

Effect of Coal Export on Gross Domestic Product in Indonesia

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Abstract

This study aims to analyze effect of coal export on gross domestic product in Indonesia. This study uses a descriptive research method with a quantitative approach. Internal secondary data is obtained through data from the Central Statistics Agency starting from 1987 to 2021 in the form of time series data. This study uses a partial test in solving the problem. The results show that coal export has a positive and significant effect on gross domestic product in Indonesia.

Keywords

coal; export; gross domestic product



I. Introduction

Economic growth is a process of increasing output per capita continuously in the long term. Economic growth is one indicator of the success of development. High and sustainable economic growth is an important condition or a must for the continuity of economic development and improvement of welfare. The Indonesian economy is supported by various sectors, especially those that greatly affect national income. Economic growth reflects the economic development of a country, which can be measured by national income or gross domestic product. National income is carried out to see the progress of society and the state in the economy as well as to see the distribution of development in order to achieve justice and prosperity, to obtain an accurate estimate of the value of goods and services produced by the community for one year, to examine and control the factors that affect the level of the economy of a country, and help plan and implement future development programs to achieve national development goals.

According to the Central Bureau of Statistics, gross domestic product at current prices can be used to see shifts and economic structure, while constant prices are used to determine economic growth from year to year.

Land and other wealth are divine gifts that need to be preserved in the process of successful sustainable economic development. Utilization of land and other resources needs to be done effectively due to their limited existence so that this ancestral heritage can really be useful for population development throughout the ages. According to Law Number 3 of 2020 concerning Amendments to Law Number 4 of 2009 concerning Mineral and Coal Mining Article 1 paragraph 1 explains that coal is a deposit of carbonaceous organic compounds formed naturally from plant remains.

Aladin and Mahfud (2011) explains that coal is one of the natural wealth of combustible organic rock sediments (with the main composition of carbon, hydrogen and oxygen), formed from plant remains over a long period of time (tens to hundreds of

millions of years). Plant remains can come from, among others, mosses, algae, wood, fruit and leaves which are sources of organic compounds (cellulose, carbohydrates, lignin, protein and fat). Besides being formed from organic compounds, it is also accompanied by inorganic compounds, especially mineral elements derived from clay, quartz sand, limestone, and so on. Due to the influence of pressure and microbes accompanied by several chemical and physical events or geological conditions, the remains of these plants will crumble, agglomerate, unite with others which eventually form coal seams.

Coal is useful as a source of fuel and energy. Fuel is a material which, when burned, is in contact with and reacts with air (oxygen) to produce heat, provided that the fuel contains elements of carbon and hydrogen or carbon-hydrogen compounds. Coal as a fuel has been widely used in various needs, including for daily use (small scale) in heating and household kitchens, in industrial furnaces, and in gas manufacture. Meanwhile, the use of coal as a power plant has been used to propel ship engines, trains, electricity and others.

Export is a foreign trade activity that carries out the delivery and sale of goods and services to foreign markets. Export activities lead to a flow of goods abroad, while the reward is in the form of income in the form of foreign exchange entering the country (Karya and Syamsuddin, 2016).

International free trade has been referred to as the “engine of growth” that fueled the development of today's economically developed countries during the nineteenth and early twentieth centuries. The rapid expansion of the export market has added stimulus to the growth of local demand which has led to the establishment of a number of large-scale manufacturing industries (Todaro, 2009).

Exports of coal commodities throughout the year continued to increase even though it was followed by up and down growth, but still showed a good impact on Indonesia's economic growth.

In an open economy, some of the output is sold domestically and some is exported abroad. An open economy interacts with other economies in two ways: buying and selling goods and services in world product markets (Mankiw, 2018).

An open economy is carried out by foreign trade activities in the form of exporting and importing the same commodities at the same time. This trade is known as intra-industry trade. Intra-industrial trade is a concept of international trade that measures the performance of exports by a country's industry as well as the performance of imports of the same industry from other countries. Intra-industry trade is important to be implemented in Indonesia because of the problem of the industry's competitive ability on an international scale.

The Executive Director of the Indonesian Coal Mining Association said that coal imports were carried out because the coal specifications required by certain industries were not produced in Indonesia. This means that coal imported from other countries is useful as industrial raw material. These industries are the steel industry.

The classification of coal is accompanied by criteria based on proximate analysis and calorific value, as well as criteria based on ultimate analysis and total sulfur content and density. Lignite, is a type of coal whose quality is classified as low. Sub bituminous or black lignite is a type of transitional coal between lignite and bituminous, with medium quality. Bituminous, which is a type of coal that belongs to the category of good quality, has properties that are harder than sub-bituminous, low oxygen content, while relatively high carbon and heat content. Anthracite, which is a type of coal with a fairly high carbon content, volatile matter and relatively low oxygen content, and when burning does not or produces less smoke. Anthracite has the highest heat content with the best quality among other types of coal. The hardest anthracite, with a compact and dense structure often called

graphite, is the highest quality type of coal. Only a small part of Indonesian coal quality belongs to the medium-high quality category, namely sub-bituminous (26.63%) and bituminous (14.38%), high quality namely anthracite (0.36%) and the rest is still classified as low quality or light coal, namely lignite (58.6%).

According to the Executive Director of the Indonesian Coal Mining Association, the quality of imported coal is metallurgic coal or coking coal as raw material for steel mills, processing and refining mines. Metallurgic coal is a type of coal found in Australia. So that Indonesia imports this type of coal from Australia.

This study aims to analyze effect of coal exports on gross domestic products in Indonesia.

II. Review of Literature

2.1 Gross Domestic Product

Gross domestic product can be interpreted as income earned by a country from economic activities carried out by the whole community in various economic sectors which are usually calculated every year (Mankiw, 2018). Gross national income is national income given as the total nominal value of goods and services produced by a country at home plus the income of citizens abroad for a certain year. Gross domestic product is the total output produced domestically including income from foreign-owned companies. Gross domestic product is one indicator that plays an important role in describing the relationship between the welfare or prosperity of a country with economic conditions. This is illustrated by the ability to produce various products, create income, consume, and increase the assets owned by the people of a country at a certain time. Gross domestic product is also defined as all national income received by the people of a country in a certain period of time.

Gross domestic product is arranged according to the field of business and expenditure. The business fields covered in the gross domestic product calculation are grouped into 17 categories of business fields as follows:

1. Agriculture, forestry, and fisheries.
2. Mining and quarrying.
3. Processing industry.
4. Procurement of electricity and gas.
5. Water supply, waste management, and recycling.
6. Construction.
7. Wholesale and retail trade, repair of cars and motorcycles.
8. Transportation and warehousing.
9. Provision of accommodation and food and drink.
10. Information and communication.
11. Financial and insurance services.
12. Real estate.
13. Company services.
14. Government administration, defense and compulsory social security.
15. Education services.
16. Health services and social activities.
17. Other services.

The factors that affect gross domestic product are as follows:

1. Aggregate Demand and Supply

Aggregate supply and demand is a list of all goods and services to be purchased or provided by the economic sector at various price levels.

2. Consumption and Saving

Consumption is the total expenditure to obtain goods and services in an economy within a period of one year, while saving is the part of income that is not spent on consumption.

3. Investment

Investment is all expenditure used to create new capital. The purpose of the investment is to replace the damaged part of the capital and increase the existing capital supply.

2.2 Export

Community efforts to obtain goods that are produced with limited resources are essentially in order to fulfill their needs and continue throughout the ages as long as humans live and need them (Todaro, 2009). In its current development, international trade is not only within the framework of meeting the need for goods, but furthermore it is very important for economic growth due to the ability to expand the consumption possibilities of a country. A country that has abundant sources of production can certainly produce various types of goods that can be used as export goods. Like Indonesia, with its abundant natural wealth as a gift from the Almighty, it relies on many and various types of goods for export.

Export and import activities are activities that are quite important in every country. There is not a single country in the world that does not conduct foreign trade. In some countries, exports and imports make up a sizable share of national income.

According to the Regulation of the Minister of Trade of the Republic of Indonesia Number 17 of 2021 concerning Exporters and Importers of Good Reputation Article 1 Paragraph 2 states that export is the activity of removing goods from the customs area. The customs area referred to is the territory of the Republic of Indonesia, which includes land, waters and air space above it, as well as certain places in the Exclusive Economic Zone and continental shelf in which Law Number 10 of 1995 concerning customs applies.

III. Research Method

This study uses a descriptive research method with a quantitative approach. Descriptive research is research conducted to determine the value of independent variables, either one or more variables (independent) without making comparisons, or connecting with other variables (Asyraini et al., 2022; Octiva, 2018; Pandiangan, 2015).

The scope of the research used is secondary data. Secondary data is data that has been collected by data collection agencies and published to the data user community (Octiva et al., 2018; Pandiangan, 2018). Internal secondary data is obtained through data from the Central Statistics Agency starting from 1987 to 2021 in the form of time series data. Time series data is a collection of observations obtained through repeated measurements over time (Jibril et al., 2022; Pandiangan et al., 2018; Pandiangan, 2022).

This study uses a partial test in solving the problem. Partial test is a test used to test the significance of the regression coefficient (Octiva et al., 2021; Pandiangan et al., 2021; Pandia et al., 2018). This partial test is used to determine the partial effect between the independent and dependent variables by looking at the t value at a significance level of 5% (Pandiangan et al., 2022; Tobing et al., 2018).

IV. Results and Discussion

4.1 Research Overview

Indonesia is an archipelagic country consisting of 17,500 islands stretching from Sabang to Merauke. Indonesia is located at 6° North Latitude (LU) to 11° South Latitude (LS) and 95° East Longitude (BT) to 141° East Longitude (BT). The northwest part of Indonesia is bordered by the Asian continent, the southeast by the Australian continent, the west by the Indian Ocean and the east by the Pacific Ocean. The land area of Indonesia is 1.91 million km², while the water area is 6.32 million km².

Indonesia has 5 major islands, namely Sumatra Island, Java Island, Kalimantan Island, Sulawesi Island, and Papua Island, the land area of Sumatra Island is 473,481 km², Java Island is 128,297 km², Kalimantan Island is 743330 km², Sulawesi Island is 180,681 km², and Papua Island is 786,000 km². Indonesia consists of 34 provinces with a total population of 273.5 million in 2020. Indonesia is an archipelagic country that has a vast land appearance so that Indonesia has abundant natural resources ranging from mountains, excavations, mining and others.

The magnitude of unlimited human needs makes the demand for goods and services increase from time to time. Producing goods and services is one way to meet people's demand for goods and services. In addition, these production results can increase Indonesia's national income. In 1987-1996 national income experienced a good increase. However, from 1997 to 1999, national income decreased. The economic downturn in 1997-1999 was caused by the economic recession. In 2000 to 2021, national income showed a high increase while in 2021 national income decreased. The decline in national income in 2021 was due to the COVID-19 pandemic which disrupted world and Indonesian economic activities.

Coal consumption in Indonesia according to the Indonesian Energy Balance is the consumption needed by the community for production activities and as household fuel. Indonesia's coal consumption in 1987-2021 fluctuated. Indonesia's highest coal consumption was in 2011.

Coal exports in general have increased every year. In 1987-2011 the graph shows an increase while in 2012-2021 coal exports fluctuated.

4.2 Partial Test Results

Table 1. Partial Test Results

Variable	B	Sig.
Coal Export	0.109	0.014

Dependent Variable: Gross Domestic Product

The results show that coal export has a positive and significant effect on gross domestic product in Indonesia with a significance level of 0.014 whose value is smaller than the significance level of 0.05. This is because coal exports are still a source of foreign exchange for the country. When viewed from the economic phenomenon, according to the Central Statistics Agency, the development of export values in early 2022 was supported by one of them by coal. This is also reinforced by the ongoing winter in European countries. Russia has a large role in the supply chain of a number of important commodities in Europe, ranging from natural gas, wheat, nickel and coal. If the Russian invasion of Ukraine happened, the flow of gas pipelines would stop, it would be a disaster.

When gas prices increase, companies in Europe tend to switch to coal so that during winter, there is an increase in energy consumption which in the end Indonesia will benefit.

V. Conclusion

The results show that coal export has a positive and significant effect on gross domestic product in Indonesia.

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