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The Influence of Urbanization on Environmental, Economic, and Social Performance

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Abstract

The phenomenon of urbanization continues to increase in Indonesia. Urbanization can have both positive and negative influences. The higher urban population will push many industries, but environmental issues also potentially increase. On the other hand, more density leads to increased competition for work, which potentially increases crime. As a result, this study intends to investigate how urbanization affects Indonesia's environmental, economic, and social performance. The study employed a quantitative technique utilizing panel data from 33 Indonesian provinces for the years 2010, 2015, and 2020, which was then evaluated using the structural equation-partial least square model on SmartPLS 3.0. The findings revealed that urbanization had a significant negative effect on the environmental quality index. Meanwhile, urbanization had a significant positive effect on gross regional domestic product and the number of victims of theft. It can be concluded that urbanization encouraged economic improvement, but had the potential to worsen environmental conditions and crime. Thus, to reduce the negative impact on the environment, the government needs to emphasize the use of environmentally friendly fuels to the public. Also, implementing requirements for residents who will carry out urbanization to have skills that can be absorbed by the world of work.

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INTRODUCTION

The process of moving people from rural to urban areas (urbanization) at the same time that the country's economic and social structure, as well as its production methods and way of life, are changing significantly (Song et al., 2018). Urbanization reflects the disparity in the rate of growth and uneven development of facilities from one region to another (Hidayati, 2021). According to Hari Mardiansjah & Rahayu (2019), Indonesian cities need to expand their urbanization and growth processes to other regions, including archipelagic areas with relatively low urbanization rates and city growth rates. Urbanization in Indonesia is still largely concentrated on the island of Java, particularly in the West, where high urbanization rates and concentrated urban growth are a problem.

City is a strategic location, an urbanization destination, where every resident is looking for work to improve welfare (Sembiring & Bangun, 2021). According to Jedwab et al., (2017) concentrating on rural causes (agricultural modernization and rural poverty) and urban pull factors are some of the reasons that lead to urbanization (industrialization and urban-oriented policies). Economic development and urban development policies have increased the attractiveness of cities through more employment opportunities and easier access to energy, information and technology (Agung et al., 2017).

Population growth in urban areas can be attributed to demographic conditions, namely birth rates, mortality rates and migration. Furthermore, in relation to population, migration flows have a large role as a factor in accelerating the urbanization process (Hidayati, 2021). Figure 1 shows that the proportion of Indonesia's citizens living in urban areas has increased during the past ten years.

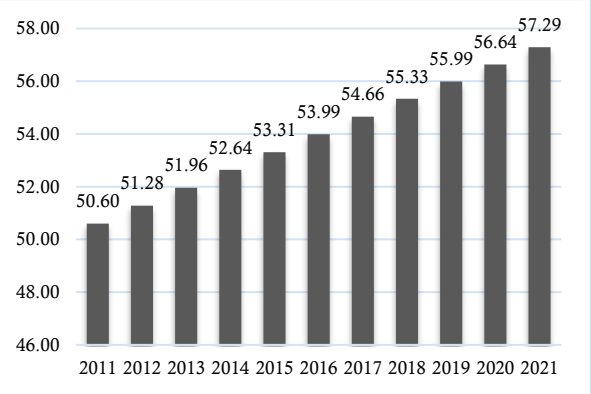

Figure 1. Indonesia's Urban Population Percentage Throughout the Previous 10 Years (2011-2021)

Source: World Bank, 2022

According to Pujiati et al., (2015) urban growth can be of positive value as long as residents who move to the city have certain skills and are suitable for urban economic activities or even create good jobs in the city. But if not, it will only cause external losses, both environmental, social, economic, political, and security. Environmental deterioration due to urbanization has been connected, both developing and developed nations (Rehman et al., 2022). With urbanization, increasing infrastructure development is better so that it can attract foreign investors, which in turn can increase or decrease environmental deteriorate (Pujiati et al., 2023). Song et al., (2018) explained that urbanization has a great effect on increasing pollutant emissions. It is known that industrialization and urbanization directly increase environmental pollution (Raheem & Ogebe, 2017). Pollutant emissions grow as a result of increasing production and production type changes during the urbanization process, including the transition from agricultural to industrial and commercial or infrastructure construction activities (Song et al., 2018). Pollutant emissions are a representation of poor air quality in a country. In Indonesia, poor air quality has the potential to reduce the overall environmental quality measure (Environmental Quality Index).

This is reinforced by several studies that also reveal that urbanization has a positive effect on CO^2 emissions and increases environmental degradation (Agung et al., 2017; Raheem & Ogebe, 2017; Helda et al., 2018; Hao et al., 2020; Khan et al., 2021). Another study from J. Sun et al., (2023) also showed how urbanization affected the environment, but the study's findings using a proxy Environmental Quality Index show that the more urbanized a region is, the poorer the environmental quality is (low). Nonetheless, the outcomes of studies by Rehman et al., (2022) declared that during the analysis, changes in urbanization found a negative correlation with CO^2 emissions. Similar findings were also put forward by Leitão & Shahbaz (2013) who asserted that urbanization improves environmental quality by reducing CO^2 emissions. Reduced growth in carbon emissions during urbanization can occur when improvement of public services characterized by the development of education and culture, while urbanization and economic expansion might cause a rise in carbon emissions (Ding et al., 2021).

The issue of the relationship of urbanization with the environment has been researched by many people. By using various analytical tools and implementing the STIRPAT model which is a development of IPAT and incorporates EKC theory, according to the study's findings, urbanization and environmental conditions as measured by carbon emissions have an inverse U connection (Abdallh & Abugamos, 2017; Zhang et al., 2017; Liang & Yang, 2019; Gierałtowska et al., 2022; Li et al., 2022). But, the latest research, according to Pujiati et al., (2023), demonstrates that using the ARDL analytic technique, both the short- and long-term urbanization variables have no effect on CO^2 emissions.

Next, along with the increasing urbanization, it can be seen that economic growth in Indonesia has also increased. This is similar to Ullah & Uddin (2021) research which states that urbanization and economic growth occur simultaneously in developing countries (Bangladesh). The underlying premise is that as metropolitan populations grow, so does the need for essential services there. Job creation is also boosted by population expansion. The increase in labor absorption will encourage an increase in tax revenues so that it contributes more to economic growth (Pradhan et al., 2021).

Arthur Lewis (1954) explained the relationship of urbanization with the economy, starting with the process of economic development that occurs when capital accumulates because surplus labor moves from the subsistence sector to the capitalist sector. The main problem that drives the process is the traditional sector with low productivity and abundant labor sources, while the modern sector has high productivity so that it acts as a source of capital accumulation (Todaro & Smith, 2003). Lewis's two-sector model states that agricultural entities initially experience a marginal product of zero labor, meaning that the addition of the last unit of labor does not increase agricultural production. This means that several forms of work can be transferred to the industrial sector without affecting agricultural production. This process of growth continues until the marginal product of agricultural labor is no longer zero. This process creates economic growth, especially in the industrial field (Moeis et al., 2020).

The transition of surplus labor from the subsistence sector to the capitalist sector that drives economic growth is related to the phenomenon of urbanization. This is reinforced by numerous research from Yang et al., (2017); Song et al., (2018); Liang & Yang, (2019); Feruni et al., 2020; Mata et al., (2021); Raza et al., (2021) who claimed that urbanization has a positive effect on economic growth. However, different findings were produced by research from Ali et al., (2020), that all FMOLS, DOLS, and CCR long-term regression results show a statistically significant negative and inelastic link between urbanization and economic growth over the study period. This is reinforced by the reason that the resulting urbanization does not necessarily encourage economic growth, because the effects of urban congestion can limit the benefits of agglomeration (Jedwab et al., 2017). Another interesting thing is that according to Chen et al., (2014) noted that the rate of urbanization and the rate of global economic growth are unrelated.

In addition to having an influence on the environment and economy, urbanization also has an influence on various social problems. Urbanization from a social aspect can be

seen from the perspective of the crime rate. In the theory of social disorganization proposed by Shaw & McKay (1942), it is stated that crime occurs when social control is weakened due to poverty, instability in the family, population mobility or urbanization (Mardinsyah & Sukartini, 2020) and (Errol et al., 2021). Numerous earlier research have confirmed that urbanization may lead to an increase in crime. Lim et al., (2020) claimed that although society seeks to avoid crime because it is a byproduct of urbanization and human growth, it encounters significant hurdles. Research from Sabyasachi & Shupinder (2018) also produced findings that urbanization brings various negative externalities, one of which is crime. Public opinion about crime will worsen (crime rates rise) along with the high rate of urbanization (Ghani, 2017; Qi, 2020; Kuciswara et al., 2021). As cities around the world become increasingly congested, protecting the safety of humanity from the threat of crime is necessary to continue daily life in cities (Lim et al., 2020). However, different results are found in the research of Debnath & Roy (2013) which states that urbanization and education have a negative effect on the likelihood of crime.

The background and various previous studies that have been presented indicate that increasing urbanization can cause complex influences both in terms of environment, economy and social, for that it needs to be studied more deeply considering the level of urbanization in Indonesia is estimated to continue to increase. Thus, this study's objective is to ascertain how urbanization has affected environmental, economic, and social performance, particularly in Indonesia. Regarding social performance, a few researchers focused on impact of urbanization through the total of criminal cases (generally) and mostly explained it through qualitative research. So that, the use of indicators by the number of theft victims in this research is something new in representing the level of social impact (crime). Theoretically, this research will enhance various existing previous studies, while practically the formulation of policy recommendations on urbanization will be proposed.

RESEARCH METHODS

The research used a quantitative methodology on panel data from 33 provinces in Indonesia for the period 2010, 2015 and 2020. In this study, independent and dependent variables were both used. Urbanization (URB) was one of the independent, then the dependent variables were the environmental quality index (IKLH), gross regional domestic product (PDRB) and the number of victims of theft (JKP). The data analysis technique made use of SMARTPLS 3.0 software and Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis. The choice of using SEM-PLS analysis was adjusted to the research objectives. The advantages of this tool were that it can test several relationships simultaneously, meaning that more than one dependent variable can be used (Rahayu & Sari, 2021). The stages of the SEM-PLS analysis included outer model testing, namely validity (convergent and discriminant validity) and reliability tests, followed by formative indicator model testing namely multicollinearity. After that, inner model testing is carried out which includes determination coefficient tests (R^2), *effect size* tests (f^2), predictive relevance tests (Q^2), goodness of fit (GoF) tests, and hypothesis testing (path coefficients).

Table 1
Variables and Operational Definitions

Code	Variable	Definitions	Indicators	Unit	Source
URB	Urbanization	Movement of people from villages to cities	Percentage of Urban Population	Percent	Indonesia Central Bureau of Statistics
IKLH	Environmental Quality Index	Index that describes the performance status of environmental management	Environmental quality index value per province	Base Points	Ministry of Environment and Forestry
PDRB	Gross Regional Domestic Product	The amount of value added to goods and services produced by various production units on the territory of a nation over a specific time frame (usually one year)	Total GDP per province on a constant price basis	Billion Rupiah	Indonesia Central Bureau of Statistics
JKP	Theft Victims	A person whose property has been the target of the crime of theft in the past year	Number of Theft Victims	Person	Indonesia Central Bureau of Statistics

Source: Data Processed, 2023

The model equation has the following form:

$IKLH = \beta_{0a} + \beta_{1a}URB + \varepsilon_a$…… (1)

$PDRB = \beta_{0b} + \beta_{1b}URB + \varepsilon_b$……..(2)

$JKP = \beta_{0c} + \beta_{1c}URB + \varepsilon_c$……..(3)

Note:

β_1 is the coefficient; β_0 is the constant; and ε is the error standard.

RESULTS AND DISCUSSION

The following procedures were utilized to obtain the results of the analysis of the effect of urbanization factors on the environmental quality index, gross regional domestic product, and the number of theft victims:

Loading Factor

If an indicator's outer loading value for each variable is greater than 0.70, it is considered to meet the criteria for convergent validity with good categories. Nonetheless, loading values of 0.50 to 0.60 are still suitable for scale-stage research (Ghozali, 2014).

Table 2
Outer Loading

Variable	Indicators	Outer Loading	Note
Urbanization	URB	1.000	Valid
Environment	IKLH	1.000	Valid
Economics	PDRB	1.000	Valid
Social	JKP	1.000	Valid

Source: Data Processed, 2023

Based on Table 2 the outer loading value as a whole showed a value of 1.000 which means greater than 0.70, then the indicator was considered valid and worthy of further analysis.

a. Average Variance Extraced (AVE)

Examining AVE values is another test for determining a construct's validity. The AVE value of each construct needs to be more than 0.50 in order to qualify as a good model.

Table 3
Average Variance Extraced (AVE)

Variable	Average Variance Extracted (AVE)	Note
Urbanization	1.000	Eligible
Environment	1.000	Eligible
Economics	1.000	Eligible
Social	1.000	Eligible

Source: Data Processed, 2023

Table 3 shows that all constructs had an Average Variance Extraced (AVE) value of 1.000

which was more than 0.50. The conclusion is that all indications in the study's variables had complied with the requirements of convergent validity and can be used for further analysis data.

Discriminant Validity Test

A construct's ability to capture phenomena that other constructs are unable to capture is demonstrated using the discriminant validity test. The Cross Loading value can be used as a test to determine whether discriminants are valid. If the value of the relevant construct loading factor indicator is greater than the value of other cross loading constructs, a research tool can be deemed discriminantly valid.

Table 4
Cross Loading

	Economics	Environment	Social	Urbanization
IKLH	-0.438	1.000	-0.375	-0.374
JKP	0.769	-0.375	1.000	0.330
PDRB	1.000	-0.438	0.769	0.579
URB	0.579	-0.374	0.330	1.000

Source: Data Processed, 2023

The result that showed in Table 4 can be seen that the correlation of the construct of each aspect to its indicator when compared to other indicators had a higher value. As a result, it can be inferred that the latent concept passed the discriminant validity test because it predicted its block indicator more accurately than other block indicators.

Reliability Test

Cronbach's alpha from the construct gauge indication block and composite reliability are the two metrics used to evaluate the construct reliability test. If the composite reliability and cronbach alpha values are both more than 0.70, the construct is considered reliable (Ghozali, 2014).

Table 5
Composite Reliability and Cronbach Alpha Values

	Composite Reliability	**Cronbach Alpha**	**Note**
Environment	1.000	1.000	Reliable
Economics	1.000	1.000	Reliable
Social	1.000	1.000	Reliable
Urbanization	1.000	1.000	Reliable

Source: Data Processed, 2023

According to Table 5, each construct's composite reliability and cronbach alpha values both showed a value of 1.000, which indicated that the value was higher than 0.70. Thus, it can be said that construct data was considered reliable.

Evaluation of Formative Measurement Models

One of the measurements of formative indicators is the manifest variable in the block, which must be tested for multicollinearity. This can be done by looking at the variance inflation factor (VIF) value. Multicollinearity occurs when the VIF value is above 10 (Ghozali, 2014).

Table 6
Variance Inflation Factor (VIF)

Variable	Variance Inflation Factor (VIF)
IKLH	1.000
JKP	1.000
PDRB	1.000
X	1.000

Source: Data Processed, 2023

Based on Table 6, it can be seen that there is no VIF value greater than 10, so this research model is free from multicollinearity and can be continued for further testing.

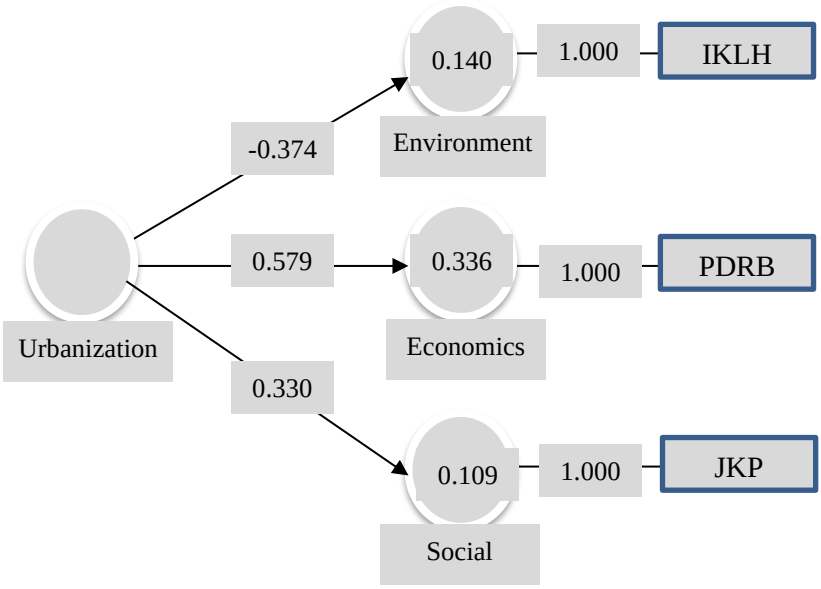

Figure 2. Outer Model Path Diagram
Source: Data Processed, 2023

Results of Structural Model Testing (Inner Model)

Coefficient of Determination (R^2)

In order to evaluate the model's goodness of fit, structural models are tested using the R-squared value. R-squared is used to evaluate the degree of influence that external factors have on endogenous variables (Habriyanto et al., 2019). Based on Ghozali (2014) endogenous latent variables in structural models had 3 categories R^2 values, that are 0.67 (good), 0.33 (moderate), and 0.19 (weak).

Table 7
Coefficient Determination (R^2)

Variable	R Square
Environment	0.140
Economics	0.336
Social	0.109

Source: Data Processed, 2023

Based on Table 7, it was evident that the environment variable's R^2 value was 0.140 belonged to the weak category. This value showed that environmental variables of 14% may be explained by factors related to urbanization, while the remaining 86% were explained by factors not included in this study's research model. The value of R^2 of the economic variable of 0.336 belonged to the medium category. This value showed that economic variables of 33.6% can be explained by factors related to urbanization, while the remaining 66.4% were explained by factors not included in this study's research model. While the value of R^2 of the social variable of 0.109 was included in the weak category. This value showed that social variables of 10.9% can be explained by urbanization variables, while the remaining 89.1% were explained by other variables outside the analysis model of this study.

1.1.1 Effect Size (f^2)

To ascertain the benefits of the model, the F-square test was used. Based on Ghozali & Latan (2017), the f^2 coefficient is breaking down into 3 categories, that are ≥ 0.02 (small), ≥ 0.15 (medium), and ≥ 0.35 (large).

Table 8
f^2 Value

Variable	f-square
Urbanization – Environment	0.163
Urbanization – Economics	0.505
Urbanization – Social	0.123

Source: Data Processed, 2023

Table 8 shows that the value of f^2 urbanization – environment was 0.163 which means medium. The f^2 urbanization – economic value was 0.505 which means large, and the f^2 urbanization – social value was 0.123 which means small.

Relevance of Prediction (Q^2)

The Q-square evaluates how well the model generates parameter estimates and observed values. When the model's q-square value is larger than 0, it is considered to have predictive significance, but when it is lower than 0, it is considered to have no predictive relevance at all (Ghozali, 2014). The formula used to determine the value of $Q^2 = 1 – (SSE/SSO)$.

Table 9
Predictive Relevance Value

Variable	SSO	SSE	Q^2 (=1 – SSE/SSO)
Environment	99.000	87.415	0.117
Economics	99.000	67.459	0.319
Social	99.000	88.750	0.104
Urbanization	99.000	99.000	

Source: Data Processed, 2023

Table 9 shows that each variable's overall Q^2 value was greater than 0, indicating that the research construct had good predictive relevance.

Goodness of Fit Test

Goodness of fit is a measurement or index developed by Tenenhaus et al., (2004). The usefulness of the Goodness of Fit (GoF) index is as a solution to validate PLS models globally (Tenenhaus et al., 2005). Based on Ghozali & Latan (2017), GoF measurement criteria are divided into 3 categories, namely ≥ 0.10 (small), ≥ 0.25 (medium) and ≥ 0.36 (large).

Table 10
Goodness of Fit Test Results

Variable	R-Square	Communality
Environment	0.140	1.000
Economics	0.336	1.000
Social	0.109	1.000
Average	0.195	1.000

Source: Data Processed, 2023

Based on Ghozali & Latan (2017) the calculation of the GoF value is obtained from the square root of the Average Communality multiplied by the Average R-Square (ARS), which is written in the following formula:

$$\text{GoF} = \sqrt{\overline{Communality}\ x\ ARS}$$
$$= \sqrt{1.000\ x\ 0.195}$$
$$= 0.441$$

Based on the results of these calculations, a GoF value of 0.441 was obtained, which means that the model in this study was included in the criteria of having a large GoF value.

Estimation of Path Coefficient

The path coefficient test is a test used to determine how each exogenous latent variable affects the endogenous latent variable. The influence of each variable determines the form of the coefficient of determination after showing the relationship and influence of the model path (Habriyanto et al., 2019).

Table 11
Estimation of Path Coefficient

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Urbanization -> Environment	-0.374	-0.371	0.100	3.737*	0.000**
Urbanization -> Economics	0.579	0.577	0.089	6.520*	0.000**
Urbanization -> Social	0.330	0.330	0.074	4.479*	0.000**

Note : * t-statistic value is greater than t-tabel (1.96); ** p value significant at alpha 0.05

Based on Table 11, the coefficient between the latent variable of urbanization and the latent variable of the environment had a negative effect with the original sample value of -0.374 and t-statistic of 3.737 (greater than t table; 1.96) and p-value of 0.000 (< 0.05). These results can be interpreted that urbanization variables had a negative and significant effect on the environment which in this case was represented by the IKLH indicator. Thus, if every one percent increase in the city's population will cause the environmental quality index to decrease by 0.374 basis points.

The results of data processing in this study support the research of Liu et al., (2020); Rahman & Alam, (2021); and Chandra Voumik & Sultana, (2022) which stated that urbanization has a positive effect on environmental pollution, therefore increasing the level of local urbanization will

hamper the quality of the local environment. According to the Environmental Quality Index Report from the Ministry of Environment and Forestry, the population density of an area also tends to affect environmental quality. Water quality is deteriorating due to increased household waste and expanded land clearing to accommodate the expanding population's needs. Traffic activity also has a strong impact on air quality, especially in large and metropolitan areas. It can be seen that Java Island, which is the main destination for people in urbanization, has the lowest IKLH value compared to other islands. In 2010 the IKLH of Java island of 59.82 was ranked last after Sulawesi Island (77.21), Maluku Island & Papua (74.29), Bali & Nusa Tenggara (74.19), Sumatra (73.63), and Kalimantan (64.02). Based on provinces, the 3 provinces that had the lowest IKLH scores in 2010 were DKI Jakarta (41.81), Banten (48.98) and East Java (49.49).

In 2015 and 2020, DKI Jakarta province remained the province with the lowest IKLH value, namely 43.79 (2015) and 52.98 (2020). This is because DKI Jakarta has a high population density and is the center of economic activities, including industry. Despite the increase in status from the very poor category ($40 < IKLH \leq 50$) and slowly becoming less good ($50 < IKLH \leq 60$), however, the quality of the environment there is still quite worrying. In 2015 after DKI Jakarta, the three provinces with the lowest IKLH scores were Yogyakarta (50.99), Riau (53.07) and Banten (55.36). Meanwhile, in 2020 after DKI Jakarta, the three provinces with the lowest IKLH scores are Banten (59.37), West Java (59.4) and North Sumatra (69.9). In 2020 the quality of the environment has improved, this is due to the Covid-19 pandemic which limits human mobility so that air pollution can be reduced.

Nationally, during 2010-2020 the environmental quality index in Indonesia tended to increase. In 2010, Indonesia's environmental quality index was 61.07 basis points in the category of quite good ($60 < IKLH \leq 70$). Then, in 2015 Indonesia's environmental quality index increased to 68.23 basis points with a fairly good category, and in 2020 it increased again to 70.27 basis points with a good category ($70 < IKLH \leq 80$). Although the national environmental quality index has increased, on the other hand, air pollution in Indonesia has also increased along with the increase in urbanization. In 2010, CO^2 emissions in Indonesia amounted to 1.87 metric tons per capita, increased to 2.13 metric tons per capita in 2015, then increased again in 2020 to 2.16 metric tons per capita.

The increase in CO^2 emissions is partly due to unplanned urbanization, which puts pressure on complicated urban planning, with increasing population density, overexploitation of resources, deforestation and pollution (Y. Sun et al., 2022). Based on reports from the OECD, the average population exposed to PM 2.5 in Indonesia tended to be high (above 15 micrograms/m^3) and even reached 20.4 micrograms/m^3 in 2013. In the 2015-2020 time span, this figure was 18.9, 19.4, 17.2, 18.7, 19.7 and 18.1 micrograms/m^3.

Based on Table 11, the coefficient between the latent variable of urbanization and the economic variable had a positive effect with an original sample value of 0.579 and t-statistic of 6.520 and a p-value of 0.000. These results can be interpreted that urbanization variables had a positive and significant effect on the economy, which in this case was represented by gross regional domestic product indicators. So, if every one percent of the city's population increased, it will cause gross regional domestic product to increase by 0.579 billion rupiah. This condition can be seen based on the publication of the Central Statistics Agency in 2010-2020 the national gross domestic product continues to increase. In 2010, gross domestic product on a constant price basis of 6,864,133.13 billion rupiahs increased to 8,982,517.1 billion rupiahs in 2015, and rose again to 10,722,999.30 billion rupiahs in 2020.

In 2020, gross domestic product had decreased compared to 2019 (10,949,155.40 billion rupiah). This was because the Covid-19 pandemic had affected the health sector then the economic sector had also experienced sluggishness. Public mobility was limited, thus reducing economic activity. However, the Indonesian economy tends to recover and bounce back over time.

According to Y. Sun et al., (2022) urbanization has a number of advantages, including increased work possibilities, higher earnings, and higher living standards. This is consistent with Arthur Lewis's proposed theory

that urbanization will make the transition of surplus labor from rural areas to urban areas. So that later, the workforce will be absorbed and move the wheels of the economy, which will create economic growth. Wang & Conesa (2022) research states that the decline in rural migration will significantly pull down the urban labor force and economic growth in China (start around 2020).

This positive relationship between urbanization and the economy represented by gross regional domestic product is in accordance with existing theory. The findings of this study confirm earlier research made by Bakirtas & Akpolat (2018) that urbanization can contribute to economic growth. Zheng & Walsh (2019) also mentioned that, in general, urbanization as a development aspect of progress is becoming a more significant factor in China's economic expansion. And also reinforced by the research of Moutinho & Madaleno (2020) there is a two-way causal relationship between GDP and urbanization in Nigeria and Libya, according to the results of long-term elasticity, which also reveal that urbanization has a positive impact on GDP in Libya and Angola but has a negative impact on Gabon and Equatorial Guinea.

In addition to affecting environmental and economic performance, it turns out that urbanization also affects the social community around it. Based on Table 11, the coefficient between latent urbanization and social variables had a positive effect with an original sample value of 0.330 and t-statistic of 4.479 and a p-value of 0.000. These results can be interpreted that the urbanization variable had a positive and significant effect on social which in this case was represented by the indicator of the Number of Victims of Theft (Crime). So, if every one percent of the city's population increased, it will cause the number of theft victims to increase by 0.330 people.

This condition can be observed based on the release of Criminal Statistics published by the Central Statistics Agency. According to the publication's findings, it was evident that the population of victims of theft crimes was the most frequent and tended to increase than victims of other types of crime. In 2010, the percentage of the population victims of theft crimes nationally was 65.37 percent, and tended to increase to 80.85 percent in 2015. In fact, during the last three years, namely 2019, 2020 and 2021, the percentage of the population victims of theft had also increased, namely 85.35 percent, 86.51 percent and 86.77 percent.

The crime is concentrated mostly in heavily populated places, it is likely that society and wealth are the primary driving forces behind crime (Jiang et al., 2022). According to Imai et al., (2017), rapid urban population growth or rural-urban migration can increase poverty. This poverty occurs because not all villagers who migrate to cities have education and skills that are in accordance with the available job opportunities, which ultimately leads to unemployment. This poverty ratio has a positive and significant influence on the occurrence of crime (Debnath & Roy, 2013). In other words, poverty due to urbanization encourages someone to commit crimes, one of which is theft. As in the case of urbanization in India where urbanization increases car theft (Bharadwaj, 2014).

The findings of this research are consistent with previous research by Malik (2016) where increased urbanization weakens people's integration and thus reduces informal social control, increasing crime, chaos, victimization, and fear of crime. And reinforced by research result by Errol et al., (2021) which explained that urbanization has a significant positive effect on violent crime as a dependent variable. Recent research conducted by Onyeneke & Karam (2022) also revealed that some crimes are related to urbanization, and other factors such as unemployment, inequality, and income inequality directly contribute to the increased crime in urban areas.

CONCLUSION

Urbanization can have both positive and negative influences on life. This study's empirical results supported the notion that urbanization negatively and significantly impacted the environmental quality index. As a result, the higher the rate of urbanization, the worse the environmental quality score. Urbanization had a significant positive effect on gross regional domestic product and the number of victims of theft (crime). That is, if urbanization increases, there will also be an increase in gross regional

domestic product and the number of theft victims. Differences in the use of indicators used to measure crime rates due to increased urbanization produce the same effect. Thus, this research has contributed to the literature on the effect of urbanization on various performances, which is still inconsistent in several previous studies.

The phenomenon of urbanization continues to increase will be followed by the improvement in facilities and infrastructure, especially in the field of transportation. So, to reduce the negative environmental impact, the government needs to implement a sustainable transportation system, one of which is by only providing environmentally friendly fuel. In addition, it is also necessary to encourage socialization in the community to switch from the use of fuel with low RON to fuel with high RON which is more environmentally friendly. In reducing crime rates as a side effect of urbanization, the government needs to implement special requirements, namely residents who will urbanize must have the ability (skills) to be useful in the process of finding jobs in the city. These efforts are expected to reduce unemployment and reduce one's intention to commit crimes (theft) due to social disorganization factors.

The limitations of this study are only focused on the influence of urbanization on environmental, economic, and social performance. For future research, it is necessary to add cultural performance in variables, considering that culture influences people's mindsets. Cultural performance must be included to formulate urbanization strategies or sustainable urban development without leaving local wisdom.

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