Abundance of Natural Resources: Influence on Economic Growth in ASEAN Countries

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Abstract

ASEAN GDP growth reached 3 trillion USD, with intra-ASEAN trade reaching 590.4 billion USD. ASEAN is projected to become the fourth largest economy in the world by 2050, and has shown rapid economic growth over the past few years. This study aims to analyze the waste of resources that affect the economic growth of ASEAN countries originating from the export value of natural resources of fuel, mining and mineral natural resources, agricultural natural resources, and food natural resources. This study analyzes the influence of natural resources (SDA) on economic growth in ASEAN countries, especially in exports of fuel, emissions and minerals, agricultural products, and food. This study uses a quantitative descriptive approach with panel data from 10 ASEAN countries during the period 2001-2020. The results show that mining and mineral natural resources have a significant positive impact on economic growth, while agricultural natural resources have a negative effect. Factors such as dependence on agricultural products, market instability, and limitations in technology and infrastructure have hampered optimal economic development.

Keywords: Economic growth; Abundance of Natural Resources; Export of Natural Resources; ASEAN; Data Panels

1. Introduction

In 2021, the population of the Southeast Asian region is estimated to reach 667,393,019 people. According to Asean.org (2023), one of the main objectives of the establishment of the unity of countries in the region is to encourage the economic growth of ASEAN countries. Economists argue that previously, the world economy was concentrated in the United States and the European Union, but over time, the world economy began to be evenly distributed and divided into developing countries, including ASEAN countries Haryati et al., (2015).

Until the early 1980s, most people believed that the wealth of natural resources (SDA) in a country could be a source of economic growth and increase state revenue for the development of other sectors. However, this view changed in the 1980s when the discovery of natural gas in the Netherlands actually led to the decline of the manufacturing industry there, as explained by Corden et al., (1982) in Rahma et al., (2021). The abundance of natural resources should be a driver of rapid economic growth, reduce poverty, and improve welfare. However, the paradox is that it occurs in countries rich in natural resources, where economic growth is low, poverty is even, and welfare is declining.

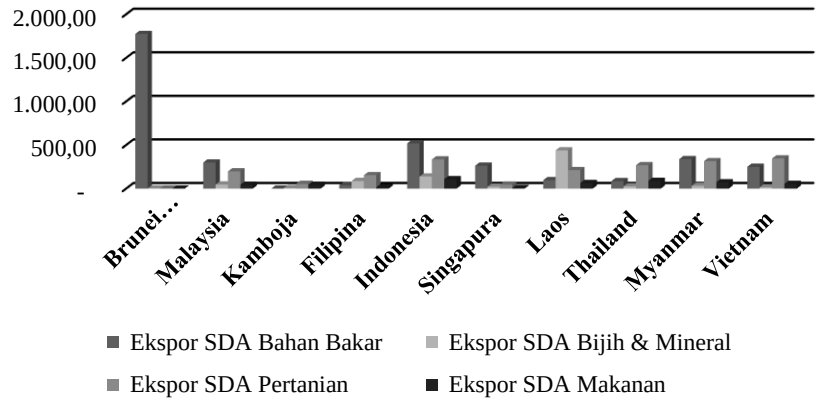

Figure 1

Percentage of Natural Resources in ASEAN Countries

Source: *World Development Indicators* (2023)

According to the data *World Development Indicators* (2023), in the period 2001-2010, several ASEAN countries stood out in fuel exports, including Brunei Darussalam, Indonesia, and Myanmar. Meanwhile, in ore and mineral exports, Laos, Indonesia, and the Philippines are

the most dominant countries. Indonesia, Myanmar, and Vietnam are the most dominant countries in agricultural product exports. Similarly, in food exports, Indonesia, Thailand, and Myanmar are the largest among ASEAN countries in terms of food production. Countries with high economic growth tend to have low natural resources, such as Singapore. On the other hand, countries such as Indonesia are famous for having a wealth of high natural resources that come from the mining sector, including coal, petroleum, gold, natural gas, and others (Ariana & Sopiana, 2023)

Economic growth is influenced by a variety of factors, including capital accumulation, technological advancements, natural resources, organizations, as well as non-economic factors such as politics, culture, and social organization (Riwut & Siregar, 2019). These non-economic factors can also influence economic factors, and vice versa. The economic progress of a region reflects the success of development, although it is not the only marker of the success of the development process. According to Sukirno (2015) in Mughniyati et al., (2023), economic growth in a function-based model of production is highly dependent on the number of service inputs and productivity factors. The production function describes the maximum number of results that a given combination of inputs can produce.

The economic growth of the region is highly dependent on the wealth of its natural resources (Faizal & Greece, 2019). When a region has abundant natural resource wealth, its economic growth tends to be high. This is due to the competitive advantage that encourages the region to focus and specialize in specific sectors. Exports are an important sector in supporting positive economic growth and improving people's welfare through foreign trade (Taufiq & Sopiana, 2019). Natural resource exports can reflect a country's natural resource wealth and provide economic benefits to the country that has those resources, the paradox of a country's natural resource wealth with slow economic growth suggests that export earnings can have a negative impact on trade-oriented sectors (Williams, 2011).

Based on the background description, the formulation of the problem in this study is (1) Does the difference in the abundance of natural resources (fuel, ore and minerals, agriculture and food) have a partial effect on economic growth in ASEAN countries? (2) Do differences in the abundance of natural resources (fuel, ore and minerals, agriculture and food) have a simultaneous effect on economic growth in ASEAN countries?

Based on the formulation of the problem above, the objectives of this study can be described, namely (1) Analyzing the difference in the abundance of natural resources (fuel, ore and minerals, agriculture and food) simultaneously on economic growth in ASEAN countries.

(2) Analyze the difference in the abundance of natural resources (fuel, ore and minerals, agriculture and food) partially to economic growth in ASEAN countries.

2. Literature Review

2.1 Economic Growth

According to Rostow, economic development involves changes in various social, cultural, and political aspects. Todaro (2006), has a similar view, defining development as improving the quality of life through appropriate economic growth, the creation of conditions that support people's self-esteem, and the improvement of individual freedom. Rostow emphasized that economic growth is triggered by fundamental changes in patterns of economic activity, political life, and social relations. Economic development is a multidimensional process that includes changes in: a) The orientation of economic, political, and social organizations. b) The community's view of the number of children. c) Investment activities. d) Assessment of individual values in society. e) Views on natural resources.

These changes include a shift in orientation from local to global, a reduction in the number of children, a shift from unproductive to productive investments, individual assessments based on ability and achievement, and the view that humans must manipulate nature for progress. The broader concept of development also includes aspects of knowledge and technology, human development, sustainable development, and institutional development. Development is seen as a process of continuous structural change with different challenges according to the conditions of each country.

2.2 Natural Resources

According to Suparmoko (2014), natural resources include everything on earth, both on the surface and below, that have not been fully utilized and can be used to produce economic goods and services. Zuada et al. (2021) put forward two perspectives related to the abundance of natural resources. The first perspective is a positive view that sees natural resources as a gift, where their abundance has a positive impact on the political and economic life of a country. Revenue from sales and taxes on the exploitation of natural resources is expected to boost the economy, create welfare, and support democratization.

In contrast, the second perspective describes natural resources as a curse, where abundance can lead to environmental damage, political instability, authoritarian regimes, conflicts, corruption, and poverty. Torvik (2002), developed a theoretical model that showed that the abundance of resources increases incentives for 'non-productive' or rent-seeking activities, which can have a negative impact on economic growth. Auty (2001), emphasized

the importance of the type of resource. Point resources such as oil and diamonds tend to be more problematic than diffuse resources such as rice and wheat. Point resources are easier for the government to control, triggering rent-seeking behavior, while diffuse resources are more dispersed, making control more difficult and reducing incentives for rent-seeking.

2.3 The Curse of Natural Resources

According to the World Bank (2011) dalam Yudha (2020), resource-rich countries tend to develop more slowly than countries with fewer natural resources. For example, Nigeria, Zambia, Venezuela, Saudi Arabia, Sierra Leone, and Angola have abundant resources but are still lagging behind. In contrast, countries such as South Korea, Hong Kong, Taiwan, and Singapore, which are poor in natural resources, are showing good economic performance. The World Bank states that the economies of resource-rich countries tend to lag behind compared to countries with fewer resources. However, not all resource-rich countries are affected by the resource curse. Canada, Norway, Botswana, and Australia are examples of resource-rich countries that have managed to develop economically.

Williams (2011), explains that the "resource curse" can be grouped into two models: "Dutch disease" and "Nigerian disease". The Dutch disease model focuses on allocating resources to the primary commodity sector, sacrificing the manufacturing sector and making manufacturing exports less competitive due to high exchange rates. The Nigerian disease model hypothesizes that revenues from these resources are often wasted by governments that do not have the institutional capacity to manage them efficiently, often due to corruption and rent-seeking.

2.4 Natural Resources Export

According to Rahman & Sopiana (2019) exports are an important sector in supporting economic growth. Foreign trade can improve people's economic welfare. Williams (2011) states that natural resource exports reflect the abundance of a country's resources and the benefits obtained from it. Usui (1997) highlighted the paradox that countries with a lot of natural resources often experience low economic growth because export revenues can have a negative impact on tradable sectors. Natural resources are classified into four types to analyze their impact on economic growth: fuels, ores and minerals (which tend to negatively impact institutions), and food and agriculture (which have a smaller impact). This data on income from natural resources is obtained from the World Development Indicators for each country and year. This economic growth is calculated using variables: natural resources for fuel, natural resources for ores and minerals, natural resources for agriculture, and natural resources for food. This research only focuses on ASEAN countries in order to see in more detail whether

natural resources and their types of natural resources can affect economic growth in ASEAN countries.

The provisional hypotheses/conjectures in this study that the author will do are as follows:

1. H_1 = Simultaneously natural resources (fuel (X_1), ores and minerals (X_2), agriculture (X_3), and food (X_4)) affect Economic Growth (Y)
2. H_2 = Partially Natural resources (fuel (X_1), ores and minerals (X_2), agriculture (X_3), and food (X_4)) affect Economic Growth (Y)

3. Method

The focus of this research is on natural resources of fuels, natural resources of ores and minerals, natural resources of agriculture, natural resources of food and how these factors can affect economic growth in ASEAN countries from 2001 to 2020. This study is a quantitative study, secondary data is data used where it was collected in a period of 20 years from 2001 to 2020 from *World Development Indicators.*

3.1 Design Study

This study uses panel data analysis sourced from 10 ASEAN countries. The method used is quantitative, where emphasis is placed on the processing of numerical numbers using statistical models. This study uses quantitative descriptive data sources, using the type of data used in this study, namely panel data. The two hypotheses above will be tested using data panels, as this study attempts to analyze the crosssectional and time-series impact of natural resource revenues on economic growth in the 10 ASEAN member countries from 2001 to 2020.

3.2 Data Analysis

Data analysis using the panel data regression method with three different estimation approaches, namely *the Common Effect Model* (CEM), *Fixed Effect Model* (FEM), and *Random Effect Model* (REM). This research uses Eviews 12 software, which can be formulated as follows:

$$\boldsymbol{Yit = \beta_0 + \beta_1 X_1 it + \beta_2 X_2 it + \beta_3 X_3 it + \beta_4 X_4 it + \varepsilon}$$

Information:

Yit = Economic Growth

β_0 = *Intercept*

$\beta_1, \beta_2, \beta_3, \beta_4$ = *Coefficient*

X_1 = Natural Resources Fuel

X_2 = Natural Resources of Ores and Minerals

X_3 = Agricultural Natural Resources

X_4 = Natural Resources Food

ε = *Error Terms*

I = Country

t = Year

4. Results

In this study, there are four independent variables, namely natural resources of fuel, natural resources of ores and minerals, natural resources of agriculture, and natural resources of food, as well as one dependent variable, namely economic growth. Data management in this study was carried out using Eviews 12 software.

4.1 Natural Resources Fuel

Natural resources include a variety of commodities that fall under Part three *Standard International Trade Classification* mineral fuels, lubricants, and other related products including coal, coke, briquettes, petroleum, petroleum products, gas, natural and maufabric, and electricity *(World Development Indicators*, 2023).

Table 1

Fuel Natural Resources Exports in 2001-2020

In Percent

	Brunei D	Malaysia	Cambodia	Philippines	Indonesian	Singapore	Laos	Thailand	Myanmar	Vietnamese	East Timor
2001	95,3	9,7	0,0	0,8	25,3	7,6	0,0	2,8	0,0	22,9	0,0
2002	93,2	8,4	0,0	1,2	24,3	7,8	0,0	2,7	0,0	21,2	0,0
2003	94,4	10,1	0,0	1,6	25,7	8,5	0,0	2,6	0,0	20,6	0,0
2004	91,4	11,6	0,0	1,3	25,9	10,0	0,0	3,5	0,0	23,5	0,0
2005	0,0	13,4	0,0	1,9	27,7	12,2	0,0	4,3	0,0	25,8	0,0
2006	96,3	13,7	0,0	2,3	27,4	13,0	0,0	5,0	0,0	24,4	0,0
2007	96,1	14,4	0,0	2,8	25,6	13,7	0,0	4,5	0,0	20,7	0,0
2008	97,8	18,3	0,0	3,3	29,0	18,3	0,0	6,4	0,0	20,2	0,0
2009	96,1	14,8	0,0	1,9	28,3	15,2	0,0	5,1	0,0	14,9	0,0
2010	95,2	15,8	0,0	2,1	29,6	16,1	0,9	4,9	35,2	11,0	0,0
2011	95,4	17,7	0,0	2,9	33,9	19,5	0,8	5,6	35,9	11,4	0,0
2012	95,7	20,4	0,0	2,4	33,3	18,2	0,7	6,5	24,4	9,9	0,0
2013	96,5	22,3	0,0	3,8	31,4	17,0	0,6	6,3	33,6	7,3	0,0
2014	92,5	22,1	0,0	3,0	29,0	16,5	0,0	5,3	42,8	6,1	0,0

2015	93,0	16,5	0,0	1,3	23,0	12,2	0,2	3,9	44,5	3,1	0,0
2016	87,9	14,0	0,0	1,3	19,3	11,1	0,2	2,9	28,2	2,0	0,0
2017	89,6	15,4	0,0	1,5	21,8	12,8	26,3	3,5	26,8	2,3	2,0
2018	95,6	15,7	0,0	1,7	23,3	13,1	24,3	4,2	21,9	1,6	0,0
2019	91,1	14,4	0,0	1,5	20,3	12,3	27,1	3,6	25,1	1,4	0,0
2020	81,5	11,4	0,0	1,1	15,6	8,1	16,9	2,7	20,5	0,9	0,0

Source: *World Development Indicators* (2023)

The table above shows that the percentage of fuel natural resource exports in ASEAN countries from 2001 to 2020 fluctuated.

4.2 Ore and Mineral Natural Resources

Ore and mineral natural resources are the export value of the country's ore and mineral natural resources which are divided into several categories in the *Standard International Trade Classification* (SITC). This includes commodities in section twenty-seven such as crude fertilizers, crude minerals (excluding coal, petroleum and precious stones), section twenty-eight such as metal ores and scrap metal of animal materials, and section sixty-eight namely industrial non-ferrous metals.

Table 2

Exports of Ore and Mineral Natural Resources in 2001-2020

In Percent

	Brunei D	Malaysia	Cambodia	Philippines	Indonesian	Singapore	Laos	Thailand	Myanmar	Vietnamese	East Timor
2001	0,00	1,02	0,00	1,87	5,45	1,15	0,00	1,07	0,00	0,65	0,00
2002	0,00	0,93	0,00	1,45	5,24	1,08	0,00	1,12	0,00	0,51	0,00
2003	0,00	0,87	0,02	1,72	5,70	1,07	0,00	0,99	0,00	0,52	0,00
2004	0,12	1,11	0,01	2,39	6,41	1,17	0,00	1,15	0,00	0,70	0,00
2005	0,00	1,12	0,01	2,27	8,45	1,05	0,00	1,24	0,00	0,57	0,00
2006	0,12	1,33	0,03	4,44	9,91	1,35	0,00	1,50	0,00	0,69	0,00
2007	0,09	1,58	0,12	5,42	10,65	1,67	0,00	1,78	0,00	0,77	0,00
2008	0,09	1,79	2,79	5,19	7,91	1,35	0,00	1,30	0,00	0,90	0,00
2009	0,08	1,53	0,76	3,91	9,09	1,19	0,00	1,06	0,00	0,72	0,00
2010	0,15	1,95	0,13	3,91	9,79	1,17	50,22	1,27	0,71	1,02	0,00
2011	0,09	2,48	0,08	5,59	7,76	1,18	62,50	1,38	0,77	0,83	0,00
2012	0,11	2,32	0,16	5,05	6,28	1,04	56,44	1,32	1,25	0,64	0,00
2013	0,09	3,29	0,24	6,11	7,03	1,19	57,25	1,29	1,13	0,71	0,04
2014	0,11	2,88	0,26	6,59	4,73	1,16	46,88	1,32	1,73	0,79	0,00
2015	0,16	3,93	0,12	5,06	5,48	1,24	40,32	1,14	2,25	0,80	0,00
2016	0,32	3,85	0,13	4,00	5,75	1,10	36,93	1,20	2,54	0,82	0,00
2017	0,26	3,95	0,28	5,58	5,95	1,03	24,53	1,48	4,04	1,01	0,26

2018	0,00	4,27	0,27	4,91	6,87	0,87	26,35	1,61	5,93	1,13	0,00
2019	0,33	3,86	0,49	5,12	5,45	0,72	22,48	1,60	5,28	1,09	0,00
2020	0,08	3,50	0,56	6,60	5,57	0,72	15,74	1,86	6,49	1,05	0,00

Source: *World Development Indicators* (2023)

Table two shows that the percentage of exports of ore and mineral natural resources in ASEAN countries from 2001 to 2020 fluctuated.

4.3 Agricultural Natural Resources

Agricultural natural resources are the export value of the country's agricultural natural resources which are divided into several categories in the *Standard International Trade Classification* (SITC). This includes , among others, leather, furry leather, raw rubber, cork, wood, pulp (pulp), waste paper, textile fibers and their waste (unprocessed), raw animals and vegetables, except divisions twenty-two (22), twenty-seven (27), and twenty-eight (28). The division includes raw materials except fuels (division twenty-two 22), raw fertilizers and certain minerals (division twenty-seven 27), as well as metalliferous ores and scrap (division twenty-eight 28), with the exception of coal, petroleum, and precious stones.

Table 3

Agricultural Natural Resources Exports in 2001-2020

In Percent

	Brunei D	**Malaysia**	**Cambodia**	**Philippines**	**Indonesian**	**Singapore**	**Laos**	**Thailand**	**Myanmar**	**Vietnamese**	**East Timor**
2001	0,00	2,12	2,35	0,52	3,59	0,43	0,00	3,14	0,00	1,95	0,00
2002	0,01	2,25	2,16	0,48	4,33	0,40	0,00	3,69	0,00	2,32	0,00
2003	0,00	2,39	2,11	0,56	4,95	0,35	0,00	4,68	0,00	2,42	0,00
2004	0,01	2,45	1,77	0,58	5,02	0,35	0,00	4,80	0,00	2,38	0,44
2005	0,00	2,48	1,58	0,54	5,06	0,32	0,00	4,54	0,00	3,12	0,13
2006	0,00	2,74	1,63	0,51	6,40	0,31	0,00	5,26	0,00	4,07	0,00
2007	0,00	2,46	1,57	0,51	6,24	0,28	0,00	4,73	0,00	3,82	0,00
2008	0,00	2,35	0,90	0,63	6,40	0,28	0,00	4,76	0,00	3,31	0,00
2009	0,01	2,06	1,16	0,60	4,52	0,23	0,00	3,85	0,00	2,77	0,00
2010	0,01	2,65	2,29	0,70	6,55	0,29	2,03	5,19	8,79	4,05	0,00
2011	0,01	3,17	3,69	1,05	7,51	0,31	4,80	7,05	11,86	4,36	0,00
2012	0,01	2,40	3,31	0,84	5,96	0,25	4,65	4,93	23,83	3,39	0,00
2013	0,02	2,17	3,55	0,99	5,86	0,29	4,89	4,81	9,15	3,20	32,63
2014	0,02	1,76	3,79	1,04	4,94	0,32	6,48	3,91	5,10	2,33	0,00
2015	0,03	1,85	2,13	0,95	5,00	0,43	4,96	3,76	2,56	2,12	0,00
2016	0,03	1,94	2,04	0,84	4,82	0,54	3,11	3,86	2,46	1,96	0,00
2017	0,04	2,13	2,86	0,90	5,99	0,57	3,78	4,92	2,42	1,94	25,06

2018	0,01	1,68	2,21	0,94	5,09	0,58	8,38	4,04	1,97	1,84	0,00
2019	0,03	1,70	1,69	1,13	5,45	0,50	10,79	3,85	2,17	1,90	0,00
2020	0,02	1,56	1,73	1,15	5,10	0,43	10,33	3,63	2,87	1,75	0,00

Source: *World Development Indicators* (2023)

The table above shows that the percentage of agricultural natural resource exports in ASEAN countries from 2001 to 2020 tends to fluctuate.

4.4 Natural Resources Food

Food natural resources are the export value of the country's food natural resources consisting of commodities in SITC (*Standard International Trade Classification)* including the zero (0) part of food and live animals, meat, dairy products, bird eggs, fish (not marine mammals), cereals and processed cereals, vegetables and fruits, sugar, processed sugar and honey, coffee, thea, cocoa, spices, food for animals and various kinds of edible products and processed products. Part one (1) beverages and tobacco, and part four (4) animal and vegetable oils and fats, as well as SITC division twenty-two (22) oilseeds, oilnuts, and oilseeds.

Table 4

Food Natural Resources Exports in 2001-2020

In Percent

	Brunei D	**Malaysia**	**Cambodia**	**Philippines**	**Indonesian**	**Singapore**	**Laos**	**Thailand**	**Myanmar**	**Vietnamese**	**East Timor**
2001	0,01	6,06	1,20	5,57	8,88	2,28	0,00	15,43	0,00	26,77	0,00
2002	0,02	7,54	0,79	5,20	11,45	2,28	0,00	14,59	0,00	25,40	0,00
2003	0,02	8,59	0,46	6,00	11,33	1,93	0,00	14,09	0,00	22,89	0,00
2004	0,04	7,95	1,09	5,85	12,25	1,82	0,00	12,93	0,00	20,69	99,03
2005	0,00	6,94	0,91	6,07	11,66	1,47	0,00	11,64	0,00	20,24	96,25
2006	0,09	6,96	0,61	5,46	11,62	1,42	0,00	11,25	0,00	19,29	0,00
2007	0,06	9,22	0,72	5,91	14,62	1,57	0,00	11,54	0,00	19,51	0,00
2008	0,04	11,65	0,66	7,44	17,58	1,70	0,00	13,24	0,00	19,92	0,00
2009	0,02	11,21	0,78	7,66	17,16	1,95	0,00	14,52	0,00	20,71	0,00
2010	0,04	11,88	1,44	7,32	16,24	1,95	24,32	12,80	17,31	19,25	0,00
2011	0,04	13,97	2,64	10,23	16,15	2,11	12,28	13,75	28,41	18,58	0,00
2012	0,05	12,51	3,49	8,92	17,73	2,12	14,83	13,38	33,52	17,04	0,00
2013	0,16	10,99	5,84	10,42	17,50	2,30	14,16	12,85	28,56	14,44	30,49
2014	0,39	11,11	5,27	10,21	20,10	2,54	17,34	13,57	26,90	14,82	0,00
2015	0,11	10,83	4,77	7,73	21,45	2,83	21,06	13,53	31,90	12,96	0,00
2016	0,17	11,55	4,51	8,36	22,28	2,88	29,34	13,47	37,32	12,87	0,00
2017	0,19	11,03	4,78	9,31	23,19	2,61	20,82	13,57	32,22	12,11	64,00
2018	0,09	9,09	5,15	8,66	20,45	3,25	17,17	13,48	26,05	10,63	0,00
2019	0,15	9,27	4,59	9,06	20,30	3,53	13,47	14,54	24,22	9,42	0,00

2020	0,16	10,07	4,45	9,32	23,61	3,43	28,07	14,42	28,90	8,78	0,00

Source: *World Development Indicators* (2023)

Table four shows that the percentage of food natural resource exports in ASEAN countries from 2001 to 2020 fluctuated.

4.5 Panel Data Model Estimation Results

In the initial stage of the analysis using panel data regression, the first step was to estimate three different regression models: *the Common Effect Model, the Fixed Effect Model, and the Random Effect Model.* This estimate requires special calculations that will be carried out through the Eviews version 12 software.

Table 5

Regression Results

Variable	**CEM**	**FEM**	**BRAKE**
Constant	0,0000	0,0000	0,0000
Natural Resources Fuel	0,0000	0,3431	0,3216
Ore and Mineral Resources	0,3586	0,0158**	0,0515***
Agricultural Resources	0,5752	0,0001*	0,0013*
Food Resources	0,6676	0,9031	0,6844
Chow Test		0,0000	
Hausman Test			0,0717
Langrange Multiplier Test			0,0000

*Significant at 1%

**Significant at 5%

Significant at 10%

Source: Eviews version 12, data processed (2024)

Based on table 5, it is explained that, in the chow test, the selected model is *a fixed effect model* (FEM) because it has a Cross-section F probability value of 0.0000 < 0.05. Furthermore, the test method carried out, namely the hausman test, showed a random Cross-section probability value of 0.0717 > 0.05. Because the random *effect model* (REM) model was selected next, the *langrange multiplier* test *showed a* breusch-pagan *probability value* of 0.0000 > 0.05. So, the model chosen is the *random effect model* (REM).

4.6 Results of the Classic Assumption Test

Classical assumption testing is necessary to ensure that the selected regression model meets the BLUE (Best Linear Unbiased Estimated) principle. From the data processing carried out, the results of the classic assumption test are obtained as follows:

Table 6

Results of the Classic Assumption Test

Multicoloniality Test				
Natural Resources Fuel	1,000000	-0,125861	-0,108766	-0,093190
Ore and Mineral Resources	-0,125861	1,000000	0,317448	0,276391
Agricultural Resources	-0,108766	0,317448	1,000000	0,671693
Food Resources	-0,093190	0,276391	0,671693	1,000000
Heteroscedasticity Test				
Cross-sectional test	*Residues are homokedastic*			
Test period	*Residues are homokedastic*			

Source: Eviews version 12, data processed (2024)

Based on the table above, all independent factors in this study, namely fuel natural resources (X1), mineral and mineral natural resources (X2), agricultural natural resources (X3), and food natural resources (X4), have passed the multicollinearity test, this can be seen from the correlation coefficient that is below or less than 0.85. The results of the heteroscedasticity test in the cross-section and period tests showed that *"residuals are homoskedastic"*, indicating that the variation of error is fixed or constant.

4.7 f-Statistic Test Results

The simultaneous influence of independent variables was tested using the f-test. If the significance value (sig) of the model f is less than or equal to 0.05, then the model is considered feasible. Here are the findings from the statistical test f in this study:

Table 7

f-Statistic Test Results

Information	**Value**
F-Statistics	4,530061
Prob F-stats	0,001605

Source: Eviews version 12, data processed (2024)

From the results of the data analysis listed, Prob (F-statistic) has a value of 0.001605, which is smaller than α 0.05. This shows that the variables of natural resources for fuel, natural resources for ores and minerals, natural resources for agriculture and natural resources for food as a whole have a significant influence on economic growth in ASEAN countries from 2001 to 2020, with a confidence level of 95% (α = 5%. Therefore, it can be concluded that the independent variable in this study is feasible and able to predict the dependent variable.

4.8 t-Statistic Test Results

From the results of the data analysis, the value of Prob. t for the fuel natural resources variable (X1) is 0.3216, which is greater than α 0.10, indicating that the variable has no significant influence on economic growth.

Meanwhile, the variable of ore and mineral natural resources (X2) showed a significant influence on economic growth, with a Prob value. t Ore and mineral natural resources variable of 0.0515, which is smaller than α 0.10, based on the results of data analysis.

The variable of agricultural natural resources (X3) also has a significant influence on economic growth, indicated by the value of Prob. t the variable of natural food resources is 0.0013, which is smaller than α 0.10.

The results of the data processing show that the value of Prob. t for the food natural resources variable (X4) is 0.6844, which is greater than α 0.10, indicating that the variable has no significant influence on economic growth.

4.9 Determination Coefficient Test Results (R^2)

The determination coefficient test or R-squared, provides an overview of how much the contribution or influence of all independent variables simultaneously on the dependent variable (Yolanda, 2020). In this study, the results of the determination coefficient (R^2) test were used to evaluate the extent to which independent variables, such as natural resources for fuel (X1), ores and minerals (X2), agriculture (X3), and food (X4), were able to explain the variation in the dependent variable, namely economic growth (Y) in ASEAN countries.

Table 8

R-squared Test Results

Information	Value
R-squared	0,085024
R-squared *adjusted*	0,066255

Source: Eviews version 12, data processed (2024)

From the results of the data analysis presented, the R-squared value is 0.085024. This indicates that the 8.5% variation in economic growth in ASEAN countries can be explained by the variables of natural resources fuels (X1), ores and minerals (X2), agriculture (X3), and food (X4). The rest, which is 91.5%, is influenced by other factors outside the variables studied.

4.10 Regression Analysis Results

The influence of natural resources such as fuels, ores and minerals, agriculture, and food on economic growth using panel data analysis. The results of data analysis show that this study applies the *Random Effect Model* (REM) estimation method using Eviews 12 software, which can be seen in the table below.

Table 9

Results of Panel Data Regression Estimation with *Random Effect Model*

Variable	***Coefficient***	**Kesalahan Std.**	**t-Statistics**	**Prob**
Coefficient	6,562885	0,453279	13,92720	0,0000
Natural Resources Fuel	-0,018152	0,024664	0,950573	0,3216
Ore and Mineral Resources	0,057480	0,030700	2,436425	0,0515***
Agricultural Resources	-0,136137	0,045566	-4,139192	0,0013*
Food Resources	0,044319	0,110738	0,121934	0,6844
Prob F-stats				0,001605
R-squared adjusted				0,066255

*Significant at 1%

**Significant at 5%

Significant at 10%

Source: Eviews version 12, data processed (2024)

The equation of the panel data model for this study can be formulated as follows, as shown in the table above:

Y = 6.563 - 0.018*X1 + 0.057*X2 – 0.136*X3 + 0.044*X4

The following are a number of interpretations of the formula above, namely that the constant value of 6.563 has a positive direction, which means that if natural resources for fuel (X1), natural resources for ores and minerals (X2), natural resources for agriculture (X3) and natural resources for food (X4) have values equal to 0, then the economic growth of ASEAN countries is equal to 6.563. The regression test calculation and study findings show that the

regression coefficient of the fuel natural resource variable (X1) of 0.018 is negative. This means that assuming all other factors remain constant, the economic growth of ASEAN countries will decrease by 0.018 percent if natural fuel resources increase by 1%. The regression test calculation and research test findings show that the ore and mineral natural resource variable (X2) has a positive regression coefficient of 0.057. This shows that assuming all other factors remain the same, the economic growth of ASEAN countries will increase by 0.057 percent if the natural resources of ores and minerals increase by 1%. The calculation of the regression test and the findings of the study show that the variable of agricultural natural resources (X3) has a negative regression coefficient of 0.136. This shows that assuming all other factors remain the same, the economic growth of ASEAN countries will fall by 0.136 percent for every 1% increase in agricultural natural resources. The calculation of the regression test and the findings of the study showed that the variable of natural food resources (X4) had a positive regression coefficient of 0.044. This shows that assuming all other factors remain the same, the economic growth of ASEAN countries will fall by as much as 0.044 percent for every 1% increase in food natural resources.

5. Discussion

Based on the results of the study, natural resources for fuel (X1), ores and minerals (X2), agriculture (X3), and food (X4) in ASEAN countries in the period from 2001 to 2020 showed a tendency to fluctuate every year. The study also supports Rostow's theory of economic growth, which identifies in its theory the key factors that trigger economic growth as well as identifying the changes that occur at each stage of community development. This theory emphasizes that economic growth depends not only on changes in economic activity, but also on the political structure and social relations of the community. Economic development is considered a complex process that involves transformation in the orientation of economic, political, and social organizations, views on the family, community investment, value assessment in society, and perspectives on natural resources.

The results of the study show that there is a positive but insignificant influence between the variables of natural resources, fuels and economic growth in ASEAN countries. This is due to fluctuations in the value of natural fuel resources that occur every year in ASEAN countries. The results of this study are in line with previous research conducted by Auty (2001) in Judha (2020), which also found a positive but insignificant influence between natural fuel resources and economic growth.

The results of the study show that there is a positive and significant influence between the variables of ore and mineral natural resources with economic growth in ASEAN countries. The results of this study are in line with previous research conducted by Yudha (2020), which also found a positive and significant relationship between mineral and mineral natural resources and economic growth.

The findings of the study show that there is a significant but negative influence between agricultural natural resource variables and economic growth in ASEAN countries. The causes are dependence on agricultural natural resources, market instability, limitations in technology and infrastructure, vulnerability to climate change, political instability, etc. The abundance of agricultural resources in these countries, but not managed properly and countries rich in agricultural natural resources tend not to have adequate technology to manage them so that the exported resources are still in the form of raw goods that have not been processed. This creates obstacles to economic growth, which ultimately hinders optimal economic development. These findings are supported by previous research conducted by Yudha (2020), which also found a negative significant relationship between agricultural natural resources and economic growth.

The results of the study show that there is a positive but insignificant influence between the variables of food natural resources and economic growth in ASEAN countries. This factor is due to the volatile and widespread nature of the natural resources of food, which makes it difficult to maintain ownership and authority over those types of natural resources. The results of this study are consistent with previous research conducted by Auty (2001) in Judha, (2020), which also found a positive but insignificant influence between natural food resources and economic growth.

6. Conclusion, Implication, And Recommendation

6.1 Conclusion

Natural resources of fuels, ores and minerals, agriculture, and food simultaneously had a significant impact on economic growth in ASEAN countries from 2001 to 2020. Meanwhile, partially mineral and mineral natural resources have a significant impact and are positively correlated with economic growth in ASEAN countries during the period 2001-2020. However, agricultural natural resource exports had a significant impact but were negatively correlated with economic growth in ASEAN countries over the same period. This suggests that an increase in ore and mineral exports is likely to boost economic growth, while an increase in agricultural exports is likely to lower economic growth in ASEAN countries.

6.2 Implications

It is hoped that this study will provide useful understanding, information, and references regarding the variables used, such as natural resources of fuel, ores and minerals, agriculture, and food as independent variables, as well as economic growth as the dependent variables. The theoretical implications of this study are expected to provide deeper insights into the relationship between these variables. Furthermore, it is hoped that the practical implications of this study can be a valuable input for policy and program making by the government. It aims to increase economic growth by taking into account the role of factors such as natural resources of fuel, ores and minerals, agriculture, and food.

6.3 Recomendation

Subsequent research is recommended to expand the amount of data and consider additional variables that can affect economic growth. This aims to increase satisfaction and comprehensiveness of research results. Also, it is recommended to consider cross-country research to compare different regions. In addition, governments in ASEAN are advised to optimize the processing of natural resources to be exported to increase their selling value, which will contribute to increasing state revenue, and governments must maintain natural resources to maintain the sustainability of existing natural resources so that they do not run out quickly, considering that sustainable use can prevent scarcity of these resources. ASEAN governments are also advised to invest in agricultural infrastructure and technology, mitigate climate change, resolve political conflicts, and increase food distribution to maximize the potential of agricultural natural resources to support sustainable economic growth.

6.4 Research Limitations

This research has certain limitations. The focus is only on ASEAN countries, so the impact of the "resource curse" taken into account by the model may not be comprehensive, as there are other countries that are also heavily dependent on natural resources. Thus, the results of this study may not provide a complete picture of the influence of natural resource wealth as a whole.

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