THE IMPACT OF EXPORTS, FOREIGN DIRECT INVESTMENT

(FDI), AND LABOR FORCE ON ECONOMIC GROWTH OF

INDONESIA FROM 2018-2021

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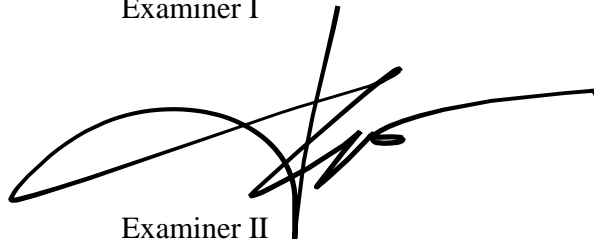
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ABSTRACT

Economic growth has become an indispensable need for developing countries because it is the most potent tool in eradicating poverty and increasing the quality of life. The main objective of this research is to analyze the impact of select factors, namely Exports, Foreign Direct Investment (FDI), and Labor Force, on Indonesia's economic growth in 2018-2021.

This research utilized the panel data regression method and requires time-series data from 2018-2021 and cross-section data from 34 Provinces of Indonesia. The independent variables used Exports, Foreign Direct Investment, and the Labor Force, while the dependent variable was Indonesia's economic growth in 2018-2021. The result of this research showed that the impact of Exports, FDI, and Labor Force on Indonesia's economic growth from 2018-2021 was positively significant. Therefore, the researcher advises the government to place exports and FDI as top priorities in policymaking and seriously improve the labor force and labor quality.

Keywords: Economic Growth, Exports, Foreign Direct Investment (FDI), Labor Force

ABSTRAK

Pertumbuhan ekonomi telah menjadi kebutuhan yang sangat diperlukan oleh negara-negara berkembang karena merupakan alat yang paling ampuh dalam mengentaskan kemiskinan dan meningkatkan kualitas hidup. Tujuan utama dari penelitian ini adalah untuk menganalisis dampak dari beberapa faktor, yaitu Ekspor, Penanaman Modal Asing (PMA), dan Angkatan Kerja, terhadap pertumbuhan ekonomi Indonesia pada tahun 2018-2021.

Penelitian ini menggunakan metode regresi data panel dan membutuhkan data deret waktu pada tahun 2018-2021 dan data penampang silang dari 34 Provinsi di Indonesia. Variabel independen yang digunakan adalah Ekspor, Penanaman Modal Asing, dan Angkatan Kerja, sedangkan variabel dependennya adalah pertumbuhan ekonomi Indonesia. Hasil dari penelitian ini menunjukkan bahwa Ekspor, PMA, dan Angkatan Kerja berpengaruh positif dan signifikan terhadap pertumbuhan ekonomi Indonesia periode 2018-2021. Oleh karena itu, peneliti menyarankan kepada pemerintah untuk menempatkan ekspor dan PMA sebagai prioritas utama dalam pembuatan kebijakan dan secara serius meningkatkan angkatan kerja dan kualitas tenaga kerja.

Kata kunci: Pertumbuhan Ekonomi, Ekspor, Penanaman Modal Asing (PMA), Angkatan Kerja

CHAPTER I

INTRODUCTION

1.1 Background

It is universally acceptable that economic growth is the most potent tool for eradicating poverty and increasing the quality of life in developing countries. Various research and case studies on developing countries show evidence of fast and sustained growth as a crucial factor in progressing to the Millennium Development Goals (MDGs). Strong economic growth can create a myriad of welfare and opportunity, increasing education investment incentives, which leads to the emergence of a powerful and evolving group of entrepreneurs that are expected to promote better governance and advance human development, which, in turn, encourages economic growth (Department for International Development, 2008).

The determinants that affect economic growth in developing countries are a subject of ongoing debate. Neoclassical economist Solow (1956) determined that labor, capital, and technology are key factors that influence economic growth, while Keynes (1936) further added government expenditure as an essential driver of economic growth. Despite being abundantly endowed with rich natural resources and high populations, the economic growth of developing countries still needs to catch up (Barbier, 2012). Therefore, it is imperative to determine factors

that affect the economic growth of developing countries, as such factors play an essential role in creating appropriate economic policies for any government or institution.

Shihab and Soufan (2014) argued that exports of goods and services reflect one of the most indispensable sources of foreign exchange income that relieve the pressure on the Balance of Payments (BoP) and promote employment opportunities. It is also generally acceptable that export activities encourage economic growth in several ways, such as supply and demand linkages and economies of scale, thanks to larger international markets.

Although there may be differences in empirical evidence supporting export-led growth, it is widely admittable that a well-managed trade openness through export-led growth can be a valuable tool for rapid growth (Giles & Williams, 2000).

As defined by the International Monetary Fund (IMF) (2003), Foreign Direct Investment involves a long-term relationship representing a lasting interest of a resident entity in one economy (direct investor) in an entity that is resident in another economy (the direct investment enterprise). On the other hand, the World Bank (2012) defined Foreign Direct Investment as the net inflow of investment to obtain a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor.

According to the Brussels Declaration and Programme of Action for the LDCs (BPoA), FDI inflows are one of the central policies for supporting development and economic growth in less-developed countries (Mahmoodi & Mahmoodi, 2016). In addition, FDI is also a significant source of funds. It can support the technology transfer between more technologically advanced, developed countries and less technologically advanced, host developing countries, enabling the host country to compete in international markets (Tekin, 2012). Moreover, FDI improves production efficiency and can lead to specialization, productivity, employment, job skills, managerial expertise, export markets, and tax revenues (Xing & Pradhananga, 2013).

Law No. 13 of 2003 Concerning Manpower (Republik Indonesia, 2003) defined workforce as anyone who can do work to produce goods or services to meet their individual needs and for the community, as contained in Article 1, paragraph 2. The workforce refers to those with a current or temporary job but not working. The Labor Force demographics of the workforce depend on the level of Labor Force Participation, specifically the percentage of the workforce in the workforce. Therefore, the Labor Force is part of the workforce either involved or trying to be engaged in productive activities producing goods and services (Annisa & Taher, 2022).

Research on the relationship between the Labor Force and economic growth conducted by Eliza (2015) found that increasing the number of workers will raise

production and the number of productive workers, meaning there is a positive relationship between the Labor Force and economic growth.

Economic growth in developing countries, particularly in Indonesia, is crucial in achieving welfare. Strong economic growth in Indonesia can increase per capita income, leading to higher quality of life and lower poverty and unemployment. In addition, economic growth can improve public services such as education, health, environment, and infrastructure owing to increasing tax income, which leads to more allocation to such sectors. Exports, Foreign Direct Investment, and Labor Force are critical factors for Indonesia's economic growth for the following reasons:

1. Indonesia is rich in natural resources such as palm oil, coal, petroleum gas, copper, gold, rubber, et cetera.

2. Indonesia is highly dependent on international trade. Therefore, opportunities to improve economic growth through this sector are wide open.

3. The quality of human resources in Indonesia still needs to improve.

This thesis analyzes the impact of three factors on the economic growth of Indonesia in 2018-2021: Exports, Foreign Direct Investment (FDI), and Labor Force.

1.2 Research Problems

1. What is the impact of exports on Indonesia's economic growth from 2018 to 2021?

2. What is the impact of Foreign Direct Investment on Indonesia's economic growth from 2018-2021?

3. What is the impact of Labor Force on Indonesia's economic growth from 2018-2021?

1.3   Objectives & Benefits

1.3.1   Objectives

1. To analyze the impact of Exports on Indonesia's economic growth from 2018-2021.

2. To analyze the impact of Foreign Direct Investment on Indonesia's economic growth from 2018-2021.

3. To analyze the impact of Labor Force on Indonesia's economic growth from 2018-2021.

1.3.2   Benefits

1. This thesis should serve as a reference in designing economic policies.

2. This thesis should provide a model of economic science development for future studies.

3. This research is a part of the requirement for the researcher's graduation.

1.4   The Structure of the Report

Chapter I: Introduction

This chapter contains the introduction to the research, research problems, objectives, benefits, and the structure of report.

Chapter II: Review of Related Literature

This chapter details the literature review, theoretical framework, and hypothesis formulation.

Chapter III: Research Methodology

This chapter elaborates the research method, data used, research variables, and data analysis.

Chapter IV: Result and Discussion

This chapter describes specific data related to solving problems that have been determined based on analytical tools and steps so that they will lead to the goals and objectives of the research.

Chapter V: Conclusions and Recommendations

This chapter briefly contains research conclusions, limitations, and suggestions for various parties.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Literature Review

Due to the significant role of the three variables on economic growth, particularly for developing countries, the impact of Exports, FDI, and Labor Force on economic growth has been researched and studied for a long time, using various econometric methods and approaches on various countries and sample periods. Therefore, the results vary between countries and periods.

Research on the impact of exports on the economic growth has been conducted by many researchers for more than 30 years, initiated by Balassa (1978), Kavoussi (1984), Ram (1985), and Moschos (1989). Balassa (1978) stated that exports have a positive relationship with economic growth, achieved through the Ordinary Least Squares (OLS) method on cross-section data among countries. Similarly, Bruckner and Lederman (2012) also found a significantly positive impact of exports on the economic growth of Sub-Saharan African countries. Using annual data from 1955 until 1996, Al-Yousif (1999) confirmed the significance of Export-Led Growth (ELG) theory on Malaysia's economic growth. Meanwhile, a case study of ELG theory on Egypt using the Granger Causality Test found a significant impact between exports and economic growth (Abou-Stait, 2005). Similarly, Kim & Lim (2005), utilizing the Vector Error Correction Model

(VECM), confirmed the significance of ELG on the economic growth of South Korea. Research on ELG theory for Indonesia has been conducted by Sumiyarti (2015) utilizing the OLS approach. Focused on the impact of manufactured goods exports on Indonesia's economic growth, Sumiyarti found a significantly positive impact on economic growth. In addition, Salomo and Hubarat (2007) found that long-term exports will significantly affect economic growth.

The causal connection between international trade and economic growth has been vastly studied empirically in both developing and developed countries (Baliamoune-Lutz, 2011; Bhagwati & Srinivasan, 1975; Dervis, 1979; Keesing, 1967; Marjit & Ray, 2017; Ncube & Cheteni, 2015). Heitger (1987) and Lussier (1993) revealed that the export of goods and services is a crucial determinant of economic growth from the perspective of neoclassical growth. Central and Eastern European Countries experienced GDP growth during the 1995-2014 period, implying that exports have greatly determined economic growth as a result of transition and integration with the EU, as well as a primary driving force behind the convergence of these countries with their advanced countries (Hagemejer & Muck, 2019). Hsiao and Hsiao (2006) also revealed the bidirectional proof between exports and GDP growth of the East and Southeast Asian economies (Sultanuzzaman et al., 2019).

Hussain and Haque (2016) argued that Foreign Direct Investment (FDI) plays a significant role in the economic growth of developing countries, as it

affects the scenario of employment, production, prices, income, imports, exports, the general welfare of the recipient countries, and Balance of Payments (BoP), as well as serving as one of the critical sources of the economic growth. Research conducted by Purwanto & Mangeswuri (2011), Trisnu & Purbadharmaja (2014), Zekarias (2016), Ibrahim & Dahie (2016), Iamsiraroj (2016), Mahriza & Amar (2019), and Tran & Hoang (2019), revealed that FDI has a significantly positive impact on economic growth. On the other hand, research by Jufrida et al. (2016) found that the FDI does not affect economic growth.

A case study revealed a positive impact of FDI on economic growth in a country with an advanced economy (Tiwari & Mutascu, 2011). Choe (2003) also noted similar results in emerging countries and countries with massive economies. In addition, economic growth efficiency also increases thanks to the FDI, as stated by Yue et al. (2020). Technology transfer is one of the most apparent benefits of FDI. Through productivity, FDI uncovers the technology transfer that yields higher economic growth (Borensztein et al., 1998). Besides the development of the capital structure for the host country, FDI also creates technology and knowledge diffusion (Blomström, 2002; Blomström et al., 1994; Caves, 1974; Mansfield & Romeo, 1980; Markusen & Venables, 1999; Yurioputra, 2022).

Alfaro et al. (2004) underline the crucial role of local financial markets as evidence of FDI's positive impact on economic growth. A study of 11 countries in East Asia and Latin America by Zhang (2001) confirms a similar result when host

countries improve education, liberalize trade bureaucracy, focus on export-oriented FDI, and maintain macroeconomic stability. Similar evidence of a positive FDI-GDP relationship is confirmed by Bengoa and Sanchez-Robles (2003) when carrying on a case study of 10 Latin American countries. In Eastern Asian countries (Choong et al., 2004), as well as Taiwan (Chang, 2006), Malaysia, and Thailand (Chowdhury & Mavrotas, 2006), the development level of the financial sector become a prominent source of competitive edge in attracting FDI by host countries and, ultimately, in promoting economic growth. However, Carkovic and Levine (2005) argued that the FDI lacks a standalone impact on economic performance, and this influence relies on other factors of economic growth. A case study of Granger causality relations between GDP, exports, and FDI in East Asia and Southeast Asia using time-series and panel data from 1986 to 2004 suggests that the causal relationship varies between countries, and results of panel-VAR causality imply that FDI directly affects GDP and indirectly affects exports unidirectionally (Hsiao & Hsiao, 2006). A bidirectional causality between exports and GDP also exists.

Alexiou and Tsaliki (2007) confirm a long-run relationship between FDI and GDP and reject the FDI-led growth hypothesis for Greece during the 1945-2004 period using the Granger causality test. Meanwhile, Katircioglu (2009) uses the ARDL-Bounds and Granger causality tests to investigate the causal relationship between FDI and economic growth for Turkiye from 1970-2005. The Bounds test

implies that the relationship between real GDP and FDI will exist when real GDP is a dependent variable. Therefore, there is a long-run unidirectional causality from GDP growth to FDI. Utilizing VECM to examine the causality between export, FDI, and GDP in six emerging countries (Chile, India, Mexico, Malaysia, Pakistan, and Thailand), Miankhel et al. (2009) discover that the long-run results confirm the existence of causality from GDP to other variables like Exports in case of Pakistan and FDI in case of India, as well as bidirectional causality between GDP and FDI in Malaysia. Similar findings also depict causality between Exports, FDI, and GDP in Latin American countries. An analysis of the relationship between FDI, trade openness, and economic growth in Tunisia during the 1970-2008 period using the ARDL approach implies that the variables of interest are bound together in the long run when FDI is the dependent variable (Belloumi, 2014). Sunde (2017), on the other hand, confirms the FDI-led growth hypothesis for South Africa. Utilizing VECM Granger causality analysis, Sunde found unidirectional causality between economic growth and FDI running from FDI to economic growth, unidirectional causality between FDI and exports running from FDI to exports, and bidirectional causality between economic growth and exports. Therefore, both FDI and exports accelerate economic growth, which aligns with the FDI-led growth hypothesis (Cañal-Fernández & Fernández, 2018).

A case study on the relationship between the Labor Force and economic growth in Bangladesh reveals the former's positive relationship with the latter,

meaning that if there is an increase in the Labor Force, then GDP will also increase (Hossain, 2012). Shahid (2014) examined the impact of the Labor Force on Pakistan's economic growth using time-series data from 1980 to 2012. His findings confirmed that the Labor Force Participation Rate (LFPR) and Gross Fixed Capital Formation (GFCF) positively affect the economic growth, meaning that the economic growth rises as LFPR rises. This relationship is also in line with the research done by Yakubu et al. (2020). However, his case study on Nigeria using the OLS model revealed that the LFPR coefficient has a detrimental impact on Nigeria's economic growth (Utami et al., 2021).

From past studies above, the three variables' impact on economic growth differs between countries and periods.

2.2 Theoretical Framework

2.2.1 Economic Growth

According to Investopedia Team (2021), economic growth is the production of goods and services in one period compared with a prior period, which can depend on either nominal or real (inflation-adjusted) terms. The Reserve Bank of Australia (RBA) refers to economic growth as an enlargement in the size of a country's economy over time, generally quantified by the sum of production of goods and services in the economy, known as Gross Domestic Product (GDP).

There are three theories of economic growth (CFI Team, 2023):

1. The **Classical Growth Theory** suggests that an increasing population and limited resources will decrease economic growth. Proponents of this theory believe that a temporary increase in real GDP per person leads to the inevitable population explosion, which reduces resources and, therefore, lowers GDP, slowing economic growth. However, this theory is the subject of criticism for ignoring the role of technological advancements that can alleviate diminishing returns and imprecise determination of total wages due to changes in the industrial structure and substantial economic development that can result in total wages exceeding or falling beyond the subsistence level.

2. The **Neoclassical Growth Theory** underlines how labor, capital, and technology create a steady economic growth rate. The theory implies that the production process's different amounts of labor and capital yield the short-term economic equilibrium. Technological advancements significantly affect the overall functioning of an economy. Long-term equilibrium, however, does not require any of the three factors, as the theory emphasizes.

3. The **Endogenous Growth Theory** implies that internal forces such as governmental policies, capital investment in "knowledge industries" (education, health, and telecommunication), and private sector investment in R&D drive economic growth.

2.2.2 Exports

In international trade, export refers to goods or services produced in one country that are sold/provided for another country. People or entities selling goods or providing services are known as *exporter*s. In contrast, a foreign customer who purchases goods/receives services from an exporter is an *importer* (Joshi, 2009). Examples of services provided in international trade include finance, accounting, tourism, education, intellectual property rights, et cetera.

Here are a few definitions of export:

1. Customs Law No. 17/2006 defined export as removing goods from the customs area.
2. Tandjung (2011) defined export as a trade that takes goods from one country's customs territory to another by complying with the applicable provisions.
3. Referring to Law No. 2 of 2009 Concerning The Indonesian Export Financing Agency, Sutedi (2014) defined export as releasing goods from the Indonesian customs area and services from the territory of the Republic of Indonesia.

From the definition above, it can be safe to conclude that export is the trade of goods and services through the customs area to consumers either going abroad or outside the country's borders by fulfilling the applicable provisions.

2.2.3 Foreign Direct Investment (FDI)

Foreign Direct Investment (FDI) is a controlling interest in a company, real estate, or productive assets such as factories in one country by an entity based in another country (Financial Times, 2014).

Organization for Economic Cooperation and Development (OECD) (2019) defines FDI as a cross-border investment where an investor who resides in one country forms a lasting interest in and a high level of influence over an enterprise resident in another country. Since it promotes long-lasting and stable connections between economies, FDI is vital to international economic integration. In addition, it also serves as a medium for the transfer of technology between countries, supports international trade owing to access to foreign markets, and can promote economic development.

Meanwhile, the European Commission (EC) (n.d.) refers to FDI as a category of global investment that mirrors the goal of acquiring a lasting interest by an investor in one economy in a venture resident in another economy, meaning that the investor and the venture establish a long-term relationship and that after the investor owns 10% or more of the voting power on the board of investors or similar, he/she will have a significant authority on the management of the company. Companies may see FDI as a complement or substitute for international trade by manufacturing and selling goods and services in countries outside their home country.

In brief, FDI is an international economic activity where an investor of one country creates a lasting connection and a significant interest with a company in another country.

2.2.4 Labor Force

The International Labour Organization (ILO) defined the Labor Force as the sum of the number of persons employed and the number of persons unemployed (ILO, 2013), while the Labor Force Participation Rate (LFPR) is the number of persons in the Labor Force as a percentage of the working-age population. Therefore, it is mandatory to calculate both employment and unemployment in order to calculate LFPR.

According to the World Bank, the Labor Force consists of people 15 years or older who contribute labor to produce goods and services at a specific period, including currently employed and unemployed people yet seeking work, as well as first-time job-seekers. However, this does not include unpaid workers, family workers, and members of the armed forces in some countries. The size of the Labor Force tends to change during the year as seasonal workers enter and quit.

On the other hand, Law No. 13 of 2003 describes the Labor Force as any person who can work to produce goods or services, either for personal needs or for other people within the community.

To sum up, the Labor Force refers to individuals in employment or unemployment.

2.2.5 Relationship Between Exports & Economic Growth

GDP = C + I + G + (X - M)

C = Consumer spending on goods and services

I = Investment spending on goods and services

G = Government spending on goods and services

X = Exports

M = Imports

A trade surplus occurs when the net exports are buoyant due to exports exceeding imports. A trade surplus leads to economic growth, meaning that the more exported goods, the greater the flow of funds into the country, encouraging consumer spending and contributing to economic growth (Kramer, 2023).

There are four various approaches to describe the relationship between exports and economic growth (Taştan, 2010):

The first hypothesis is that there is a unidirectional relationship between exports and economic growth. According to the Export-Led Growth (ELG) hypothesis, exports are part of income, thus indirectly promoting economic growth and the multiplier effect. An increase in exports will allocate resources to the export

sector and, if used efficiently, will improve productivity and growth. International competition created from rising exports will encourage industries to conduct extensive Research and Development (R&D) and explore new technologies, more efficient management, and skill development, which, in turn, will increase economic growth (Van den Berg & Lewer, 2007).

The second hypothesis is a causal relationship between exports and economic growth. Also known as the Growth-Oriented Exports (GOE), this hypothesis implies that economic growth guides the utilization of new and more advanced technologies, promotes productivity, and increases exports by increasing a comparative advantage in global markets (Giles & Williams, 2010).

The third hypothesis is that there is a bidirectional relationship between exports and economic growth. This hypothesis believes that while increased exports lead to economic growth, higher income levels can also lead to rising trade, resulting in bilateral interactions (Taştan, 2010).

The fourth hypothesis is that there is no relationship between exports and economic growth (Taştan, 2010).

2.2.6 Relationship Between FDI & Economic Growth

Theoretically, FDI positively impacts economic growth because it lowers the rental rate of capital and raises the production output through improvements in labor productivity and the introduction of new technology that further promotes

economic productivity. On the other hand, FDI may negatively affect economic growth as it is likely to harm competition and corrupt the country's development path in its interests (Türkcan et al., 2008).

The exogenous growth theory, pioneered by Solow (1956), assumes that external factors of production, such as stock of capital and labor, generate economic growth. In this context, FDI raises the capital stock in the host country, which, in turn, encourages economic growth. De Jager (2004) explained that introducing new technology by FDI leads to increased labor and capital productivity, which leads to more consistent returns on investment, and labor would grow exogenously.

The endogenous growth model, on the other hand, states that economic growth occurs through human capital and technological development. In this theory, FDI should bring Research and Development (R&D) as well as human capital accumulation, which generates positive or negative externalities that would impact the host country's company and economy (Barro & Sala-I-Martin, 1995).

2.2.7 Relationship Between Labor Force & Economic Growth

The Labor Force increases GDP by creating jobs. Anyone employed and paid by their employer will spend their money on food, clothing, entertainment, et cetera. Higher individual spending increases the demand, pushing companies to increase their output to meet the demand by investing more and hiring more workers, and more workers start the cycle over (Pologeorgis, 2023).

2.3 Formulation of Hypothesis

1. It is expected that Exports will have a positive impact on Indonesia's economic growth.

2. It is expected that Foreign Direct Investment (FDI) will have a positive impact on Indonesia's economic growth.

3. It is expected that the Labor Force will have a positive impact on Indonesia's economic growth.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Type of Research

This type of research was **quantitative**, which referred to an assortment of strategies, methods, and estimations used to examine psychological, social, and economic processes through the research of numeric patterns (Coghlan & Brydon-Miller, 2014). Aliaga and Gunderson (2002) defined quantitative research as a query into a social issue, describing events by collecting numerical data that are analyzed using mathematically based methods such as particular statistics. Creswell (2017), on the other hand, referred to quantitative research as a method for experimenting with objective theories by studying the relationship among variables, which, in turn, can be measured on instruments so that numerical data can be analyzed using statistical procedures.

There are some key characteristics of quantitative research, according to the University of Southern California Libraries (2022):

1. The data is commonly collected using standardized research instruments.

2. The results manifest in larger sample sizes that represent the population.

3. Due to its exceptional reliability, the research can be replicated or repeatable.

The primary purpose of quantitative research is to create knowledge as well as to provide a better understanding of the social world. This type of research is commonly used by social scientists to survey phenomena affecting individuals (Allen, 2017).

Specific advantages of quantitative research (University of Southern California Libraries, 2022):

1. It enables a broader study, covers a more significant number of subjects, and improves the summarization of the results.
2. The objectivity and accuracy of the results are remarkable.
3. Standardized instruments mean the research can be reproduced, analyzed, and compared with similar research.

However, it is worth noting that there are specific limitations of quantitative research (University of Southern California Libraries, 2022):

1. Although the quantitative data is more efficient and can test hypotheses, it may deviate from contextual detail.
2. The process of discovery is rigid due to the strict approach used.

3. Structural bias and false representation, where the data represents the researcher's perspective rather than participating subjects, can occur due to researchers' creation of standard questions.

3.2 Type of Data

A research method was needed to implement research. The researcher conducted **Secondary Data Analysis (SDA)** in this research. As Szabo and Strang (1997) defined, secondary data analysis is utilizing existing research data to solve a question different from the original work. It can be either extensive research or data collected from personal study. University College London (n.d.) defined secondary data analysis as the use of data gathered by someone else for some other function. In this case, it answers the question by studying a data set not part of data collection.

It is a common practice for researchers to leverage secondary data analysis to seek answers to a new research question or to study an alternative point of view on the original question of a previous research (Foley, 2021). Secondary data analysis is distinct from primary data analysis, where the latter uses data created by himself/herself through surveys, interviews, and experiments meant to answer the research problem at hand (Wagh, n.d.).

The main advantage of secondary data analysis is economics. Since the data is already available, the researcher can save time, energy, and money to generate

it before analyzing it. In addition, data is widely available for the public domain since the government executes numerous extensive, national-scale studies, many of which are also longitudinal, allowing researchers to look at trends and changes over time. Another advantage of secondary data analysis is that the expertise and professionalism not available to individual researchers play a critical role in the data collection (University College London, n.d.).

However, secondary data analysis has the disadvantages. The major disadvantage of secondary data analysis is that data collected by this method may not contain specific information to satisfy a researcher in answering a specific research question, as well as the researcher's inability to alter contents in the data set because the researcher did not collect the data. In addition, the variables may have been different from the researcher's. Another disadvantage of secondary data is that no researcher knows precisely the method of the data collection process and its reliability. Therefore, it may be vulnerable to low response rates or misunderstandings (University College London, n.d.).

All data used in this research were annual secondary data sourced from Statistics Indonesia (BPS) and the Indonesian Ministry of Commerce. Data used were Gross Domestic Product in Rupiah by Province from 2018-2021, Development of Non-oil and gas Exports by Province from 2018-2021 (in million USD), Realization of Foreign Direct Investment by Province from 2018-2021 (in million USD), and Total Labor Force by Province (by People).

3.3 Data Analysis Method

The researcher analyzed the data through Panel Data Regression. Panel Data Regression is a data structure presented as panel data. Typically, parameter estimation in the regression analysis with cross-section data is done by estimating the least squares using the Ordinary Least Square (OLS) method. Regression Method Data Panel will give the result of estimation known as Best Linear Unbiased Estimation (BLUE) (Zulfikar, 2018).

Panel Data Regression combines cross-section data and time-series data, where the same unit cross-section is measured at different times. In other words, panel data is the data from some of the same individuals observed in a certain period. If we have T periods (t = 1,2, ..., T) and N the number of individuals (i = 1,2, ..., N), then with panel data, we will have total observation units of N x T. If sum unit time is the same for each individual, the data is known as the balanced panel. If the number of time units is different for each individual instead, then it is known as the unbalanced panel. In contrast with the usual regression, Panel Sata Regression must go through the precise estimation modelling step (Zulfikar, 2018).

3.3.1 Estimation Model of Panel Data Regression

Zulfikar (2018) explained that there are three approaches to estimating the regression model using panel data, among others:

3.3.1.1 Common Effect Model / Pooled Least Square (PLS)

The Common Effect Model is the most straightforward approach because it combines only time series and cross-section data. This model excludes time and individual dimensions, so it assumes that the behavior of corporate data is the same in various periods. This method can utilize the Ordinary Least Square (OLS) approach or the Least squares method to estimate the panel data model.

The form of the panel data regression equation is similar to Ordinary Least Square, where:

$$GDP_{it} = \beta_0 + \beta_1 EX_{it} + \beta_2 FDI_{it} + \beta_3 LF_{it} + e_{it}$$

Y = Economic Growth (Rp)

i = Provinces of Indonesia

t = Time

β1 – β3 = Coefficient

EX = Exports (US$ million)

FDI = Foreign Direct Investment (US$ million)

LF = Labor Force (People)

e = error term

Description:

For i = 1, 2, ..., N and t = 1, 2, ..., T

N is the number of individuals or cross sections, and T is the period. From this model, N x T can be a generated equation that is equal to the T equation of cross section and as much as N equation coherent time or time series.

The Hypothesis of the Common Effect Model:

1. R-Squared: the magnitude of predictor variables' influence or ability to describe the response variable simultaneously. If the value is more than 0.5, then the ability of the predictor variable is significant in explaining the response variable. Meanwhile, if the value is less than 0.5, the ability of the predictor variable is not significant in explaining the response variable.

2. Adjusted R-Squared: is the magnitude of the influence or ability of predictor variables simultaneously in explaining the response variable by observing the standard error. The explanation is the same as R-Squared, but standard error has corrected this value.

3. F-Statistics: the value of the F-Test, a simultaneous test of panel data regression. This F-value indicates the significant level of influence of the predictor variable on the response variable. In order to use this F-value, one must compare it with the F-Table. However, one can also directly see the value of Prob (F-Statistics).

4. Prob (F-Statistics): is the p-value of the F-test, which is the significance level of the F-value, to assess the simultaneous influence of the predictor variable to the response variable, whether statistically significant or not. Suppose the p-value is less than the critical limit, e.g., 0.05, we must accept H1, which means that the simultaneous influence of the predictor variable on the response variable proved statistically significant. If the p-value exceeds the critical limit, accept H0, meaning that the simultaneous influence of predictor variables on the response variable is not proven statistically significant.

3.3.1.2 Fixed Effect Model (FE)

As Zulfikar (2018) stated, this model assumes that different intercepts can accommodate individual differences. Different intercepts can occur due to differences in work, managerial, and incentive cultures.

Nevertheless, the intercept remains the same between companies. This estimation model is the Least Squares Dummy Variable (LSDV).

The Fixed Effect model differs from the Common Effect but still uses the OLS principle. The assumption of modeling that produces a constant intercept for each cross-section and time is considered less realistic, so more models are needed to capture the difference. The Fixed Effect model assumes that different intercepts can accommodate individual differences (cross-section). In order to estimate the Fixed Effects model with different intercepts between individuals, the dummy variable technique is used. Such estimation models are often called the Least Squares Dummy Variable (LSDV) technique (Zulfikar, 2018).

3.3.1.3 Random Effect Model (RE)

This model will estimate panel data where interference variables may be interconnected between time and between individuals. In the Random Effect model, the error terms of each company accommodate the difference between intercepts. The advantage of using the Random Effect model is that it eliminates heteroscedasticity. This model is also called the Error Component Model (ECM) or Generalized Least Square (GLS) technique (Zulfikar, 2018).

Zulfikar (2018) also explains that the Random Effect model differs from the Common Effect and Fixed Effect since this model does not use the principle of Ordinary Least Square. Instead, this model uses the principle of Maximum Likelihood or General Least Square. In the Random Effect model, residuals may be interconnected between time and between individuals or cross sections. Therefore, this model assumes an intercept difference for each individual, and the intercept is a random variable. So, in the Random Effect model, there are two residual components. The first is the residual as a whole, where the residual is a combination of cross-section and time series. The second residual is individual, a random characteristic of the i-t unit observation, and always remains active.

$$GDP_{it} = \beta_0 + \beta_1 EX_{it} + \beta_2 FDI_{it} + \beta_3 LF_{it} + u_i + e_{it}$$

Eit = the residual as a whole where the residual is a combination of cross section and time series.

Ui = the individual residual, which is the random characteristic of unit observation of the i-t and remains at all times.

3.3.2 Estimation Method of Panel Data Regression

As described by Zulfikar (2018), in order to select the most appropriate model, several tests can be done, such as:

3.3.2.1 Chow Test

Chow test is a test to determine the model of whether Common Effect (CE) or Fixed Effect (FE) is more appropriate in estimating panel data.

If Results:

H0: Select CE ($p > 0.05$)

H1: Select FE ($p < 0.05$)

If the value of Prob. Cross-section Chi-Square < 0.05, then Fixed Effect will be appropriate. Therefore, do the Hausman test to choose a Fixed Effect or Random Effect. If the value of Prob. Cross-section Chi-Square > 0.05, then Common Effect will be appropriate. Therefore, do the Lagrange Multiplier Test to choose the Common Effect or Random Effect.

3.3.2.2 Hausman Test

The Hausman test is a test to determine whether the model of Random Effect (RE) or Fixed Effect (FE) is a more appropriate choice.

If Result:

H0: Select RE ($p > 0.05$)

H1: Select FE ($p < 0.05$)

If the Hausman Test accepts H0 or p-value > 0.05, the researcher chose Random Effect. Then, the researcher proceeds with the Lagrange Multiplier test to determine whether we still choose Random Effect or Common Effect. However, if the Hausman Test receives H1 or p-value < 0.05, the researcher chooses Fixed Effect.

3.3.2.3 Lagrange Multiplier Test (LM)

LM Test is an analysis performed to determine the best method in panel data regression, whether Random Effect (RE) or Common Effect (CE) is more appropriate for estimation.

If Result:

H0: Select CE (p > 0.05)

H1: Select RE (p < 0.05)

If the LM Test accepts H0 or p-value > 0,05, the researcher chose Common Effect. If the LM Test receives H1 or p-value < 0,05, the researcher chose Random Effect.

3.3.3 Statistical Test

3.3.3.1 Coefficient of Determination (R2)

As stated by Zulfikar (2018), this test aims to determine the percentage of total variation in the dependent variable explained by the

independent variable. If the analysis used is simple regression, it will use the R-square value, but the Adjusted R-square will be more appropriate if it is multiple regression. The Model Summary output displays the results of the adjusted R2 calculation. The Adjusted R2 column shows that the independent variable explains the percentage of the dependent variable. At the same time, the rest is influenced or explained by other variables that are not in the research model. Where:

$R2$ = Coefficient of Determination

ESS = Explained Sum Squared

TSS = Total Sum Squared

3.3.3.2 Simultaneous Significance Test (F-Test)

A simultaneous significance test tests all independent variables simultaneously in the dependent variable.

H0: $\beta1 = \beta2 = \beta3 = 0$ means that the independent variable does not affect the dependent variable.

H2: $\beta1 \neq \beta2 \neq \beta3 = 0$ means that the independent variable affects the dependent variable.

If the probability value > α, reject Ho and fail to reject Ha, which means that the independent variables together have no significant effect on

the dependent variable. Conversely, if the probability value $< \alpha$, Ho fails to be rejected, and reject Ha, the independent variables are jointly significant to the dependent variable (Zulfikar, 2018).

3.3.3.3 Independent Variable Significance Test (t-test)

Zulfikar (2018) explained that the t-distribution statistical test determines whether the independent variable individually affects the dependent variable. Decision-making affects each independent variable with a certain reliability; therefore:

If the calculated t-value > t-critical, reject Ho or fail to reject Ha

If the calculated t-value < t-critical, Ho fails to be rejected or reject Ha

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The data used in this research were gathered from the official website of Statistics Indonesia (BPS), while data on exports were available at the Indonesian Ministry of Commerce's Satu Data website. These data were processed using panel data regression.

Table 4.1 Descriptive Statistics

	Exports	Foreign Direct Investment	Labor Force	GDP
Valid (N)	136	136	136	136
Missing (N)	0	0	0	0
Mean	5095.8610	862.3265	211806.0735	398616.0095
Std. Error of Mean	584.05556	102.96167	30201.52866	50153.69751
Median	1794.2000	306.3000	95553.5000	153130.0250
Mode	10.10[a]	81.30	7626.00[a]	25034.08[a]
Std. Deviation	6811.19979	1200.72905	352207.32156	584887.59500
Variance	46392442.596	1441750.260	124049997363.891	342093498787.361

Skewness	1.987	2.282	2.851	2.517
Std. Error of Skewness	208	208	208	208
Range	33658.30	5875.10	1497397.00	2887529.05
Minimum	10.10	5.90	7626.00	25034.08
Maximum	33668.40	5881.00	1505023.00	2912563.13
Sum	693037.10	117276.40	28805626.00	54211777.29

Source: Secondary data processed (2023)

Table 4.1 depicted the number of observations in 34 provinces of Indonesia from 2018 until 2021. From Table 4.1 above, the average GDP during 2018-2021 was 398616.0095 billion IDR. DKI Jakarta in 2021 had the highest GDP with 2912563.13 billion IDR, while the GDP of North Maluku Province in 2018 was the lowest with only 25034.08 billion IDR. The standard deviation value was 584887.595 billion IDR.

West Java in 2021 had the highest export value at 33668.4 million USD, while Gorontalo achieved the lowest at 10.1 million USD in 2019. The average export value in all 34 provinces during 2018-2021 was 5095.861 million USD, with a standard deviation of 6811.19979 million USD.

The average value of FDI in 2018-2021 was 862.3265 million USD, with a standard deviation value of 1200.72905 million USD. The FDI value of West Java

in 2019 was the highest, at 5881 million USD. Meanwhile, West Sulawesi in 2021 achieved the lowest FDI value at a mere 5.9 million USD.

The average number of people in the Labor Force from 2018 until 2021 was 211806, with a standard deviation of 352207. Central Java had a Labor Force of 1505023 people in 2021, the largest in 2018-2021. Meanwhile, West Papua in 2020 had the lowest amount of Labor Force at 7626 people.

4.2 Results of Panel Data Regression Analysis

The researcher used panel data regression to select an appropriate regression model for this research. The researcher used three models in panel data regression: Common Effect, Fixed Effect, and Random Effect. Then, the researcher used the Chow, Hausman, and Lagrange Multiplier Test to choose the most appropriate regression model for this research. The Chow Test determines which regression model is more appropriate, comparing the Common Effect and Fixed Effect models. At the same time, the Hausman Test determines which regression model is more appropriate to use, namely, the Random Effect model and the Fixed Effect model. Meanwhile, the Lagrange Multiplier test compares the best estimation method between the Random Effect and Common Effect models.

4.2.1 Chow Test

Table 4.2 Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.425969	(33,98)	0.0929
Cross-section Chi-square	52.941492	33	0.0153

Source: Secondary data processed (2023)

From the result above, the F-Statistic value was 1.425969 with a value probability of $0.0929 > 0.05$. Therefore, the researcher chose the Common Effect.

4.2.2 Hausman Test

Table 4.3 Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.446105	3	0.0024

Source: Secondary data processed (2023)

From the result above, the researcher found that the Chi-Square Statistic was 14.446105, and the probability was $0.0024 < 0.05$; therefore, the Fixed Effect model was more appropriate.

4.2.3 Lagrange Multiplier Test

Table 4.4 LM Test Results

	Cross-section	Test Hypothesis Time	Both
Breusch-Pagan	0.019559 (0.8888)	0.713800 (0.3982)	0.733360 (0.3918)
Honda	0.139855 (0.4444)	0.844867 (0.1991)	0.696304 (0.2431)
King-Wu	0.139855 (0.4444)	0.844867 (0.1991)	0.849271 (0.1979)
Std. Honda	0.430963 (0.3332)	1.342279 (0.0898)	-3.658562
Std. King-Wu	0.430963 (0.3332)	1.342279 (0.0898)	-1.728454 --

Gourieroux, et al.	--	--	0.733360 (>= 0.10)	

Source: Secondary data processed (2023)

From the results above, the probability value was 0.8888 > 0.05. Therefore, it concluded that **Common Effect** was the **most appropriate model.**

4.2.4 Panel Data Results

Table 4.5 Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	10268.32	37045.06	0.277185	0.7821	
X1 (Exports)	26.34632	6.949181	3.791284	0.0002	
X2 (FDI)	166.2628	36.33087	4.576349	0.0000	

X3 (Labor Force)	0.528137	0.100574	5.251212	0.0000	
R-squared		0.682103	Mean dependent var		399824.4
Adjusted R-squared		0.674823	S.D. dependent var		586895.5
S.E. of regression		334673.0	Akaike info criterion		28.30888
Sum squared resid		1.47E+13	Schwarz criterion		28.39496
Log-likelihood		-1906.849	Hannah-Quinn criterion.		28.34386

F-statistic		93.69441	Durbin-Watson stat		1.357381
Prob(F-statistic)		0.000000			

Source: Secondary data processed (2023)

The results of the panel data regression above revealed that the coefficient of determination (R-squared) from the estimation results was 0.682103, indicating that the independent variables of the Exports, FDI, and Labor Force explained 68.21 percent of the dependent variable on economic growth. In comparison, it explained factors outside the model by 31.79 percent. Here is the equation of Common Effect.

Y = 10268.3183756 + 26.3463185337*X1 + 166.262750598*X2 + 0.528137354768*X3

4.2.5 T-test

The t-test showed the influence of one independent variable and explained the variation in the dependent variable. The t-test results were visible in the Fixed Effect model table above. By comparing the probability of t with alpha 0.05 percent, the researcher can see whether to reject or accept the hypothesis.

4.2.5.1 Exports

The coefficient variable was 26.34632 with a probability value of 0.0002 < 0.05. Therefore, exports positively affected economic growth.

4.2.5.2 Foreign Direct Investment

The coefficient variable was 166.2628, with a probability value of 0.0000 < 0.05. Therefore, FDI positively affected economic growth.

4.2.5.3 Labor Force

The coefficient variable was 0.528137, with a probability value of 0.0000 < 0.05. Therefore, the Labor Force affected economic growth positively.

4.2.6 Simultaneous Test (F-test)

The F-test showed whether all independent variables in the model simultaneously affect the dependent variable.

The F-statistic value was 93.69441, with a probability value of 0.000000 < 0.05. Therefore, all independent variables (Exports, FDI, and Labor Force) simultaneously affected the dependent variable (GDP).

4.2.7 Coefficient of Determination

The results of the panel data regression above revealed that the coefficient of determination (R-squared) from the estimation results was 0.682103, indicating that the independent variables of the Exports, FDI, and Labor Force explained

68.21 percent of the dependent variable on economic growth. The rest (31.79 percent) were factors outside the model.

4.3 Discussion

4.3.1 The Impact of Exports on Economic Growth of Indonesia

From the analysis above, the probability value of Exports was 0.0002 with a coefficient value of 26.34632, meaning that with every increase of Exports by 1%, the GDP of Indonesia increased by 26.3%, which was in line with the researcher's hypothesis that Exports created a positive impact on the economic growth of Indonesia. Therefore, higher exports led to higher economic growth in a country. Competitiveness in the international market, international market conditions, income, protection policy by other countries, and foreign currency can affect Exports.

Lubis (2010), in his case study of factors affecting the export performance of Indonesia, argued that:

1. The development of Indonesia's export performance has historically been progressive, determined by turbulent changes in world economic conditions.

2. Factors affecting exports in the agricultural sector in the supply approach are the price of agricultural products, production capacity, the Real Effective Exchange Rate (REER), imports of auxiliary raw

materials, and the price of fuel oil. Meanwhile, export supply in the industrial sector depends on the price of industrial products, production capacity, Real Effective Exchange Rate (REER), imports of raw and auxiliary materials, and the price of fuel oil.

3. The situation and conditions in the country largely determine modeling export projections from the supply side. The factors that affect export demand in the agricultural sector are the export price of agricultural products, GDP per capita lag 1, exchange rate (REER), and Autoregressive variable lag 2. The export price of agricultural products determines export demand in the industrial sector.

Coordinating Minister for Economic Affairs, Airlangga Hartanto, stated in a press conference that critical factors in sustaining trade balance include the stability of global demand growth, especially in key markets; the role and function of trade representatives (Perwadag) in encouraging increased exports; the dynamics of price developments and export volumes of key and potential commodities; and the government's strategy in maintaining the balance of import growth, especially in the consumption import component (Limanseto, 2021).

In conclusion, the result of this research confirmed the significance of ELG theory by Balassa (1978), Al-Yousif (1999), and Sumiyarti (2015).

4.3.2 The Impact of FDI on Economic Growth of Indonesia

It shows that the probability value of FDI was 0.0000 with a coefficient value of 166.2628, meaning that with every increase of FDI by 1%, the GDP of Indonesia increased by 166%, the largest of the three variables corresponding to the researcher's hypothesis that FDI had a positive impact on the economic growth of Indonesia. The main factor of FDI in Indonesia was the abundance of natural resources such as petroleum, minerals, and natural gas. In addition, a good investment climate, relatively stable politics, and the rise of a more productive labor force contribute to the higher FDI in Indonesia.

Minister of Investment/Head of BKPM, Bahlil Lahadia, attributed the increase of FDI in Indonesia to the government's mandatory booster vaccines for the community and ease of mobility and community activities as part of post-COVID-19 pandemic recovery. In addition, the significant contribution of the value-added industrial sector, particularly the processing industry related to downstream mining, food industry, and chemical and pharmaceutical industries, to the investment realization figures in the last few quarters, represented the ongoing economic transformation in Indonesia. This condition also showed that the industrialization process is also growing. However, global uncertainties, such as the geopolitical conflict between Russia and Ukraine and the tightening of interest rates by the United States Federal Reserve, presented a significant challenge to the investment climate. Nevertheless, he also contributed to

investment success by increasing investors' trust in the Jokowi administration, improving political stability, improving the legal process of investment, and improving transparency of service acceleration (Portal Informasi Indonesia, 2022).

In brief, the result of this research aligned with the results of case studies done by Katirciouglu (2009), Miankhel et al. (2009), and Sunde (2017).

4.3.3 The Impact of the Labor Force on the Economic Growth of Indonesia

From the analysis above, the probability value of the Labor Force was 0.0000 with a coefficient variable of 0.528137, meaning that with every increase of the Labor Force by 1%, the GDP of Indonesia increased by 0.52%, the smallest of the three variables. This analysis fit into the researcher's hypothesis that the Labor Force positively affected Indonesia's economic growth. The large number of low-skilled workers due to inadequate training contributed to the labor force's small contribution to Indonesia's GDP.

Indonesia's development in various sectors requires skilled workers with specific qualifications. Jobs are constantly opening up across Indonesia, but job seekers are far outnumbered by the available quota, which raises various labor issues, as explained by policenewscenter.com (Rosyda, 2021):

1. **The Number of Labor Forces is Out of Balance with Job Opportunities**: A large population will also produce a large labor force. An adequately utilized, large labor force will be able to

increase economic activity, which in turn will improve people's welfare. However, this can only be effective if employment opportunities absorb the entire labor force. Employment opportunity is a situation that describes the availability of jobs in the community. This statement is in line with the employment conditions in Indonesia. Indonesia's large population and the high population growth rate, which should drive increased economic activity, have become a burden for economic development. However, the high population growth rate differs from the growth of employment opportunities. This issue is the leading cause of unemployment.

2. **Relatively Low Quality of Labor**: The low level of education is one of the factors that affect the quality of Indonesian labor. Due to the low level of education, Indonesian laborers need to gain mastery of knowledge and technology. As a result, production amount is low while production costs are high. The high cost of production makes it difficult for Indonesian products to compete with other countries' products. In addition, the quality of labor also affects the high and low wages. Labor wages in Indonesia are still relatively low compared to other countries, such as Serbia, China, Russia, Singapore, and Malaysia.

3. **Uneven Distribution of Labor**: In addition to relatively low human resources, the labor sector in Indonesia is rife with the problem of

uneven distribution of labor. Most of the labor force in Indonesia concentrates in Java. Meanwhile, other regions with larger areas still need more labor, especially in the agriculture, plantation, and forestry sectors. As a result, there is much unemployment in Java. Meanwhile, in other regions, many natural resources still need to be managed and utilized optimally.

4. **Unemployment**: The number of the labor force is disproportionate to employment opportunities, which results in not all of the labor force getting employment, which is even worse by the number of lay off workers. Severance pay for dismissed employees often differs from the nominal amount; the process is lengthy and even not paid. Employee layoffs can occur due to many things, including company bankruptcy, consolidation, and separation; employers are unwilling to accept labor. In addition, the COVID-19 pandemic conditions have also made the economy sluggish, resulting in many companies laying off workers and making workers lose their jobs.

Nevertheless, the result of this research is in line with case studies conducted by Hossain (2012) and Shahid (2014).

CHAPTER V

CONCLUSION & RECOMMENDATION

5.1 Conclusion

The analysis above concludes that the research has successfully found:

1. The export value significantly made a positive impact on Indonesia's economic growth. This means that the more goods exported, the higher the increase in Indonesia's GDP.

2. The FDI dramatically affected Indonesia's economic growth, meaning that the more investors invest in Indonesia, the more significant the economic growth increase in Indonesia.

3. The labor force had a positive impact on Indonesia's economic growth, which means that the higher the Labor Force, the higher the percentage of increase in Indonesia's GDP.

5.2 Recommendations

Here are some valuable recommendations for policymakers based on the findings:

1. The researcher's findings confirm the hypothesis that Exports lead to positive economic growth. As this factor significantly contributs to the percentage of economic growth, it is unsurprising that export is one of

many top priorities in economic growth, particularly in developing countries like Indonesia. Creation of duty drawback schemes, increasing the availability of short and long-term credit for exporters, streamlining bureaucracy, improving cooperation among exporters and business actors, and combining short-term and long-term export growth policies can be helpful for policymakers to consider.

2. Another essential factor that policymakers should seriously consider is FDI. It reveals that the FDI significantly and positively affects Indonesia's economic growth. Just like Exports, FDI is always the top priority of economic growth, owing to its significant influence. Tax holidays, tariff cuts, tax exemptions, investment grants, and subsidies effectively attract foreign investors. Investing in education to create a skilled workforce is helpful for investors looking for a pool of talented workers who can support their operations. Political stability is also vital to ensure the uninterrupted operations of foreign investors. Stronger international relationships and investment in critical infrastructure, such as transportation networks, energy, and water, can attract more investors. The suggestions above should attract more foreign investors to invest in Indonesia, leading to a higher FDI.

3. The researcher's findings prove the hypothesis that the Labor Force positively affects Indonesia's economic growth. Given to the small contribution of the Labor Force on GDP, policymakers should

seriously consider it. Investing in education and employee training programs are helpful policies to consider.

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APPENDIX I Data on GDP, Exports, Foreign Direct Investment, and Labor

Force

Provinces	Year	GDP	Exports	Foreign Direct Investment	Labor Force
ACEH	2018	126824.37	250.7	71.2	179898
ACEH	2019	126824.38	317.7	137.5	172364
ACEH	2020	126824.39	300.4	51.1	159683
ACEH	2021	126824.40	536.9	203.3	180314
SUMATERA UTARA	2018	512762.63	8,466.9	1227.6	238152
SUMATERA UTARA	2019	539513.85	7,375.5	379.5	217916
SUMATERA UTARA	2020	811188.31	7,861.4	974.8	200851
SUMATERA UTARA	2021	859934.26	11,666.8	580.4	233331
SUMATERA BARAT	2018	163996.19	1,590.4	180.8	171100
SUMATERA BARAT	2019	172205.57	1,368.4	157.1	165544
SUMATERA BARAT	2020	241894.13	1,632.3	125.6	155646
SUMATERA BARAT	2021	253101.28	3,067.0	67.0	167048
RIAU	2018	482064.63	13,300.3	1032.9	141743
RIAU	2019	495607.05	11,594.3	1034.0	107393
RIAU	2020	727599.47	13,190.6	1078.0	93070
RIAU	2021	839010.13	18,239.5	1921.4	88301
JAMBI	2018	142902.00	1,284.1	101.9	61221
JAMBI	2019	149111.09	1,234.8	54.6	44755
JAMBI	2020	205081.99	963.7	27.0	42643
JAMBI	2021	232064.12	1,180.4	50.9	51657
SUMATERA SELATAN	2018	298484.07	4,014.2	1078.6	133139
SUMATERA SELATAN	2019	315464.75	3,788.7	736.5	141789
SUMATERA SELATAN	2020	454607.40	3,426.1	1543.9	134620
SUMATERA SELATAN	2021	493651.91	5,193.4	1259.7	141794
BENGKULU	2018	44164.11	271.9	136.6	49431
BENGKULU	2019	46345.45	208.6	144.8	40011
BENGKULU	2020	73305.27	153.7	192.3	37621
BENGKULU	2021	79602.64	238.1	23.7	40937
LAMPUNG	2018	232165.99	3,437.4	132.3	185881
LAMPUNG	2019	244378.31	2,929.2	155.2	179673

LAMPUNG	2020	353025.09	3,144.7	498.4	166382
LAMPUNG	2021	371198.88	4,844.0	173.8	168992
KEP. BANGKA BELITUNG	2018	52208.04	1,633.6	46.3	39027
KEP. BANGKA BELITUNG	2019	53941.90	1,371.6	88.7	34693
KEP. BANGKA BELITUNG	2020	75519.77	1,291.2	48.4	35638
KEP. BANGKA BELITUNG	2021	85961.29	2,672.1	44.7	32019
KEP. RIAU	2018	173498.75	9,051.7	831.3	46903
KEP. RIAU	2019	181877.67	9,148.1	1363.4	27187
KEP. RIAU	2020	254095.35	9,805.6	1649.4	22074
KEP. RIAU	2021	275622.85	12,388.2	1043.7	29300
DKI JAKARTA	2018	1735208.29	9,718.3	4857.7	61674
DKI JAKARTA	2019	1836240.55	10,462.5	4123.0	105517
DKI JAKARTA	2020	2767273.49	9,826.1	3613.3	90962
DKI JAKARTA	2021	2912563.13	11,245.2	3330.6	114075
JAWA BARAT	2018	1419624.14	30,120.5	5573.5	935766
JAWA BARAT	2019	1490959.69	29,698.1	5881.0	1107917
JAWA BARAT	2020	2082107.26	26,397.2	4793.7	1042971
JAWA BARAT	2021	2204660.23	33,668.4	5217.7	1143234
JAWA TENGAH	2018	941091.14	8,091.6	2372.7	1491301
JAWA TENGAH	2019	991516.54	8,212.8	2723.2	1470717
JAWA TENGAH	2020	1347222.49	7,704.2	1363.6	1459752
JAWA TENGAH	2021	1419986.62	10,294.5	1465.9	1505023
DI YOGYAKARTA	2018	98024.01	424.7	81.3	168421
DI YOGYAKARTA	2019	104485.46	403.7	14.6	247834
DI YOGYAKARTA	2020	138117.84	398.8	9.7	240628
DI YOGYAKARTA	2021	149408.40	557.3	21.8	192172
JAWA TIMUR	2018	1563441.82	17,780.3	1333.4	1333853
JAWA TIMUR	2019	1649895.64	17,750.3	866.3	1461011
JAWA TIMUR	2020	2299807.64	19,958.8	1575.5	1345443
JAWA TIMUR	2021	2454716.48	21,518.9	1849.2	1332360
BANTEN	2018	433782.71	11,864.4	2827.3	189491
BANTEN	2019	456620.03	11,037.0	1868.2	198294
BANTEN	2020	625895.38	10,683.0	2143.6	182853
BANTEN	2021	665887.47	13,493.6	2190.0	174856
BALI	2018	154072.66	595.8	1002.5	175761

BALI	2019	162693.36	591.5	426.0	234780
BALI	2020	224225.72	456.2	293.3	221793
BALI	2021	220467.45	508.2	452.0	227768
NUSA TENGGARA BARAT	2018	90349.13	471.1	251.6	130693
NUSA TENGGARA BARAT	2019	93872.44	222	270.7	150959
NUSA TENGGARA BARAT	2020	133613.74	643.5	302.1	143937
NUSA TENGGARA BARAT	2021	140115.97	1,140.5	244.2	152198
NUSA TENGGARA TIMUR	2018	65929.19	59.8	100.4	270440
NUSA TENGGARA TIMUR	2019	69389.02	52.8	126.8	222022
NUSA TENGGARA TIMUR	2020	106482.45	43.3	81.3	212530
NUSA TENGGARA TIMUR	2021	110881.46	41.4	79.0	247135
KALIMANTAN BARAT	2018	130596.32	1,510.2	491.9	91612
KALIMANTAN BARAT	2019	137243.09	1,581.7	532.3	84285
KALIMANTAN BARAT	2020	213950.35	1,977.3	759.3	75099
KALIMANTAN BARAT	2021	231321.16	2,277.9	463.4	73469
KALIMANTAN TENGAH	2018	94566.25	1,901.40	678.5	53747
KALIMANTAN TENGAH	2019	100349.29	2,172.4	283.5	41094
KALIMANTAN TENGAH	2020	152187.39	1,824.4	177.6	34710
KALIMANTAN TENGAH	2021	169654.31	3,102.3	162.5	42870
KALIMANTAN SELATAN	2018	128052.58	8,224.10	129.2	106071
KALIMANTAN SELATAN	2019	133283.85	7,190.4	372.9	87523
KALIMANTAN SELATAN	2020	179162.02	5,341.3	240.8	83454
KALIMANTAN SELATAN	2021	197879.00	9,068.4	117.2	90064
KALIMANTAN TIMUR	2018	464694.43	15,258.2	587.5	56530
KALIMANTAN TIMUR	2019	486523.18	14,318.6	861.0	56051
KALIMANTAN TIMUR	2020	607744.49	11,952.5	378.0	43633
KALIMANTAN TIMUR	2021	696584.50	22,707.4	745.2	47201
KALIMANTAN UTARA	2018	57459.31	1,213.9	67.3	10749
KALIMANTAN UTARA	2019	61417.79	1,192.4	81.7	12952
KALIMANTAN UTARA	2020	100423.21	1,018.3	68.4	8418
KALIMANTAN UTARA	2021	110668.94	1,764.0	133.5	11395
SULAWESI UTARA	2018	84249.72	974.1	295.9	90315

SULAWESI UTARA	2019	89009.26	767.2	220.5	60266
SULAWESI UTARA	2020	132230.06	779	155.7	59419
SULAWESI UTARA	2021	142615.02	1,117.3	169.1	96307
SULAWESI TENGAH	2018	117555.83	3,632.3	672.4	188628
SULAWESI TENGAH	2019	127935.06	4,774.5	1805.0	185661
SULAWESI TENGAH	2020	197440.78	6,637.6	1779.0	178605
SULAWESI TENGAH	2021	247328.39	11,157.2	2718.1	197181
SULAWESI SELATAN	2018	309156.19	1,455.0	617.2	195453
SULAWESI SELATAN	2019	330506.38	1,557.0	302.6	223659
SULAWESI SELATAN	2020	504052.53	1,473.9	236.1	222034
SULAWESI SELATAN	2021	545172.68	1,868.2	310.0	213356
SULAWESI TENGGARA	2018	88310.05	1,082.2	672.9	134649
SULAWESI TENGGARA	2019	94053.52	1,861.4	987.7	94800
SULAWESI TENGGARA	2020	130107.27	2,397.1	1268.6	85924
SULAWESI TENGGARA	2021	139463.63	4,423.7	1616.5	103711
GORONTALO	2018	26719.27	35.2	40.8	50276
GORONTALO	2019	28429.97	10.1	171.3	46558
GORONTALO	2020	41729.89	32.9	67.6	46793
GORONTALO	2021	43896.49	41.8	78.0	44844
SULAWESI BARAT	2018	31114.14	430	24.7	48139
SULAWESI BARAT	2019	32843.81	459.2	10.1	45562
SULAWESI BARAT	2020	46465.91	503	6.5	45170
SULAWESI BARAT	2021	50565.51	665.7	5.9	42375
MALUKU	2018	29457.13	37.1	8.0	68025
MALUKU	2019	31049.45	33.3	33.0	34652
MALUKU	2020	46263.47	63	176.7	30981
MALUKU	2021	48642.32	34.5	13.3	53257
MALUKU UTARA	2018	25034.08	680.3	362.8	47917
MALUKU UTARA	2019	26597.55	878.2	1008.5	22478
MALUKU UTARA	2020	42298.87	1,038.5	2409.0	20765
MALUKU UTARA	2021	52481.30	4,093.7	2819.9	27003
PAPUA BARAT	2018	60465.52	37.2	286.9	11958
PAPUA BARAT	2019	62074.52	48.9	46.2	11826
PAPUA BARAT	2020	83588.64	45.4	10.6	7626
PAPUA BARAT	2021	85078.42	47.7	32.5	10895
PAPUA	2018	159711.85	3,941.70	1132.3	25970
PAPUA	2019	134565.89	1,280.8	941.0	25420
PAPUA	2020	199186.57	1,975.7	567.7	22247

PAPUA	2021	235486.12	4,497.9	1489.1		28112

APPENDIX II Common Effect Table

Dependent Variable: Y
Method: Panel Least Squares
Date: 08/17/23   Time: 22:37
Sample: 2018 2021
Periods included: 4
Cross-sections included: 34
Total panel (unbalanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10268.32	37045.06	0.277185	0.7821
X1	26.34632	6.949181	3.791284	0.0002
X2	166.2628	36.33087	4.576349	0.0000
X3	0.528137	0.100574	5.251212	0.0000

R-squared	0.682103	Mean dependent var	399824.4
Adjusted R-squared	0.674823	S.D. dependent var	586895.5
S.E. of regression	334673.0	Akaike info criterion	28.30888
Sum squared resid	1.47E+13	Schwarz criterion	28.39496
Log-likelihood	-1906.849	Hannan-Quinn criterion.	28.34386
F-statistic	93.69441	Durbin-Watson stat	1.357381
Prob(F-statistic)	0.000000		

Source: EViews 9

APPENDIX III Fixed Effect Table

Dependent Variable: Y
Method: Panel Least Squares
Date: 08/17/23   Time: 22:46
Sample: 2018 2021
Periods included: 4
Cross-sections included: 34
Total panel (unbalanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	120242.8	53329.91	2.254696	0.0264
X1	22.80051	9.770364	2.333640	0.0217
X2	42.96056	58.56506	0.733553	0.4650
X3	0.593178	0.175133	3.387010	0.0010

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.785230	Mean dependent var	399824.4
Adjusted R-squared	0.706335	S.D. dependent var	586895.5
S.E. of regression	318043.9	Akaike info criterion	28.40561
Sum squared resid	9.91E+12	Schwarz criterion	29.20187
Log-likelihood	-1880.378	Hannan-Quinn criterion.	28.72919
F-statistic	9.952831	Durbin-Watson stat	1.797287
Prob(F-statistic)	0.000000		

Source: EViews 9

APPENDIX IV Random Effect Table

Dependent Variable: Y
Method: Panel EGLS (Cross-section random effects)
Date: 08/17/23   Time: 22:49
Sample: 2018 2021
Periods included: 4
Cross-sections included: 34
Total panel (unbalanced) observations: 135
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12402.77	36353.85	0.341168	0.7335
X1	26.12665	6.730174	3.882016	0.0002
X2	163.7813	35.29840	4.639907	0.0000
X3	0.533367	0.097893	5.448476	0.0000

Effects Specification				
			S.D.	Rho
Cross-section random			43591.37	0.0184
Idiosyncratic random			318043.9	0.9816

Weighted Statistics			
R-squared	0.672106	Mean dependent var	385623.3
Adjusted R-squared	0.664597	S.D. dependent var	572590.9
S.E. of regression	331630.6	Sum squared resid	1.44E+13
F-statistic	89.50651	Durbin-Watson stat	1.376262
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.682065	Mean dependent var	399824.4
Sum squared resid	1.47E+13	Durbin-Watson stat	1.351192

Source: EViews 9

APPENDIX V Chow Test Table

Redundant Fixed Effects Tests
Equation: FIXEDEFFECT
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.425969	(33,98)	0.0929
Cross-section Chi-square	52.941492	33	0.0153

Source: EViews 9

APPENDIX VI Hausman Test Table

Correlated Random Effects - Hausman Test
Equation: RANDOM EFFECT
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.446105	3	0.0024

Source: EViews 9

APPENDIX VII Lagrange Multiplier Table

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
    (all others) alternatives

| | Test Hypothesis | | |
	Cross-section	Time	Both
Breusch-Pagan	0.019559	0.713800	0.733360
	(0.8888)	(0.3982)	(0.3918)
Honda	0.139855	0.844867	0.696304
	(0.4444)	(0.1991)	(0.2431)
King-Wu	0.139855	0.844867	0.849271
	(0.4444)	(0.1991)	(0.1979)
Standardized Honda	0.430963	1.342279	-3.658562
	(0.3332)	(0.0898)	
			--
Standardized King-Wu	0.430963	1.342279	-1.728454
	(0.3332)	(0.0898)	--
Gourierioux et al.*	--	--	0.733360
			(>= 0.10)

*Mixed chi-square asymptotic critical values:

1%	7.289
5%	4.321
10%	2.952

Source: EViews 9