Public Spending and Financial Inclusion and Their Impact on Inclusive Growth In Indonesia: A Spatial Approach

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Article Information

A B S T R A C T

Inclusive growth results in equal access to the benefits of growth and, by that, reduces disparities. Public spending plays an important role in supporting economic growth and people's welfare. On the other hand, financial inclusion has the ability to expand opportunities to participate in growth. Using data on government spending and financial inclusion in 34 provinces in Indonesia in 2015-2019, this study aims to examine the link between the two towards inclusive growth. As a result, spending on education and financial inclusion, as well as investment and trade openness, can promote inclusive growth. Expanding access to education as a result of public investment in education will boost labor capacity and productivity. Meanwhile, access to more affordable credit will be realized through an inclusive financial system. Conversely, due to health development gaps, health spending has a negative impact on inclusive growth. The spatial error model with queen contiguity spatial weight matrix shows a significant spatial effect on the error term or residual. The implication is that policies for expanding education, health, and digital access as well as increasing investment and financial literacy need to be carried out to ensure people's affordability to economic opportunities by considering regional aspects.

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INTRODUCTION

The inclusive principle in economic growth demands equal participation in the growth process and the distribution of the benefits of growth for the entire community, such as employment opportunities, decent living, education, and health, especially for marginalized groups. A development strategy based on inclusive growth will have two mutually reinforcing strategic focuses (ADB, 2008; Klasen, 2010). First, the expansion of access to economic opportunities will be realized through high and sustainable growth. Second, equal opportunity to contribute to the process and outcomes of growth without discrimination will be created from the expansion of access. In line with this, Ramos et al. (2013) use the terms benefit-sharing and participation in interpreting inclusive growth. Benefit-sharing illustrates that the economic process is characterized by a fair distribution of benefits to the entire community, while participation refers to comprehensive community participation.

Economic growth accompanied by a decrease in poverty and inequality indicates inclusive growth (Ali and Son, 2007; Klasen, 2010; McKinley, 2010). Inequality is a bad condition for growth because it tends to weaken the growth and reduce the speed and resilience of growth (Zhuang, Kanbur and Rhee, 2014; Aoyagi and Ganelli, 2015; Lahouij, 2017). Increasing inequality can undermine the impact of economic growth on poverty alleviation by reducing opportunities for the poor to accumulate human capital and access education and health and cause social, economic and political instability (ADB, 2011; Balakrishnan, Steinberg and Syed, 2013; Ostry, Berg and Tsangarides, 2014; Alekhina and Ganelli, 2020). Brodjonegoro (2019) defines inclusive growth as growth that is pro-poor, pro-job, pro-growth, and pro-equity. Inclusive growth is able to reach people at the lowest levels in order to reduce poverty levels,

be able to reduce the unemployment rate through the creation and expansion of employment opportunities, be able to trigger an increase in economies of scale, and be able to encourage income distribution and reduce disparities between groups and between regions.

Indonesia's high economic growth rate indicates that economic activity is in a vibrant state (Figure 1(a)). However, this high growth has not been able to make a significant contribution to reducing poverty and vulnerable employment, as well as increasing per capita income in Indonesia. This can be seen from the level of poverty, unemployment, and vulnerable workers in Indonesia which is generally higher and lower per capita income compared to Asia Pacific countries, upper middle income countries, and ASEAN. This phenomenon indicates that economic growth in Indonesia is not yet fully inclusive. In other words, the benefits of Indonesia's economic growth have not reached the entire community and are mostly obtained by the richest segment of the population (ADB, 2014). Therefore, a strategy is needed to encourage and accelerate inclusive growth in Indonesia.

The government has a stake in achieving inclusive growth. In principle, the government can expand participation and distribution of growth to create a more just society (Ramos, Ranieri and Lammens, 2013; Estrada, Lee and Park, 2014). Through fiscal policy, the government allocates available resources optimally to achieve economic efficiency as well as equitable distribution of welfare (Hyman, 2010; Bastagli, Coady and Gupta, 2012).

The role of government in the economy was first proposed by J.M. Keynes (Case, Fair and Oster, 2017), known as Keynes's Theory of Growth. The theory states that government intervention is needed in the economic life of the community so that growth can run optimally (Azwar, 2016; Ambya, 2020). Furthermore, Solow's Growth Theory (Mankiw, 2010)

describes that growth comes from capital and labor. The capital stock is the main determinant of the economy's output, where changes in the capital stock can lead to economic growth. In addition to capital and labor, Solow added technology as an exogenous factor that interacts with other factors in the growth process. As technology improves, labor efficiency also increases, and each working hour contributes more to the production of goods and services (Dinc, 2015). Labor efficiency can be increased through improvements and investments in health and education. In other words, human capital has the same importance as physical capital in boosting productivity and increasing economic growth.

Fiscal policy on the expenditure side has a greater impact, especially because of its ability to target certain groups (Bastagli, Coady and Gupta, 2012; Hur, 2014; Bono, 2020). There are two ways for public spending to influence inclusive growth (Wilhelm & Fiestas, 2005). First, increase overall growth. Second, increasing opportunities for the public to participate in the economy, especially through strengthening human resources and reducing transaction costs.

Public spending is a powerful instrument for promoting inclusive growth (Alekhina and Ganelli, 2020; Zouhar et al., 2021). As a form of public sector investment, public spending can facilitate the accumulation of human capital and expand people's participation in growth, especially for the poor. For example, investments in education and health, such as schools and hospitals in underdeveloped areas, can expand access and reduce disparities in access to education and health. Thus, the public investment strategy must cover areas that enable as many poor people as possible to access social services and carry out productive activities. In addition, ensuring the readiness and ability of individuals to take advantage of the opportunities created by dynamic growth is the key to public spending.

Several literatures have shown how government spending can promote inclusive growth. Ambya (2020) shows that spending on education, health, and infrastructure had a significant positive impact on Indonesia's economic growth in 2001-2010. In line with this, Johansson (2016) finds that spending on infrastructure and education increases economic growth. Johansson (2016) also concludes that social protection spending can reduce inequality. On the other hand, Arjona et al. (2003) revealed that demotivation of the workforce was one of the factors in spending on social protection that had a negative impact on inclusive growth in 21 OECD countries in 1970-1998.

In relation to inequality, government spending on health (Balakrishnan, Steinberg and Syed, 2013; Hur, 2014) and education (Hur, 2014) will significantly reduce income inequality in developing countries in Asia. Other studies use poverty as a proxy for inclusive growth. Misdawita & Sari (2013) proved that education spending was effective in reducing poverty in Indonesia in 2001-2012. On the other hand, health spending and subsidies have no impact on reducing poverty due to the inaccuracy of targeting beneficiaries. Taruno (2019) concluded that health and education spending in Indonesia in 2009-2018 had an impact on reducing rural poverty, while the reduction in urban poverty was more influenced by health spending. Meanwhile, spending on social protection does not have a significant impact on poverty reduction.

Safitri et al. (2021) proved that health and education spending during 2014-2018 was effective in increasing long-term inclusive growth. Meanwhile, economic spending only has an effect in the long term. In line with this, Fitrianasari et al. (2022) found that education spending was able to create inclusive growth in Sumatra Island in 2015-2020 through

expanding access and educational opportunities. Meanwhile, Prasetyia et al. (2011) revealed that infrastructure spending in Indonesia in 2006-2008 had a negative effect on inclusive growth as a result of the inadequate quality of budget management.

On the other hand, increasing public accessibility to formal financial services through financial inclusion can promote inclusive growth. In theory, financial inclusion makes it easier for people, especially the poor, to access and use formal financial services by removing various forms of price and non-price barriers (Demirguc-Kunt and Honohan, 2008; Sarma, 2008; Bank Indonesia, 2014; Sanjaya, 2014). Financial inclusion is often associated with inclusive growth. Specifically, communities, especially the poor, can take advantage of access to formal finance to facilitate household consumption, facilitate investment in education and health, provide opportunities to increase productivity, or help overcome difficult times (Claessens and Feijen, 2007; Bozkurt and Karakus, 2020; Rumbogo et al., 2021). Furthemore, unequal access to formal financial services can exclude a person from the processes and outcomes of economic growth (Afolabi, 2020; Ratnawati, 2020; Rumbogo et al., 2021).

Various theories reveal important correlations between aggregate saving and economic growth, one of which is the Harrod-Domar Growth Theory. The theory states that growth is the effect of saving and capital accumulation. A higher saving rate will boost the economy and can help create self-sustaining economic growth. To sustain this mechanism, the financial infrastructure must be efficient enough to serve the entire economy, so that savings can actually create higher investment (Eriksson and Nilsson, 2020).

Bozkurt & Karakus (2020) states that the positive effect of financial inclusion on economic growth and poverty is supported in three basic theories. First, investment theory. Financial inclusion benefits the poor through reduced collateral requirements and borrowing costs that can unlock or improve entrepreneurial potential. Second, human capital theory explains that easy access to financial credit is needed for someone to invest in human capital to get a job and increase income. Third, referring to the theory of corporate behavior, financial inclusion has a positive externality towards the reduction of the cost of capital which can encourage an increase in production capacity.

Some literature provides evidence of a positive effect of financial inclusion on inclusive growth. Zhou et al. (2018) showed that the economic growth of 31 provinces in China in 2005-2015 was influenced by financial inclusion and human capital. Research by Alekhina & Ganelli (2020) in 11 countries in Asia in 1992-2017 concluded that savings can affect inclusive growth through two pathways, namely growth and equity. A high saving rate will encourage investment and smooth consumption. Thus, it is easier to achieve equity and growth in per capita income. Park & Mercado (2015) conducted an empirical study on 37 developing countries in Asia. As a result, increased financial inclusion will drive a reduction in the poverty rate. This is because wider access to financial services is able to facilitate people to increase consumption and carry out productive activities. In addition, increased financial inclusion or decreased financial exclusion will reduce income inequality. In line with this, Balakrishnan et al. (2013) concluded that success in reducing poverty and economic inequality in Asia has a positive correlation with financial inclusion. In other words, financial development is not only able to encourage economic growth, but also to share the results of growth more evenly.

Ratnawati (2020) looks at the role of financial inclusion in driving the economy

and reducing poverty and inequality in 10 developing countries in Asia in 2009-2018 using dynamic panel data regression. The results show that the funds disbursed by banks in the form of loans (credit) will encourage consumption, investment, and productivity which leads to higher growth rates. Wider access to finance provides opportunities for the poor and marginalized to improve their standard of living and welfare. However, poverty alleviation and increasing equity must also be supported by a strong and well-developed banking structure in expanding the use of financial services. Research conducted by Sanjaya (2014) concludes that financial inclusion can be used as a strategy in achieving inclusive growth which will ultimately reduce inequality in society and reduce poverty levels in Indonesia in 2007-2018.

Nevertheless, financial inclusion still leaves a negative effect. One of them is the decline in credit standards due to financial institutions trying to reach the unbanked by lowering loan requirements (Khan, 2011). In addition, financial inclusion poses a risk to the reputation of banks due to a decrease in the standard for bank establishments for rural areas in the context of providing financial service facilities. The negative or insignificant impact of financial inclusion on inclusive growth is shown by several literatures. Neaime & Gaysset (2018), Schmied & Marr (2016), and Seven & Coskun (2016) conclude that financial inclusion has no impact on poverty alleviation and inequality reduction. Although financial inclusion promotes economic growth, it does not necessarily benefit the poor and low-income people.

In analyzing growth in a region, spatial dependence is one of the important factors to consider. The interactions that occur between regions cause an area cannot be considered as a separate unit (Anselin, 1988; Aspiansyah and Damayanti, 2019). Waldo Tobler in Anselin (1988)

views that everything is related to one another, but something that is closer has a greater relationship or influence than that which is far away. This is known as Tobler's Law I or The First Law of Geography. Capello (2009) and Tselios (2009) add that spatial interactions between neighboring regions tend to be more intense than those between non-neighboring regions.

The existence of interactions between regions will cause a spatial spillover effect (LeSage, 1999). Spatial spillover effects are described in growth poles theory (Pasaribu, 2015; Wibowo, Anggraeni and Rindayati, 2019). The theory states that development does not occur simultaneously, but starts from a region as a center of growth. Growth centers are often characterized by the presence of a major industry in an area that encourages the development of a related industry, primarily through direct and indirect effects. The development of growth centers will spread through various channels, such as output, employment, investment, or technology, with varying impacts on the entire economy.

Referring to the circular and cumulative causation theory initiated by Gunna Myrdal, the development of growth centers has two impacts, namely the backwash effect and the spread effect (O'Hara, 2008; Pasaribu, 2015). The backwash effect is a detrimental impact because growth centers absorb resources from other regions. On the other hand, the spread effect is a beneficial impact because the growth center spreads the economic benefits to the hinterland. The growth center policy is said to be successful if the resulting dispersion effect is higher than the depletion effect. However, the spillover effect of growth also depends on the receiving capacity of a region (Capello, 2009).

The link between public spending, financial inclusion, and inclusive growth has been analyzed in various studies.

In addition to the varying results, most of these studies have not considered spatial aspects. Ignoring spatial effects on variables that are spatially correlated can result in biased estimates (Anselin, 1988; Aspiansyah and Damayanti, 2019). Therefore, this research will provide regional analysis to determine the spatial effects of inclusive growth, in addition to the effect of public spending and financial inclusion on inclusive growth itself. The use of the Indonesian territory as a research locus is expected to contribute ideas in inclusive growth strategies through government spending policies and financial inclusion in developing countries.

METHODOLOGY

Secondary data in the form of pooled data is used in this study and it covers 34 provinces in Indonesia in 2015-2019. The data was obtained from the Central Statistics Agency (BPS), Bank Indonesia (BI), the Directorate General of Fiscal Balance (DJPK) of the Ministry of Finance, and the Financial Services Authority (OJK). Inclusive growth index (IPI) adopted by McKinley (2010) is used as dependent variabel. It was chosen because it is considered to be able to measure the success of inclusive growth comprehensively. The independent variables used are public spending which includes spending on health (PPK), education (PPP), economy (PPE), and social protection (PPS); level of financial inclusion (IIK) which adopted Sarma (2008); as well as several macroeconomic variables, namely investment (PMTB), inflation (INF), and trade openness (TO).

The relationship between the variables in this study is arranged in equation

(1): $IPI_{it} = \alpha + \beta_1\, PPK_{it} + \beta_2\, PPP_{it} + \beta_3\, PPE_{it} + \beta_4\, PPS_{it} + \beta_5\, IIK_{it} + \beta_6\, PMTB_{it} + \beta_7\, INF_{it} + \beta_8\, TO_{it} + \varepsilon_{it}$ ……………........................(1)

where α : intercept, $\beta_1,..., \beta_8$: coefficient of the independent variables, ε : residual, i: region, and t: year.

Spatial links in inclusive growth can be sourced from the inclusive growth of the surrounding area, shocks of the surrounding area, or discrepancies between spatial boundaries and administrative boundaries of the data. In other words, spatial dependence can occur in the dependent variable (also called spatial lag) or occur in residuals (also called spatial error). Based on this, equation 1 can be rewritten by adding the spatial effect on the dependent variable (equation 2) and on the residual (equation 3):

$IPI_{it} = \alpha + \beta_1\, PPK_{it} + \beta_2\, PPP_{it} + \beta_3\, PPE_{it} + \beta_4\, PPS_{it} + \beta_5\, IIK_{it} + \beta_6\, PMTB_{it} + \beta_7\, INF_{it} + \beta_8\, TO_{it} + \rho\, \Sigma\, W_{ij}\, IPI_{jt} + \varepsilon_{it}$ ……………..... (2)

$IPI_{it} = \alpha + \beta_1\, PPK_{it} + \beta_2\, PPP_{it} + \beta_3\, PPE_{it} + \beta_4\, PPS_{it} + \beta_5\, IIK_{it} + \beta_6\, PMTB_{it} + \beta_7\, INF_{it} + \beta_8\, TO_{it} + u_{it}\, ;\, u_{it} = \lambda\ W_{ij}\, u_{jt} + \varepsilon_{it}$ ………... (3)

where ρ : spatial autocorrelation coefficient on dependent variable, λ : spatial autocorrelation coefficient on residual, and W: spatial weight matrix.

Spatial regression analysis requires a spatial data based on the region and contains the characteristics of the region. The area concept in spatial regression analysis is operationalized through a spatial weight matrix. The spatial weight matrix used in researching economic growth must be exogenous which does not vary over time or is time-invariant (Erthur and Koch, 2007; Elhorst, 2010). Based on this, this study limits the use of a spatial weight matrix in the form of queen contiguity. This matrix is a row standardized matrix.

The Spatial Lag (SAR) model (equation 2) states that the dependent variable of a region depends on the dependent variable in the neighboring unit

and a set of local characteristics. Meanwhile, the Spatial Error (SEM) model (equation 3) states that the dependent variable depends on a set of local characteristics and correlated errors between regions. In the analysis, equation 1 will be estimated using the Pooled Ordinary Least Square (OLS) method, while the SAR and SEM parameter estimates will use the Maximum Likelihood method. The use of spatial and non-spatial models was determined using the Likelihood Ratio (LR) Test. Meanwhile, the selection of a SAR/SEM was carried out using the Lagrange Multiplier (LM) Test and the Robust Lagrange Multiplier (RLM) Test (Florax, Folmer and Rey, 2003).

RESULTS AND DISCUSSION

The descriptive statistics of the research variables for the 2015-2019 period are presented in Table 2. Based on the IPI calculation, the inclusive growth rate of the Indonesian provinces shows satisfactory progress with an average of 5.07. The lowest IPI score is in Papua Province, which is 2.53 which shows unsatisfactory progress. In contrast, the category of superior inclusive growth progress was achieved by Central Java Province with the highest IPI of 7.07. The ratio of government spending to GRDP shows a value that is not large and tends to vary between provinces. Government spending on education has the lowest ratio of 0.0022 and the highest of 4.75 with an average of 1.13. In the health and economic functions, the ratio of government spending tends to be similar with a mean of 0.41 and a standard deviation of 0.30 and 0.33, respectively. Provincial government spending on social protection shows a very small value, ie an average of 0.056 with the lowest and highest values being 0.0005 and 0.20. In terms of financial inclusion, the average IIK is 0.39 which indicates a medium level of financial inclusion. The lowest IIK is 0.18 and the highest is 1 reflecting the diversity of levels of financial inclusion between provinces. Variations in values indicated by other variables reflect the diversity of macroeconomic indicators between provinces in Indonesia.

Table 1. Desciptive Statistics (n=170)

Variable	Mean	Std. Dev.	Min.	Max.	Variable	Mean	Std. Dev.	Min.	Max.
IPI	5,077846	0,8441273	2,531527	7,068809	IIK	0,3933218	0,1390762	0,1785887	1
PPK	0,4092994	0,3014155	0,003083	1,794063	PMTB	33,015	6,294254	20,39	48,07
PPP	1,134769	0,8784375	0,0022434	4,749205	INF	3,357508	1,862022	-4,13538	12,78541
PPE	0,4114726	0,3318545	0,0051822	1,407126	TO	99,18206	49,82431	16,34	311,57
PPS	0,0555739	0,0432996	0,0005877	0,2038713					

Source: Analysis Results

The results of the model estimation are presented in Table 3. The significance of the LR Test resulted in a decision to reject H0 which means that the spatial model is better. Based on the LM and RLM Test result of SAR, the spatial autocorrelation coefficient on the dependent variable (ρ) is not significant. Meanwhile, the LM and RLM Test of SEM show a real significance in the spatial autocorrelation coefficient on the residual (λ). Thus, the model chosen for further analysis is SEM with queen contiguity weight matrix.

Table 2. Estimation results

IPI	Pooled OLS	SAR	SEM
Constant	7.096149***	5.936208***	1.446935***
PPK	0.0255776	-0.0184906	-0.1702184*
PPP	0.0878188	0.0813389	0.1289436*
PPE	-0.6329411***	-0.5362634***	-0.1252549
PPS	0.1604376	0.1546828	-0.1286703
IIK	0.8469802***	0.8055766***	0.7392813***
PMTB	-0.1407322	-0.0164843	0.7415713***
INF	-0.113967	-0.1180496	-0.0662189
TO	-0.1380371	-0.051695	0.3121143***
ρ		0.0837654***	
λ			0.382911***
R^2	0.3877	0.9095	0.9047
AIC	358.4315	0.0713	0.0750
LR Test	Reject H_0		
LM Test		Accept H_0	Reject H_0
RLM Test		Accept H_0	Reject H_0

Source: Analysis Results

Note: significance level ***1%, **5%, *10%

SEM estimation produces coefficient of determination (R2) of 0.9047. That is, about 90 percent of the diversity of inclusive growth can be explained by government spending, financial inclusion, investment, inflation, and trade openness. In detail, the inclusive growth of a region is significantly influenced by government spending on health functions in a negative direction, and government spending on education, financial inclusion, investment, and trade openness in a positive direction. In addition, referring to the spatial autocorrelation coefficient of the SEM (λ), the inclusive growth of a region is also significantly affected by shocks that occur in other neighboring regions. Meanwhile, government spending on economic functions, social protection, and inflation did not significantly affect inclusive growth.

During 2015-2019, a 1% increase in the ratio of government spending on education to GRDP led to an increase in inclusive growth of 0.1289 points. These results are in line with previous studies which concluded that public investment in education is able to expand and facilitate access and educational opportunities for the entire community so as to create inclusive growth (Safitri, Ananda and 2021; Fitrianasari, Chotimah and Arnida, 2022). Increasing government spending on education will encourage economic growth through increasing human capital capacity (Hur, 2014; Ambya, 2020). These results are consistent with the Solow Growth Theory. Improving the quality of human capital as a factor of production will increase the skills, expertise, and productivity of the workforce. This will increase production capacity and efficiency, thereby boosting economic growth.

Education is also related to efforts to reduce poverty and inequality (Misdawita and Sari, 2013; Hur, 2014; Taruno, 2019; Ambya, 2020). In accessing education, the poor are often constrained by financial factors. Government investment in education will enable the poor to acquire and develop knowledge and skills that will increase their competitiveness in the market. Increased competitiveness will expand employment opportunities and result in higher wages. In turn, the welfare conditions of the poor will improve. In other words, educated individuals are believed to have a better level of welfare (Taruno, 2019).

However, the relatively small

coefficient implies that education investment still faces various challenges in creating more inclusive growth. One of them is the disparity in digital access to education support (Rahayu, 2005; Bustomi, 2012; Sholikhah et al., 2014). Referring to BPS (2020), access to information and communication technology (ICT) by students in various regions in Indonesia is lower than the national figure. Students in Java tend to have easier access to ICT than students in outside Java. On the other hand, the low quality of educators or teachers also causes the quality of education in Indonesia tend to stagnate. The average value of the Teacher Competency Examination (UKG) in 2020 is only 56.69, slightly higher than the ideal limit of 55 (Kemdikbud, 2020). At the provincial level, most provinces have a UKG average that is lower than the national figure, especially in eastern Indonesia. The implication is that the government needs to increase the distribution of digital access to support education, one of which is reducing the gender gap in digital access, including efforts to increase digital literacy. In addition, improvements to the teacher recruitment system can be made to improve the quality of teachers as educators.

In contrast to education, a 1% increase in the ratio of government spending on health to GRDP actually caused inclusive growth to decrease by 0.1702 points. In other words, in 2015-2019, public investment in health reduced economic growth and exacerbated poverty and inequality, as Balakrishnan et al. (2013), Hur (2014), and Misdawita & Sari (2013). One of the reasons for this phenomenon is thought to be due to the gap in health development. Data from the Ministry of Health (2018) shows that eastern Indonesia tends to have a lower Public Health Development Index (IPKM). In fact, the gap in health development between districts/cities in Papua Province is quite wide. The gap in health

development can be seen from two sides. On the supply side, health development carried out by the government has not been easily accessible to the poor. On the demand side, awareness of the health conditions and healthy behavior of the poor tends to be lower than that of the non-poor. The increase and distribution of health investment by the government cannot work optimally in promoting inclusive growth if it is not balanced with increased awareness and healthy living behavior of the community. The implication is that the government needs to distribute access and health infrastructure for all communities and regions, such as access to clean water and sanitation, including access to transportation and communication. Various health education programs can also be carried out to increase awareness and healthy living behavior, especially for the poor.

There is also a negative relationship between government spending on economic functions, but it is not significant. It implies that physical investment made by the government has more impact on economic growth than equity. This can happen due to several factors. One of them is the inadequate quality of regional expenditure management (Prasetyia, Wulandari and Hutama, 2011). Johansson (2016) mentions that the weak management of public finances causes public investment to not be fully translated into a growth effect. In addition, infrastructure development is a form of long-term investment as shown by Safitri et al. (2021). The government's spending policy on economic functions should be directed at improving the quality of the allocation for spending on economic functions as well as strengthening infrastructure and inter-regional connectivity.

Government spending on social protection also has a negative and insignificant impact on inclusive economic growth throughout 2015-2019. Johansson

(2016) mentions that social protection can negatively affect growth by demotivating individuals to work. This causes the supply of labor to decrease, thereby reducing the level of output and growth (Arjona, Ladaique and Pearson, 2003). Per capita income has also decreased which has an impact on worsening poverty and inequality. On the other hand, the reduction in the poverty rate is artificial because the social protection provided is more in the form of cash or non-cash social assistance compared to programs to increase people's real income (Habibullah, 2019). The implication is that social protection policies need to be directed towards more active policies. This means that the social protection provided is able to motivate individuals to work and increase their income. For example, the make-work-pay policy (Immervoll, 2012; Matsaganisa and Figaric, 2016) to increase the income of poor households by providing incentives for job seekers or for the workers themselves. In this case, comprehensive social protection includes not only protection programs and the fulfillment of basic needs, but also sustainable empowerment programs (Habibullah, 2017).

The results show that, in 2015-2019, for every 1% increase in the level of financial inclusion, inclusive growth will increase by 0.7393 points. Financial inclusion is the key to social inclusion designed to create the ability of marginalized people to participate in the economy by creating equal opportunities (Balakrishnan, Steinberg and Syed, 2013; Sanjaya, 2014; Alekhina and Ganelli, 2020). This finding is in line with several previous studies which concluded that financial inclusion will create more inclusive growth by promoting economic growth (Zhou et al., 2018; Alekhina and Ganelli, 2020; Ratnawati, 2020) as well as its role in poverty alleviation (Park and Mercado, 2015; Alekhina and Ganelli, 2020; Ratnawati, 2020; Alvarez-Gamboa, Cabrera-Barona and Jacome-Estrella,

2021).

Developments in financial inclusion can spur growth by enabling greater investment and a more productive allocation of capital. This is because financial inclusion allows businesses to avoid and cut transaction costs. This reduction will provide positive externalities for business actors by reducing the cost of capital and increasing relative profits, thereby triggering business expansion and increased output. At the same time, an inclusive financial system also offers better and cheaper services for storing money and making payments. Saving is important for households to deal with difficult times and plan for the future. An inclusive and well-developed financial system will enable poor households to diversify their savings, such as deposits, the bond market, or the stock market, which have more attractive returns. This will lead to a higher saving rate and trigger economic growth, as in the Harrod-Domar Growth Theory.

In terms of reducing poverty and inequality, one of the benefits of inclusive finance is the provision of affordable credit services, especially for poor households. It helps them facilitate consumption and overcome difficult times. In addition, human capital theory explains that easy access to financial credit is needed for someone to invest in human capital to get a job and increase income (Bozkurt and Karakus, 2020). The income volatility of poor households can be high due to various shocks, such as illness or death, which can have a severe impact on their welfare as they often do not have collateral for other assets. When there is an ideal insurance market, as a result of the development of an inclusive financial sector, they do not have to suffer from unavoidable risks.

However, accelerating financial inclusion in Indonesia faces several challenges. First, inequality in access and digital infrastructure. Adequate access and digital infrastructure (internet and cellular

phone signals) is more common in Java and its surroundings (BPS, 2020b). This can make accelerating financial inclusion through the use of digitalization more difficult. Second, low financial literacy. Of the 34 provinces, 21 of them still have a Financial Literacy Index (ILK) value below the national ILK, which is 38.03, which is also in the low category (OJK, 2019). The growth of digital financial products and services that are not matched by an increase in digital financial literacy and cyber security has hampered the acceleration of financial inclusion. The implication is that equitable access and digital infrastructure, including the improvement of human resources and the development of a healthier digital ecosystem, such as data protection, regulation and supervision, innovation centers, risk management, and cyber risk, need to be carried out. In addition, improving financial literacy can be done by approaching the priority targets of the Indonesian Financial Literacy National Strategy (SNLIK), a material or financial knowledge approach, as well as an online and offline implementation method approach (especially for areas where access and digital infrastructure are constrained).

During the study period, a 1% increase in investment caused the inclusive growth rate to rise 0.7416 points, while a 1% increase in trade openness caused the inclusive growth rate to rise 0.3121 points. Investment is one of the driving forces for the economy to continue to grow as in the Harrod-Domar Growth Theory. In relation to inclusive growth, investment in labor-intensive projects will have an impact on job creation and employment (Kusumaningrum and Yuhan, 2019; Long and Pasaribu, 2019; Alekhina and Ganelli, 2020; Fitrianasari, Chotimah and Arnida, 2022). On the other hand, with trade openness, innovation and new technology can enter, thereby increasing production efficiency and labor productivity (Kusumaningrum

and Yuhan, 2019; Alekhina and Ganelli, 2020; Fitrianasari, Chotimah and Arnida, 2022). Thus, per capita income will increase which in turn leads to an improvement in the level of welfare evenly. The movement into innovation and technology as well as investment must be balanced with the capacity and management of qualified human resources to absorb innovation and technology and optimize the investment. One of them is by creating an adequate investment climate and encouraging the improvement of the quality of domestic products, especially MSMEs.

On the other hand, the estimation results show that inflation has no significant effect on inclusive growth. This means that unstable economic conditions can pose a threat to inclusive growth in Indonesia, but the impact is not significant. The negative coefficient indicates that high inflation rates tend to widen the gap between the rich and the poor. This is because the poor have fewer options by reducing consumption during periods of high inflation. In addition, the poor and low-income people tend to find it more difficult to access growth outcomes. These results are in line with Alekhina & Ganelli (2020), Long & Pasaribu (2019), Sanjaya (2014), and Yaru et al. (2018). The implication is that the condition of the people, especially the poor, can be improved by reducing inflation and output volatility.

In 2015-2019, inclusive growth in a province is spatially influenced by the error term. Spatial dependence in error can come from changes in variables not included in the model in other surrounding areas or neighboring regions (Lim and Kim, 2015; Hu and Wang, 2019). In addition, the discrepancy between the spatial boundaries of the market processes studied and the administrative boundaries used to organize the data can also cause spatially correlated errors (Rey and Montouri, 1999). Thus, it can be said that shocks originating from one region can spread (spillover) to

surrounding areas and have the potential to affect the dynamics of inclusive growth.

CONCLUSION

The results of the analysis prove that the level of inclusive growth in a province is influenced by the level of public spending, financial inclusion, investment, inflation, and trade openness of the province. Specifically, increasing public spending on education, financial inclusion, investment, and trade openness will increase inclusive growth by creating equal opportunities, promoting economic growth, and improving poverty conditions. On the other hand, due to the gap in health development, health spending has a negative impact on inclusive growth. Meanwhile, economic and social protection functions spending as well as inflation had a negative but not significant impact. In the spatial context, the inclusive growth of a province will be affected by shocks of neighboring provinces.

The policy implications that can be given are the improvement and distribution of public services for health and education, improving the quality of local government financial management, and setting priorities for regional spending in productive sectors. Equitable access and digital infrastructure and increased financial literacy can be done to accelerate financial inclusion and are supported by the creation of an adequate investment climate. Research development can be done by incorporating elements of local government quality, taxation, and digital financial inclusion. In addition, exploratory modeling can be carried out by considering the nature of the cross section and time series of the data

REFERENCE

Alhabeeb, M. J. (2019). Spatial Models Of Consumer Choice for Retail Outlets: Theory And Practice in Physics of Marketing. *International Journal of Marketing Studies, 11*(1), 1-9.

Anderson, S. J., Volker, J. X., & Phillips, M. D. (2010). Converse's Breaking-Point Model Revised. *Journal of Management and Marketing Research*, 1-10.

ADB (2008) *Strategy 2020*. Manilla: Asian Development Bank.

ADB (2011) *Framework of Inclusive Growth Indicators: Key Indicators for Asia and the Pacific 2011, Special Supplement*. Manila, Phillipines: Asian Development Bank.

ADB (2014) *Framework of Inclusive Growth Indicators: Key Indicators for Asia and the Pacific 2014, Special Supplement*. Manila, Phillipines: Asian Development Bank.

Afolabi, J. O. (2020) 'Impact of Financial Inclusion on Inclusive Growth: An Empirical Study of Nigeria', *Asian Journal of Economics and Empirical Research*, 7(1), pp. 8–14.

Alekhina, V. and Ganelli, G. (2020) *Determinants of Inclusive Growth in ASEAN*, *IMF Working Paper*. WP/20/118.

Ali, I. and Son, H. H. (2007) *Defining and Measuring Inclusive Growth: Application to The Philippines*, *ERD Working Paper*. Manila.

Alvarez-Gamboa, J., Cabrera-Barona, P. and Jacome-Estrella, H. (2021) 'Financial Inclusion and Multidimensional Poverty in Ecuador: A Spatial Approach', *World Development Perspectives*, 22. doi: 10.1016/j.wdp.2021.100311.

Ambya (2020) 'How Government Spending on Public Sector Affect The Economic Growth?', *JEJAK: Journal of Economics and Policy*, 13(1).

Anselin, L. (1988) *Spatial Econometrics: Methods and Models*. Netherlands: Kluwer Academic Publishers.

Aoyagi, C. and Ganelli, G. (2015) *Asia's*

Quest for Inclusive Growth Revisited, *IMF Working Paper*. WP/15/42. doi: 10.5089/9781498340144.001.

Arjona, R., Ladaique, M. and Pearson, M. (2003) 'Growth, Inequality and Social Protection', *Canadian Public Policy*, 29, pp. S119–S139.

Aspiansyah and Damayanti, A. (2019) 'Model Pertumbuhan Ekonomi Indonesia: Peranan Ketergantungan Spasial', *Jurnal Ekonomi dan Pembangunan Indonesia*, 19(1), pp. 62–83.

Azwar (2016) 'Peran Alokatif Pemerintah melalui Pengadaan Barang/ Jasa dan Pengaruhnya Terhadap Perekonomian Indonesia', *Kajian Ekonomi Keuangan*, 20(2).

Balakrishnan, R., Steinberg, C. and Syed, M. (2013) *The Elusive Quest for Inclusive Growth: Growth, Poverty, and Inequality in Asia*, *IMF Working Paper*. WP/13/152.

Bank Indonesia (2014) *Booklet Keuangan Inklusif*. Jakarta: Bank Indonesia.

Bastagli, F., Coady, D. and Gupta, S. (2012) *Income Inequality and Fiscal Policy*, *IMF Staff Discussion Note*. SDN/12/08.

Bono, Z. B. (2020) 'The Impact of Government Expenditure and Financial Inclusion on Inclusive Growth in Ethiopia', *International Journal of Research in Business Studies and Management*, 7(3), pp. 01–09. Available at: https://www.ijrbsm.org/papers/v7-i3/1.pdf.

Bozkurt, I. and Karakus, R. (2020) 'Provincial Financial Inclusion in Turkey: Measurement and Its Spatial Determinants', *EGE ACADEMIC REVIEW*, 20(2), pp. 101–124. doi: 10.21121/eab.729532.

BPS (2020a) *Statistik Pendidikan 2020: Potret Pendidikan Indonesia*. Jakarta: Badan Pusat Statistik.

BPS (2020b) *Statistik Telekomunikasi Indonesia 2020*. Jakarta: Badan Pusat Statistik.

Brodjonegoro, B. P. (2019) 'Indeks Pembangunan Ekonomi Inklusif Sebagai Indikator Kualitas Pembangunan Nasional dan Daerah'. Jakarta: SMERU Research Institute.

Bustomi, M. J. (2012) 'Ketimpangan Pendidikan Antar Kabupaten/Kota dan Implikasinya di Provinsi Jawa Tengah', *Economics Development Analysis Journal*, 1(2).

Capello, R. (2009) 'Spatial Spillovers and Regional Growth: A Cognitive Approach', *European Planning Studies*, 17(5), pp. 639–658.

Case, K. E., Fair, R. C. and Oster, S. M. (2017) *Principles of Macroeconomics*. Pearson Education, Inc.

Claessens, S. and Feijen, E. (2007) *Financial Sector Development and the Millennium Development Goals*, *World Bank Working Paper*. 89. Washington DC.

Demirguc-Kunt, A. and Honohan, P. (2008) *Finance for All? Policies and Pitfalls in Expanding Access*, *Tha World Bank Policy Research Report*.

Dinc, M. (2015) *Introduction to Regional Economic Development: Major Theories and Basic Analytical Tools*. Edward Elgar Publishing Limited.

Elhorst, J. P. (2010) 'Spatial Panel Data Model', in Manfred, F. and Arthur, G. (eds) *Handbook of Applied Spatial Analysis*. Springer, Berlin, Heidelberg. doi: 10.1007/978-3-642-03647-7_19.

Eriksson, H. and Nilsson, S. (2020) *The Economic Impact of Increased Access to Commercial Banks in Ethiopia*. School of Business, Economics and Law, University of Gothenburg.

Erthur, C. and Koch, W. (2007) 'Growth, Technological Interdependence, and Spatial Externalities: Theory and Evidence', *Journal of Applied*

Econometrics, 22, pp. 1033–1062. doi: 10.1002/jae.963.

Estrada, G., Lee, S.-H. and Park, D. (2014) *Fiscal Policy for Inclusive Growth: An Overview*, *ADB Economic Working Paper Series*. 423.

Fitrianasari, R. N., Chotimah, K. and Arnida, O. V. (2022) 'Analisis Dampak Kebijakan Makroekonomi Terhadap Pertumbuhan Inklusif Provinsi di Pulau Sumatera Tahun 2015-2020', *Jurnal Kajian Ekonomi dan Kebijakan Publik*, 7(1).

Florax, R. J. G. M., Folmer, H. and Rey, S. J. (2003) 'Specification searches in spatial econometrics: the relevance of Hendry's methodology', *Regional Science and Urban Economics*, 33(5), pp. 557–579.

Habibullah (2017) 'Social Protection Comprehensive in Indonesia', *Sosio Informa*, 3.

Habibullah (2019) 'Financial Inclusion and Poverty Reduction: Study on Distribution No-Cash Social Assistance', *Sosio Informa*, 5.

Hu, W. and Wang, R. (2019) 'Which Chinese cities are more inclusive and why?', *Cities*, 86, pp. 51–61. doi: 10.1016/j.cities.2018.12.010.

Hur, S.-K. (2014) *Government Spending and Inclusive Growth in Developing Asia*, *ADB Economic Working Paper Series*. 415.

Hyman, D. N. (2010) *Public Finance: A Contemporary Application of Theory to Policy, Tenth Edition*. South Western: Cengage Learning.

Immervoll, H. (2012) *Reforming the Benefit System to 'Make Work Pay': Options and Priorities in a Weak Labour Market*, *IZA Policy Paper Series*. 50.

Johansson, A. (2016) *Public Finance, Economic Growth, and Inequality: A Survey of The Evidence*. ECO/WKP(2016)70.

Kemdikbud (2020) *Neraca Pendidikan Daerah*. Available at: https://npd.kemdikbud.go.id/?appid=ukg.

Kemenkes (2018) *Indeks Pembangunan Kesehatan Masyarakat 2018*. Jakarta: Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan (LPB) Kementerian Kesehatan.

Khan, H. R. (2011) 'Financial Inclusion and Financial Stability: Are They Two Sides of The Same Coin?', *The Indian Bankers Association and Indian Overseas Bank*.

Klasen, S. (2010) *Measuring and Monitoring Inclusive Growth: Multiple Definitions, Open Questions, and Some Constructive Proposals*, *ADB Sustainable Development Working Paper Series*. 12.

Kusumaningrum, S. and Yuhan, R. J. (2019) 'Economic Growth of Provinces in Indonesia Based on Inclusive Growth Composite Index and The Influence Factors', *Jurnal Ekonomi dan Kebijakan Publik*, 10(1), pp. 1–17.

Lahouij, H. (2017) 'The Effects of Income inequality on Economic Growth: Evidence from MENA Countries', *2017 Awards for Excellence in Student Research and Creative Activity*.

LeSage, J. P. (1999) *The Theory and Practice of Spatial Econometrics*. Department of Economics, University of Toledo.

Lim, U. and Kim, D. (2015) 'Toward Sustainable Economic Growth: A Spatial Panel Data Analysis of Regional Income Convergence in US BEA Economic Areas', *Sustainability*, 7, pp. 9943–9959.

Long, T. J. and Pasaribu, E. (2019) 'Analisis Spasial Determinan Pertumbuhan Inklusif Kabupaten/Kota di Provinsi Jawa Tengah Tahun 2017', in *Seminar Nasional Official Statistics 2019: Pengembangan*

Official Statistics dalam Mendukung Implementasi SDG's.

Mankiw, N. G. (2010) *Macroeconomics 7th Edition*. New York: Worth Publishers.

Matsaganisa, M. and Figaric, F. (2016) *Making work pay: A conceptual paper*. Research note 3/2016.

McKinley, T. (2010) 'Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country Progress', *ADB Sustainable Development Working Paper Series*.

Misdawita and Sari, A. A. P. (2013) 'Analisis Dampak Pengeluaran Pemerintah di Bidang Pendidikan, Kesehatan, dan Pengeluaran Subsidi Terhadap Kemiskinan di Indonesia', *Jurnal Ekonomi dan Kebijakan Publik*, 4(2), pp. 147–161.

Neaime, S. and Gaysset, I. (2018) 'Financial inclusion and stability in MENA: Evidence from poverty and inequality', *Finance Research Letters*, 24, pp. 230–237.

O'Hara, P. A. (2008) 'Principle of Circular and Cumulative Causation: Fusing Myrdalian and Kaldorian Growth and Development Dynamics', *Journal of Economic Issues*, 42(2), pp. 375–387.

OJK (2019) *Booklet Survei Nasional Literasi dan Inklusi Keuangan 2019*. Jakarta.

Ostry, J. D., Berg, A. and Tsangarides, C. G. (2014) *Redistribution, Inequality, and Growth*, *IMF Staff Discussion Note*. SDN/14/02.

Park, C.-Y. and Mercado, R. V. (2015) *Financial Inclusion, Poverty, and Income Inequality in Developing Asia*, *ADB Economics Working Paper Series*. 426.

Pasaribu, E. (2015) *Dampak Spillover dan Multipolaritas Pengembangan Wilayah Pusat-Pusat Pertumbuhan di Kalimantan*. Institut Pertanian Bogor.

Prasetyia, F., Wulandari, F. and Hutama, R. S. (2011) 'Pengeluaran Sektor Publik, Pertumbuhan Ekonomi, dan Kemiskinan di Indonesia', *Jurnal Ekonomi dan Pembangunan Indonesia*, 11(2), pp. 99–116.

Rahayu, A. (2005) 'Ketimpangan Pendidikan di Indonesia', *Jurnal Ekonomi dan Studi Pembangunan*, 6(1).

Ramos, R. A., Ranieri, R. and Lammens, J.-W. (2013) *Mapping Inclusive Growth*, *International Policy Centre for Inclusive Growth*. 105.

Ratnawati, K. (2020) 'The Impact of Financial Inclusion on Economic Growth, Poverty, Income Inequality, and Financial Stability in Asia', *The Journal of Asian Finance, Economics and Business*, 7(10), pp. 73–85. doi: 10.13106/jafeb.2020. vol7.no10.073.

Rey, S. J. and Montouri, B. D. (1999) 'US Regional Income Convergence: A Spatial Econometric Perspective', *Regional Studies*, 33(2), pp. 143–156. doi: 10.1080/00343409950122945.

Rumbogo, T. *et al.* (2021) 'Financial Inclusion and Inclusive Development in Indonesia', in Holzhacker, R. L. and Tan, W. G. Z. (eds) *Challenges of Governance Development and Regional Integration in Southeast Asia and ASEAN*. Springers. doi: 10.1007/978-3-030-59054-3_8.

Safitri, M. I. D., Ananda, C. F. and Prasetyia, F. (2021) 'Analisis Dampak Belanja Pemerintah Daerah Terhadap Pertumbuhan Ekonomi Inklusif di Jawa Timur', *Indonesian Treasury Review: Jurnal Perbendaharaan, Keuangan Negara dan Kebijakan Publik*, 6(2). doi: 10.33105/itrev. v6i2.339.

Sanjaya, I. M. (2014) *Inklusi Keuangan dan Pertumbuhan Inklusif Sebagai*

Strategi Pengentasan Kemiskinan di Indonesia. Institut Pertanian Bogor.

Sarma, M. (2008) *Index of Financial Inclusion*, *Indian Council for Research on International Economic Relations*. 215.

Schmied, J. and Marr, A. (2016) 'Financial Inclusion and Poverty: The Case of Peru', *Regional and Sectoral Economic Studies*, 16(2).

Seven, U. and Coskun, Y. (2016) 'Does financial development reduce income inequality and poverty? Evidence from emerging countries', *Emerging Markets Revie*. doi: 10.1016/j.ememar.2016.02.00.

Sholikhah, N. *et al.* (2014) 'Analisis Faktor yang Memengaruhi Ketimpangan Pendidikan', *Jurnal Ilmu Pendidikan*, 20(2).

Taruno, H. T. (2019) 'Public Spending and Poverty Reduction in Indonesia: The Effects of Economic Growth and Public Spending on Poverty Reduction in Indonesia 2009-2018', *The Indonesian Journal of Planning adn Development*, 4(2), pp. 49–56.

The World Bank (2021) *World Bank Open Data: Sustainable Development Goals*. Available at: https://databank.worldbank.org/home.aspx.

Tselios, V. (2009) 'Growth and Convergence in Income Per Capita and Income Inequality in the Regions of the EU', *Spatial Economic Analysis*, 4(3), pp. 343–370. doi: 10.1080/17421770903114711.

Wibowo, B., Anggraeni, L. and Rindayati, W. (2019) *Dampak Spillover dan Kebijakan Fiskal terhadap Pencapaian Pertumbuhan Inklusif antar-Provinsi di Indonesia*. Institut Pertanian Bogor.

Wilhelm, V. and Fiestas, I. (2005) *Exploring the Link Between Public Spending and Poverty Reduction: Lessons from the 90s*. 35868.

Yaru, M. A. *et al.* (2018) 'Public Expenditure and Inclusive Growth In Nigeria', *Ilorin Journal of Economic Policy*, 5(1), pp. 46–61.

Zhou, G. *et al.* (2018) 'Inclusive Finance, Human Capital and Regional Economic Growth in China', *Sustainability*, 10(1194). doi: 10.3390/su10041194.

Zhuang, J., Kanbur, R. and Rhee, C. (2014) *Rising Inequality in Asia and Policy Implications*, *ADBI Working Paper Series*. 463.

Zouhar, Y. *et al.* (2021) *Public Expenditure and Inclusive Growth*, *IMF Working Paper*. WP/21/83.