is significant relationship between the average per capita carbon emissions and the urbanization indicators, where the value of R^2 reached 31%, which means that the urbanization indicators in Egypt explain 31% of the changes in the average per capita carbon emissions.

, as the statistical value reached Durbin-Watson = 2.47173, and the F value = 19.21414.

Then the bounds test (ARDL Long Run Form and Bounds Test) showed the existence of a co-integration between the dependent variable and the independent variables, where the equation of the long-term boundary test was

EC = CO2 - (-0.0000*UP + 0.6459*UPC - 24.3500)

The value of F = 5.651224, which is greater than (Bound 1) at 5% significant, that leads us to reject the null hypothesis and accept the alternative hypothesis, which states that there is co- integration between urbanization and development in its environmental aspect, which is expressed in the average per capita carbon emissions. Coefficient = -3.35E-07 because of the negative impact of urbanization on the average per capita share of carbon emissions.

As for the error correction methodology, the researcher conducted a Serial Correlation LM Test, which showed its insignificance, as the value of Prob(F-statistic) = 0.959587, which indicates error correction from the short to long term. The Heteroskedasticity Test: Breusch-Pagan-Godfrey confirmed the existence of error variance. And the presence of problems with the remaining morale. through the equation

CointEq(-1)* -0.042769 0.006610 -6.470848 0.0001

Which prompts us to measure the stability of errors by testing Method: Least Squares Which showed the stability of the results.

From the above, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is a significant relationship with statistical significance for the impact of urbanization on sustainable development in both Egypt and South Africa.

Recommendations:

1. The researcher recommends the necessity of relying on less air-polluting means of transportation in Egypt and South Africa, in accordance with the
2. Increasing the interest of South Africa in industrialization, innovation, and smart cities in order for urbanization to achieve the desired economic dimension.
3. When going to urbanization, it should rely on clear and planned strategies in order to benefit from the benefits of urbanization, and not rely on random plans. This is evident in the urbanization strategy in South Africa, which aims to civilize coastal cities without going into the continental mass of the country.
4. This is evident in the urbanization strategy in South Africa, which aims to civilize coastal cities without going into the continental mass of the country.

Conclusions:

It is clear from the above that urbanization (the level of urbanization, the number of urban residents) has a significant impact on the indicators of sustainable development in Egypt, which are (average per capita GDP at constant prices, life expectancy at birth, average per capita

carbon emissions) in its economic and social dimension. , and a significant but negative impact on the environmental side, which is the bad face of urbanization, as the per capita share of carbon emissions increases, and this indicates that carbon dioxide rates are increasing within urban cities, due to various economic activities, car exhaust, and transportation of goods and merchandise, and this effect explains The reverse of urbanization on the environment, i.e. a negative impact of urbanization on sustainable development in its environmental dimension.

While urbanization indicators have had a significant impact on both life expectancy at birth (sustainable development in its social dimension), and a negative impact on per capita carbon emissions (environmental aspect), but their significant impact on the average per capita GDP was not clear, which indicates However, urbanization in South Africa does not yield the desired fruits, because it does not tend to industrialization, but it involves more attention to the social aspect and the improvement of life .

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