

**THE EFFECT OF ECONOMIC GROWTH AND POPULATION GROWTH  
ON DEFORESTATION IN SOUTHEAST ASIA COUNTRIES**



**THESIS**

**SUBMITTED TO THE FACULTY OF ISLAMIC ECONOMICS AND  
BUSINESS ISLAMIC STATE UNIVERSITY OF SUNAN KALIJAGA  
YOGYAKARTA AS A REQUIREMENT TO OBTAIN THE DEGREE OF  
UNDERGRADUATE DEGREE IN ECONOMICS**

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ISLAMIC STATE UNIVERSITY OF SUNAN KALIJAGA YOGYAKARTA**

**2025**

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**2025**

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It can be submitted to the faculty of Islamic Economics and Business, Sharia Economics Study Program, UIN Sunan Kalijaga Yogyakarta as one of the requirements to obtain a Bachelor of Science degree in Islamic Economics.

With this, we hope that your thesis can be submitted soon. For that, we thank you.

*Wassalamualaikum Wr. Wb.*

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**MOTTO PAGE**

I dwell in Possibility.



## DEDICATION PAGE

My parents, Father Khamim and Mother Nur Lailah, as well as my older sister Milda Anggraeni, who have always given me endless support, and have prayed for my success all this time. I'm so grateful for all your support.

To everyone involved in the smooth process of compiling this thesis, thank you for your thoughtfulness. I pray that your kindness brings you endless blessings.

Last, if there's anybody in my life who I should probably thank, it's you.





## ARABIC LATIN TRANSLITERATION GUIDELINES

The transliteration of Arabic words used in this study is guided by the Joint Decree of the Minister of Religion and the Minister of Education and Culture of the Republic of Indonesia Number: 158/1987 and 0543b/U/1987.

### A. Single Consonant

Arabic Front	Name	Latin Letters	Description
ا	Alif	Not symbolized	Not symbolized
ب	Ba	B	Be
ت	Ta	T	T
ث	sa	ṣ	Es (with the above point)
ج	Jim	J	Je
ح	ha	ḥ	Ha (with the above point)
خ	Kha	Kh	ka and ha
د	Dal	D	De
ذ	Zal	Ẓ	zet (with the above point)
ر	Ra	R	Er
ز	Zai	Z	Zet
س	Sin	S	Es
ش	Syin	Sy	Es and Ye
ص	ṣad	ṣ	Es (with the above point)
ض	ḍad	ḍ	De (with the above point)
ط	ṭa	ṭ	Te (with the above point)
ظ	ẓa	ẓ	Zet (with the above point)
ع	Ain	... ‘ ...	Inverted comma above
غ	Gain	G	Ge
ف	Fa	F	Ef

Arabic Front	Name	Latin Letters	Description
ق	Qaf	Q	Qi
ك	Kaf	K	Ka
ل	Lam	L	El
م	Mim	M	Em
ن	Nun	N	N
و	Wawu	W	We
هـ	Ha	H	Ha
ء	Hamzah	...'	Apostrof
ي	Ya	Y	Ye

## B. Dual Consonants for Shaddah Written in Multiple

متعقدين	written	<i>Muta`aqqidīn</i>
عدة	written	<i>`iddah</i>

## C. Ta Marbutah

- When turned off h

هبة	written	<i>Hibbah</i>
جزية	written	<i>Jizyah</i>

- If ta marbutah lives or with harakat, fathah, kasrah and dammah it is written t

زكاة الفطر	written	<i>zakātul fīṭri</i>
------------	---------	----------------------

#### D. Short Vowels

<b>Vokal</b>	Fathah	written	A
َ	Kasrah	written	I
ُ	Dammah	written	U

#### E. Long Vowels

fathah + alif جاهلية	written	A <i>Jāhiliyyah</i>
fathah + ya sukun يسعى	written	A <i>yas'ā</i>
kasrah + ya sukun كريم	written	I <i>Karīm</i>
dammah + wawu sukun فروض	written	U <i>furūd</i>

#### F. Double Vowels

fathah + ya' sukun بينكم	written	Ai <i>bainakum</i>
fathah + wawu sukun قول	written	Au <i>Qaul</i>

#### G. Sequential Short Vowels in One Word Separated with Apostrophe

أأنتم	written	<i>a'antum</i>
أعدت	written	<i>u'iddat</i>
لئن شكرتم	written	<i>la'in syakartum</i>

## H. The article Alif + Lam

1. If followed by the Qomariyyah letter:

القرآن	written	<i>al-Qur'ān</i>
القياس	written	<i>al-Qiyās</i>

2. If followed by the letter Syamsiyah written by duplicating the letter Syamsiyah that follows it, and removing the letter (*el*).

السماء	written	<i>as-samā</i>
الشمس	written	<i>asy-syams</i>

## I. Arrangement of words in a series of sentences

ذوي الفروض	written	<i>ẓawi al-furūd</i>
أهل السنة	written	<i>ahl as-sunnah</i>

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Thus, with the help, prayers, and support from various parties above, hopefully this thesis can make a meaningful contribution in the field being researched and become the first step for further research in the future. Finally, the author hopes that this thesis can be useful for readers and all parties involved.

Yogyakarta, 22 January 2025

Author



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## ABSTRAK

Penelitian ini mengkaji pertumbuhan ekonomi pada teori *Environmental Kuznets Curve* (EKC) dan pertumbuhan populasi pada *Neo-Malthusian Theory* terhadap luas kawasan hutan di Asia Tenggara menggunakan data sekunder periode 2007–2021 dari *World Bank*. Analisis regresi data panel dengan model *Fixed Effect* menunjukkan hubungan *non-linier* signifikan antara GDP per kapita dan luas kawasan hutan, dengan keberlakuan kurva berbentuk U sesuai hipotesis EKC. Selain itu, jumlah populasi berpengaruh negatif signifikan terhadap luas kawasan hutan, mendukung hipotesis *Neo-Malthusian Theory*. Hasil ini menyoroti dampak ekonomi dan demografi terhadap deforestasi di wilayah tersebut.

**Kata kunci:** Environmental Kuznets Curve (EKC), Neo-Malthusian, Deforestasi, Pertumbuhan Ekonomi, Jumlah Populasi, Asia Tenggara



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## ABSTRACT

This study examines the Environmental Kuznets Curve (EKC) and Neo-Malthusian theories on the forest areas in Southeast Asia using secondary data for the period 2007–2021 from the World Bank. The regression analysis of panel data with the Fixed Effect model showed a significant non-linear relationship between GDP per capita and forest area, with the applicability of a U-shaped curve according to the EKC hypothesis. In addition, population numbers have a significant negative effect on the area of forest areas, supporting the hypothesis of the Neo-Malthusian Theory. These results highlight the economic and demographic impact on deforestation in the region.

**Keywords:** Environmental Kuznets Curve (EKC), Neo-Malthusian, Deforestation, Economic Growth, Population, Southeast Asia



## CHAPTER I

### INTRODUCTION

#### A. Background

At this time, the world is faced with one of the serious environmental problems, namely deforestation. According to a 2020 report by United Nations Environment Programme (UNEP), within the past 30 years, 420 million hectares of forest have been lost due to conversion for other land uses, while another 100 million hectares are at risk. This problem is a major threat to habitat loss for many species of flora and fauna and is one of the main emitters of greenhouse gases that contribute to global climate change. In addition, forests that have been damaged or lost their area have a direct impact on hydrological cycles, soil erosion, and natural disasters (Singh & Singh, 2017).

The focus of the important agenda to combat the climate crisis of the 21st century is to improve forest governance and promote sustainable development. As the main source of oxygen on earth, forests have a function in storing carbon dioxide. However, over time, forest degradation has changed its influence to become a source of carbon dioxide emissions. The release of carbon that was originally stored in the air makes an increase in emissions that are produced.

The Intergovernmental Panel on Climate Change report (IPCC, 2007) notes that emissions generated from deforestation are a total of 17.3% of global anthropogenic greenhouse gases and in some countries, this is the main source of emissions.

Southeast Asia is one of the regions with the largest forest area reaching 15% of the total in the world. This large area is unfortunately the main deforestation point in the world. The region has a deforestation rate of 1.2% of forests annually, followed by Latin America at 0.8% and Africa at 0.7% (McFarland, 2017). Deforestation is a pressing issue in the region. Many countries struggle to boost economic growth without taking serious steps for environmental sustainability. Therefore, deforestation is an interesting issue to be debated significantly among stakeholders (policymakers and researchers).

In this case, deforestation plays a significant role in the economic world because the environment is linked to economic growth (Dira et al., 2023). The importance of the environment in the context of the economy is based on the theory of production factors. In the economic realm, there are three factors of production that are the basis or foundation in producing the output of goods and services. The three factors include; First, land consists of all natural resources that are used in the production process such as agricultural land, forests, and mineral resources. Second, labor which involves the contribution of human labor in the production process, both

physically and mentally. Third, capital, which includes equipment, machinery, and infrastructure. These three elements are related to each other, with land having a very important role in the elements of these factors of production. Deforestation will reduce the availability of resources for the production process, which will ultimately hinder the company's ability to produce goods and services. So, from here, it is important to provide space related to the problem of deforestation in economic analysis to provide constructive suggestions to maintain the sustainability of economic activities and the balance of nature (Smith, 2015).

So, it can be concluded that the world is experiencing quite serious environmental damage and this damage is directly proportional to the damage in economic activities as mentioned above. In the analysis of this research, the researcher wanted to find out how the determinants of environmental damage that have implications for deforestation. By knowing these factors, it is hoped that it can be a research material to reduce and prevent deforestation.

Some of the variables used by previous researchers as determinants of deforestation from environmental damage are economic growth and square economic growth (Culas, 2007). In addition to some of the variables above, (Liu et al., 2017) adding that the relationship between population growth in terms of the level of land use and deforestation.

In this research, researchers want to investigate deforestation in Southeast Asia countries (Brunei Darussalam, Philippines, Indonesia,

Cambodia, Laos, Malaysia, Myanmar, Singapore, Thailand, Timor Leste, and Vietnam) by testing several variables that can affect deforestation. These variables consist of economic growth and square economic growth as well as population growth. For an explanation related to the relationship between variables. The researcher will make a review related to the relationship between the variables that will be used in this research.

In the economic growth variables that refer to the Environmental Kuznet Curve (EKC) theory, there are economic growth and square economic growth (Smith, 2015). For economic growth, researchers use a per capita GDP proxy. GDP per capita as a proxy of the economic growth theory is referred to from a source written by (Smith, 2015). EKC's theoretical exploration of deforestation is presented by (López, 1994). The implications of this model provide an overview of the relationship between economic growth and changes in deforestation rates as a country develops. The EKC assumes the existence of a relationship that follows an inverted U-shaped EKC pathway. The implication of this inverted U-shaped EKC is that it begins in the early stages of a country's economic expansion, where most of the pristine old forests remain untouched except for subsistence, building, and energy purposes. When a country develops economically, it experiences the effect of scale (Dinda, 2004); The country uses forests as an engine of economic development by cutting down trees quickly to obtain resources and allow the expansion of agriculture or the timber industry. Eventually, the country reaches an income level where the rate of

deforestation decreases and begins to decline, thus creating an inverted U-scale.

Another variable that affects deforestation is population growth. This is directly related to the wide coverage of the forest. Against deforestation, researchers use the Neo-Malthusian theory of population. Population growth as a theory of the Neo-Malthusian theory of population is referred to from research conducted by (Sunderlin & Resosudarmo, 1999). Neo-Malthus theory explains that exponentially increasing population growth will exceed the ability of natural resources, including agricultural land, to increase more slowly or linearly. With the increase in population, the need for food and agricultural land increased rapidly, so people were forced to convert forests into agricultural land to meet these needs.

From the above reasons, researchers are interested in researching the relationship between economic and non-economic influences on deforestation. The countries selected to be used as a sample in this research are 11 Southeast Asia member countries consisting of Brunei Darussalam, the Philippines, Indonesia, Cambodia, Laos, Malaysia, Myanmar, Singapore, Thailand, Timor Leste, and Vietnam. The time span of this research is from 2007 to 2021. The reason for choosing this year's range is because the most complete amount of data exists in that year's range and based on data that from 2007 to 2021 Southeast Asia countries experienced



a significant deforestation growth rate and became one of the highest in the world.

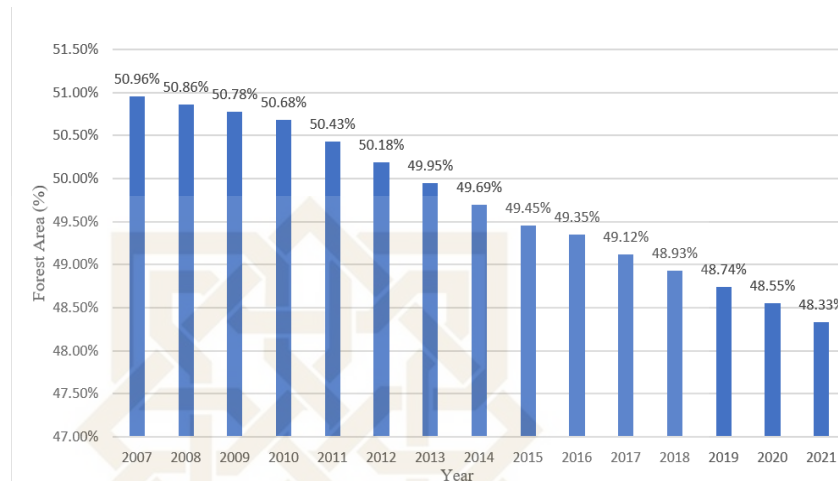


Figure 1.1: Graph of the Average Forest Area of Southeast Asia Countries

Source: World Bank 2024, Processed

Figure 1.1 shows the percentage of Average Forest area in Southeast Asia countries from 2007 to 2021. The graph highlights a serious environmental issue: the consistent decline in forest area in Southeast Asia, which reflects the ongoing deforestation crisis in the region. From 2007 to 2021, the forest area percentage dropped from 50.96% to 48.33%, translating to a reduction of 2.63% points over 15 years. While the decrease may appear gradual, it is significant when considering the ecological importance of forests and the accelerating pressures of human activities. The notable drop between 2012 (50.18%) and 2013 (49.95%) suggests a period of intensified deforestation, possibly driven by industrial activities. The consistent downward trend throughout the years indicates that conservation efforts have not been sufficient to reverse or even stabilize the loss of forest cover.

From the above explanations, the researcher decided to make research entitled The Influence of Economic Growth and Population Growth on Deforestation Case Studies of Southeast Asia Countries. This research can be considered useful as a link or bridge between literature that focuses on the environment, economy, and demography.

## **B. Research Question**

Based on the above background, the problems described in this paper are as follows:

1. How does the Environmental Kuznet Curve (EKC) hypothesis describe deforestation in Southeast Asia countries?
2. How does population growth affect deforestation in Southeast Asia countries?

## **C. Research Purposes**

Based on the research question above, the purposes of this research are as follows:

1. To analyze the Environmental Kuznet Curve (EKC) hypothesis regarding deforestation in Southeast Asia countries.
2. To analyze population growth, affect deforestation in Southeast Asia countries.

## **D. Benefits of Research**

Based on the problem research described above, the benefits of this research are as follows:

### 1. Theoretical Benefits

The author hopes that this research can be useful to increase knowledge and understanding to parties outside the author who can contribute to economic development efforts, especially in the problem of deforestation in Southeast Asia.

### 2. Practical Benefits

The authors hope that this research will provide benefits and contribute to the understanding of the factors affecting deforestation in Southeast Asia, so that it can help develop research in the field of environment as well as become a reference for those who need it. In addition, this research is expected to be a tool for the government and policymakers in designing and evaluating policies to effectively address the problem of deforestation. The results of this research are also expected to support the government's efforts to maintain a balance between economic development and environmental conservation, to create sustainable development in the Southeast Asia region.

## **E. Research Structure**

### **Chapter I Introduction.**

In this section, it discusses the background of the problem, the formulation of the problem, the purpose and benefits of the research, as well as an explanation of the systematics of writing.

**Chapter II Literature Review.** This section includes four sub-chapters that contain theoretical foundations that contain theories that are related to the problem being studied. After that, previous research on previous research with the same scope. After that, there is a research hypothesis which is a provisional statement as an answer to the problem formulation. Finally, there is a research framework that describes the research concept that has a detailed and systematic relationship between the existing variables.

**Chapter III Research Method.** This chapter discusses the types and methods of data collection, the operational definition of variables, and the analysis methods used in the research. First, explain the type of data taken to be used in the research, whether using primary data or secondary data, and explain where the source of the data was taken from. After that, explain the variables used in detail. Finally, it explains what methods are used to analyzing the selected data.

**Chapter IV Results and Discussion.** This chapter discusses the results and discussion of data that has been processed into a result. The first sub-chapter is the result of data processing and analysis. Furthermore, in the second sub-chapter about all the findings derived from the research and its analysis, then the results are given meaning to answer the hypothesis and research objectives.

**Chapter V Conclusion and Suggestion.** This chapter discusses the conclusions from the discussion described above and provides recommendations for answers to research problems.

## CHAPTER V

### CONCLUSION

#### A. Conclusion

From the results of the hypothesis test analysis and discussion that has been described, it can be concluded that the empirical evidence of the enactment of the Environmental Kuznets Curve (EKC) and the impact of the total population on deforestation in Southeast Asian countries in 2007 – 2021, means that if there is a change in each independent variable at the same time, then the deforestation will also change. Most of the ASEAN region is a developing country, so in the early stages, an increase in GDP per capita will also increase forest destruction. However, in the future, forest destruction will decrease when the use of environmentally friendly technology has begun to develop.

#### B. Implication

From the findings of this study, there are several theoretical, practical or policy implications that the author can write, namely:

1. For academic purpose, the results of this research can provide information to readers, add academic literature, and reference for future research as factors that can affect the increase and decrease deforestation mainly using EKC Theory and Neo-Malthusian theory. This research can also be considered useful as a link or bridge between literature that

focuses on the environment, especially deforestation, and research that focuses on economics and demographics.

2. For policymaker, the results of this study can provide a reference for policymakers that all policies or programs related to economic growth and control of population growth are important to protect forests. Governments in Southeast Asian countries also need to intervene in every program and activity related to economic growth and population growth.

### **C. Suggestion**

Suggestions for further research include:

1. Further research can be conducted more deeply on the impact of economic activities on deforestation because there are very few EKC and Neo-Malthusian theories used in deforestation.
2. The addition of independent variables in its effect on deforestation so that the results of economic analysis in future research will be deeper and more precise.



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