Southeast Asian Journal of Economics Vol.10(3) December 2022: 27-73
Received: 19 December 2021
Revision: 27 February 2022
Accepted: 28 July 2022

Government Spending and Investment for Inclusive Growth in Indonesia: A Panel Data Analysis

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Abstract

Economic growth, measured by GDP per capita, shows whether an area's economy improves over time. However, GDP has limitations in reflecting the distribution of income and social-economic progress. Inclusive growth offers a better measurement of a nation's development as it monitors the pace of growth and maintains that such growth will minimize poverty and inequality. This paper examines the effect of government spending and investment on inclusive growth in Indonesia using a panel data model in regencies/municipalities in Indonesia from 2015 to 2019. Applying fixed effect regression with Driscoll-Kraay standard errors, the empirical result shows that government spending on health and education and Domestic Investment positively affect inclusive growth. However, government spending on the economy and social protection and FDI do not impact inclusive growth. This study informs policymakers to evaluate and prioritize government spending and investment that support inclusive growth in Indonesia.

Keywords: domestic investment, foreign direct investment, government spending, inclusive growth

1. Introduction

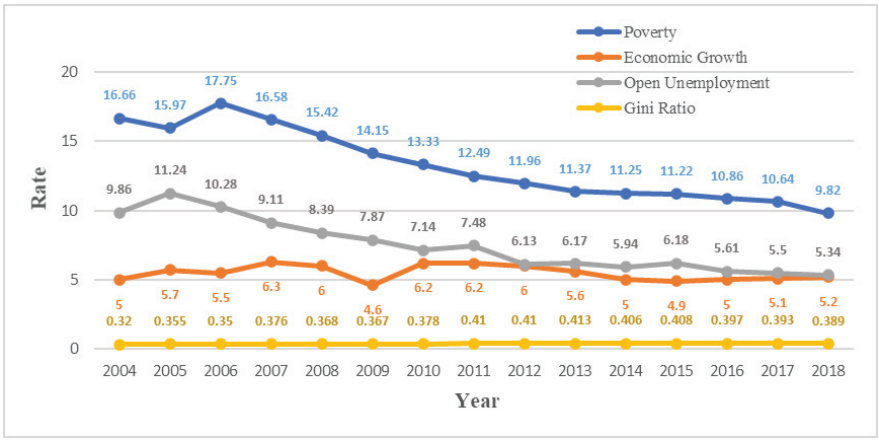
Economic growth is an indicator that shows whether an area's economy is improving over time. In macroanalysis, Gross Domestic Product (GDP) per capita determines each region's national income levels of development. However, according to Sitorus and Arsani (2018), a high growth rate in the economy does not guarantee that all individuals will be benefited equally. Therefore, international organizations such as Asian Development Bank (ADB), World Economic Forum (WEF), and United Nations Development Program (UNDP) have established a series of variables and formulas to measure sufficient economic growth that emphasizes equal access to economic opportunity at all levels of society, referred to as inclusive growth. Moreover, since the United Nations (UN) proposed the Sustainable Development Goals (SDGs), the term "inclusive" has become widely discussed by the government, politicians, and scholars. This inclusiveness has been one of the focuses specified in SDG 8, which is to promote inclusive economic growth and decent work for all. Inclusive growth is a type of growth that promotes equity and fairness in income distribution and creates unemployment opportunities (Sabir, 2019). Furthermore, it offers a better measurement of the development of a nation as it monitors the pace of growth and maintains that such growth will minimize poverty and inequality.

Data from the Ministry of National Development Planning (Bappenas) of the Republic of Indonesia (Bappenas, 2019a, 2019b, 2019c) illustrated in Figure 1 shows that economic growth in Indonesia is accompanied by a decline in the poverty rate and open unemployment rates at 9.82 percent and 5.34 percent, respectively, the lowest figures within the period. However, the Gini ratio shows only moderate fluctuations, even in 2013, reaching the highest ratio at 0.413 percent. According to Statistics Indonesia (BPS, 2021), the Gini ratio in urban areas is much higher than in rural areas. Compared to the national Gini ratio in March 2021, which is 0.384, there are six provinces with a higher Gini ratio, namely the Special Region of Yogyakarta (0.441),

West Java (0.412), DKI Jakarta (0.409), Gorontalo (0.408), Papua (0.397), and Southeast Sulawesi (0.390).

Figure 1 shows that the poverty level has been declining. However, the number of people living in absolute poverty is still considered significant due to Indonesia's status as the fourth most populous country in the world (World Bank, 2022). The percentage of poor people in March 2021 was 10.14 percent, which rose 0.36 percentage points compared to March 2020, with 7.89 percent of poor people living in urban areas and 13.10 percent in rural areas (BPS, 2021). Furthermore, those classified as vulnerable, having an income rate of only 1-1.5 times the poverty rate, are still in significant numbers and mostly concentrated in the eastern part of the country (Bappenas, 2018).

Figure 1: Economic Growth, Unemployment, Poverty, and Gini Ratio (2004-2018)

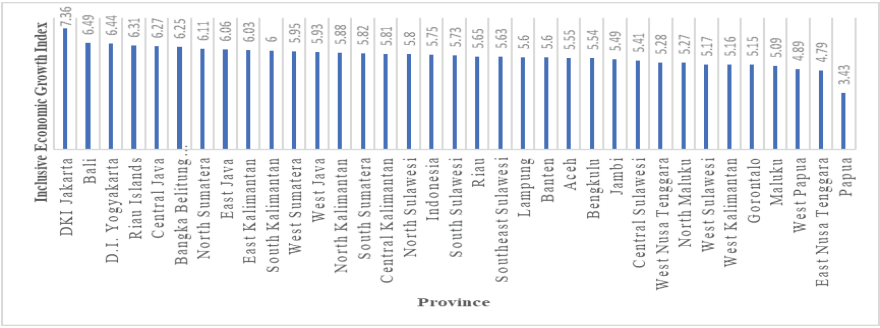


Source: Bappenas (2019a, 2019b, 2019c).

According to the Inclusive Growth and Development Report by the WEF, Indonesia ranks 36th among the 74 emerging economies and 3rd among the ASEAN-5 nations, behind Malaysia and Thailand (World Bank, 2018). Moreover, the 5-year-trend shows only a 2.57 percent increase, and the report considers Indonesia a slowly advancing country. Sitorus and Arsani (2018) report another challenge to Indonesia's inclusive growth. They find

that the level of inclusiveness in Indonesia tends to improve; however, the degree of inclusiveness in 33 provinces varies and is inconsistent as perceived regionally. The study results of Sholiha, Hutagaol, and Asmara (2015) indicate that economic growth in the eastern region of Indonesia appears to not be inclusive. In addition, an assessment generated by Bappenas (2019a) illustrated in Figure 2 shows that there is still a disparity in inclusive growth in Indonesia. Most of the provinces in eastern Indonesia could not exceed the average inclusive growth index in Indonesia, except Bali and North Sulawesi. Even worse, Papua only scores 3.43 and goes into the "not satisfactory" category.

Figure 2: Inclusive Economic Growth Index in Indonesia (2017)



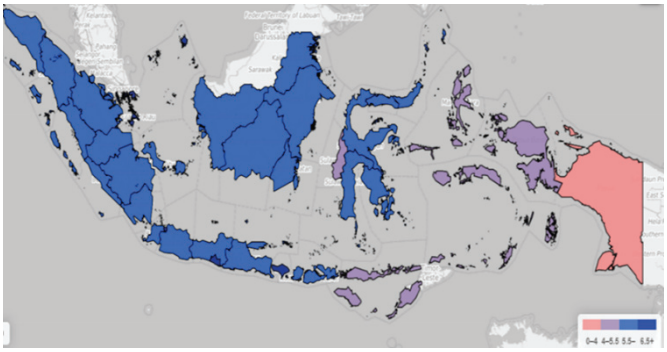
Source: Bappenas (2019a).

Moreover, from Figure 3, it can be observed that in provincial data, the level of inclusive growth in each province in Indonesia seems to appear relatively good — most of them scored between 4 to 6.5. However, the regencies' and municipalities' data show more detailed information about inclusive growth in Indonesia. It should be noted that although some provinces earn a decent score in the Inclusive Economic Growth Index, the inclusive growth in their subordinate regencies and municipalities region does not present the same condition. For instance, the Inclusive Economic Growth Index in North Sumatra Province has already surpassed the national average.

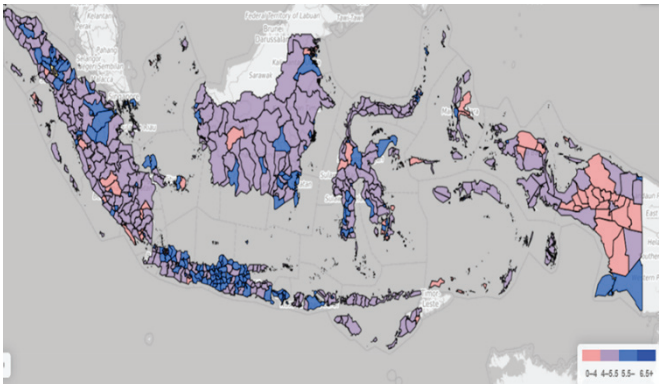
However, among 29 regencies/municipalities, only five of them scored above the average, including Medan. As the capital city, Medan becomes the center of government, economy, politics, and socio-culture. Medan is the focus of development; hence, the economic growth rate is high and has broader access and opportunities. On the other hand, Nias Selatan has the lowest score on all pillars of inclusive growth than other regencies/municipalities in North Sumatra. A similar condition occurs in Kepulauan Bangka Belitung, where only the capital city, Pangkal Pinang, has an inclusive growth index above the national average. Other regencies/municipalities in Kepulauan Bangka Belitung still score lower than the national average, especially in economic growth and access/opportunity. This phenomenon needs to be observed more; unfortunately, most inclusive growth studies use data in-country or on the provincial level. Therefore, this study will use data on the regencies/municipalities level to produce a better portrait of inclusive growth in Indonesia.

Figure 3: Indonesia Inclusive Development Index 2019

Provincial Level



Regencies/Municipalities Level



The county's growth results partly from the government's policies through a series of policies, including fiscal policy. Fiscal policy performance is reliant upon allocating revenues and expenditures in a society (Sabir, 2019). Dollar and Kraay (2001) and Islam (2014) have discovered the essential variables of inclusive growth, including human capital, the supply of infrastructure, and macroeconomic policies. When viewed in the context of macroeconomic policies, fiscal policy is expected to significantly affect inclusive growth and development. Its role in inclusive growth lies in directly supporting the poor and shifting revenue from the wealthy to the poor (Sabir, 2019). However, the debate over the impact of government spending on economic growth between classical and Keynesian perspectives is still underway (Nurlina, 2015). According to Keynesian groups, government interference through this spending would stimulate aggregate demand, resulting in economic growth. In contrast to Adam Smith's arguments for a Laissez-Faire system in government, the government is considered unnecessary to interfere with and lets the free-market system promote growth. It is crucial to analyze how government spending affects inclusive growth in the sense of those arguments above.

Indonesia needs another strategy besides government spending allocation to support inclusive growth. The projection from Bappenas (2019b) illustrates that the intervention scenario may increase the GDP per capita growth rate to 1 percent higher in 2030 than the Business as Usual (BAU) scenario.

A similar process can be applied to overcoming the unemployment crisis in Indonesia. Based on the projection, the unemployment rate in Indonesia may decline to 3.8 percent in 2030 if the intervention scenario takes effect. However, if it does not become effective, the unemployment rate can only hit 4.7 percent in 2030.

According to the United Nations Conference on Trade and Development (UNCTAD) (2014), public investment is necessary for developing countries. However, it will not be adequate in terms of financing, so the involvement of the private sector is required. In the context of Foreign Direct Investment (FDI) and Domestic Investment (DI), private sector investment plays a significant part in achieving inclusive growth in developing countries such as Indonesia. According to Kusumawati (2018), prior research has focused primarily on the role of FDI in the concept of narrow economic growth; therefore, the concept of economic growth must be seen more broadly. Likewise, in this study, the effect of investment will be seen in a broader sense of growth, namely inclusive growth.

Numerous studies have examined the relationship between government spending, investment, and inclusive growth, though the results are varied. Some studies revealed that government spending and inclusive growth are positively correlated (Azwar, 2016; Estrada, Lee, & Park, 2014; Kolawole, 2016; Mathai, Duenwald, & Guscina, 2020; Safitri, Ananda, & Prasetyia, 2021; Supriyanto, Ramdhani, & Rahmadan, 2014; Zouhar, Jellema, Lustig, & Trabelsi, 2021). In contrast, Ramadhan & Setiadi's (2019) study notes that government spending on health and education does not significantly affect inclusive growth in Indonesia. The research results related to investment and inclusive growth have also not met a consensus. Moreover, Borensztein, De Gregorio, and Lee (1998) state that FDI contributes more to growth than local investment, particularly in developing countries. This study will analyze whether FDI affects inclusive growth more than DI.

This study includes literature and provides empirical evidence about government spending on and investment in inclusive growth in Indone-

sia. Data at the regencies/municipalities level will be used to define more precisely and give a better portrait of inclusive growth in Indonesia. The observation's subject includes 453 regencies/municipalities in Indonesia from 2015 to 2019. Furthermore, this study uses a panel data analysis to examine the effect of government spending and investment on inclusive growth in Indonesia. The findings are expected to provide material to assess the quality of government spending and investment in supporting inclusive growth in Indonesia. Moreover, it can be a recommendation in evaluating which part of spending and investment should be prioritized by the Indonesian Government to achieve the target of inclusive growth. This study is expected to contribute to expenditure planning and budgeting, two things that must be mutually supportive and in sync. Development planning can be carried out properly if it is supported by adequate financial capacity and a fair and proper allocation of funding. This study also attempts to give evidence that domestic investment is as important as foreign investment in supporting inclusive growth, in that they deserve the same quality facilities as foreign investment.

2. Literature Review

2.1. Inclusive Growth Concept

Inclusive growth can be described as growth that does not discriminate, reduces inequality between communities, and ensures fair access to services and opportunities (Sholihah, 2014). Sabir (2019) states that inclusive growth is a form of growth that promotes equity and fairness in income distribution. It also creates job opportunities and often offers a better measurement of the development of a nation. Inclusive growth monitors the pace of growth and maintains that such growth will minimize poverty and inequality. Only when all segments of society participate in and contribute to the growth process, regardless of their circumstances, can inclusive growth be achieved. As a result, there are equal economic opportunities for all (especially the poor) (Rauniyar & Kanbur, 2010).

Asian Development Bank (ADB) (2011) mentions several reasons for the significance of inclusive growth. Firstly, it is a consideration of equality and justice. Secondly, growth with persistent inequality can threaten social conditions. Thirdly, the disparity in access and economic outcomes can disrupt political stability and social structure. While the definition of inclusive growth is not specified (see Table 1), there is an implicit belief that the focus is on developing strategies that can produce social and economic inclusion along with the flow and process of economic growth (Suryanarayana, 2013). It is, therefore, necessary to determine the statistical indicators to analyze this type of growth.

Table 1: International Organizations' Description of the Inclusive Growth Framework

International Organization	Key Terms
World Bank	• Economic growth • Poverty • Employment
Asian Development Bank (ADB)	• Economic growth • Equal opportunity • Broader access for participate • Strength social safety nets
International Monetary Fund (IMF)	• Economic growth • Income distribution
EU Commission	• Economic growth • Employment • Education • Poverty
United Nations Development Programme (UNDP)	• Economic growth • Income equality • Participation opportunity • Receive benefit from growth
Organization for Economic Cooperation and Development (OECD)	• Economic growth • Income for household • Health condition • Employment

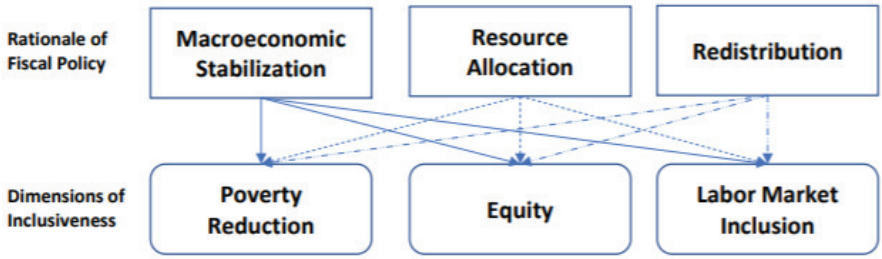
Source: ADB (2013); Anand, Mishra, & Peiris (2013); Boarini, Murtin, & Schreyer (2015); EU Commission (2014); Ianchovichina & Lundstrom (2009); and Suryanarayana (2013).

However, the inclusive growth proxies released by international organizations are not considered representative of Indonesia's specific development goals. There is no emphasis on inequalities (gender, geography, and income), and certain indicators are not compatible with Indonesia's development indicators (Bappenas, 2019b). Hence, through Bappenas and BPS, the Government of Indonesia has settled on a set of indicators to measure Indonesia's performance in inclusive growth, namely the Inclusive Economic Development Index. The index is a comprehensive measure of viewing and measuring the inclusiveness of development in Indonesia today and in the future. It is available at provincial and regencies/municipalities levels in Indonesia. Gender, geography, and income gap are also measured in this index, including indicators such as women's income contribution and the ratio of average spending of rural and urban households.

2.2. Government Spending and Inclusive Growth

It is vital to begin with a framework that outlines how government spending might help accomplish inclusive growth goals. The broader concept of inclusive growth includes aspects such as equity, poverty alleviation, and labor-force participation. According to the threefold rationale for fiscal policy proposed by Musgrave (1959), fiscal policy should promote macroeconomic stability, alleviate distributional imbalances, optimize resource allocation, and advance equal opportunity. Zouhar et al. (2021) explain a more comprehensive analysis of Musgrave's framework of fiscal policy and inclusiveness (Figure 4). A spending policy implemented under one rationale may impact some or all dimensions of inclusive growth, resulting in adverse outcomes. Indeed, many categories of government spending provide ways to promote inclusive growth by focusing on reducing poverty and inequality and encouraging quality employment. As such, they are complementing in the sense that they can achieve both efficiency and equity.

Figure 4: Musgrave's Framework of Fiscal Policy and Inclusiveness



Source: Zouhar et al. (2021)

While the fiscal policy may lower disparity on both the expenditure and revenue sides, data suggests that government spending has a considerably more significant influence (Bastagli, Coady, & Gupta, 2012; Kanbur, Rhee, & Zhuang, 2014). According to Bastagli et al. (2012), expenditure contributed far more to income redistribution than taxes. Moreover, Kanbur et al. (2014) confirmed that government spending on health and education provides the most effective measures to minimize inequality. Gemmell, Misch, and Moreno-Dodson (2012) documented the links between government spending and overall growth; increased productive spending leads to increased growth and employment, rising income, and reduced poverty.

Government expenditure in Indonesia is divided into nine functions: public services, law and order, economy, environment, housing and public facilities, health, tourism and culture, education, and social protection. Ramadhan and Setiadi (2019) emphasizes that besides government spending on infrastructure (economy function), human capital development is also critical to sustaining a strong economy. They specifically defined that human capital development can be determined by factors such as education and health. Government spending on education may help close the opportunity gap between the poor and the wealthy. A high-quality education increases an individual's opportunities and encourages skills development to be involved in local and international labor markets. Educational systems are linked to better job

opportunities and higher average salaries, resulting in increased intergenerational social class change and lower economic disparity in the future.

Government spending on health plays a considerable part in significant advances in healthcare services and general health status. Globally, the government spends around 4 percent of its GDP on the health sector (Zouhar et al., 2021). Government spending on health includes the provision of health facilities and infrastructure as well as programs related to health development. According to Palayukan (2019), health can affect economic growth in several ways. For example, improving health will cause an increase in workforce participation. Health improvements can also lead to improvements in education levels, which then contribute to economic growth. Moreover, health improvements cause an increase in population which will increase labor force participation.

Social protection serves as a defensive strategy for the destitute and assists in strengthening well-being in the long run by investing in human capital. Social protection programs are classified into three major types, namely Social Safety Nets (SSN)/Social Assistance (SA) programs, social insurance programs, and labor market programs (World Bank, 2018). A review by OECD (2011) notes that spending on SSN programs in the form of Conditional Cash Transfers (CCT) appears to be successful in lowering disparity and promoting inclusive growth. They can also reduce gender inequality by increasing women's enrolment and delivering transfers to them, improving their involvement in household resource allocation.

Government spending on the economy serves to support the acceleration of quality economic growth through the development of transportation, infrastructure, energy, and food sovereignty and the development of MSMEs and cooperatives. The inability to utilize social services and labor markets is attributed to a lack of an appropriate transportation system. Hence, it is urgent to increase the transportation network's connectivity. The expansion of the transportation network, particularly in underdeveloped areas, will enhance labor mobility and access to public services,

reduce transaction costs, and boost productivity and trade.

The level and distribution of government spending will significantly impact inclusive growth, and certain categories of spending are more likely to promote inclusive growth than others. Shifting public spending from general subsidies to human capital investment and social safety services might be an efficient way to minimize economic and human capital disparity (Kanbur et al., 2014).

2.3. Investment and Inclusive Growth

A principle theoretical point of view about the importance of investment in a country's economy is the modernization theory. Rostow's theory of modernization is a five-stage process of growth that sees growth as a metamorphosis, and it means the revolution from traditional to modern. Rostow made efforts to achieve high growth, and one of the efforts is capital which can do much to the economic terms and develop a country (Rostow, 1959). The capital here refers to tax policy, investment, and the exchange rate of international trade. Furthermore, the relationship between investment and employment has been declared by Sukirno (2004) that an increase in economic activity and employment and a rise in national income and welfare are all possible as a result of investment activities. This is contrary to Todaro's opinion (1998), which states that there is a negative relationship between investment and employment because the accumulated capital for purchasing machinery and advanced equipment wastes domestic finances and foreign exchange and hampers efforts to create new jobs.

According to Investment Law No. 25 of 2007, FDI is an investment activity doing business in Indonesia that foreign investors carry out, whether using foreign capital completely or in association with domestic investors. The endogenous growth theory claims that increased knowledge and innovation will endogenously enhance technological progress (Borensztein et al., 1998; De Mello Jr., 1999; Elboiashi, 2011; Nasser, 2010). Increased innovation is expected when Multi-National Enterprises (MNEs) from other countries set up facilities in another country, and those facilities tend to bring human capital

accumulation and Research and Development (R&D) with them, resulting in positive or negative growth spillovers (Barro & Sala-i-Martin, 2005).

Domestic Investment (DI) is carried out by the domestic investor using domestic capital. DI is perhaps an essential primary driver of economic growth and a powerful tool for providing employment opportunities in a country. It serves a double function in the economy by contributing to aggregate demand and increasing a country's stock of productive assets (Lean & Tan, 2011). According to Firebaugh (1992), DI is more likely to develop connections among domestic markets. However, Borensztein et al. (1998) state that FDI is a critical channel for knowledge transfer and contributes significantly more to development in developing countries than local investment. This study will analyze whether FDI affects inclusive growth more than DI.

2.4. Review of Inclusive Growth, Government Spending, and Investment in Indonesia

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Figure 5 shows the distributional data of the Inclusive Development Index (IDI), government spending, and investment in Indonesia from 2015 to 2019. The minimum score of IDI in Indonesia between 2015 to 2019 was in Tolikara Regency (Papua Province) in 2015 with 2.66 points. The score increased over the year to 3.11 in 2019, even though it still did not move from the unsatisfying category. Three other regencies generally have the lowest IDI score from 2015 to 2019, namely Puncak Jaya, Yakuhimo, and Puncak. Those four regencies (including Tolikara) are in Papua Province; the average IDI score in Papua from 2015 to 2019 is 3.33 and goes into the unsatisfying category. The highest score of IDI in Indonesia, in Kediri and Madiun in 2019, is 6.77, the score of. Kediri and Madiun always placed in the top score of IDI, along with Magelang and the Special Region of Yogyakarta. Additionally, Madiun received the highest IDI index among all regencies/municipalities for three consecutive years. Those four regions are in the western regions of Indonesia. According to the data, the western part of Indonesia tends to be more inclusive

than the eastern region.

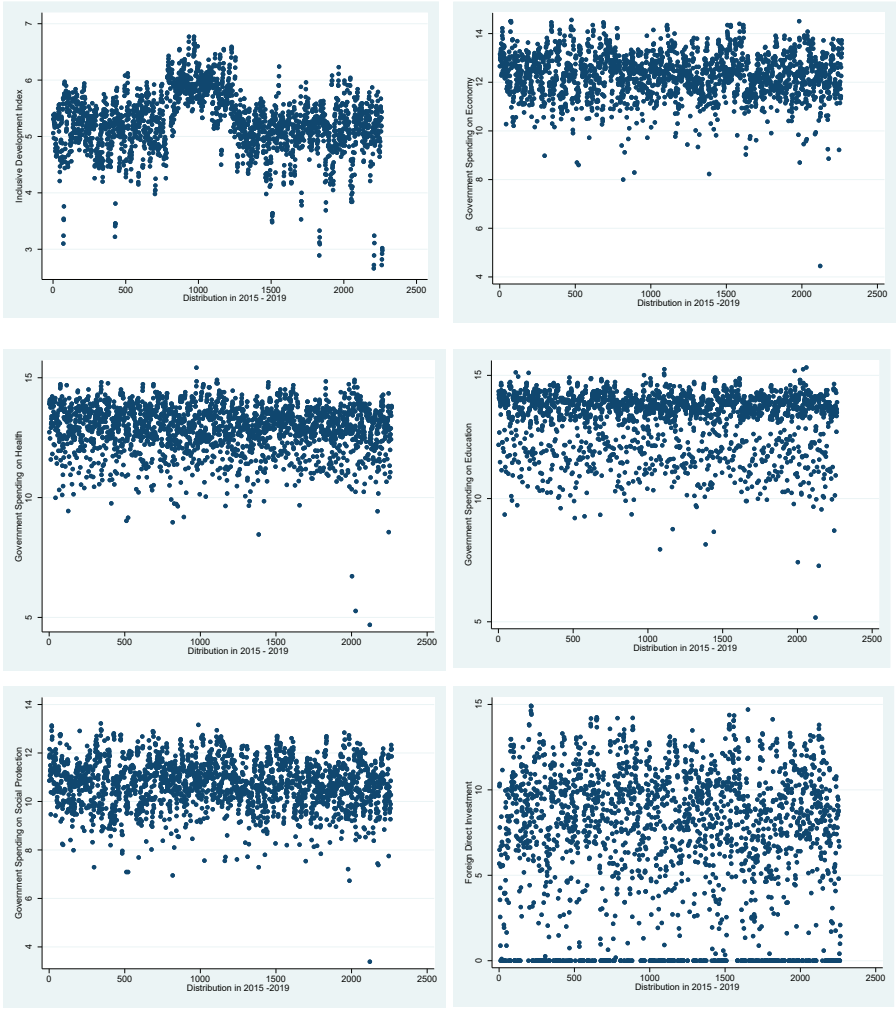
Regarding government spending on economy, the highest value of 14.56 is the spending in Fakfak in the year 2019, while the lowest value of 4.45 is the spending in Tangerang Regency in 2015. Government spending on economy in Fakfak has only slightly grown during the period. In contrast, spending on economy in Tangerang is escalating. Even though they had the lowest value in 2015, in 2019 the spending on economy immensely rose to almost 11.00. In 2018, Magelang received the highest spending for health with 15.42, the highest spending value for health among all regencies/municipalities in the five years. Meanwhile, the smallest amount of government spending on health in the same time period was held by Tangerang Regency in 2015 with 4.69 points. However, like their spending on the economy, Tangerang Regency's spending on health has also risen since 2016. From 2016 to 2019, their spending value on health is steadily growing and almost reached 13.00 in 2019. Government spending on education in Central Sumba in 2019 is the highest among all regencies/municipalities in the five years period. Tangerang Regency holds the lowest value with 5.17. Meanwhile, the maximum value of government spending on social protection was in Boven Digoel in 2016, while the lowest was in Tangerang Regency in 2015.

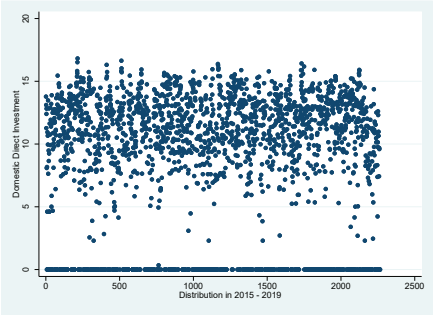
Among the four functions of government spending, spending on health has the highest value at 15.42, followed by spending on education at 15.32, while spending on special protection has the lowest at 3.39. According to Law number 20 of 2003 and number 36 of 2009, the allocation for education is a minimum of 20% of the state budget or local government budget and a minimum of 5% of the state budget or 10% of the local government budget for the allocation for health sector. The data shows the government's commitment to prioritizing public expenditure for health and education.

The FDI inflow and DI realization value data show that Bekasi Regency has the highest value from 2018 to 2019. From 2015 to 2019, Bekasi Regency held the highest realization value for FDI. Meanwhile, Surabaya, Gresik, and Pasuruan had the highest value for DI realization from 2015 to 2017. Bekasi Regency is one of the regencies in West Java Province and has

ten industrial areas. The existence of those industrial areas attracts foreign and domestic investors to this regency.

Figure 5: Inclusive Development Index, Government Spending, and Investment in Indonesia, 2015 – 2019





Source: Ministry of Finance, Ministry of Investment (BKPM, 2016, 2017, 2021), and Ministry of National Development Planning (Bappenas, 2018, 2019a, 2019b, 2019c, 2021).

2.5. Empirical Studies

Several empirical studies revealed that government spending and inclusive growth are positively correlated (Azwar, 2016; Estrada et al., 2014; Kolawole, 2016; Mathai et al., 2020; Safitri et al., 2021; Supriyanto et al., 2014; Zouhar et al., 2021). From a bigger perspective, Prasetyia (2021) observes that fiscal conditions and regional financial performance have a considerable and favorable impact on regional inclusive economic growth. According to Zouhar et al. (2021), the government's most effective tool for economic progress and social welfare is public spending, and spending on health and education should be prioritized. Zouhar also emphasizes that the role of government spending on inequality and poverty is determined by its level, composition, allocative efficiency, and funding method. The spending budget and spending reallocation should consider the country's particular circumstances (Zouhar et al., 2021).

The significance of spending on health and education was also proven by Estrada et al. (2014), Mathai et al. (2020), and Safitri et al. (2021). Estrada et al. (2014) indicate that government spending on health and education can reduce income disparity in Asia. Safitri et al. (2021) found that spending on economy, health, and education had a significant positive effect on inclusive economic growth in the long run. However, in the short run, spending on health on education has a significant positive effect, while spending on economy has

no effect. Kolawole (2016) also supports the importance of health spending on inclusive growth in the long run. Government spending on education, health, and social protection may significantly impact socioeconomic performance. Based on empirical results, a 10 percent rise in social spending per capita might reduce the 20-65 percent Human Development Index (HDI) gap between the region's countries and their worldwide peers, and increasing the efficiency of spending could eliminate one-third of the HDI gap (Mathai et al., 2020). In contrast, Ramadhan & Setiadi (2019) note that government spending on health and education does not significantly affect inclusive growth in Indonesia.

Research on the relationship between investment and inclusive growth has been conducted by Munir and Fatima (2020) and Ofori and Asongu (2021). Munir and Fatima (2020) examine the efficiency of FDI as a strategy for financing inclusive development by using panel data from 86 countries. The findings indicate that FDI is critical for attaining inclusive development, especially in nations with low- to moderate-quality institutions. In sub-Saharan Africa, the effect of FDI on inclusive growth might have resulted from the combined effect of FDI with ICT diffusion. In other words, FDI influences ICT dynamics, resulting in favorable synergistic effects on inclusive growth (Ofori & Asongu, 2021).

One of the aspects of inclusive growth is income disparity. However, the relationship between FDI and income disparity is quite complicated. FDI may worsen income disparity in the early stages of a country's growth, but it will decrease as its development grows (Huang, Sim, & Zhao, 2020). According to Muryani, Esquivias, Sethi, and Iswanti (2021), FDI positively and significantly affects Indonesia's income inequality in the long run. Muryani also examines the effect of DI on income inequality in 34 provinces in Indonesia. The result indicates that DI has a significant negative impact on income inequality, meaning that DI supports reducing the income gap in Indonesia. Meanwhile, FDI has mostly benefited skilled workers in Indonesia, resulting in a rising wage disparity and uneven income distribution (Lee & Wie, 2015).

Another dimension of inclusive growth is poverty. The relationship between FDI and poverty has been examined by Ucal (2014). His study assesses the relationship between FDI and poverty in 26 selected developing countries over 24 years. The result shows a negative relationship between FDI and poverty, and the model certainly indicates that FDI lowers poverty in a developing economy. However, in a broad concept of inclusive growth, Ramadhan and Setiadi (2019) note that both FDI and DI do not significantly impact inclusive growth.

Most studies have focused primarily on the concept of narrow economic growth; therefore, in this study, we will see a broader sense of growth, namely inclusive growth. Some studies have examined the relationship between government spending, investment, and inclusive growth; however, the results are varied and without a consensus. Moreover, most studies related to inclusive growth use data in-country or at the provincial level; however, the aggregate data at the provincial level failed to picture the real condition of inclusive growth in each regency/municipality. Behind good scores of inclusive growth in some provinces, most of their regencies/municipalities have inclusive growth quality below the national average. For that reason, this study will use data at the regency/municipality level to better portray inclusive growth in Indonesia. This study uses a panel data analysis to examine the effect of government spending and investment on inclusive growth in Indonesia.

3. Data and Methodology

3.1 Dataset

This study uses secondary data from several institutions in Indonesia. The variables in this paper consist of dependent and independent variables. The dependent variable is the Inclusive Development Index (IDI) conducted by Bappenas (2021) and BPS (2021). The IDI is a composite index to measure and monitor inclusiveness in Indonesia's development at the district/city, provincial, and national levels. The IDI component consists of three pillars:

Economic Growth and Development, Income Equality and Poverty Reduction, and Expansion of Access and Opportunity. Each pillar has indicators (Table 2).

Table 2: Indicators of Inclusive Development Index

Pillars	Indicators
1. Economic Growth and Development	• GRDP Per Capita Growth • Share on manufacture on GRDP • The ratio of bank credit to GRDP • Job opportunities rate • Percentage of the working population (with ≥35 hours a week) • Percentage of workforce with secondary education level and above • Percentage of households using electricity • Percentage of population who own cell phones • Percentage of roads in good and moderate condition
2. Income Equality and Poverty Reduction	• Gini Ratio • Women's income contribution • The ratio of average spending of rural and urban households • Percentage of the poor population • Average protein consumption per capita per day
3. Expansion of Access and Opportunity	• Expected years of schooling • Percentage of toddlers who received complete primary immunization • Percentage of population who have health insurance • Percentage of households with safe drinking water sources • Percentage of households with toilet facilities • The ratio of the number of third-party funds accounts for the population of productive age • MSME banking credit ratio

Source: Bappenas, 2021.

The independent variable in this paper consists of (1) government spending on economy, (2) government spending on health, (3) government spending on education, (4) government spending on social protection, (5) Foreign Direct Investment inflows, and (6) Domestic Investment.

- Government expenditure on the economy aims to accelerate high-quality economic growth through developing transportation, infrastructure, energy, food sovereignty, and MSMEs and cooperatives. The measurement of this variable is expressed with a natural logarithm of per capita government spending on economy. The data are from the Ministry of Finance.
- Government spending on health serves to improve access and quality of basic health services. Several government expenditure programs on health include the improvement of access and quality of services for the National Health Insurance; the improvement of nutrition during pregnancy and lactation and for toddlers; the improvement of immunization; the acceleration of stunting reduction; and health services and hospital construction. The measurement of this variable is expressed with a natural logarithm of per capita government spending on health. The data are from the Ministry of Finance.
- Government spending on education function is to improve access and quality of basic education services, assurance of education quality, revitalization of educational institutions, and personnel. The measurement of this variable is expressed with a natural logarithm of per capita government spending on education. The data are from the Ministry of Finance.
- Government spending on social protection aims to maintain consistency in reducing the number of poor people, to help individuals minimize the effect of shocks, natural disasters, and unfortunate events, and to protect them from poverty and destitution. Some government expenditure programs on social protection are Program Keluarga Harapan; pensions for civil servants, national police, and national army; Direct Cash Transfer; and Pre-employment Card to develop competency and assist in financial aid for job seekers and workers affected by layoffs. The measurement of this variable is expressed with a natural logarithm of per capita government spending on social protection. The data are from the Ministry of Finance.

- Foreign Direct Investment is defined as an investment that has a long-term objective and establishes a permanent interest and control in a company based in another country by a resident company in that economy (OECD, 1996). Foreign Direct Investment (FDI) flows to capture the value of cross-border direct investment transactions over a quarter or a year (OECD, 2022). The measurement of this variable in this study uses the FDI inflow realization value (in USD) and is then expressed with a natural logarithm. The data are from the Ministry of Investment/BKPM.
- According to the Law of the Republic of Indonesia number 25 of 2007 concerning Investment (2007), Domestic Investment is defined as any investment activity conducting business within the Republic of Indonesia's territory that is undertaken by a domestic investor utilizing domestic funds. This study's measurement of this variable uses the DI realization value (in Rupiah) and is then expressed with a natural logarithm. The data are from the Ministry of Investment/BKPM (2016, 2017, 2021).

3.2 Descriptive Statistics

Descriptive statistics show the general description of the data used, including the dependent and independent variables. The dependent variable in this paper is the Inclusive Development Index (IDI_{it}), while the independent variables include the natural logarithm of per capita government spending on economy (*LnGSEcon*), the natural logarithm of per capita government spending on health (*LnGSHealth*), the natural logarithm of per capita government spending on education (*LnGSEdu*), the natural logarithm of per capita government spending on social protection (*LnGSSocPro*), the natural logarithm of FDI inflows (*LnFDI*), and the natural logarithm of domestic investment (*LnDI*). Table 3 presents the results of the descriptive statistics of these variables. The descriptive analysis provides each variable's number of observations, mean, standard deviation, and lowest and maximum values. The standard deviation for all variables is less than the average, indicating that the variation in the data tends to be minor.

Table 3: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
IDI_{it}	2,265	5.247157	0.5448062	2.66	6.77
$LnGSEcon_{it}$	2,265	12.29643	0.9052718	4.45	14.56
$LnGSHealth_{it}$	2,265	12.90916	0.9930639	4.69	15.42
$LnGSEdu_{it}$	2,265	13.31388	1.14509	5.17	15.32
$LnGSSocPro_{it}$	2,265	10.7399	0.9829067	3.39	13.22
$LnFDI_{it}$	2,265	6.64419	4.3308	0	14.92
$LnDI_{it}$	2,265	8.362918	5.560148	0	16.82

Source: Author's calculation.

3.3 Methodology

This study employs a quantitative method, which emphasizes its analysis based on empirical data, then processed by specific statistical methods, and interpreted in the context of description (Sugiyono, 2014). The study considers a panel data model in 453 regencies/municipalities in Indonesia, covering the period of 2015 – 2019. The panel data model used in this research adopts Ramadhan and Setiadi's (2019) research with modifications, and it is specified as follows:

$$IDI_{it} = \beta_0 + \beta_1 LnGSEcon_{it} + \beta_2 LnGSHealth_{it} + \beta_3 LnGSEdu_{it} + \beta_4 LnGSSocPro_{it} + \beta_5 LnFDI_{it} + \beta_6 LnDI_{it} + \varepsilon_{it}$$

where IDI is the Inclusive Development Index, $LnGSEcon$ is the natural logarithm of per capita government spending in economy, is the natural logarithm of per capita government spending in health, $LnGSHealth$ is the natural logarithm of per capita government spending in education, $LnGSEdu$ is the natural logarithm of per capita government spending in social protection, $LnFDI$ is the natural logarithm of Foreign Direct Investment inflows, is the natural logarithm of Domestic Investment, *i* is the cross-section unit (regency/municipality), and *t* is the time series unit (year).

The technical analyses used to answer the hypotheses in this study are the quantitative descriptive analysis and multiple linear regression analysis. This study uses panel data, a combination of data arranged in chronological order and drawn from several sectors. This study uses a simple approach analysis by combining time-series and cross-section data by estimating panel data (Yamin & Kurniawan, 2011). By accommodating information related to cross-section and time-series variables, panel data can substantially reduce the problem of omitting variables or ignoring relevant variables (Gujarati, 2004).

There are three basic types of regression for panel data: common effect, random effect, and fixed effect. Each model has its advantages and disadvantages. The Common Effect Model (CEM) is the same as linear regression models in general, and all data are combined without considering time and individuals; thus, it is assumed that the behavior of the data is the same in various periods (Setiawan & Kusrini, 2010). The Fixed Effect Model (FEM) is different from the CEM, although it still follows the ordinary least squares principle. The FEM model assumes that individual differences can be addressed by using different intercepts. The dummy variable method estimates the FEM with varied intercepts between individuals. The Least Squares Dummy Variable (LSDV) technique is often referred to as an estimating model (Amaliah, Darnah, & Sifriyani, 2020). In Random Effect Model (REM), individual effects are assumed to be random. REM is more accurately estimated by the Generalized Least Square (GLS) method because of the potential correlation between the variables (heteroscedasticity) (Amaliah et al., 2020). Therefore, it is necessary to begin by selecting the most appropriate model from among the three options offered. This model must be selected based on the assumptions and statistical processing requirements; only then can the results be shown to be valid. The Chow test and Hausman test determine the best model to use.

The Chow test determines whether the model is estimated using FEM or CEM. The Chow test determines whether panel data can be pooled so that the slopes or regressors are consistent across individual entities or periods (Baltagi, 2005). If the null hypothesis of pooled models is rejected,

individuals may have their slopes of regressors, and then fixed and/or random effects are no longer a viable option. The hypothesis of the Chow test is as follows:

H_0 *: Common Effect Model*

H_1 *: Fixed Effect Model*

The test criteria state that if the statistic with significance is less than the degree of significance (α=5%), then H_0 is rejected. As a result, the panel regression estimation model used is the FEM. In contrast, if H_0 is accepted, the panel regression estimation model is the CEM.

The Hausman test determines whether the model is estimated using FEM or REM. It tests whether the FEM or REM is appropriate by identifying the presence of endogeneity in the explanatory variables (Sheytanova, 2014). The hypothesis of the Hausman test is as follows:

H_0 *: Random Effect Model*

H_1 *: Fixed Effect Model*

The test criteria state that if the Hausman test statistic has a significance lower than 0.05, then H_0 is rejected. Hence, the panel regression estimation model used is the FEM. However, if H_0 is accepted, the panel regression estimation model is the REM.

After selecting a panel data regression model, the following step is to test the classical assumptions required for panel data testing. Normality, multicollinearity, heteroscedasticity, and autocorrelation tests are necessary.

The normality test is intended to determine whether the residuals follow a normal distribution. A residual value must normally be distributed; if this assumption is violated, the statistical test for a small sample size becomes invalid. A probability plot can determine whether the residuals are normally distributed or not. Normal residuals are those that have a plot near the diagonal line.

The second classical assumption test is the multicollinearity test. The multicollinearity test must be conducted to evaluate whether or not there is a link between independent variables. A relationship between independent variables is not allowed in linear regression analysis. Multicollinearity is determined by examining each independent variable's VIF value. The test criteria state that if the VIF value is less than 10, there are no multicollinear symptoms.

The third assumption is the absence of heteroscedasticity. Testing the heteroscedasticity assumption is used to determine whether the residuals have a homogeneous variance. The assumption test in this research is seen through the Breusch-Pagan and Wald test. The hypothesis testing the assumption of heteroscedasticity is as follows:

H_0 : Residual has homogeneous variance

H_1 : Residual does not have homogeneous variance

The test criteria state that when the result of probability from the Wald test is level significant (α=5%), then the residual is declared to have a homogeneous variance. After testing the assumption of heteroscedasticity, then the autocorrelation assumption test is then carried out. Finally, the Wooldridge test was carried out to determine the presence of autocorrection.

The best regression model is evaluated by performing additional tests, including a hypothesis test. A hypothesis test determines whether the independent variable partially or simultaneously affects the dependent variable. A concurrent test is used to test hypotheses as to whether the independent variables influence the dependent variable all at once. If the probability result of the statistical F test is lower than significant alpha 0.05, then it is indicated that the independent variable influences the dependent variable simultaneously. The coefficient of determination is used to measure the size of the independent variables' diversity in explaining the dependent variable's variation or, in other words, to examine the magnitude of the independent variable's influence on the dependent variable. In regression analysis, the coefficient of determination

is symbolized by . A partial test is used to test the hypothesis regarding the influence of the independent variable partially on the dependent variable. If the probability value is lower than 0.05, the independent variable has a partial effect on the dependent variable.

4. Results and Discussion

4.1 Panel Data Regression

The statistical results of the Chow test (Appendix: Table A1) result in a significant value that was less than 5% or 0.05, so H_0 is rejected. Hence, based on the Chow test, the FEM is the panel regression estimate model used in this research. The Hausman test (Appendix: Table A2) presents a significance value of less than 0.05, so H_0 is rejected. As a result, the best panel regression estimation model is the FEM.

Figure A1 in the Appendix displays the normality test results through a probability plot. The residual plots are centered on the diagonal line based on the probability plot, indicating that the residuals have a normal distribution. As a result, the assumption of normality is confirmed. The multicollinearity test is done by looking at the VIF value of each independent variable. Table A3 in the Appendix summarizes that all independent variables produce VIF values smaller than 10. Therefore, it can be stated that the model does not have multicollinearity symptoms. The results of heteroscedasticity testing through the Wald test (Appendix: Table A4) show that the probability is smaller than 0.05, meaning the residuals have a heterogeneous variance. In other words, the absence of heteroscedasticity is not fulfilled. Moreover, the result of the Wooldridge test (Appendix: Table A5) indicates an autocorrelation in the model.

Several tests on selecting a regression approach in this paper show that the best model to use is the FEM. However, the classical assumptions test indicates that the model has problems with heteroscedasticity and autocorrelation. A violation of these classical assumptions makes the estimation results biased; their validity is unreliable, so they can yield incorrect

analysis. This paper uses FEM Regression with Driscoll-Kraay standard errors based on this fact. Regression analysis with Driscoll-Kraay standard errors is a method or estimator that can be used to overcome the problem of heteroscedasticity, the serial correlation between individuals (cross-section correlation) developed by Driscoll and Kraay (1998). The Driscoll-Kraay estimator can be used in both the FEM and the CEM and works under the assumption of a heteroscedastic error structure and autocorrelation. Fixed Effect regression using the Driscoll-Kraay will generate a standard error model adjusted to problems of heteroscedasticity and autocorrelation in the model so that the adverse effects of these two symptoms can be minimized (Hoechle, 2007).

The result of the F-test and R-squared (Table 4) produces an F value of 48.73 with a probability of 0.0011. The test result shows that the probability is lower than the significance level (α=5% or 0.05). This indicates a significant impact on *LnGSEcon*, *LnGSHealth*, *LnGSEdu*, *LnGSSocPro*, *LnFDI*, and *LnDI* simultaneously on . The coefficient of determination (R-squared) value in the model is 0.3772 or 37.72%, meaning that the can be explained by the variables of *nGSEcon*, *LnGSHealth*, *LnGSEdu*, *LnGSSocPro*, *LnFDI*, and *LnDI* of 37.72%, or in other words, the contribution of the influence of independent variables in the model to the dependent variable is 37.72%, while the remaining 62.28% is the contribution of other variables not discussed in this paper.

Table 4: Result of F-Test and R-squared

Regression with Driscoll-Kraay standard errors	Number of obs	=	2265
Method: Fixed-effects regression	Number of groups	=	453
Group variable (i): Reg	F(6, 4)	=	48.73
maximum lag: 2	Prob > F	=	0.0011
	within R-squared	=	0.3772

Table 5 describes the result of panel data regression to examine the hypothesis about the effect of the independent variable partially on the dependent variable.

Table 5: Result of Fixed Effect Regression with Driscoll-Kraay standard errors

Variable	Coef.	Std. Err.	t	P>t
LnGsEcon	0.0058	0.0056	1.02	0.364
LnGsHealth	0.1097	0.0215	5.10	0.007
LnGsEdu	0.0797	0.0078	10.25	0.001
LnGsSocProtect	0.0129	0.0073	1.76	0.153
LnFDI	0.0004	0.0015	0.30	0.776
LnDI	0.0050	0.0012	4.12	0.015
_cons	4.5501	0.1827	24.91	0.000

The probability value of variable *LnGSHealth* is lower than 0.05, indicating a significant effect of government spending on health on IDI. The resulting coefficient is 0.1097. To interpret, if government spending on health increases by ten percent, it increases the IDI by 0.01097 units, assuming other variables are constant. However, besides *LnGSHealth*, two other variables have a significant effect on IDI_{it}, namely *LnGSEdu* and *LnDI*. Based on the result, every ten percent rise in government spending on education will boost 0.00797 units of IDI. In a similar interpretation with variable , for every ten percent growth in domestic investment, IDI will increase by 0.0005 units. Moreover, the regression result reports that variables LnGSEcon, *LnGSSocPro*, and *LnFDI* and do not have a significant effect on IDI.

4.2 Discussion

This paper analyzes the effect of government spending (on economy, health, education, and social protection) and investment (FDI and DI) on inclusive growth in Indonesia. The regression result is slightly similar to the research by Kolawole (2016) and Ogundipe and Oluwatobi (2013), where government spending on health and education positively correlates with the country's growth. However, they analyze the growth only as economic growth (measured by GDP growth rate). Besides Ogundipe and Oluwatobi (2013), many other studies have proven that government spending significantly affects economic growth (Abu-Eideh, 2015; Al-Fawwaz, 2015; Nurlina, 2015;

Rustiono, 2008). Based on the result of this paper, it is an interesting fact that the effect of government spending turns out to be broader than affecting GDP growth. Government spending on health and education may boost the elements of inclusive growth, such as poverty, employment, and income equality. Health and education are the keys to human capital development, following the endogenous growth theory, which emphasizes the role of investment in human capital. In other words, good quality of health and education will improve abilities and skills that will increase productivity to further develop the country's economy.

Increased productivity can boost economic growth by reducing the poverty level. Based on the theory of the vicious cycle of poverty (Myrdal, 1983), the higher the level of the health community, indicated by life expectancy, the more increase in productivity. This means that with a higher life expectancy, the poverty rate will decrease. Furthermore, in a study about inclusive growth, Azwar (2016) explains that government interventions to improve health are also an important tool to reduce poverty. Better health will boost work power, minimize non-working days, and raise output for the poor, among other reasons. Furthermore, a study from Hidarini and Bawono (2018) implies that government spending on education significantly influences the Human Development Index (HDI) in 503 districts in Indonesia. One of the components of HDI, years of schooling, is also one of the indicators of IDI measurement. The Ministry of Finance and BPS data in Table 5 illustrate government spending on health and education, HDI, years of schooling, life expectancy, and percentage of the poor population in Indonesia in 2015-2019. The Indonesian government continues to prioritize the health and education sector by fulfilling the constitutional mandate, which requires the allocation for education is a minimum of 20% of the state budget or local government budget (Law of the Republic of Indonesia, 2003), while the health sector is a minimum of 5% of the state budget or 10% of the local government budget (Law of the Republic of Indonesia, 2009) (Table 6).

Table 6: Allocation of Government Spending on Health and Education, Human Development Index, Years of Schooling, Life Expectancy, and Percentage of Poor Population in Indonesia

Year	Allocation of Government Spending on Health	Allocation of Government Spending on Education	Human Development Index	Years of Schooling	Life Expectancy	Percentage of Poor Population
2015	12%	11%	69.55	7.84	70.78	11.13%
2016	13%	26%	70.18	7.95	70.90	10.70%
2017	14%	26%	70.81	8.10	71.06	10.12%
2018	16%	26%	71.39	8.17	71.20	9.66%
2019	16%	26%	71.92	8.34	71.34	9.22%

Source: Ministry of Finance and BPS (2021)

Following the result, government spending on social protection does not significantly influence inclusive growth in Indonesia. According to Supriyanto et al. (2014), one of the transformations needed in the social protection system in Indonesia is integration. There are two approaches to achieving adequate social protection: a systems approach and a multisectoral approach. The systems approach establishes and strengthens structures and mechanisms that facilitate the integration of policy interventions to address a wide variety of vulnerabilities. Identifying and maximizing the links between social protection and sectoral outputs is possible, e.g., education, health, nutrition, safe drinking water, and sanitation. Supriyanto et al. (2014) highlight that the implementation and coordination of the social protection program in Indonesia are still unintegrated. Based on the report from Indonesia's National Government Internal Auditor (BPKP) (Ministry of Agriculture of the Repoblic of Indonesia, 2015), there is an allocation of the social assistance budget that is not well-targeted. The beneficiary criteria do not comply with the Ministry of Finance regulation provisions. There is also an overlapping of social assistance budgets due to the similarity of substance beneficiaries between Echelon I units in the same ministry and inter-ministry.

In implementing social protection programs, the determination of beneficiaries is an essential part. The current mechanism uses the Unified

Database (BDT) managed by the National Team Acceleration of Poverty Reduction (TNP2K). However, BDT has problems with updating data on poor households. Even the implementation of village forum/ deliberation in the regions, as one of the means of improving the data, is also ineffective. This causes the occurrence of exclusion and inclusion errors. The allocation of the social assistance budget that is not according to the provisions indicates disobedience in the state budget's management (good governance) that can potentially misuse and waste. Another problem confronting the poor and vulnerable is their inability to access essential services and social protection programs. Various poverty reduction and social protection initiatives cannot immediately assist individuals affected during crises or economic and social shocks. The social protection expenditure which should reach the target is not accurately addressed and causes the poor and vulnerable not to receive comprehensive help. These problems probably make the government spending on social protection not function well and are indeed a hindrance to the achievement of inclusive growth in Indonesia.

Another interesting result is that government spending on economy is not significantly affecting inclusive growth. Government expenditure on economy function finances transportation, infrastructure, agriculture, irrigation, and energy facility programs. The changing economic structure, initially dominated by primary agricultural products, shifted to other industries, accompanied by a decline in the younger generation's interest in agriculture and a resulting reduction in the number of productive agricultural workers. Data in 2018 shows that most of the workforce in the farming industry is workers ages 45 to 54 (Ministry of Agriculture of the Republic of Indonesia, 2020). The main labor problems in the agricultural sector are the declining existence of productive working age and education level. Education levels of junior high school and below dominate workers in agriculture (Ministry of Agriculture of the Republic of Indonesia, 2020). As a result, the government's utilization of technology and innovation has become challenging to maximize.

Government financing is one of the essential components in realizing profitable and sustainable farming. However, farmers' accessibility to finance

is a major problem often complained about by farmers. This is due to the lack of information about various financing schemes that farmers can access. According to the Ministry of Agriculture of the Republic of Indonesia (2020), in the year 2016, only 33% of farmers relied on credit from the National Empowerment Program Community/Program Nasional Pemberdayaan Masyarakat (PNPM) and People's Business Credit /Kredit Usaha Rakyat (KUR). The government has provided various financing facilities to make it easier for farmers to access capital for their farming business. Nevertheless, farmers still find it difficult to get capital assistance in implementation.

The role of private investment in promoting inclusive growth has been analyzed in this paper. The result presents that only DI significantly affects inclusive growth. These findings contradict Borensztein et al. (1998), stating that FDI contributes to more significant growth than domestic investment in developing countries. However, Chen, Wang, and Singh (2018) have a slightly similar result to this paper, indicating that private domestic investment is the dominant contributor to technological progress compared to FDI and state-owned investment. Research by Djulius, Wongyu, Juanim, and Santy (2019) examines both investments and their impact on Indonesia's relatively capital and labor-intensive industry. The finding implies that FDI benefits labor-intensive manufacturing industries such as metal and motor production and textile and leather manufacturing. DI benefits capital-intensive industrial businesses such as chemical, food, mineral, and paper. The chemical, food, and paper industries have been the primary sector for investment in Indonesia. In 2016, the paper, chemical, and food industries held an 18.7%, 13%, and 10.5% share of total investment in Indonesia, respectively (BKPM, 2016), and in 2017, the food and chemical industry gave a share of 19.6% altogether (BKPM, 2017). A large portion of those capital-intensive sectors could support DI's chance to produce a higher value-added than FDI.

Another probability that makes FDI insignificantly affect inclusive growth in Indonesia might be related to the two opposing theories on the effect of FDI on income inequality. FDI reduces income inequality when

capital is invested in low-wage, unskilled labor (Deardorff & Stern, 1994). As multinational businesses (MNCs) typically pay greater wages than their local counterparts, FDI may trigger income disparity (Bornschier & Chase-Dunn, 1985). Previous research, such as Tomohara and Takii (2005), has shown that when FDI is brought into the Indonesian manufacturing business, it leads to a rise in the wages of native manufacturing enterprises. This eventually leads to Indonesia's wage disparity between international and domestic firms. The concentration of investment on Java Island adds to income disparity and the inequality of opportunity. According to BKPM (2021), FDI in Java stood at more than a 50% share of total investment. Inequality exists between Java Island and the outer islands due to the imbalanced structure in geographical investment destinations.

5. Conclusion and Policy Implication

This paper examines the influence of government spending and investment on inclusive growth in Indonesia. The key outcomes are that government spending on health and education positively affects inclusive growth, and Domestic Investment also has a good impact on inclusive growth. However, there is no significant effect of government spending on economy and social protection and FDI.

The Indonesian government should expand its program on health and education to support inclusive growth in Indonesia. Evaluating the allocation of government spending and prioritizing spending on health and education will be beneficial to supporting inclusive growth in Indonesia. The government should consider the trade-off allocation between other functions of spending and spending on health and education.

The Indonesian government should address the problem in the social protection system: the difficulty of accessing essential services and social protection programs. Therefore, developing a network of service units at the sub-district or village level is necessary according to the conditions and regional needs. Furthermore, technological innovation can solve this problem related

to preventing the waste of government spending on the economy. Nowadays, several start-up companies are expected to be able to provide solutions in the agricultural sector. They are facilitating the program and online applications to support farmer businesses and the performance of the farming sector. Then again, it is not enough if not supported by talented human resources in the agricultural industry. Strategies are needed to increase competence, creativity, and innovation through vocational training and mentoring for new agricultural business actors.

Another recommendation based on this paper's outcomes is for the Indonesian government to support DI, as it has more contribution to inclusive growth than FDI. DI's investment incentives could develop and strengthen investment in the real sector, especially the productive sector that prioritizes local resources. Development and promotion of regional investment potential will also encourage regions to improve readiness to attract domestic entrepreneurs to invest in the area.

Nevertheless, this study is subject to limitations and opportunities for future research. Firstly, this study's time limit was only five years, conducted between 2015 and 2019. Future research could encompass a more extended period to fortify the findings. Secondly, the methodology used in this study only examines a one-directional relationship. Future research could more deeply explore the causal relationship between growth, government spending, and investment. Another methodology should be compared to this study's methodology, such as using the General Method of Moments (GMM), particularly when facing a heteroscedasticity problem. The crowding in and crowding out effect of FDI were not explained in this research; this could be an opportunity for future research to examine more the effect of FDI on DI or vice versa. Lastly, the Inclusive Development Index in Indonesia has much potential to explore, considering this inclusive term is relatively new, and a minimal number of studies in Indonesia use this data.

Acknowledgements

We thank the editor and anonymous referees for comments and suggestions. We also thank Professor Toshihiro Kudo, Professor Yonosuke Hara, Dr. Wahyu Prasetyawan, Dr. Mokoto Kawano, and Dr. Matthew Dickens for the guidance on this paper. This research is funded by the Indonesian Ministry of National Development Planning.

References

Abu-Eideh, O. M. (2015). Causality between public expenditure and GDP growth in Palestine : An econometric analysis of Wagner's law. *Journal of Economics and Sustainable Development*, *6*(2), 189–200.

ADB. (2011). *Key indicators for Asia and the Pacific: Toward higher quality employment in Asia.* (ADB Special Chapter). Retrieved from https://www.adb.org/publications/key-indicators-asia-and-pacific-2011

ADB. (2013). *Framework of inclusive growth indicators 2013: Key Indicators for Asia and the Pacific* (ADB Report 43). Retrived from https://www.adb.org/publications/framework-inclusive-growth-indicators-2013-key-indicators-asia-and-pacific

Al-Fawwaz, T. M. (2015). The impact of government expenditures on economic growth in Jordan (1980–2013). *International Business Research*, *9*(1), 99–105. https://doi.org/10.5539/ibr.v9n1p99

Amaliah, E. N., Darnah, D., & Sifriyani, S. (2020). Regresi data panel dengan pendekatan common effect model (CEM), fixed effect model (FEM) and random effect model (REM) (Studi Kasus: Persentase Penduduk Miskin Menurut Kabupaten/Kota di Kalimantan Timur Tahun 2015-2018). *ESTIMASI: Journal of Statistics and Its Application*, *1*(2), 106–115. https://doi.org/10.20956/ejsa.v1i2.10574

Anand, R., Mishra, S., & Peiris, S. J. (2013). *Inclusive growth: Measurement and determinants.* (IMF Working Papers No. 2013:135). Retrieved from https://doi.org/10.5089/9781484323212.001

Azwar. (2016). Pertumbuhan inklusif di provinsi Sulawesi Selatan dan faktor-faktor yang memengaruhinya. *Jurnal BPPK*, *9*(2), 1–31.

Baltagi, B. H. (2005). *Econometric analysis of panel data* (3rd ed.). Chichester, England: John Wiley & Sons, Ltd.

Bappenas. (2018). *Inclusive economic growth: Reducing poverty and inequality in Indonesia*. Retrieved from https://bappenas.go.id/berita/83-inclusive-economic-growth-reducing-poverty-and-inequality-in-indonesia-L2j02

Bappenas. (2019a). *Indeks pembangunan ekonomi inklusif sebagai indikator kualitas pembangunan nasional dan daerah*. *April*. Retrieved from http://www.smeru.or.id/sites/default/files/events/kunci_penutup_-_bambang_ps_brodjonegoro.pdf

Bappenas. (2019b). Rancangan teknokratik rencana pembangunan jangka menengah nasional 2020–2024: Indonesia berpenghasilan menengah - tinggi yang sejahtera, adil, dan berkesinambungan. *Kementerian PPN/ Bappenas*, 313. Retrieved from https://bni.perpusnas.go.id/detailcatalog.aspx?id=176080

Bappenas. (2019c). *Roadmap of SDGs Indonesia : A highlight*. 27–36. Retrieved from https://www.unicef.org/indonesia/sites/unicef.org.indonesia/files/2019-07/ROADMAP OF SDGs INDONESIA_final draft.pdf

Bappenas. (2021). Inclusive development index. Retrieved from http://inklusif.bappenas.go.id/indeks

Barro, R. J., & Sala-i-Martin, X. (2005). *Economic growth* (2nd ed.). Cambridge, MA: The MIT Press.

Bastagli, F., Coady, D., & Gupta, S. (2012). *Income inequality and fiscal policy* (IMF Staff Discussion Notes No. 12/08). Retrieved from https://doi.org/10.5089/9781475510850.006

BKPM. (2016). *Realisasi penanaman modal PMDN - PMA triwulan i tahun 2016* (Issue April). Retrieved from http://www5.bkpm.go.id/images/uploads/investasi_indonesia/file/PRESS_RELEASE_REALISASI_INVESTASI_TW_I_2016_-_IND.pdf

BKPM. (2017). *Domestic and foreign direct investment realization in quarter II and January - June 2017*. *June*. Retrieved from https://www.bkpm.go.id/images/uploads/file_siaran_pers/PAPARAN_-_ENG_-_TW_IV_2017.pdf

BKPM. (2021). *Investment realization*. Retrieved from https://www.bkpm.go.id/en/statistic/foreign-direct-investment-fdi

Boarini, R., Murtin, F., & Schreyer, P. (2015). *Inclusive growth: The OECD measurement framework* (OECD Statistics Working Papers, 2015/06). Retrieved from https://one.oecd.org/document/STD/DOC(2015)6/en/pdf

Borensztein, E., De Gregorio, J., & Lee, J.-H. (1998). How does foreign direct investment affect economic growth? *Economics of Transition*, *9*(3), 679–693.

Bornschier, V., & Chase-Dunn, C. (1985). *Transnational corporations and underdevelopment*. New York, NY: Praeger Publishers.

BPS. (2021). Berita resmi statistik. In *Bps.Go.Id* (Vol. 19, Issue 27). Retrieved from https://www.bps.go.id/

Chen, H., Wang, X., & Singh, B. (2018). Can private domestic investment lead Chinese technological progress? *Economic Modelling*, *70*(September 2016), 186–193. https://doi.org/10.1016/j.econmod.2017.11.002

De Mello Jr., L. R. (1999). Foreign direct investment-led growth: Evidence from time series and panel data. *Oxford Economic Papers*, *51*(1), 133–151.

Deardorff, A., & Stern, R. (1994). *The Stolper-Samuelson theorem: A golden jubilee*. Ann Arbor: MI: University of Michigan.

Djulius, H., Wongyu, C., Juanim, J., & Santy, R. D. (2019). Nexus of foreign direct investment, domestic investment, and manufacturing industry value added in Indonesia. *Signifikan: Jurnal Ilmu Ekonomi*, *8*(1), 1–8. https://doi.org/10.15408/sjie.v8i1.9520

Dollar, D., & Kraay, A. (2001). *Growth is good for the poor* (The World Bank Working Paper No. 2587 (Vol. 7, Issue 3). World Bank Policy Research. Retrieved from https://openknowledge.worldbank.org/handle/10986/19679

Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, *80*(4), 549–559. https://doi.org/10.1162/003465398557825

Elboiashi, H. A. T. (2011). *The effect of FDI and other foreign capital inflows on growth and investment in developing economies* (Doctoral dissertation, University of Glasgow). glathesis:2011-3026.

Estrada, G., Lee, S., & Park, D. (2014). *Fiscal policy for inclusive growth: An overview* (ADB Economics Working Paper Series No. 423). Retrieved from https://www.adb.org/publications/fiscal-policy-inclusive-growth-overview

EU Commission. (2014). Promoting inclusive growth. In *OECD Observer* (Issue YEARBOOK). Retrieved from https://www.oecd.org/forum/issues/promoting-inclusive-growth.htm

Firebaugh, G. (1992). Growth effects of foreign and domestic investment. *American Journal of Sociology*, *98*(1), 105–130. http://www.jstor.org/stable/2781194

Gemmell, N., Misch, F., & Moreno-Dodson, B. (2012). Public spending for long-run growth: A practitioners' view. *Economic Premise*, *99*, 1–4.

Gujarati, D. N. (2004). *Basic econometrics* (4th Ed.). Boston, MA: Mc Graw Hill.

Hidarini, R. A., & Bawono, A. D. B. (2018). *Peran belanja pendidikan dan belanja perlindungan sosial sebagai variabel moderating terhadap hubungan ruang fiskal dengan indeks pembangunan manusia (IPM) (Studi Empiris di Seluruh Kabupaten / Kota di Indonesia Tahun 2018)*. 285–296.

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, *7*(3), 281–312. https://doi.org/10.1177/1536867x0700700301

Huang, K., Sim, N., & Zhao, H. (2020). Does FDI actually affect income inequality? Insights from 25 years of research. *Journal of Economic Surveys*, *34*. https://doi.org/10.1111/joes.12373

Ianchovichina, E., & Lundstrom, S. (2009). *Inclusive growth analytics: Framework and application* (World Bank Policy Research Working Paper No. 4851). Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1410472

Islam, R. (2014). *Bangladesh Economists' Forum Human Capital and Inclusive Growth : The Challenges for Bangladesh Rizwanul Islam*. 1–36.

Kanbur, R., Rhee, C., & Zhuang, J. (2014). Chapter 1: Introduction. In R Kanbur, C. Rhee, & J. Zhuang (Eds.), *Inequality in Asia and the Pacific*. (1st Ed., pp. 1–18). New York, NY: Routledge

Kolawole, B. O. (2016). Government spending and inclusive-growth relationship in Nigeria: An empirical investigation. *Zagreb International Review of Economics and Business*, *19*(2), 33–56. https://doi.org/10.1515/zireb-2016-0007

Kusumawati, P. N. L. (2018). *Foreign Direct Investment, Inclusive Growth, and Institutions in Indonesia* (Doctoral dissertation, University of Groningen). ISBN: 978-94-034-0782-4

Law of the Republic of Indonesia Number 20/2003, 1 (2003). Retrieved from http://www.flevin.com/id/lgso/translations/Laws/Law%20No.%2020%20of%202003%20on%20the%20National%20Education%20System%20(BKPM).pdf

Law of the Republic of Indonesia Number 25/2007, 1 (2007). Retrieved from http://www.flevin.com/id/lgso/translations/JICA%20Mirror/english/3002_UU_25_2007_e.html

Law of the Republic of Indonesia Number 36/2009, Health 1 (2009). Retrieved from https://apiycna.org/wp-content/uploads/2014/01/Indonesia_Health-Law-no-36.pdf

Lean, H. H., & Tan, B. W. (2011). Linkages between foreign direct investment, domestic investment and economic growth in Malaysia. *Journal of Economic Cooperation and Development*, *32*(4), 75–96.

Lee, J. W., & Wie, D. (2015). Technological change, skill demand, and wage inequality: Evidence from Indonesia. *World Development*, *67*, 238–250. https://doi.org/10.1016/j.worlddev.2014.10.020

Mathai, K., Duenwald, C., & Guscina, A. (2020). *Social spending for inclusive growth in the Middle East and Central Asia.* (IMF Departmental Paper No. 2020/012). Retrieved from https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2020/09/25/Social-Spending-for-Inclusive-Growth-in-the-Middle-East-and-Central-Asia-49669

Ministry of Agriculture of the Republic of Indonesia. (2020). *Rencana strategis kementerian pertanian 2020-2024*. Retrieved from http://balitklimat.litbang.pertanian.go.id/wp-content/uploads/2020/05/Draft-Renstra-2020-2024-Final_3.pdf

Ministry of Finance of the Republic of Indonesia. (2015). *Kajian tata kelola bantuan sosial kementrian/ lembaga*. 1–20. Retrieved from https://anggaran.kemenkeu.go.id/api/Medias/2285d31a-4db4-4701-b9c5-d273df98c6fb

Munir, M., & Fatima, A. (2020). Financing inclusive growth through FDI: Incorporating the role of institutional quality. *Global Economics Review*, *5*(II), 29–46. https://doi.org/10.31703/ger.2020(v-ii).03

Muryani, Esquivias, M. A., Sethi, N., & Iswanti, H. (2021). Dynamics of income inequality, investment, and unemployment in Indonesia. *Journal of Population and Social Studies*, *29*, 660–678. https://doi.org/10.25133/JPSSv292021.040

Musgrave, R. A. (1959). *The theory of public finance: A study in public economy*. New York, NY: McGraw-Hill.

Nasser, O. M. A. (2010). How does foreign direct investment affect economic growth? The role of local conditions. *Latin American Business Review*, *11*(2), 111–139. https://doi.org/10.1080/10978526.2010.486715

Nurlina. (2015). The effect of government expenditures on Indonesia economic growth. *Journal of Economics, Business & Accountancy Ventura*, *18*(1), 1–14. https://doi.org/10.14414/jebav.v18i1.377

OECD. (1996). *OECD benchmark definition of foreign direct investment. Third edition*. Retrieved from https://www.oecd.org/daf/inv/investment-policy/2090148.pdf

OECD. (2011). *Divided we stand: Why inequality keeps rising*. Retrieved from https://www.oecd.org/els/soc/49170768.pdf

OECD. (2022). *FDI flows (indicator)*. Retrieved from https://doi.org/10.1787/99f6e393-en

Ofori, I. K., & Asongu, S. A. (2021). ICT diffusion, foreign direct investment and inclusive growth in Sub-Saharan Africa. *Telematics and Informatics*, *65*(January 2020), 101718. https://doi.org/10.1016/j.tele.2021.101718

Ogundipe, A., & Oluwatobi, S. (2013). Government spending and economic growth in Nigeria: Evidence from dissagregated analysis. *Journal of Business Management and Applied Economics*, *2*(4), 81–92. https://doi.org/10.12816/0003892

Palayukan, M. (2019). Pengaruh belanja pemerintah terhadap indeks pembangunan manusia: Studi kasus provinsi Sulawesi Tenggara. *Jurnal BPPK : Badan Pendidikan Dan Pelatihan Keuangan*, *12*(2), 74–91. https://doi.org/10.48108/jurnalbppk.v12i2.376

Prasetyia, F. (2021). Kualitas pemerintahan daerah dan pertumbuhan ekonomi inklusif di Jawa Timur. *Kajian Ekonomi Dan Keuangan*, *5*(1), 21–34. https://doi.org/10.31685/kek.v5i1.581

Ramadhan, R. R., & Setiadi, Y. (2019). Pengaruh modal fisik dan sumber daya manusia terhadap indeks inklusif di Indonesia. *Jurnal Ekonomi Pembangunan*, *17*(2), 109–124. https://doi.org/10.29259/jep.v17i2.9797

Rauniyar, G., & Kanbur, R. (2010). Inclusive growth and inclusive development : A review and synthesis of Asian development bank literature. *Journal of the Asia Pacific Economy, 15*(4), 455–469. https://doi.org/10.1080/13547860.2010.517680

Rostow, W. W. (1959). The stages of economic growth. *The Economic History Review*, *12*(1), 1–16. https://doi.org/10.2307/2591077

Rustiono, D. (2008). Analisis pengaruh investasi, tenaga kerja, dan pengeluaran pemerintah terhadap pertumbuhan ekonomi di propinsi Jawa Tengah (Master's Thesis, Pascasarjana Universitas). http://eprints.undip.ac.id/16937/

Sabir, S. (2019). Fiscal policy, institutions and inclusive growth: Evidence from the developing Asian countries. *World Bank*, *46*(6), 822–837. https://doi.org/10.1108/IJSE-08-2018-0419

Safitri, M. I. D., Ananda, C. F., & Prasetyia, F. (2021). Analisis dampak belanja pemerintah daerah terhadap pertumbuhan ekonomi inklusif Jawa Timur. *Indonesian Treasury Review: Jurnal Perbendaharaan, Keuangan Negara Dan Kebijakan Publik*, *6*(2), 85–96. https://doi.org/10.33105/itrev.v6i2.339

Setiawan, & Kusrini, D. E. (2010). *Ekonometrika* (1st ed.). Nikodemus WK (ed.) Indonesia: Andi.

Sheytanova, T. (2014). *The accuracy of the Hausman test in panel data: A Monte Carlo study* (Master's Thesis, Orebro University School of Business). Retrieved from http://oru.diva-portal.org/smash/get/diva2:805823/FULLTEXT01.pdf

Sholiha, D. H. A., Hutagaol, M. P., & Asmara, A. (2015). Pertumbuhan inklusif: Fenomena pertumbuhan inklusif di kawasan Indonesia Bagian Barat dan Indonesia Bagian Timur. *Kebijakan Publik*, *4*(1), 8–22.

Sholihah, D. H. A. (2014). *Pertumbuhan inklusif : Faktor-faktor yang memengaruhi dan dampaknya terhadap pertumbuhan kelas menengah di Indonesia* (Master's Thesis, IPB University). https://repository.ipb.ac.id/handle/123456789/74697

Sitorus, A. V. Y., & Arsani, A. M. (2018). Komparasi pertumbuhan ekonomi inklusif di 33 provinsi Indonesia tahun 2010- 2015 : Studi kasus menggunakan metode pendekatan ADB , WEF, dan: A comparative study of inter-provincial inclusive economic growth in Indonesia 2010-2015 with approach methods of ADB, WEF, and UNDP. *Jurnal Perencanaan Pembangunan*, *65–77*. Retrieved from https://journal.bappenas.go.id/index.php/jpp/article/download/32/23/&ved=2ahUKEwimj52B-5Kz7AhVSwzgGHR9bBKQQFnoECAkQAg&usg=AOvVaw2RA-j_7Zyn4B3IVakdymOKH

Sugiyono. (2014). *Metode penelitian kuantitatif, kualitatif dan R&D*. Bandung: Penerbit Alfabeta.

Sukirno, S. (2004). *Makro ekonomi teori pengantar edisi ketiga.* Jakarta: Raja Grafindo Persada.

Supriyanto, R. W., Ramdhani, E. R., & Rahmadan, E. (2014). Social protection in Indonesia: Challenges and future. In *Bappenas*.

Suryanarayana, M. H. (2013). *Inclusive growth : A sustainable perspective*. (UNDP Report). https://www.undp.org/india/publications/inclusive-growth-sustainable-perspective

Todaro, M. P. (1998). *Pembangunan ekonomi di dunia ketiga* (v. 2). Jakarta: Erlangga.

Tomohara, A., & Takii, S. (2005). Foreign direct investment and wage spillovers in Indonesian manufacturing industry (Asian Growth Research Institute Working Paper Series No. 2005-05). Kitakyushu. Retrieved from http://www.agi.or.jp/workingpapers/WP2005-05.pdf

Ucal, M. Ş. (2014). Panel data analysis of foreign direct investment and poverty from the perspective of developing countries. *Procedia - Social and Behavioral Sciences*, *109*, 1101–1105. https://doi.org/10.1016/j.sbspro.2013.12.594

UNCTAD. (2014). *World investment report. Investing in the SDGs: An action plan* (United Nations Conference on Trade and Development, Vol. 19, Issue 2). Retrieved from https://unctad.org/system/files/official-document/wir2014_en.pdf

World Bank. (2018). *The state of social safety nets 2018*. Washington, DC: The World Bank. Retrieved from http://elibrary.worldbank.org/doi/book/10.1596/978-1-4648-1254-5

World Bank. (2022). The World Bank in Indonesia. Retrieved from https://www.worldbank.org/en/country/indonesia/overview#1

Yamin, S., & Kurniawan, H. (2011). *Generasi baru mengolah data penelitian dengan partial least square path modeling*. Jakarta: Salemba Infotek.

Zouhar, Y., Jellema, J., Lustig, N., & Trabelsi, M. (2021). *Public expenditure and inclusive growth – A survey* (IMF Working Paper No. WP/21/83). Retrieved from https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpiea2021083-print-pdf.ashx

Appendices

Appendix I: The Result of the Classical Assumption Test

Figure A1: Result of Normality Test

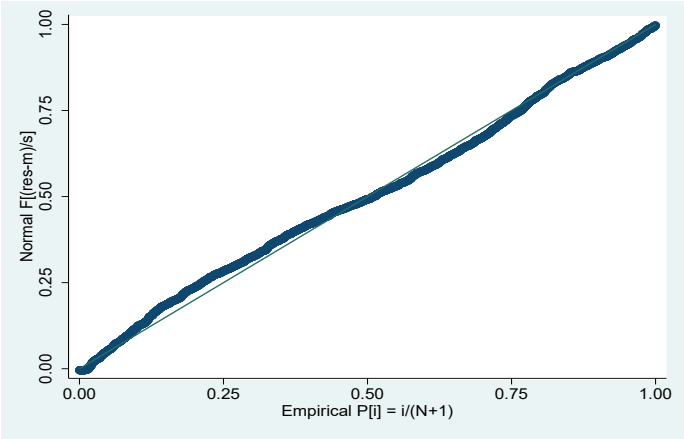


Table A1: Result of Chow Test

Statistic	Prob.
83.65	0.0000

Table A2: Result of Haussman Test

Statistic	Prob.
98.32	0.0000

Table A3: Result of Multicollinearity Test

Variable	VIF
LnGsEcon	6.85
LnGsHealth	9.33
LnGsEdu	9.38
LnGsSocProtect	5.97
LnFDI	3.74
LnDDI	3.55

Table A4: Result of Heteroscedasticity Test

Statistic	**Prob.**
2.7×10^5	0.0000

Table A5: Result of Autocorrelation Test

Statistic	**Prob.**
106.027	0.0000