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Urban Development and Impact on Sustainable Economic Development (The case of Albania)

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Abstract
The problematic urban sprawl has become a widespread phenomenon and a global problem, this is the reason why this research was done, to elaborate on a global problem that has also appeared in our country. A phenomenon that has more influenced the expansion of the main cities or capitals by creating industrial areas and residential areas far from the main city center. This uncontrolled urban expansion is a concern across the globe, because it has many negative effects such as: social, environmental and economic effects. According to these effects or impacts, sprawl without criteria demonstrates a threat to sustainable urban development, because it has an effect on the high consumption of land, energy and water and, above all, increases air pollution and the amount of waste. There are many factors that are affecting the growth of urban problems, but one of the main factors that dominates this trend is the migration of the population from undeveloped areas to developed urban areas, economic development, bad government policies. Tirana, the largest urban area in Albania, is the area most threatened by uncontrolled urban expansion in our country. This threat has taken off in recent years, turning into a very serious problem that needs to be analyzed and find ways to prevent this very negative phenomenon for the country. The best way to prevent uncontrolled urban expansion is proper urban planning, urban development and overcoming the consequences during rapid urban development. So the best solution to overcome uncontrolled urban sprawl is the development of sustainable urban forms, to achieve the development of a contemporary city.

Keywords: Urbanization; Environment; Economic growth

1. Introduction

This paper aims to find the relationship that exists between urbanization and the level of development in the economy. Davis and Henderson (2003) do a study to establish a relationship between urbanization and economic development. They managed to create a positive correlation between the logarithm of the Gross Domestic Product per capita and the level of urbanization, expressed as the percentage of the population living in urban areas. They also constructed a negative correlation between the level of urbanization and added value in agriculture as a percentage of the Gross Domestic Product. (p. 100). It was found that: Urbanization is driven by changes in agriculture, industry and modern services.

The relationship between urbanization, economic growth and the environment is very complex. Urbanization often occurs due to economic growth and population growth. But on the other hand,

urbanization and economic growth are accompanied by harmful consequences for the quality of the environment. Achieving urbanization and a sustainable economy is the focus of every government, especially of developing countries, making it the focus of many researchers in their research. (Zhao, Y.; Wang, S, 2015) More than half of the world's population lives in urban areas (World Economic Forum, 2022). Statistics show that the cities of developing countries have a faster population growth which comes as a result of the displacement of people from rural to urban areas. In developing countries, urbanization is closely related to industrialization and the growth of all economic sectors. This displacement is accompanied by insufficient infrastructure, which translates into high demands on governments for investments in urban infrastructure such as roads, water supply, public transport, urban waste management, energy needs, housing and employment. Some of the governments of developing countries have found themselves unprepared to meet these requirements and have made decisions to invest in a non-long-term and non-sustainable urban infrastructure, causing serious consequences for the environment and public health and thus harming sustainable development. (Venables, A., 2022) Government strategies for a healthy and sustainable urbanization that serve as a catalyst for economic growth, social inclusion and environmental sustainability are an urgent need for all developing countries. The studies show the relationship between urbanization and development, which were the basis of economic indicators, especially growth, as a measure for development. In conclusion, we can say that the relationship between urbanization and development is complicated, that development promotes urbanization and urbanization promotes development.

1.1. Urbanization in developing countries and sustainable development

One of the main challenges of urban development is to find a way to link economic growth with environmental sustainability. Urban development faces major challenges, such as climate change, exploitation of nature, pollution and poverty. Many developing countries have problems in their infrastructure, with large numbers of people living in harsh and unhealthy conditions. This can affect people's health and their quality of life in general. Meanwhile, the benefits of urban development may be irreversible if measures are not taken to manage environmental challenges, such as air and water pollution, and climate change (Fernandez, D. et al., 2020). One of the main challenges is water management in cities. Urban construction in developing countries has created major challenges for water management in cities. (Abdulrazzak, H. A., & Cheshmehzangi, A, 2015). In most cities in developing countries, there is no sustainable and integrated water management system, which can have negative consequences for human health and the environment.

Another challenge is the implementation of clean energy in cities. One of the main challenges of urban development is the use of clean energy in cities. (De Gregorio Hurtado, S., Nieto-Fuentes, R., & Sanchez-Fernandez, J, 2018). To achieve economic and environmental sustainability in cities, it is important to create clean environments and invest in clean technology. The challenge of urban transport: Urban transport is another challenge in the sustainable environmental-economic development of cities. Car transport in cities causes emissions of greenhouse gases and air pollution, causing health problems and a harmful impact on the environment. In this context, it is important that cities use sustainable transportation such as public transportation and car sharing services. (International Energy Agency.,2019) The challenge of urban land use: The use of urban land for construction and development has a major impact on the environment and can cause land degradation and increased air and water pollution. Building cities sustainably requires good land use planning and good waste management (World Bank, 2019).

Urbanization and economic growth are recently the two main topics of debate in the field of economic development in developing countries. Urbanization in developing countries is a very fast process, with a growth rate of 3.3% in the period 2015-2020 (United Nations, 2020). Urbanization helps increase productivity and economic development, but it also brings great challenges in the field of infrastructure and public services, especially in small and medium-sized cities (World Bank 2018). Urbanism in developing countries can be a chance for economic growth and poverty reduction if the right policies and necessary infrastructure are present (R. Kanbur, 2019)

1.2. Developing countries and urban planning

The concept of "urban planning for developing countries" is a sustainable approach to help developing countries improve their urban infrastructure, adapting to the challenges of climate change, population growth and societal changes. This concept places at the center of urban planning the improvement of the quality of life of citizens, aiming at reducing the negative impact of urban development on the natural environment and promoting sustainable economic and social development. Urban development in developing countries is a complex process that requires the interaction of many different factors. The implementation of the concept of sustainable development with the aim of sustainable and balanced economic, social and environmental urban development is one of the most urgent challenges of developing countries. (World Bank, 2016). Urban planning for developing countries should encourage the development of environmentally sustainable infrastructures that are designed and built in accordance with principles of environmental sustainability. These infrastructures can include (Guo, J. 2020): Sustainable transportation: Urban planning should encourage taking measures to reduce the use of private cars and promote public transportation, cycling and walking. This would help reduce air pollution, ease traffic and reduce transportation costs for citizens.

Water supply and waste water drainage: Urban planning must take care of the sustainable supply of clean water and the treatment of waste water. This may include the construction of a sustainable water supply and sewerage network, the use of recyclable water sources and improved sanitation to reduce pollution of natural waters and help protect local water resources.

Sustainable energy: Urban planning should encourage the use of sustainable energy sources, such as solar, wind and hydropower, to reduce the use of conventional energy sources that negatively affect the natural environment and climate.

Waste management and recycling: Urban planning for developing countries should take care of waste management and recycling in a sustainable manner. This may include

building infrastructure for turning waste into renewable sources and recirculating them, as well as promoting awareness and education about good waste management practices.

Sustainable construction: Urban planning should promote sustainable construction, using sustainable materials and environmentally friendly technologies. This may include the use of technologies and the promotion of sustainable architecture.

In general, the concept of "urban planning for developing countries" aims to help develop cities that are sustainable, safe and responsible to the environment and the local community. This requires holistic and appropriate approaches to the challenges of climate change, population growth and societal change

1.3. Economic growth in developing countries and urbanization

There are many studies and researches that have highlighted the link between urbanization and economic growth in developing countries. The contribution of this study compared to others is in the methodology used to analyze this relationship and its specific findings for Albania. Thus, this article is important to understand the relationship between pollution and economic growth in the Albanian context. In a study done by the World Bank (World Bank, 2020) it was found that urbanization has a significant impact on economic growth and the living conditions of residents in developing countries. This study concluded that a 10% increase in the urban population increases the Gross Domestic Product (GDP) by 0.5% per year. Urbanization and economic growth are two processes that mutually influence each other. Urbanization encourages economic development by creating opportunities for increased investment, job creation and impact on labor productivity. In this regard, urbanization can increase labor productivity by up to 7.5% in developing countries (Burke & Gong, 2016). On the other hand, economic growth can affect urbanization by creating new opportunities for employment and income growth (Joshua D. Gottlieb, 2016) There are several important factors in the urbanization-economic growth relationship, among which the most determining ones from the researchers of many of this field are: public investments, infrastructure development and urbanization policies. A key factor affecting urbanization and economic growth in developing countries is population growth. A developing country that has a large population growth has high demands for housing, food and other services necessary for daily living. Urbanization affects the reduction of production costs and the improvement of the efficiency of the economy, offering new business and service opportunities (Zhu&Li, 2018). Another factor that affects economic growth are investments in infrastructure, which affect the increase in production and the improvement of the efficiency of industries (Hanif et al., 2021). As shown in the 2019 World Bank report, countries that have built their infrastructure appropriately have had higher GDP growth and a lower poverty rate compared to those that have not. in infrastructure to be enough (World Bank 2019). This suggests that interventions in urban infrastructure can improve access to labor markets, reducing production costs and encouraging the development of other economic sectors. (World Bank, 2019)

1. Methodology

To explore the relationship between urbanization in Albania (UB), carbon CO2 emission as a measure of environmental pollution and GDP as a measure of economic growth, the analysis of this study will be based on time series data from 1990-2019. The period for which official data is available.

Table 1: Description and source of variables used

Variables	Description of Variables	Unit of Measurement	Spring
Carbon emissions	Carbon emissions per capita (CO_2)	Metric ton	World Bank
Economic Growth	GDP per capita (GDP)	USD	World Bank
Urbanization	Percentage of urbanization (UB)	%	World Bank

Source: Author

In this article, the research question was raised, on the basis of which the whole paper was conceived:
What are the main factors of carbon emission in Albania?

We will answer the research question by analyzing Albania's data on the long-term and short-term relationship between urbanization, economic growth as independent variables and carbon emissions as a

dependent variable. The analysis in this study uses the Autoregressive Distributed Lag (ARDL) model, which is commonly used to examine dynamic relationships between variables using time series data. The ARDL model allows the investigation of short-term and long-term dynamics between urbanization, economic growth and carbon emissions in Albania. The estimation and processing of the ARDL model in this study was performed using the Eviews statistical program. Also, for the evaluation of the model, the method of Simple Maximum (OLS) was used, which provides parameter estimates and statistical significance tests for the coefficients. Model diagnostics, such as checking for autocorrelation and heteroscedasticity, were performed to ensure the validity of the results.

Table 2: Descriptive statistics of Variables

	N	Minimum	Maximum	Mean	Std. Deviation
UB	30	141	2.543	1.34555	.551513
$CO2$ _	30	467	1,820	1.25082	.420987
GDP	30	201	5396	2575.84	1760.583
Valid N (listwise)	30				

Source: Author from Eviews 12

Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, also known as "unit root tests", are used to check the stationarity of the study variables. The ADF and PP test were introduced by Dickey and Fuller (1979) and Phillips and Perron (1988). The null hypothesis for both tests is that there is a unit root of non-stationarity in the level, while the alternative hypothesis is that there is no unit root of stationarity. The test of stationarity between two variables was presented by Granger (1981).

The equation for the ADF test (Mushtaq, R., 2011) is as follows:

Ayt = a + ^t + yyt-1 + S1Ayt-1 + ...+ SpAyt-p + st (1)

Ayt represents the transformed series (first transformation of the original series), t is a time trend, a is a constant term, ^ is a coefficient on the time trend, y is a coefficient on yt-1, and st is an error term. The Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests are both commonly used to test for unit root and stationarity in time series analysis. The null hypothesis of both tests is that there is a unit root of non-stationarity in the level, while the alternative hypothesis is that there is no unit root of stationarity.

2. Empirical results

Table 3 shows the time series that were level-stationary, first-degree stationary, or second-degree stationary using the ADF test. These variables were then used for parametric estimation of the multiple regression model of carbon emissions in Albania.

Table 3: Results of the unit root test

Variables	LEVEL	First difference	Second difference
	Prob.	Prob.	Prob.
Augmented Dickey Fuller			
something 2	0.7873	0.002	
Philip Perron			
$CO2$ _	0.0006	0.0144	

Source: Author from Eviews 12

To ensure that there are enough degrees of freedom to estimate the model coefficients with sufficient precision, it may be necessary to choose the maximum acceptable lag order p * carefully. This is particularly important when the number of observations in the data set (T) is relatively small and/or the number of variables in xt (K) is relatively large.

Table 4: Estimation of optimal moisture

wet	LogL	LR	FPE	AIC	SC	HQ
0	-242.15	N/A	8080.59	17.51	17.65	17.55
1	-176.69	112.20	144.10	13.47	14.04	13.65
2	-170.35	9.50	178.95	13.66	14.66	13.97

Source: Author from Eviews 12

Për gjetjen e modelit të duhur analitik duhet të përcaktonim nivelin e lags optimale që duhet të përfshihen në model. Duke vlerësuar kriteret statistikore relevante, ne arritëm në përfundimin se lagu optimal është = 1 (shih Tabela 4). Sipas analizës empirike të modelit të regresionit të shumëfishtë të situatës shqiptare, ne identifikojmë marrëdhëniet midis variablave të varura urbanizimi (CO2) dhe variablave të pavarura (me lagje = 1), siç tregohet në Tabelën 5.

Table 5: Parametric estimation of the model
Dependent Variable: CO 2
Method: ARLD
Date: 04/22/23 Time: 10:31
Sample (adjusted): 1993-2019
Included observation: 27 after adjustment
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (3 lags, automatic): UB PBB

Fixed regressor: C
Number of models evaluated: 32
Selection Model ARDL(2,0,3)

Variable	Coefficent	Std.Error	t-Statistic	Prob.*
CO_2(-1)	0.82	0.18	4.51	0.0002
CO_2(-2)	-0.25	0.13	-1.91	0.07
UB	0.12	0.06	1.98	0.06
GDP	0.00014	7.03	2.01	0.05
GDP(-1)	-0.00013	0.0001	-1.34	0.19
GDP(-2)	-5.91	0.0001	-0.56	0.57
GDP(-3)	0.00013	6.73	1.94	0.06
C	0.19	0.08	2.19	0.04
R-Squared	0.95	Mean dependent Var		1.25
Adjusted R-Squared	0.94	SD dependent Var		0.41
SEof regression	0.09	Akaike info criterion		-1.54
Sum squared resid	0.18	Schwarz criterion		-1.16
Log likelihood	28.8	Hannan-Quinn criterion		-1.42
F-Statistic	62.6	Durbin-Watson Stat		1.69
Prob(F-Statistic)	0.00			

Note: p-value and any subsequent test will not account for model selection.
Source: Author from Eviews 12

The general ARDL model for the relationship between carbon emissions, GDP per capita, and the percentage of urbanization can be expressed as: CO2 = 0.8285 CO2(1) - 0.2574CO2(-2) + 0.1210 UB + 0.000141GDP - 0.000137PBB1 - 5.91 GDP(-2) + 0.000131*GDP(- 3) + 0.192410 + g
The interpretation of the coefficients is as follows:
--CO2 (-1): The coefficient of 0.8285 means that a 1% increase in carbon emissions in the previous period leads to a 0.8285% increase in carbon emissions in the current period. The t-statistic of -4.1501 and the probability of 0.0002 suggest that this coefficient is statistically at the 5% level.
--CO2 (-2): The coefficient of -0.2574 means that a 1% increase in carbon emissions two periods ago leads to a 0.2574% decrease in carbon emissions in the current period. The t-statistic of -1.9109 and the probability of 0.0712 suggest that this coefficient is not statistically at the 5% level.
--UB: The coefficient of - 0.1210 means that a 1% increase in the urbanization rate leads to a 0.1210% decrease in carbon emissions. The t-statistic of -1.9815 and the probability of 0.0622 suggest that this coefficient is not statistically at the 5% level.
--GDP: The coefficient of 0.000141 means that a 1% increase in GDP per capita leads to a 0.000141% increase in carbon emissions. The t-statistic of 2.01084 and the probability of 0.0588 suggest that this coefficient is not statistically at the 5% level.
--GDP (-1), GDP (-2), GDP (-3): The coefficients of the lagged GDP variables represent the impact of

past economic growth on current carbon emissions. The GDP coefficient (-1) indicates that a 1% increase in GDP per capita in the previous period leads to a 0.000137% increase in carbon emissions in the current period. The t-statistic of -1.3452 and the probability of 0.1944 suggest that this coefficient is not statistically significant at the 5% level. The coefficients of GDP (-2) and GDP (-3) are negative but not statistically significant, indicating that economic growth in the more distant past does not have a significant impact on current carbon emissions.

--Constant: The coefficient of 0.192410 represents the intercept of the model, which implies that if all independent variables are equal to zero, the predicted value of carbon emissions would be 0.192410 metric tons per capita. The t-statistic of 2.194639 and the probability of 0.0408 suggest that this coefficient is statistically significant at the 5% level.

4. Conclusions and recommendations

This paper aimed to explore the relationship between urbanization, economic growth and environmental impact in Albania. The rapid pace of urbanization in recent decades has raised concerns about potential consequences on carbon emissions and the overall sustainability of the country's development. Therefore, it was important to investigate the long-term and short-term dynamics between urbanization, economic growth and carbon emissions using the auto-regressive distributed lag (ARDL) model. By analyzing data series from 1990 to 2019, this study provides valuable insights into the interaction between urban development, economic progress and environmental sustainability in Albania. Urbanism has a negative impact on carbon emissions. The coefficient of -0.1210 suggests that a 1% increase in the urbanization rate leads to a 0.1210% decrease in carbon emissions. Moreover, the findings of this study suggest that in the absence of an emitting industry, urbanization alone cannot necessarily lead to significant economic growth. While urbanization can create opportunities for economic development through increased productivity, job creation and agglomeration effects, the presence of emitting industries plays a crucial role in driving economic growth and carbon emissions. This is consistent with similar findings in the literature. For example, studies by Zhu and Li (2018) in China and Hanif et al. (2021) in Pakistan have also highlighted the importance of industrial development and infrastructure investment in driving economic growth. These studies emphasize that urbanization must be accompanied by the presence of emitting industries and appropriate policies to fully exploit its potential for economic development and environmental sustainability. It is therefore essential that policy makers in Albania take into consideration the industrial composition and development of intensive emission sectors when formulating urbanization strategies and promoting sustainable economic growth. Economic growth in the previous period has a positive impact on carbon emissions in the current period. The coefficients of GDP (-1) and CO2 (-1) show that a 1% increase in GDP per capita and carbon emissions in the previous period leads to an increase of 0.000137% and 0.8285% in emissions of carbon in the current period, respectively. Sustainable environmental-economic growth therefore requires a balance between economic growth and the reduction of carbon emissions. The impact of past economic growth on current carbon emissions is not statistically significant. The coefficients of GDP (-2) and GDP (-3) are negative, but not statistically significant, indicating that economic growth in the distant past has no significant impact on current carbon emissions. Therefore, sustainable environmental-economic growth requires focus on the present and the near future. We concluded that urbanization can function as an effect variable, acting as a means of transferring pollution through economic growth. However, we recommend the inclusion of a variable such as environmental awareness or policy makers' measures to deal with pollution, which may be one of the

limitations of this study. By including these additional variables in the analysis it will be possible to better understand how urbanization and economic growth are related to pollution and interact with each other. Overall, the ARDL model suggests that sustainable environmental-economic growth requires policies that promote sustainable urban development and balance between economic growth and carbon emissions reduction. Policy makers should therefore prioritize investments in sustainable urban infrastructure and renewable energy sources to promote sustainable environmental-economic growth.

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