Efficient Vol 4 (2) (2021): 1174-1187 DOI: https://doi.org/10.15294/efficient.v4i2.45107

EFFICIENT

Indonesian Journal of Development Economics

https://journal.unnes.ac.id/sju/index.php/efficient

Determinants of Environment Quality Index In Indonesia

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Permalink/DOI: https://doi.org/10.15294/efficient.v4i2.45107

Received: December 2020 ; Accepted: March 2021 ; Published: June 2021

Abstract

The purpose of this study was to determine the effect of poor people, slum households with proper sanitation and electricity sources, Gini ratio, open employment, micro, and small industrial production, and forest fires on the environmental quality index in 33 provinces in Indonesia 2012-2018. The type of data in this research uses secondary data obtained from Badan Pusat Statistik (BPS) and Kementrian Lingkungan Hidup dan Kehutanan (KLHK) in 2012-2018. The results showed that poor people have a negative and significant effect on EQI, Slum Households have a negative and significant effect on EQI, Households with Proper Sanitation have a positive and significant effect on EQI, Households with lighting sources from electricity have a positive but not significant effect on EQI, Gini Ratio has a negative and significant effect on EQI, the Open Unemployment Rate has a negative and significant effect on EQI, Forest has no influence on EQI, and IMK Production has a positive and significant effect on EQI.

Keywords: ***Quality, Index, Poverty, Environmental, Degradation***

Abstrak

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penduduk miskin, rumah tangga kumuh dengan sanitasi layak dan sumber listrik, rasio Gini, lapangan kerja terbuka, produksi industri mikro, dan kecil, dan kebakaran hutan terhadap indeks kualitas lingkungan di 33 provinsi di Indonesia tahun 2012 - 2018. Jenis data dalam penelitian ini menggunakan data sekunder yang diperoleh dari Badan Pusat Statistik (BPS) dan Kementerian Lingkungan Hidup dan Kehutanan (KLHK) tahun 2012-2018. Hasil penelitian menunjukkan bahwa masyarakat miskin berpengaruh negatif dan signifikan terhadap EQI, Rumah Tangga Kumuh berpengaruh negatif dan signifikan terhadap EQI, Rumah Tangga dengan Sanitasi Layak berpengaruh positif dan signifikan terhadap EQI, Rumah tangga dengan sumber penerangan dari listrik berpengaruh positif tetapi tidak berpengaruh signifikan terhadap EQI, Rasio Gini berpengaruh negatif dan signifikan terhadap EQI, Tingkat Pengangguran Terbuka berpengaruh negatif dan signifikan terhadap EQI, Hutan tidak berpengaruh terhadap EQI, dan IMK Production berpengaruh positif dan signifikan terhadap EQI.

Kata Kunci: Indeks, Kualitas, Kemiskinan, Kerusakan, Lingkungan

How to Cite: Noormalitasari, A., & Setyadharma, A. (2021). Determinants of Environment Quality Index In Indonesia. Efficient: Indonesian Journal of Development Economics, 4(2), 1174-1187. https://doi.org/10.15294/efficient.v4i2.45107

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INTRODUCTION

The environment becomes an important component in the development of a country because to achieve it, there needs to be harmony in combining three important elements, namely economic growth, social inclusion, and social protection. Efforts to improve the quality of the environment are carried out due to a large number of forest areas and the environment that is degraded. This decrease in environmental quality can be caused by human activities and development activities. Environmental pollution is evidence of the damage to natural resources currently faced by developed and developing countries (Bakara & Bowo, 2019).

Based on 2018 data, three provinces are rank at the bottom. Two provinces are in the category of less good, namely Banten and West Java, each with EQI values of 57 and 56.98. While the province that has a category of alert is DKI Jakarta with an EQI value of 45.21. From the data, it appears that the most well-titled areas are areas that have large forests with un dense populations so that human activities in them are still not like in big cities.

Meanwhile, areas that have a poor predicate to very poor are in densely populated areas so that economic activity makes more indications of environmental damage caused by human actions. Potentials that can affect the quality of the environment include the existence of industries that produce solid and liquid waste, B3 waste from hospitals, the number of vehicles, limited defecation facilities, and waste.

The quality of the environment does not escape the influence of economic activity on humans. Environmental degradation has always been linked to the problem of poverty. In poor conditions, the use of resources will be higher because this is the only way to survive (Hastuti, 2007). According to Ibimilua (2011), the environment and poverty have a relationship, when there is a change it will affect each other, a decrease in environmental quality will affect poverty, and vice versa, when poverty decreases there will be a decrease in environmental quality.

Table 1. Environmental Quality Index in Indonesia 2012-2018

Year	EQI
2012	64.21
2013	63.13
2014	63.42
2015	68.23
2016	65.73
2017	66.46
2018	71.67

Source : Ministry of Environment and Forestry Republic of Indonesia

Poverty is a major cause and an effect of global environmental problems. The main thinkers argue that poverty is the main cause of environmental degradation, and if the government or policymakers want to address environmental problems, then the problem that must be addressed first is poverty (Duraiappah, 1998).

Based on data from 2012 to 2018, the percentage of poor people who experienced movement that is not too far a compared to previous years, but when viewed from the number of poor people decreased from 2015. In the publication of Central Statistics Agency in March 2018, it was seen that the decrease in the number of poor people by 9.82% or reached 25.95 million people, decreased by 633.2

thousand people compared to 2017 in the second semester of September which amounted to 26.58 million people.

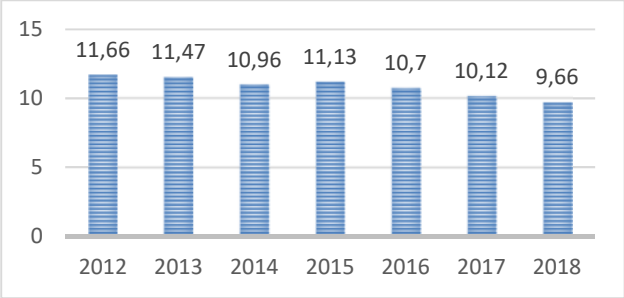

Figure 1. Percentage of Poor Population in Indonesia, 2012-2018
Source : Central Statistics Agency

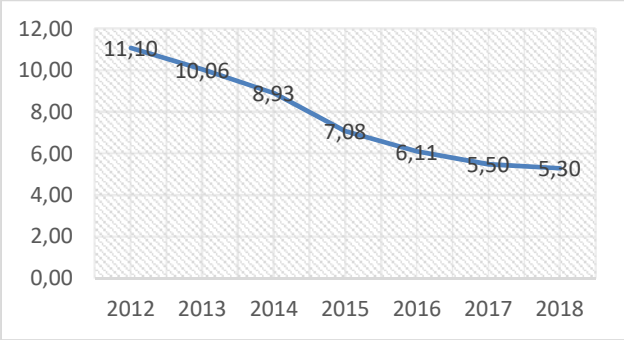

Figure 2. Percentage of Slum Households
Source : Central Statistics Agency

According to Jayanti (2017), the presence of high population growth can affect environmental degradation simultaneously. This increase in population means that the population density is getting higher. The highest population growth rate is in urban areas. According to Pujiati, et al. (2013), urban growth or population growth has a correlation to environmental damage in the long term when exceeding the carrying capacity of the environment.

The denser of population, the lower the quality of the city's environment. The increasing population in this area will have an impact on the amount demand for housing as a place to live. In the end, the solidity of this company will lead to various environmental problems, one of which is slums.

The causal relationship of slums settlements on environmental quality is also explained by Rofiana (2015) who argues that slum settlements due to a population increase in an area have a relationship with the environment. The existence of these slum settlements will result in pollution due to facilities and infrastructure and waste disposal which is still carelessly.

Indonesia records that there are 5.3% of the area included in slum households. According to the province, Papua Province has a high percentage of slum households at 59.24% in 2018. While the province that has the lowest percentage of slum households in Special Region of Yogyakarta at 1.74%. The problem of slums settlements that are not followed by improving proper basic facilities and infrastructure will cause a decrease in environmental quality in terms of water, air, and land (Kurdi, 2008).

One of the things that need to be considered by households is basic sanitation that is feasible for housing. According to Chaplin (2011), the problem of proper sanitation in densely populated settlements causes environmental problems due to lack of access to sanitation services, the large number of slum settlements, and the lack of funds from the government to improve sanitation services.

Based on figure 3, In 2018, proper sanitation has increased to 69.27%, while the previous year in 2012 was still at 57.89%. This indicates that nationally, households with

proper sanitation have experienced improvements from year to year. However, if viewed from each province, Papua is an area where proper sanitation is far below the national average. Badan Pusat Statistik noted that only 33.75% of households in Papua have adequate hygiene facilities.

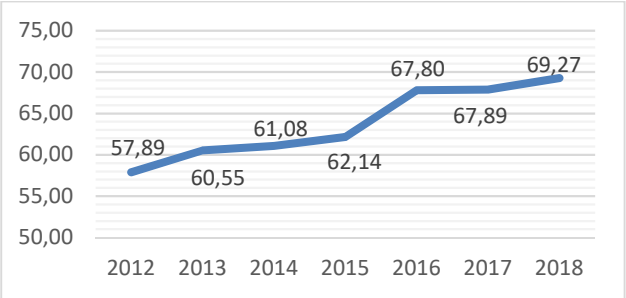

Figure 3. Percentage of Households with Proper Sanitation
Source : Central Statistics Agency

In addition to sanitation, which needs to be considered, lighting in the household is also important as a measure that the household is classified as capable and prosperous. According to Khatun (2007), countries that have a percentage of the population with good access to electricity have good environmental quality. Meanwhile, countries with poor access to electricity have low environmental quality.

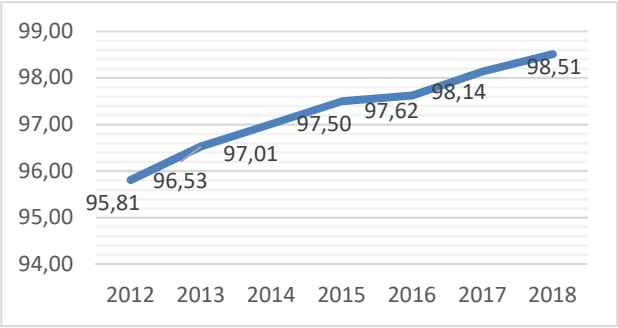

Figure 4. Percentage of Households with a Source of Lighting from Electricity
Source: Central Statistics Agency

Based on figure 4, households that have a source of lighting from electricity have increased every year from 2012-2018 to reach 98% of households using electricity sources of lighting. based on the province, Papua is recorded as an area that has not fully distributed electricity usage, only 65.90% in 2018. According to Central Statistics Agency, households use electricity as a source of lighting indicate that the household has good welfare.

In addition to the relationship between poverty and the environment. Income inequality is also considered to have an impact on the environment. Hermawan, et al. (2016) argues that there are interesting facts that occur in Indonesia, namely high-income growth is not followed by a good income distribution, which causes the problem of income inequality.

Indonesia, which is claimed to be one of the top ve most populated in the world or about 3.52% of the world's population, makes it possible that there are still many people who do not enjoy the high income and most of them have less income. For this reason, in assessing the inequality of income distribution, the Central Statistics Agency uses a measuring instrument called the Gini ratio. The gini ratio is an indicator used to measure or show the level of income inequality as a whole.

From 2015 to 2018, the Gini ratio of each province showed a decreasing value. In 2018, the level of inequality in Indonesia was 0.389. This figure is decreasing when compared to 2017. In 2018, the highest Gini ratio was recorded in the Special Region of Yogyakarta and the lowest in the province of Bangka Belitung (Central Statistics Agency, 2018).

In addition to poverty and inequality, this study also used unemployment as a variable. The problem of unemployment is one of the

problems faced by developing countries which can also cause other social problems. The impact of unemployment, among others, decreases the quality of life which is indicated by an unhealthy or dirty environment. This is resected in Mayer's (2015) research which stated that the behavior of unemployed individuals has a negative influence on Pro-Environmental Behaviour (PEB).

Those who are unemployed will pay more attention to social and economic problems than environmental problems or with the purchase of environmentally friendly products. Unemployed people mean that their income has decreased, resulting in no desire to buy green products. This is proof that costs are important for unemployed people.

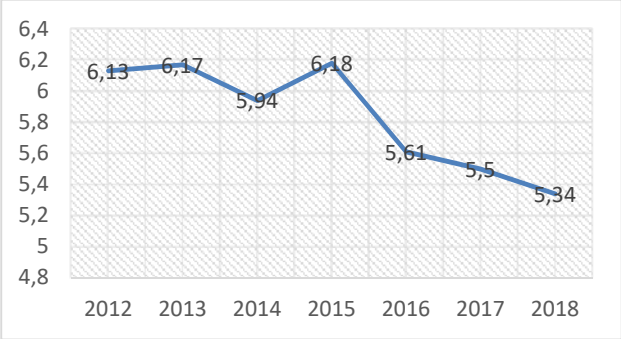

Figure 5. Unemployment Rate
Source: Central Statistics Agency

The Open Unemployment Rate has fluctuated during the 2012-2018 period. In 2018, Open Unemployment Rate decreased from the previous year with a figure of 5.34% compared to 5.50% in 2017. When viewed from the area where he lives, the open unemployment rate in urban areas is higher than in rural areas.

Unemployment is an issue that is not easily resolved by the government because the human resource factor is the most important thing to reduce unemployment. Education and skill levels are one's benchmark for someone to get a job. Those who do not have high competence will not be able to compete in finding jobs.

Therefore, the government provides a form of support for industry players to be able to develop their businesses and provide opportunities for job opportunities. But on the other hand, every business action will inevitably lead to an externality, either positive or negative. One of the negative impacts caused by industry is environmental damage due to waste generated in the production process.

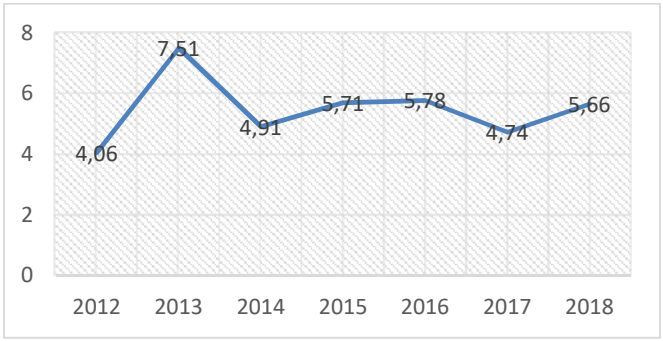

Figure 6. Growth of Production of Micro and Small Industry
Source: Central Statistics Agency

Based on figure 6, Micro Small Industry production growth tends to hit from 2014-2018 ranging from 4-5 percent after 2014 (4.91%) decreased compared to 2013 (7.51%). The increase in micro small industry production growth in 2018 was influenced by the food industry group as a driver of national productivity growth because it had the largest share of output compared to other industrial groups.

The data that has been mentioned, indicates that the production growth of Micro Small Industry is experiencing a positive trend,

and without realizing it, the increase can be followed by an increase in environmental damage if business actors do not pay attention to the environment and the surrounding ecosystem.

One form of environmental damage that is felt by the whole world is the reduction of forest land. As a result of people's greed, the forest has been damaged due to frequent forest conversion. In the 2011-2018 period, forest land area in Indonesia decreased from 98.7 million hectares to 93.5 million hectares. The province that has the largest forest area is in Papua, amounting to 32.20 million hectares in 2018 (Central Statistics Agency, 2018).

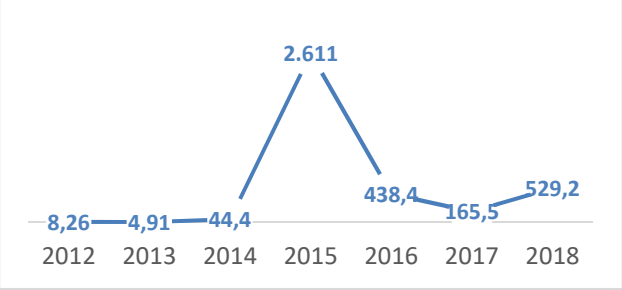

Figure 7. Estimated Area of Forest and Land Fires
Source: Central Statistics Agency

Based on figure 8, severe fires occurred in 2015 which reached 2.6 million hectares which spread in the peatlands of South Sumatra, Central Kalimantan, parts of Riau, Jambi, and South Kalimantan. Then in 2016 to 2017, it fell sharply, and in 2018 the area of forest and land fires began to increase again, reaching 529.2 thousand hectares. According to the BNPB report, 99% of forest fires that occur in Indonesia are caused by negligent human factors, and only 1% are caused by natural factors. This indicates that there is a link between human activities that causes the environment to become damaged.

Based on this background, the purpose of this study is to analyze The Effect of Poor People, Slum Households, Households with Proper Sanitation, Household Lighting Source of Electricity, Gini Ratio, Unemployment Rate, Micro Small Industry, And Forest Fires on The Environmental Quality Index in 33 Provinces in Indonesia 2012-2018.

RESEARCH METHODS

In this study, based on how to obtain the data collected is secondary data, while based on the nature of research included in quantitative research. Quantitative research is a form of research in the form of numbers whose results from the analysis are statistical that aims to determine the hypothesis test that has been determined. This study using secondary data taken from the Central Statistics Agency and the Ministry of Environment and Forestry.

The data analysis technique in this study uses data panel regression using E-views 9 program. Time series data used for 7 years, namely from 2012-2018, and cross-section data of 33 provinces in Indonesia, so that observations amounted to 231 pieces.

The dependent variables in this research are the Environmental Quality Index (EQI). While the Independent Variables used are: proxies of poverty there are 8, such as Percentage of poor people, Percentage of Slum Households, Percentage of Households with Proper Sanitation, Percentage of Households Lighting Source from electricity, Gini Ratio, Open Unemployment Rate, Micro Small Industrial Production, and Forest Fires. The model used in this research is as follows :

$$LogEQI = \beta_0 + \beta_1 POV_{it} + \beta_2 SLUM_{it} + \beta_3 SANITATION_{it} + \beta_4 ELECTRIC_{it} + \beta_5 LogGINI_{it} + \beta_6 UNEMPLOY_{it} + \beta_7 INDUSTRY_{it} + \beta_8 LogFOREST_{it} + e_{it} \quad \ldots\ldots\ldots\ldots (1)$$

Information :

β_0	:	Constants
$\beta_1;\beta_2;\ldots n$	:	Coefficient
eit	:	*Error term*
i	:	Cross section data
t	:	Time series data
LogEQI	:	Environmental Quality Index (Logarithm)
POV	:	Percentage of Poor People
SLUM	:	Percentage of Slum Households
SANITATION	:	Percentage of Households with Proper Sanitation
ELECTRIC	:	Percentage of Households Lighting Source from electricity
LogGINIit	:	Gini Ratio (Logarithm)
UNEMPLOY	:	Open Unemployment Rate
INDUSTRY	:	Micro Small Industrial Production
LogFOREST	:	Forest Fires (Logarithm)

RESULTS AND DISCUSSION

The test that can be done to select the best model between Common Effects Model and Fixed Effects Model is to use Chow Test.

Table 2. Chow Test (Redundant Fixed Effect Likelihood Ratio)

Effect Test	Statistic	d.f.	Prob.
Cross-section F	30,254863	(32,190)	0.0000
Cross-section chi-square	417,546349	32	0.0000

Source : Output E-views 9.0

It is said to be significant at the level of α = 1% i.e. if the probability value of cross section F < α = 1%, then the best model chosen is fixed effect model. Based on the test results of chow test it can be known that the cross-section F probability value of 0.0000 < 0.01 and significant against α= 1% with d.f. (32,190), so it can be said that the model chosen is Fixed Effects Model.

After chow test, then the next step is to do hausman test which is testing by choosing a model between Fixed Effects Model and Random Effects Model.

Table 3. Hausman Test (Correlated Random Effect-Hausman Test)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	27,632875	8	0.0005

Source : Output E-views 9.0

Based on the test results of the Hausman Test it can be known that the Random Cross-Section probability value of 0.0005 < 0.05 is significant against α = 5%, so it can be said that the selected model is fixed effects model.

From the results of chow test and Hausman test that has been done, it can be concluded that the model chosen in this study is using Fixed Effects Model. This gives the sense that one object has a constant that remains its magnitude for various periods of time. Likewise its regression coefficient, fixed magnitude and time to time.

Table 4 shows the estimation results using the Fixed Effect Model with the Generalized Least Square Method and the Cross-section weight (PCSE). The regression coefcient values for each research variable are as follows :

Log(EQI) = 4,000203 - 0,012287 (POV) - 0,002837 (SLUM) + 0,000546 (SANITATION) + 0,001412 (ELECTRIC) – 0,231370 Log(GINI) - 0,006172 (UNEMPLOY) +0,000879 (INDUSTRY) - 0,000845 Log(FOREST) + eit.....(2)

Table 4. Fixed Effect Model Regression Results

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	4.000203	0.151089	26.47583	0.0000
POV	-0.012287	0.003919	-3.135269	0.0020
SLUM	-0.002837	0.000671	-4.228852	0.0000
SANITATION	0.000546	0.000227	2.403670	0.0172
ELECTRIC	0.001412	0.001408	1.003256	0.3170
LOGGINI	-0.231370	0.058824	-3.933231	0.0001
UNEMPLOY	-0.006172	0.003091	-1.996395	0.0473
INDUSTRY	0.000879	0.000414	2.124927	0.0349
LOGFOREST	-0.000845	0.001891	-0.446882	0.6555

Source : Output E-views 9.0

The percentage of poor people has a negative and significant effect on the environmental quality index in Indonesia. The regression coefficient is -0.012287 with a probability value of 0.00020. This value indicates that every 1 percent increase in the percentage of poor people in Indonesia will decrease the environmental quality index by 0.012287 percent.

This is following the Environmental Kuznets Curve theory which states that the quality of the environment will be damaged at the beginning of poverty alleviation. Poverty alleviation efforts are related to efforts to increase per capita income. This study shows that when the country conducts policies to alleviate poverty, the quality of the environment will be damaged.

The results of this study also showed that poverty influences the quality of the environment. The higher the poverty rate, the lower the quality of the environment. Poor people are considered to cause the quality of the environment to get worse because of the activities of those who use natural resources to meet their needs. This is following the statement in the Poverty Environmental Hypothesis (PEH) that household poverty relies on shared natural resources for its survival (Baland et al., 2003).

This study is in line with Duraiappah (1998) where the result is that poverty influences the environment. Duraiappah (1998) stated that the poor are the cause of environmental degradation because they depend on their lives on nature without any preservation.

Oktavilia, et al. (2017) also showed a negative impact between poverty and environmental quality. Poverty has the potential to drive environmental damage and explore natural resources continuously. This is due to the inability of the poor and developing countries to adopt and implement green technology. Masron (2018) in his research gave results following this study in which the result is poverty is statistically significant at 5% and positively affects environmental degradation.

The percentage of slum households has a negative and significant effect on the environmental quality index in Indonesia. The regression coefficient value for the variable percentage of poor people shows a negative sign of -0.002837 with a probability value of 0.0000. This shows that every 1 percent increase in the percentage of slum households in Indonesia will decrease the environmental quality index by 0.002837 percent.

Kurdish (2008) states that slum settlements that are not accompanied by proper basic facilities and infrastructure will result in a decrease in environmental quality in terms of water, air, and land. Rofiana (2015) also argues that slums caused by overcrowding also have a connection to living environments. The lack of

supporting facilities and infrastructure has affected many slums so that people make alternatives that in the future can further damage the environment. Therefore, a development must pay attention to the environment following the concept of sustainable development.

In tackling slums, the government seeks to implement in accordance with the housing development plan that 70% of the land is built and 30% green open space in reducing pollution. However, in Indonesia can not be maximized because of the limited average income of the community so that the land ownership is not extensive and can only be used to build houses.

In addition, residential areas in Indonesia have not been classified as clean and there are still many slums that are often found especially in the suburbs of major cities. The existence of such slums will result in pollution due to unfit facilities and infrastructure and waste disposal that is still indiscriminate.

This is in accordance with the research of Sutjahjo and Dewi (2016) which argues that people who have low incomes and live in slums will cause problems in the environment such as river pollution due to indiscriminate waste disposal and can result in flooding within a certain period of time due to the buildup of such waste.

Setyadharma, et al. (2019) states that the poverty indicator seen from slum households shows a negative and significant effect to EQI. Increasing the percentage of slum households will reduce the environment quality. The percentage of households with proper sanitation has a positive and significant effect on the environmental quality index in Indonesia. The regression coefficient value for the variable percentage of households with proper sanitation is 0.000546 with a probability value of 0.0172.

This research is in line with Chaplin (2011) wherein his study explained that the problem of proper sanitation in settlements where more and more people live in the area causes environmental problems. This is due to a lack of access to sanitation services, failure in managing urban growth, the proliferation of slums, and limited government funding to improve sanitation services. This explains that improving proper sanitation services will improve environmental quality.

In case studies in India, the still troubling problems are water and sanitation. The lack of clean water and sanitation facilities is a major problem that has a long-term impact on the environment. The maintenance of sanitation facilities is a must if India wants to fight against unhealthy sanitation practices that affect the environment. But to improve sanitation, the region still complains about a lack of funding. Sanitation problems cause enormous environmental and health hazards. This proves that the better the proper sanitation services, the better the quality of the environment (Dutta, 2017).

Based on the results of the regression analysis can be explained that the variable percentage of household's lighting sources from electricity has a positive but insignificant effect on the environmental quality index in Indonesia. The insignificance of the percentage variable of households with lighting sources from electricity means that there is no influence on the quality of the environment. This can happen because the use of variables in this study only covers households. The variable of electric lighting derived from households is used as an indicator

of poverty which according to the Central Bureau of Statistics also describes that the household is prosperous.

As an indicator in the smallest unit that is household makes this variable does not have a significant influence on the quality of the environment. This is possible because the object is still on a household scale instead of large-scale industry, so there is no significant influence on the quality of the environment. Gini Ratio has a negative and significance related to the environmental quality index in Indonesia with a coefficient of -0.231370 and a probability value of 0.0001.

Islam (2015) states that there is a negative correlation between income inequality and environmental quality. Islam (2015) also explains that income inequality has a negative impact on environmental outcomes at several levels, including household, community, national and international levels. The findings in this study also provide recommendations that by reducing inequality, environmental sustainability can be achieved.

Hermawan, et al. (2016) stated that income inequality as measured by the Gini coefficient correlates with environmental quality. The existence of a growing income inequality gap will result in worse environmental damage. In his research, Hermawan, et al (2016) believe that the determinant of environmental damage is not only caused by economic growth but other determinants that affect environmental damage. Associated with economic growth, Hermawan, et al (2016) research begins with a strong suspicion that economic growth that is not balanced with income distribution causes income inequality to have a positive impact on the level of environmental concern.

This research is also in line with Stiglitz (2013) who found a correlation between income and environmental inequality which has a two-way relationship. According to Stiglitz (2013), environmental degradation causes income inequality, as well as income inequality also contributes to environmental degradation. The Open Unemployment Rate has a negative and significant effect on the environmental quality index.

The regression coefficient value for the open unemployment rate variable shows a negative sign of -0.006172 with a probability value of 0.0473. This shows that every 1% increase in the open unemployment rate in Indonesia will reduce the environmental quality index by 0.006201 percent. According to Mayer (2015), in his study that measured the behavior of unemployed individuals towards Pro-Environmental Behaviour (PEB) explained that there was a negative influence on some pebs studied.

Mayer found that environmental problems become less prominent when someone is unemployed. They will pay more attention to financial and economic issues than the purchase of environmentally friendly products. Because unemployment causes incomes to fall, the purchase of environmentally friendly products is evidence that costs are important for the unemployed. This then leads to a decrease in PEB caused by unemployed people.

The growth of micro small industry production has a positive and significant impact. The coefficient of Micro Small Industrial Production Growth is 0.000879 with a probability value of 0.0349. This means that an increase in the growth of micro and small industrial production improves the quality of the environment.

Industrialization does have a positive impact on a country, especially developing countries in increasing their economic growth. However, industrialization is the main problem that causes environmental problems. Environmental problems caused by industrial activities include air quality, water quality, and availability issues, as well as land quality and quantity issues (Satria, 2019).

In the Cherniwichan study (2012) empirical results showed that the industrialization process was a determinant of the significance of the observed changes namely sulfur emissions, which supports the theory that a 1% increase in the industrial share of total output is associated with a 12% increase in per capita emission levels. The EKC theory in Panayotou's research (2003) explains the link between economic development and environmental degradation.

The Kuznets curve consists of 3 stages, namely the first stage, at the beginning of economic development will be followed by environmental damage called pre-industrial economics, the second stage is known as industrial economics, and the third stage is post-industrial economics (service economics). The theory suggests EKC can move during the transition from the agricultural sector to the industrial sector as the economy develops.

As countries develop and accumulate capital, pollution levels increase as a result of increased production scale due to more output generated and through a shift in output composition towards pollution-dense industrial production. At a later stage, the economy will move from the industrial sector to the service sector followed by a decrease in pollution in line with rising revenues. It is this level of income that results in a decrease in pollution due to the awareness and ability of the community in paying environmental losses from economic activities that have been carried out.

The results in this study do not have sufficient evidence that the production of micro and small industries has a positive effect on environmental quality. This is possible because the Indonesian government through the Ministry of Industry is encouraging the implementation of the green industry. According to the Ministry of Industry in Law No.3 of 2014 concerning the industry, the green industry in question is an industry which in the production process priorities efficiency and effectiveness in sustainably using resources so that it can harmonize industrial development with the preservation of environmental functions and can provide benefits to society.

After the policy of the Law, the company needs to apply green industry standards. According to the Ministry of Industry, the strategy carried out in implementing this green industry is by developing existing industries into green industries and building new industries with the principle of the green industry. Then, companies that have implemented this green industry will be assessed following applicable policies, and awarded as companies that have met the assessment standards.

Based on the results of the regression analysis, it can be explained that the wide variable area of forest fires has a negative but insignificant effect on the environmental quality index in Indonesia. The insignificance of this forest variable is due to the lack of forest fires in some provinces in Indonesia. Based on the data on the estimated area of forest fires issued by the Ministry of Environment and Forestry, in 2012,

only 17 provinces experienced forest and land fires, and these fires continued to fluctuate until in 2018 almost all provinces experienced forest fires.

Therefore, when viewed from the data in 2012-2018, the overall extent of forest fires has no significant effect on the quality of the environment in Indonesia because not all provinces experience forest fires. In addition, the number of forest fire areas in certain provinces is in a small category, so only a few provinces that have high fire rates can affect the Environmental Quality Index.

For example, in 2015, there were severe fires in Central Kalimantan Province (583,833 Hectares), Jambi (115,634 Hectares), South Kalimantan (196,517 Hectares) and Papua (350,005 Hectares). This explains that only provinces with large areas of forest fires can affect the quality of the environment, the rest of the provinces that do not occur fires have no influence so the results of this study are not significant.

CONCLUSION

Based on the descriptions that have been revealed in the discussion, several conclusions can be drawn, namely: 1) the percentage of poor people has a negative and significant effect on the environmental quality index, 2). The percentage of slum households has a negative and significant effect on the environmental quality index, 3). Percentage of households with proper sanitation has a positive and significant effect on the environmental quality index, 4). The percentage of household sources of lighting from electricity has a positive but insignificant effect on the environmental quality index.

The insignificance of this variable occurs because there is no strong evidence related to the effect between households using electricity as lighting on the environmental quality index, 5). The gini index has a negative and significant effect on the environmental quality index, 6). The open unemployment rate has a negative and significant effect on the environmental quality index, 7). Production growth of micro and small industries has a positive and significant effect on the environmental quality index, 8). Forest fire area estimate has a negative and insignificant effect on the environment quality index.

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