

# The Influence of Human Resource Development on Inclusive Regional Economic Development: A Spatial Economic Assessment Approach

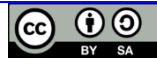
Rudy Mas'ud<sup>1</sup>, Zamruddin Hasid<sup>2</sup>, Rahmad Budi Suharto<sup>3</sup>, Diana Lestari<sup>4</sup>

<sup>1234</sup>Faculty of Economics and Business, Mulawarman University, Indonesia

Correspondence Authors: [rahmad.budi.suharto@feb.unmul.ac.id](mailto:rahmad.budi.suharto@feb.unmul.ac.id)

Article history: received March 22, 2024; revised March 24, 2024; accepted April 20, 2024

This article is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)



## ABSTRACT

Economics is treated effectively by standard economics. In spatial economics, the interaction between Agglomeration Forces, which attract economic activity to a particular region, and Dispersion Forces, which spread economic activity throughout the surrounding region, determines the geographic distribution of economic activity. Spatial Economic Analysis will provide an understanding of how space (distance) influences economic behavior referring to each type of economic entity. The method used in this research is a quantitative research method. Multivariate analysis is used in analyzing research, involving variables in a number more than or equal to three variables. The method used in this research is a quantitative research method. Multivariate analysis is used in analyzing research, involving variables in a number more than or equal to three variables. Development policies must be tailored to specific regions to encourage local production and innovative networks and make the manufacturing industry more competitive. The populations of most cities in urban agglomerations are still spread out. Although urban populations tend to cluster around a few sub-central urban units, the trend is toward population agglomeration around urban centers. The decline in technological progress and technological efficiency will affect the spatial structure of urban agglomeration and influence economic efficiency

**Keywords:** *economy, variables spatial focuses on the geographical dimensions of economic activity, on areas that are not always accessible*

## INTRODUCTION

Endogenous Growth Theory states that economic growth is primarily the result of endogenous forces and not external forces, Romer (1994) (Romer, 1994). Endogenous growth theory states that investments in human capital, innovation, and knowledge are significant contributors to economic growth. This theory also focuses on positive externalities and spillover effects from a knowledge-based economy, and ultimately leads to economic development. Endogenous growth theory states that the long-term growth rate of an economy depends on policy measures. Policies such as subsidies for research and development or education, will increase the growth rate.

The unclear pattern of the influence of Human Resource Development on Regional Economic Development, both at the National and Regional levels, is the rationale for conducting research in the form of this dissertation. This research attempts to conduct a study and analysis by providing the moderating influence of Spatial Economics on the relationship between Human Resource Development and Regional Economic Development. The unclear pattern is reinforced by data from ten (10) years of development that occurred in Indonesia, both at the National and Regional levels.

Globalization makes it increasingly difficult to analyze economic activity in developing countries, based only on the framework of countries, provinces and districts/cities. Spatial economics, also called new economic geography, is a theoretical construct used to analyze the geographical distribution of economic activities that has attracted attention as a new starting point in economic studies. Spatial economics focuses on the geographic dimensions of economic activity, on areas that standard economics cannot always treat effectively. In spatial economics, the interaction between Agglomeration Forces, which attract economic activity to a particular region, and Dispersion Forces, which spread economic activity throughout the surrounding region, determines the geographic distribution of economic activity. Spatial Economic Analysis will provide an understanding of how space (distance) influences economic behavior referring to each type of economic entity.

Endogenous growth theory is aligned to explain research phenomena using the latest growth theory, which is an economic concept that postulates that human desires and unlimited desires will encourage productivity and economic growth to continue to increase. This theory argues that real gross domestic product (GDP) per person will continue to increase due to society's pursuit of profit, while according to the OECD (Organization for Economic Co-operation and Development), inclusive growth is economic growth that is distributed fairly throughout society and creating opportunities for all. Inequality

puts the world at risk. The financial crisis of 2008 provided a warning to us all. Growth as we understand it so far is not felt at all levels of society and creates prosperity for all. It requires the development of new and better models and a focus on ensuring growth truly improves lives. People will feel more motivated and engaged if the benefits of economic growth are felt and enjoyed by them.

A development approach based on a regional development concept needs to consider spatial aspects to increase efficiency and reduce inequality. A framework of thought that concerns spatial interactions between economic activities that lead to optimal resource utilization, both between activities at the center of government and the surrounding areas (Province, Regency/City).

phenomenon is based on data on parameters for the success of Human Resource development, which are used throughout the world to date, using the Human Development Index (HDI) indicator. At the national level, the Human Development Index (HDI) of East Kalimantan Province, amounting to 76.88 in 2021, is in third place, after first place in DKI Jakarta Province (81.11), and second place in DI Yogyakarta Province (80.22). Meanwhile, the Regional Economic Development Parameters by looking at Economic Growth in Indonesia, in 2021, East Kalimantan Province is ranked thirty (30th). Meanwhile at the Regional level, East Kalimantan Province which consists of ten (10) Regencies/Cities, the Human Development Index (HDI) in 2021, ranked first is Samarinda City at 80.76, and the last ranked is Mahakam Hulu Regency at 67.95. Meanwhile, Regional Economic Development Parameters by looking at Economic Growth in ten Regencies/Cities, East Kalimantan Province, the last ranking is North Penajam Paser Regency (PPU) with Economic Growth of minus (-) -1.69%, and the highest is Paser Regency, with Growth The economy was positive (+) 5.41%.

The ninth (9th) goal of Sustainable Development (SDG 9), namely "Building resilient infrastructure, encouraging inclusive and sustainable industrialization, and encouraging innovation", requires skilled and professional human resources to achieve inclusive regional economic development.

According to the OECD (2019) (OECD, 2019), Indonesia continues to be a strategic partner for the OECD, and it is important for the OECD to maintain and intensify OECD involvement as the country's role in the global economy increases. Indonesia was the world's eighth largest economy in 2016, with a GDP of approximately USD 3.0 trillion at PPP, and is expected to become the fourth largest economy by 2050, with a projected GDP of USD 10.5 trillion at PPP. As the largest country in Southeast Asia, one of the world's fastest growing regions, Indonesia plays an increasingly important role in global trade. It is also one of the world's largest democracies, with the impressive task of governing a culturally, religiously and linguistically diverse population across its vast territory. His experience of reaching consensus in the face of this diversity could yield important insights for the international community. Since becoming a Principal Partner of the OECD Organization in 2007, Indonesia has actively contributed to addressing shared policy challenges and has enriched policy debates at the OECD. Through this collaboration, the OECD also learned much from the great cultural richness and complexity of policymaking of large developing countries. Currently, Indonesia takes part in six bodies, 12 legal instruments and various OECD reviews and databases. It was the first Key Partner to sign the Framework Agreement for Cooperation in 2012, and the Privileges and Immunities Agreement in 2013. Engagement with Indonesia has helped drive our work in Southeast Asia. The launch of the Southeast Asia Regional Program in 2014, along with the establishment of a Jakarta representative office in 2015, is proof of this. Over the past two years, Indonesia has pursued an ambitious reform agenda. It has taken important steps to increase public revenues, invest in infrastructure, improve sub-national governance and reduce poverty and inequality. It has succeeded in maintaining solid macroeconomic fundamentals, increasing investment and establishing free primary education. Going forward, progress in these areas will remain high on the development agenda. Connectivity continues to be a major development constraint, and policymakers need to find ways to squeeze more private finance into infrastructure investments. Steps to reduce malnutrition among school-age children will be important for reducing poverty and inequality. Human resource development, especially more and better vocational education and training, will be key to engaging in higher value-added activities, including through FDI. Much of the economic development strategy will depend on the government's success in improving public finances, and this in turn will depend on the success of current efforts to increase tax revenues and integrity in public administration. The OECD is ready to support Indonesia in this effort and in achieving inclusive and sustainable economic growth.

Meanwhile, according to Tagar et al. (2020) (Tagar et al., 2020), institutional development planning must be focused on producing quality skilled human development personnel needed in the context of the Human Development Index. There is an urgent need to adopt alternative development policy practices and strategic planning concepts. Increasing and effectively utilizing human potential, especially education, in various fields, which creates creative people, who are able to develop creative and innovative activities. Investing in human capital through education and health with a special focus on women, youth, and the elderly is a necessary action to achieve an inclusive society, ("Achiev. Sustain. Dev. Goals South Asia," 2017)

The phenomenon of unclear patterns of the influence of Human Resource Development on Regional Economic Development, both at the National and Regional levels, will be analyzed further by involving the moderating role of Spatial Economics, both Agglomeration Forces, which attract economic activity to certain regions, and Dispersion Force, which spreads economic activity throughout the districts/cities in East Kalimantan Province.

The gap in research that has been studied and the limited research from various existing literature, regarding the moderating role of Spatial Economics on the relationship between Human Resource Development and Regional Economic Development, the author analyzes in the form of a dissertation, with the title "THE INFLUENCE OF HUMAN RESOURCE DEVELOPMENT ON DEVELOPMENT INCLUSIVE REGIONAL ECONOMICS: A SPATIAL ECONOMIC STUDY APPROACH", which is expected to provide a simple understanding and a different perspective regarding the phenomena that occur using Endogenous Growth Theory . The novelty of this research will also result from the interpretation of each relationship between variables.

**Literature Review**

**1.1. Theoretical Basis**

Some economic growth experts, in the mid- 1980s, became increasingly dissatisfied with the exogenous factors that determine long-term growth. They favor models that replace exogenous growth variables , with models in which the main determinants of growth are explicit in the model. The work of Kenneth Arrow (1962), Hirofumi Uzawa (1965), and Miguel Sidrauski (1967) , became the basis for the research. Paul Romer (1986), Robert Lucas (1988), Sergio Rebelo (1991) , Ortigueira and Santos (1997) , eliminating the factor of technological change , and on the contrary, the growth of these models , caused by unlimited investment in human capital which has spillover effects on the economy and reduces the diminishing returns to capital accumulation , Barro and Sala-i-martin (2005 (Barro & Sala-i-martin, 2005) .

**1.1.1. Spatial Economic Theory (Spatial Economics Theory)**

Spatial Economics, also known among researchers as *New Economic Geography* (NEG), is increasingly popular due to continued globalization in various fields, making it increasingly difficult to analyze economic activities in developing countries based solely on a "state" framework. In contrast, discussions of economic disparities between regions in developing countries must address the smaller "cities" and "communities" that make up those countries, while analyzes of development in regions spanning many countries and economic acceleration in border zones must bring communities together. into greater context .

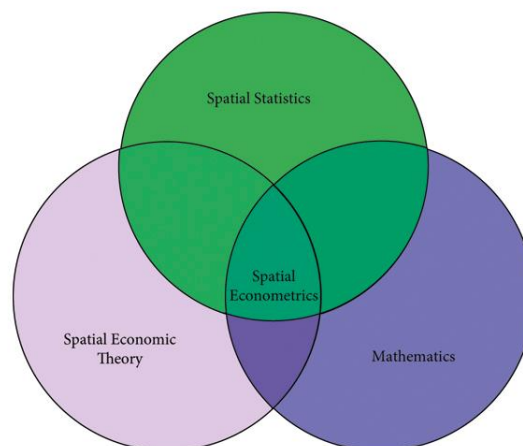


Figure 2. 1. Spatial Econometric Composition ( *Spatial econometric composition* )

Source: Li and Dong (2023)

The 1990s saw the beginning of rapid developments in the field of spatial economics (also called new economic geography), a theoretical construct used to analyze the geographic distribution of economic activity that has garnered attention as a new frontier in economic studies. This new field focuses on the geographic dimensions of economic activity, an area that standard economics does not always treat effectively. In spatial economics, the interaction between "Agglomeration forces , " which attract economic activity to a particular area, and "Dispersion forces , " which spread economic activity throughout the surrounding area, determines the geographic distribution of economic activity .

The main model of spatial E- economics incorporates elements of transportation costs, economies of scale, and attraction to variation into standard microeconomics. These models first assume that some transportation costs are incurred when goods produced in one location are consumed in another location. Furthermore, the model hypothesizes economies of scale, where production costs per unit decrease as production volume increases.

Paul Krugman, winner of the 2008 Nobel Prize in Economics, carried out simulations using a spatial economic model called the " *Racetrack Economy* " model. The model hypothesizes multiple cities (in Krugman's case , using 12 cities) , and are arranged at equal intervals in a circle, like the numbers on a clock face. Economic Activities included farmers, who lived in cities and did not move, and factory workers, who moved between cities in search of higher wages and lower prices. Initially, the city populations are only slightly different (uniformly equal city sizes cause balance, which prevents the simulation from working). Using these basic conditions, Krugman modified transportation costs (T) and the degree of preference of varieties for industrial products ( $\sigma$ ) to analyze changes in the number and location of agglomerations , Krugman

(1993) (Paul Krugman, 1993).

Economy Aglomeration or agglomeration effects, illustrate broadly, how urban agglomeration occurs in locations where cost savings can arise naturally, Ellison and Glaeser (1999) (Ellison & Glaeser, 1999). Agglomeration effects can also explain the phenomenon where most of the population is grouped in cities and large urban centers, Puga (2010) (Puga, 2010). Almost the same as economies of scale, the costs and benefits of agglomeration increase increasingly in agglomerated urban clusters. This is because as more companies in related business fields come together, their production costs can decrease significantly (companies have many competing suppliers; greater specialization and division of labor output). Even when competing firms in the same sector cluster, there may be advantages because the cluster attracts more suppliers and customers than a single firm could achieve alone. Cities form and grow to exploit agglomeration economies. Less Economical agglomeration is the opposite. For example, spatially concentrated growth in automobile-oriented areas can create traffic congestion and congestion problems. The tension between economic and less economic (*diseconomies*) is what allows cities to grow but keeps them from getting very big.

At a basic level, proximity, especially to other facilities and suppliers, is the driving force behind economic growth, and is one explanation for why agglomeration effects are so pronounced in large urban centers, Puga (2010), Glaeser (2011) (Puga, 2010), (E. Glaeser, 2011). While the concentration of economic activity in cities has a positive effect on their development and growth, cities in turn help stimulate economic activity by accommodating population growth, encouraging wage increases, and facilitating technological change, Glaeser (2011) (E. Glaeser, 2011).

**1.1.2. Endogenous Growth Theory ( *Endogenous growth theory* )**

The AK model, which is the simplest endogenous model, provides a constant savings rate of endogenous growth and assumes constant, exogenous, and divergent savings rates. It models technological progress with a single parameter (usually A). This model is based on the assumption that the production function does not exhibit diminishing returns to scale. Various reasons for this assumption have been given, such as positive spillovers from capital investment into the economy as a whole or technological improvements leading to further improvements. However, endogenous growth theory is further supported by a model in which agents optimally determine consumption and savings, optimizing the allocation of resources to research and development that leads to technological progress. Romer (1986, 1990) and significant contributions by Aghion and Howitt (1992) and Grossman and Helpman (1991), combine markets and R&D, imperfectly, into growth models. The quantity theory of endogenous productivity growth was proposed by the Russian economist Vladimir Pokrovskii. This theory explains growth as a consequence of the dynamics of three factors, among them the technological characteristics of production equipment, which makes it possible to reproduce historical levels of economic growth with considerable precision, Pokrovski (2003), (2007) (Pokrovski, 2003), (Pokrovskii, 2007).

**3.1.1.1. AK models**

The AK economic growth model is an endogenous growth model used in economic growth theory, a subfield of modern macroeconomics. By the 1980s, it had become increasingly clear that standard neoclassical exogenous growth models were theoretically unsatisfactory as tools for exploring long-run growth, because these models predicted economies without technological change and thus they would eventually converge to a steady state, with per capita growth zero. The fundamental reason for this is reduced returns on capital; The main property of the AK endogenous growth model is the absence of diminishing returns to capital. In lieu of the diminishing returns to capital implied by the usual parameterization of the Cobb–Douglas production function, the AK model uses a linear model in which output is a linear function of capital.

The AK model production function is a special case of a *Cobb–Douglas production function*.

$$Y = AK^a L^{1-a} \dots\dots\dots (1)$$

This equation shows the Cobb–Douglas function where Y represents total production in an economy. A represents total factor productivity, K is capital, L is labor, and the parameter a measures the output elasticity of capital. For the special case where a = 1 a = 1, the production function becomes linear in capital giving a constant return to scale :

$$Y = AK. \dots\dots\dots (2)$$

**3.1.1.2. Cobb–Douglas production function ( *Cobb–Douglas production function* )**

In economics and econometrics, the Cobb–Douglas production function is a particular functional form of the production function, widely used to represent the technological relationship between the quantities of two or more inputs, especially physical capital and labor and the amount of output that can be produced by those inputs. The Cobb–Douglas form was developed and tested against statistical evidence by Charles Cobb and Paul Douglas between 1927 and 1947, Cobb, C. W and Douglas (1928) (Cobb, C.W.; Douglas, 1928), according to Douglas, the functional form itself was developed previously by Philip Wicksteed.

The formulation in its most standard form for the production of one good with two factors, the function is :

$$Y = AL^\beta K^\alpha \dots\dots\dots (3)$$

where:

Y = total production (real value of all goods produced in a year or 365.25 days)

L = labor input (person-hours worked in a year or 365.25 days)

K = capital input (size of all machines, equipment, and buildings; value of capital input divided by capital price .

A = total factor productivity

$\alpha$  and  $\beta$  are the output elasticities of capital and labor, respectively. These values are constants determined by the available technology.

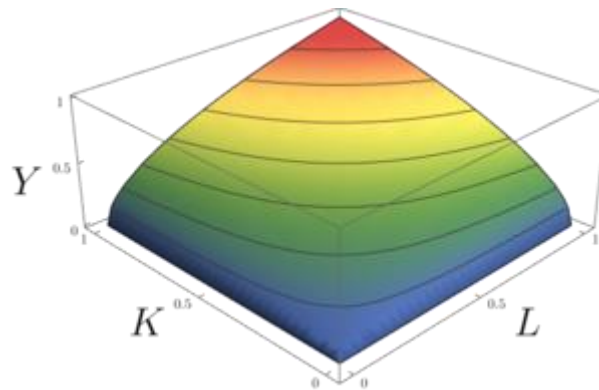


Figure 2. 2. A two-input Cobb–Douglas production function with isoquants  
( A two-input Cobb–Douglas production function with isoquants )

### 1.1.3. Concept of Inclusive Economic Development

Inclusive Economic Development in Indonesia according to BAPPENAS ([inklusif.bappenas.go.id/index](http://inklusif.bappenas.go.id/index)) can be measured using the Inclusive Economic Development Index , which is a tool for measuring and monitoring the extent of inclusive development in Indonesia at the national, provincial and district levels. /city.

The Inclusive Economic Development Index measures the inclusiveness of development in Indonesia through aspects of economic growth, inequality and poverty, as well as access and opportunity. The index numbers consist of 3 pillars and 8 sub-pillars as well as 21 indicators forming the inclusive economic development index.

The three (3) pillars are:

- 1) Pillars of Economic Growth and Development:
  - a. Sub Pillar of Economic Growth.
    - i. Real GDP Growth Indicator per capita.
    - ii. Manufacturing Share Indicator to GRDP.
    - iii. Indicator of Banking Credit Ratio to Nominal GRDP.
  - b. Sub Pillar Job Opportunities
    - i. Employment Opportunity Level Indicator.
    - ii. Indicator of the Percentage of Fully Employed Population.
    - iii. Indicator of the Percentage of the Workforce with Upper Secondary Education Level.
  - c. Economic Infrastructure Sub Pillar
    - i. Indicator of the Percentage of Households Using Electricity.
    - ii. Indicator of the Percentage of Population who own a Mobile Phone.
    - iii. Indicator of Percentage of Roads in Good and Fair Condition.
- 2) Pillar of Equity and Poverty Reduction
  - a. Sub Pillar of Inequality
    - i. Gini Ratio Indicator.
    - ii. Indicators of Women's Contributions.
    - iii. Indicator of Average Ratio of Village and City Household Expenditures.
  - b. Poverty Sub Pillar
    - i. Indicator of the percentage of poor people.
    - ii. Indicator of Average Protein Consumption per day.
- 3) Pillar of Expanding Access and Opportunity
  - a. Sub Pillar of Human Capability
    - i. Indicator of Expected Years of Schooling
    - ii. Indicator Percentage of Toddlers who receive complete immunization.
    - iii. Indicator Percentage of Population who have Health Insurance.
  - b. Basic Infrastructure Sub Pillar
    - i. Indicator Percentage of Households with adequate drinking water.
    - ii. Indicator Percentage of Households with own toilet facilities.

c. Sub Pillar of Inclusive Finance

- i. Indicator Ratio of the number of TPF accounts to the population of productive age.
- ii. MSME Banking Credit Ratio Indicator.

Inclusive growth is economic growth that increases the standard of living for society, Cerra (2021) (Cerra, 2021), Ranieri *et al.* (2013) (Ranieri & Almeida Ramos, 2013), Anand *et al.* (2021) (Anand *et al.*, 2021). Advocates of inclusive growth warn that unfair growth may have detrimental political impacts, Dutzler *et al.* (2022). (Dutzler *et al.*, 2022).

The understanding that high growth does not guarantee an increase in the welfare of society as a whole is the cause of the increasingly popular concept of inclusive growth. The Indonesian government is very interested in more equitable growth. The definition of inclusive growth implies a direct relationship between macroeconomic and microeconomic determinants of economics and economic growth. The microeconomic dimension captures the importance of structural transformation for economic diversification and competitiveness, while the macro dimension refers to changes in economic aggregates such as gross national product, or a country's gross domestic product (GDP), total factor productivity, and aggregate factor input, Felipe (2012) (Felipe, 2012).

Sustainable economic growth requires inclusive growth. Maintaining this is sometimes difficult because economic growth can give rise to negative externalities, such as increased corruption, which is a major problem in developing countries. Nonetheless, an emphasis on inclusivity, especially on equality of opportunity in terms of access to markets, resources, and an impartial regulatory environment, is a critical ingredient of successful growth. The inclusive growth approach takes a long-term perspective, as its focus is on productive employment as a means of increasing the incomes of poor and excluded groups and improving their living standards, Ianchovichina *et al.* (2009) (Ianchovichina & Lundström, 2009).

The concept of inclusive development provides equal opportunities for all participants in access to the labor market and allocation of resources. This concept emphasizes equality of human capital, environmental ecological conditions, social protection and food security. This concept is fundamentally different from the standard perception of economic growth, because it has broader goals than just increasing income and GDP, Shashyna *et al.* (2021) (Shashyna *et al.*, 2021).

Bappenas has issued the Inclusive Economic Development Index. The Inclusive Economic Development Index is a tool for measuring and monitoring the extent of the level of inclusiveness of Indonesia's development at the national, provincial and district/city levels.

The Inclusive Economic Development Index measures the inclusiveness of development in Indonesia through aspects of economic growth, inequality and poverty, as well as access and opportunity. The index numbers consist of 3 pillars and 8 sub-pillars as well as 21 indicators forming the inclusive economic development index.

### 1.1.3.1. Pillars of Economic Growth and Development

High economic growth is one of the absolute requirements for inclusive economic development. Economic growth describes economic activity or fulfilling daily needs in society (Bappenas).

Economic growth and development cannot be separated from employment demographics in a region. The wider the employment opportunities in a region, the more economic growth and development will increase. Wide employment opportunities directly increase the level of productivity and influence the level of economic development.

Economic infrastructure measures how far economic growth is accessible to the wider community. Economic growth is not only focused on high income figures, but also needs to pay attention to infrastructure as a supporting capacity to facilitate the achievement of growth targets. The infrastructure in question is a support tool that can expand access for the community to benefit from high economic growth.

#### 1.1.1.2. Pillar of Equal Income and Poverty Reduction

Because inclusive economic development must ensure economic equality across all levels of society, inequality in terms of income, gender and region must be eliminated.

Poverty alleviation is a sufficient condition for inclusive economic development. In addition, economic growth accompanied by high poverty rates makes growth itself unsustainable.

#### 1.1.1.3. Pillar of Expanding Access and Opportunity

This expansion of access and opportunities is characterized by higher quality and prosperous human resources which in the future can contribute to higher and more inclusive economic development.

Access to wider infrastructure shows that development is more evenly distributed and also makes it easier for groups of people who are relatively left behind to catch up with the pace of economic growth. Expanding access cannot be separated from the availability of established basic infrastructure.

Financial institutions have an intermediation function to encourage economic growth. So wider access to financial institutions can ensure inclusive economic growth and development.

## 2.2. Previous Research

### 2.2.1. Influence Human Resource Development towards Inclusive Regional Economic Development

According to Zhou *et al.* (2018) (G. Zhou *et al.*, 2018) human capital can have a significant positive influence on regional economic growth. Different results were presented by Rizal (2019) (Rizal, 2019), that the contribution of human capital growth had a negative and insignificant effect on the growth of gross domestic regional product.

Developing human abilities and skills (human resource development), by increasing the use of physical capital has proven to be successful, positive and progressive. This is done by educating, providing better health facilities, and developing the skills of citizens, helping them to increase productivity, increasing the country's national wealth. Thus, when Human Resource Development is more inclusive, respect and understanding grow. Furthermore, an inclusive Human Resource Development strategy increases the country's productivity, by developing the productive capacity, physical abilities, and mental abilities of its human resources, leading to the country's overall economic development and growth, Sharma (2021) (Sharma, 2021).

Inclusive development has broader goals than GDP growth, and aims at comprehensive human development, improving its well-being and reducing poverty and inequality, and requires active participation in the human resource economy. Inclusive development is the rapid, sustainable development of all sectors of the economy, attracting the majority of a country's labor resources and characterized by equal access to labor markets and resources. The priority of inclusive development is to improve the quality of life of the population through the creation of an economy with high employment, Reshetilo (2020). (Reshetilo, 2020).

Regional economic growth is closely related to optimizing the use of natural and human resources. Optimizing the use of natural resources without developing human resources causes their contribution to economic growth to be quite low, which becomes an obstacle to the acceleration of economic development. Strengthening human resource capacity through the use of technology and changes in community culture, which will encourage economic growth, Saleh *et al.* (2020). (Saleh *et al.*, 2020).

High regional economic performance is associated with a particular regional mix of industrial capital and human resources. We argue that to deepen our understanding of the mechanisms driving regional economic development it would be helpful to apply a relational approach that pays attention to networks between economic actors at various spatial scales, from local to global. This generates knowledge as well as access to technology, resources and markets, thereby catalyzing revenue growth. To support a regional policy agenda, it is necessary to go beyond simply identifying the regularities that structure development and engage with different regional pathways by conducting a systematic comparative analysis of local contextual and institutional conditions, Buchholz and Bathelt, (2021) (Buchholz & Bathelt, 2021).

### **2.2.2. The influence of the moderating role of agglomeration forces on the relationship between human resource development and inclusive regional economic development**

Research regarding the moderating role of agglomeration forces on the relationship between Human Resource Development and Inclusive Regional Economic Development, to the author's knowledge, has not been found, so it is a mix of research. Research on Agglomeration is as follows;

Human capital agglomeration has a positive long-term influence on economic development, and is a determinant of regional economic growth, Yang and Pan (2020) (Z. Yang & Pan, 2020).

Urban agglomerations are fundamental units of regional development and attract large-scale migrant populations. The evolution of migrant population distribution patterns in urban agglomerations is in line with the classical theory of regional development inequality. The driving forces of the economy and government together influence migration, however, economic forces outweigh government forces. Economic power is more influential in urban agglomerations, while government power plays a more important role outside urban agglomerations. Increasing income and employment opportunities are the main attractions of urban agglomerations. Moreover, with the increase in the development level of urban agglomerations, the influence of economic power increases, while the influence of government power decreases, C. Zhou *et al.* (2021). (C. Zhou *et al.*, 2021).

Effects, exploring measures of economic density can explain household income and wage differences across cities. The extraordinary increase in household income relative to population density is much greater than income from working wages. These advantages help explain the pulling forces driving rapid urbanization in the region, Henderson *et al.* (2021) (Henderson *et al.*, 2021).

### **2.2.3. Moderating Role of Dispersion Force on the Relationship Between Human Resource Development and Inclusive Regional Economic Development**

Research regarding the moderating role of dispersion forces on the relationship between Human Resource Development and Inclusive Regional Economic Development, to the author's knowledge, has not been found, so it is a mix of research. Research on Dispersion Force is as follows

In the era of the network economy, the Internet has become a source of regional competitive advantage and is of great interest to companies. Rapidly rising house prices have greatly increased congestion costs and have been the force behind the spread of companies. The internet strengthens the Dispersion Force against costs incurred due to traffic congestion, which is manifested as house prices and reshapes regional economic geography, C. Yang and An (2020) (C. Yang & An, 2020).

According to Masson and Petiot (2009) (Masson & Petiot, 2009), the Strength of Agglomeration and the Strength of Dispersion determine the spatial structure of the economy. These two opposing forces are influenced by transportation costs. Reducing transportation costs can strengthen the concentration of economic activities. The resulting increase in spatial

competition can strengthen agglomeration phenomena.

### 2.3. Variables and Indicators

This research involves four (4) variables, namely as follows;

#### 2.3.1. Human Resources Development

Human resource development can be identified as a process in which a society increases the skills, education and productive abilities of its people. In essence, it means increasing human capital. Human capital is accumulated and enhanced in several ways: through formal education and training programs, on-the-job training, and through individual initiative. It is generally agreed that this process, if carefully designed and implemented, drives economic growth in any country .

*Human Resource Development* ( HRD ) has become a widely used term in the last half century, but conceptions of the term vary widely . The broad notion of HRD , which is part of the grand theory of human development, includes not only education and vocational training, but also health, nutrition, and access to self-determination levels of resources. In business and management literature, the focus of HRD is on the narrower goal of achieving or improving the skills and attitudes of employees at all levels to maximize company effectiveness . HRD is "the process of increasing the knowledge, skills, and capacities of all people in a society. In economic terms, it can be described as the accumulation of human capital and its effective investment in economic development. In political terms, human capital development prepares people for adult participation in the political process, especially as citizens in a democracy. From a social and cultural point of view, human resource development helps people to live fuller and richer lives, less bound by tradition. In short, the human resource development process opens the door to modernization , ( *TVETipedia Glossary* , n.d.) .

The 3 (three) Human Resource Development Indicators used in this research are:

- 1) HLS (Expected Years of School)
- 2) RLS (Average Years of Schooling)
- 3) UHH (Life Expectancy)

#### 2.3.2. Inclusive Regional Economic Development

Inclusive growth is economic growth that increases the standard of living for society, Cerra (2021). (Cerra, 2021) . Proponents of inclusive growth warn that unfair growth can have detrimental political outcomes , Dutzler et al. (2021) (Dutzler, Barbara; Johnson, Simon; Muthoora, 2021) .

The definition of inclusive growth implies a direct link between macro and micro economic determinants economy and economic growth. The microeconomic dimension captures the importance of structural transformation for economic diversification and competition, while the macro dimension refers to changes in economic aggregates such as a country's gross national product (GNP) or gross domestic product (GDP), total factor productivity, and aggregate factor input , Lundstrom (2009) (Lundstrom, 2009) .

Sustainable economic growth requires inclusive growth. Maintaining this is sometimes difficult because economic growth can give rise to negative externalities, such as increased corruption, which is a major problem in developing countries. Nonetheless, an emphasis on inclusivity , especially on equality of opportunity in terms of access to markets, resources, and an impartial regulatory environment , is a critical ingredient of successful growth. The inclusive growth approach takes a long-term perspective, as its focus is on productive employment as a means of increasing the incomes of poor and marginalized groups and improving their living standards .

The Inclusive Regional Economic Development Indicators used in this research are: Economic Growth and Development Index, which is a composite of the sub-pillars: Economic Growth, Job Opportunities, Economic Infrastructure.

#### 2.3.3. Agglomeration Force ( *agglomeration force* )

Agglomeration economies are the benefits that come when people gather close to each other in cities and industrial clusters. All these benefits ultimately come from savings in transportation costs: the only real difference between a nearby company and one across the continent is that it is easier to connect with neighbors. Of course, transportation costs must be interpreted broadly, and they include difficulties in exchanging goods, people, and ideas. The relationship between agglomeration economies and transport costs seems to suggest that agglomerations should become less importing, as transport and communication costs have fallen. However, the main paradox of our time is that in cities, industrial agglomeration remains vital, despite the increasingly easy movement of goods and knowledge across space , (EL Glaeser, 2010) .

Increasing back to scale, according to Beckmann, is integral to understanding why city centers form. Scaling back to this scale will give rise to urban systems, capturing the “ *trade-off* between transport costs and economies of scale” . Agglomeration economies exist when production is cheaper due to the clustering of these economic activities. As a result of this grouping, it became possible to establish other businesses that could take advantage of this economy , without joining any large organization. This process can help regional urbanization as well.

*agglomeration* force indicators used in this research are: Access and Opportunity Expansion Index, which is a composite of Human Capability, Basic Infrastructure, Financial Inclusion.

#### 2.3.4. Dispersion force ( *dispersion force* )

The 1990s saw the beginning of rapid developments in the field of spatial economics (also called new economic



geography), a theoretical construct used to analyze the geographic distribution of economic activity that has garnered attention as a new frontier in economic studies. This new field focuses on the geographic dimensions of economic activity, an area that standard economics does not always treat effectively. In spatial economics, the interaction between “agglomeration forces,” which attract economic activity to a particular region, and “dispersion forces,” which spread economic activity throughout the surrounding region, determines the geographic distribution of economic activity . (P Krugman, 1993) .

research by Redding (Redding, n.d.) has explored how factor mobility across locations influences welfare gains from trade in goods. In a whole class of trade and geography models, I show how observed data on interregional bilateral trade, population shares, and income shares can be used to conduct model-based counterfactuals for the welfare effects of transportation infrastructure improvements and other public policy interventions. In this class of models, changes in each region's share of trade with itself and its share of mobile factors of production provide sufficient statistics to calculate the welfare effects of changes in trade costs .

The Dispersion Force Indicators *used* in this research are: Income Equalization and Poverty Reduction Index, which is a composite of Inequality and Poverty.

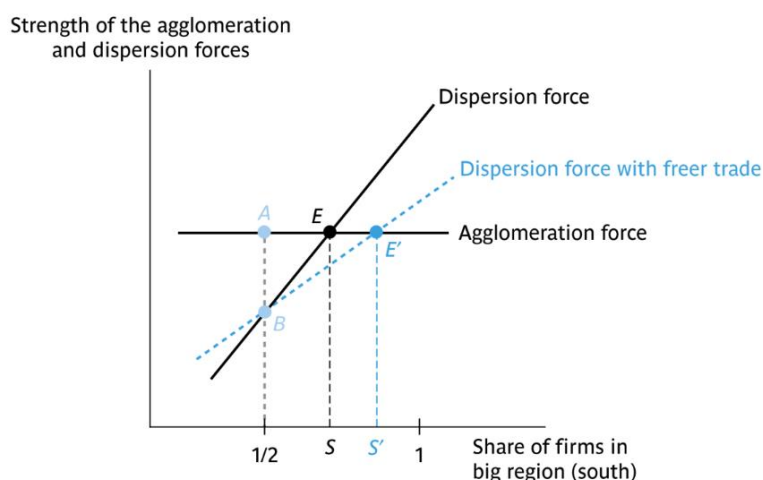


Figure 2. 3. Agglomeration Strength and Dispersion Strength

Source: ( Chapter 10: Location Effects, Economic Geography and Regional Policy , nd) .

**METHOD**

The method used in this research is a quantitative research method. Multivariate analysis is used in analyzing research, involving variables in a number more than or equal to three variables. WarpPLS is multivariate based and can analyze structural equation modeling ( SEM), Hair *et al* . (2014) (Joseph F. Hair et al., 2014) .

The influence of the independent variable on the dependent variable through hypothesis testing. In analyzing the data, researchers used the WarpPLS *software* program . Analysis using WarpPLS is a development of PLS ( *Partial Least Square* ). From the results of both theoretical and empirical studies, a hypothesis can be formulated to be tested for truth. In this study, hypothesis testing was carried out using quantitative tests using the *Structural Equation Modeling* (SEM) analysis tool. The research design can be seen in Figure 4.1.

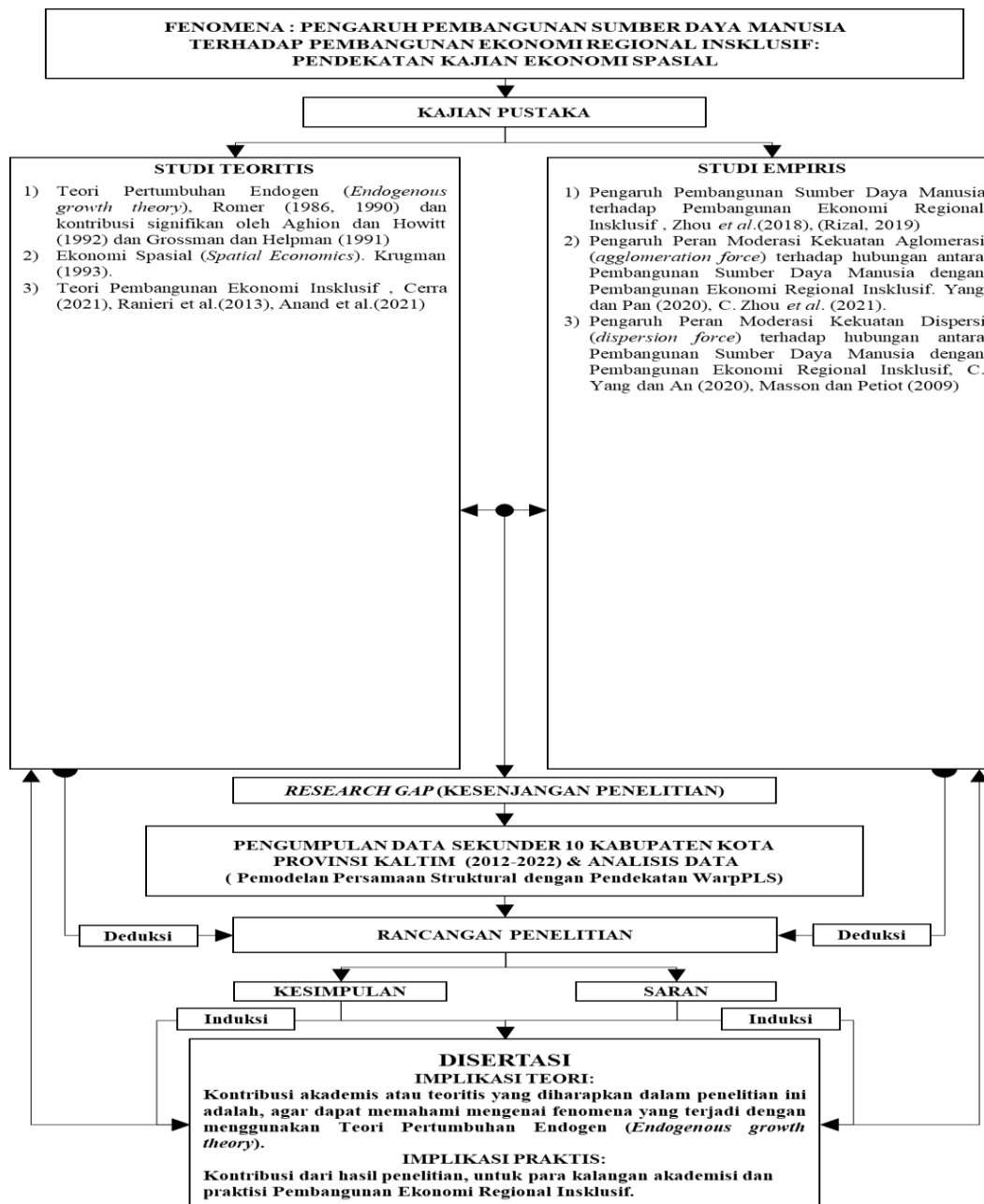


Figure 4. 1. Research design

## RESULTS AND DISCUSSION

### 1.1.1. Inclusive Regional Economic Development

Economic Growth and Development Index, which is a composite of the Economic Growth and Development sub-pillars:

- 1) Sub Pillar of Economic Growth.
  - i. Real GDP Growth Indicator per capita.
  - ii. Manufacturing Share Indicator to GRDP.
  - iii. Indicator of Banking Credit Ratio to Nominal GRDP.
- 2) Sub Pillar Job Opportunities
  - i. Employment Opportunity Level Indicator.
  - ii. Indicator of the Percentage of Fully Employed Population.
  - iii. Indicator of the Percentage of the Workforce with Upper Secondary Education Level.
- 3) Economic Infrastructure Sub Pillar

- i. Indicator of the Percentage of Households Using Electricity.
- ii. Indicator of the Percentage of Population who own a Mobile Phone.
- iii. Indicator of Percentage of Roads in Good and Fair Condition.

Table 5. 1. Economic Growth and Development Index

Indeks Pertumbuhan dan Perkembangan Ekonomi						
Kabupaten / Kota	2016	2017	2018	2019	2020	2021
Paser	4,31	4,56	4,57	4,74	4,48	4,74
Kutai Barat	4,16	4,34	4,44	4,59	4,40	4,59
Kutai Kartanegara	4,52	4,66	4,67	4,77	4,57	4,84
Kutai Timur	4,33	4,43	4,45	4,73	4,40	4,50
Berau	4,55	4,66	4,69	4,86	4,56	4,82
Penajam Paser Utara	4,82	4,90	4,94	4,87	4,71	4,90
Mahakam Hulu	3,76	4,05	4,58	4,42	4,19	4,28
Kota Balikpapan	5,98	5,86	5,93	5,99	5,74	5,95
Kota Samarinda	5,32	5,35	5,43	5,38	5,15	5,30
Kota Bontang	5,80	5,75	6,04	5,99	5,83	6,04
<b>Minimum</b>	<b>3,76</b>	<b>4,05</b>	<b>4,44</b>	<b>4,42</b>	<b>4,19</b>	<b>4,28</b>
<b>Maksimum</b>	<b>5,98</b>	<b>5,86</b>	<b>6,04</b>	<b>5,99</b>	<b>5,83</b>	<b>6,04</b>
<b>Rata-rata</b>	<b>4,76</b>	<b>4,86</b>	<b>4,97</b>	<b>5,03</b>	<b>4,80</b>	<b>5,00</b>

Bontang City is in first place with the highest Economic Growth and Development Index with an index value of 6.04 and second place is Balikpapan City with an index value of 5.95 and the third largest is Samarinda City with 5.30.

Mahakam Hulu Regency is ranked first lowest in the Economic Growth and Development Index, with an index value of 3.76 and the second lowest is West Kutai Regency with an index value of 4.16.

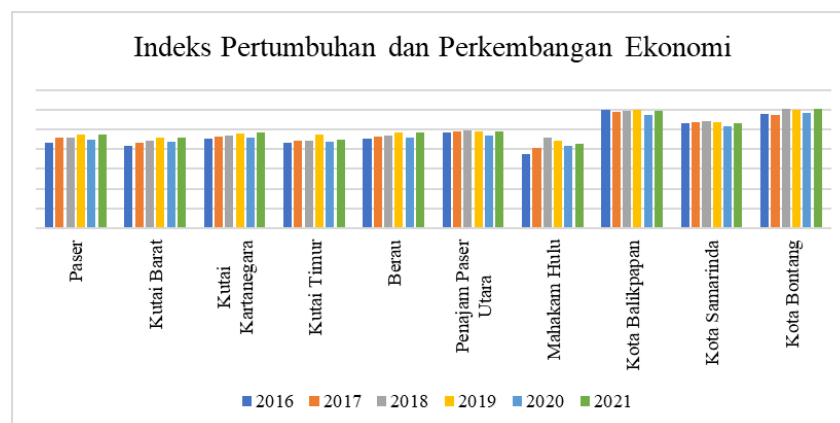


Figure 5. 1. Economic Growth and Development Index

**1.1.2. Agglomeration Force ( agglomeration force )**

Based on data from the Expanding Access and Opportunity Pillar

- 1) Sub Pillar of Human Capability
  - a. Indicator of Expected Years of Schooling
  - b. Indicator Percentage of Toddlers who receive complete immunization.
  - c. Indicator Percentage of Population who have Health Insurance.
- 2) Basic Infrastructure Sub Pillar
  - a. Indicator Percentage of Households with adequate drinking water.
  - b. Indicator Percentage of Households with own toilet facilities.
- 3) Sub Pillar of Inclusive Finance
  - a. Indicator Ratio of the number of TPF accounts to the population of productive age.

b. MSME Banking Credit Ratio Indicator .

Table 5. 2. Agglomeration Force ( *agglomeration force* )

Indeks Perluasan Akses dan Kesempatan						
Kabupaten / Kota	2016	2017	2018	2019	2020	2021
Paser	6,15	6,11	6,32	6,32	6,11	6,63
Kutai Barat	5,53	5,35	5,64	5,95	5,95	6,29
Kutai Kartanegara	5,74	5,64	5,66	5,77	5,97	6,18
Kutai Timur	4,95	5,31	5,42	5,62	5,42	5,79
Berau	5,76	5,77	5,96	6,15	6,22	6,47
Penajam Paser Utara	4,42	4,37	4,42	4,67	4,82	4,91
Mahakam Hulu	3,7	3,71	3,95	4,11	4,26	4,64
Kota Balikpapan	5,85	5,75	5,99	5,97	6,06	6,52
Kota Samarinda	6,46	6,11	6,16	6,11	6,48	6,75
Kota Bontang	6,31	6,25	6,3	6,32	6,56	6,92
<b>Minimum</b>	<b>3,70</b>	<b>3,71</b>	<b>3,95</b>	<b>4,11</b>	<b>4,26</b>	<b>4,64</b>
<b>Maksimum</b>	<b>6,46</b>	<b>6,25</b>	<b>6,32</b>	<b>6,32</b>	<b>6,56</b>	<b>6,92</b>
<b>Rata-rata</b>	<b>5,49</b>	<b>5,44</b>	<b>5,58</b>	<b>5,70</b>	<b>5,79</b>	<b>6,11</b>

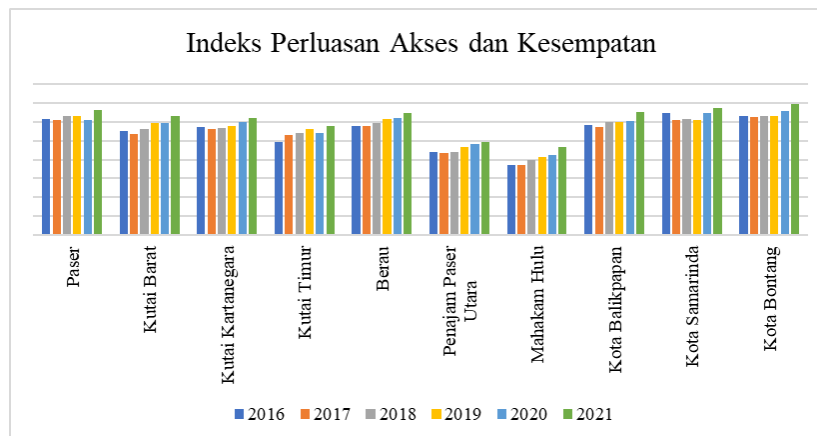


Figure 5. 2. Agglomeration Force ( *agglomeration force* )

Bontang City was ranked first with the highest Expansion of Access and Opportunities index with an index value of 6.04 and second place was Balikpapan City with an index value of 5.99.

Mahakam Hulu Regency is ranked first lowest in the Economic Growth and Development Index, with an index value of 3.76 and the second lowest is West Kutai Regency with an index value of 4.16.

1.1.3. Dispersion force ( dispersion force )

Table 5. 3. Dispersion Force ( dispersion force )

Indeks Pemerataan Pendapatan dan Pengurangan Kemiskinan						
Kabupaten / Kota	2016	2017	2018	2019	2020	2021
Paser	6,43	6,17	6,25	6,46	6,45	6,43
Kutai Barat	5,92	6,47	6,33	6,2	6,13	6,43
Kutai Kartanegara	6,36	6,41	6,43	6,67	6,51	6,45
Kutai Timur	5,88	6,14	6,01	5,97	6,15	6,17
Berau	5,97	6,34	6,32	6,23	6,34	5,83
Penajam Paser Utara	6,55	6,53	6,59	6,61	6,69	6,78
Mahakam Hulu	6,12	5,97	5,64	6,21	6,31	6,74
Kota Balikpapan	6,39	6,83	6,45	6,87	6,6	6,48
Kota Samarinda	6,73	6,43	6,68	6,71	6,75	6,52
Kota Bontang	5,8	6,27	5,91	6,09	5,65	5,99
<b>Minimum</b>	<b>5,80</b>	<b>5,97</b>	<b>5,64</b>	<b>5,97</b>	<b>5,65</b>	<b>5,83</b>
<b>Maksimum</b>	<b>6,73</b>	<b>6,83</b>	<b>6,68</b>	<b>6,87</b>	<b>6,75</b>	<b>6,78</b>
<b>Rata-rata</b>	<b>6,22</b>	<b>6,36</b>	<b>6,26</b>	<b>6,40</b>	<b>6,36</b>	<b>6,38</b>

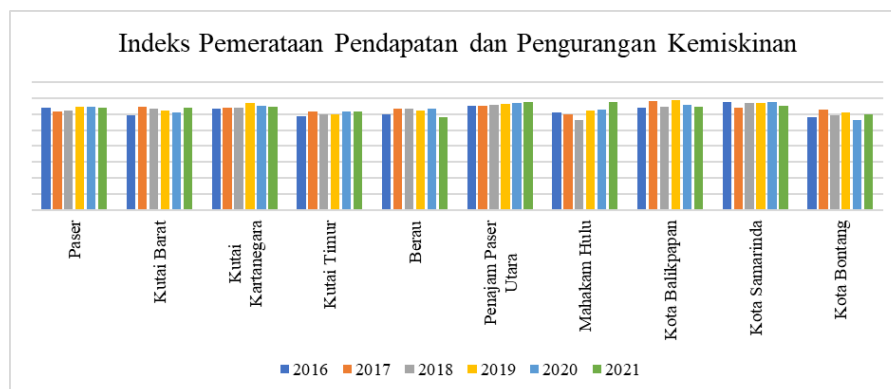


Figure 5. 3. Dispersion Force ( dispersion force )

Based on data from the Pillar of Equity and Poverty Reduction

- a. Sub Pillar of Inequality
  - i. Gini Ratio Indicator.
  - ii. Indicators of Women's Contributions.
  - iii. Indicator of Average Ratio of Village and City Household Expenditures.
- b. Poverty Sub Pillar
  - i. Indicator of the percentage of poor people.
  - ii. Indicator of Average Protein Consumption per day.

North Penajam Paser Regency (PPU) was ranked first highest with the highest Equity and Poverty Reduction index with an index value of 6.78 and second place was Mahakam Hulu Regency with an index value of 6.74.

Equity and Poverty Reduction Index, with an index value of 5.83 and the second lowest was Bontang City with an index value of 5.99.

1.2. General Results

The analysis results show that the Conformity Index and Model Quality have met the requirements. Ten parameters have met the terms and conditions stated by Kock (2015b) and Tenenhaus *et al.* (2005) .

The Average Path Coefficient (APC) is 0.337. The average R-squared ( ARS) is also significant (P < 0.001) with an ARS value of 0.761. The average adjusted R-squared (AARS) was also significant (P < 0.001), with an AARS value of 0.749.

The average block variance inflation factor ( AVIF ) is 1,312 in the ideal category. Average full collinearity VIF (AFVIF) is 3.927 in the accepted category. Tenenhaus GoF (GoF) value 0.838 in the large category.

Simpson's paradox ratio (SPR) value is 0.667 with an acceptable category. The R-squared contribution ratio (RSCR) value is 0.976 in the accepted category. The statistical suppression ratio (SSR) has a value of 1,000 in the accepted category, and finally the nonlinear bivariate causality direction ratio (NLBCDR) has a value of 1 in the accepted category.

The coefficient of determination ( R Square ) of the endogenous latent variable Inclusive Regional Economic

Development (PERI), is; 0.76 .

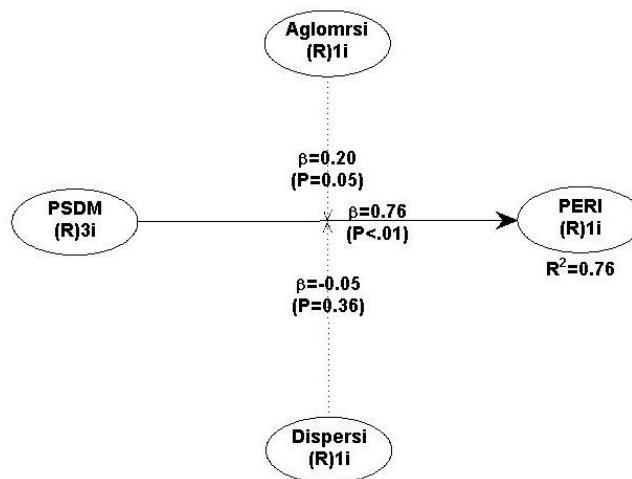


Figure 5. 4. General Results of Analysis

Notation Description:

- PSDM : Human Resources Development
- PERI : Inclusive Regional Economic Development
- Agglomeration : Strength of Agglomeration
- Dispersion : Power of Dispersion

### 5.3. Validity Test Results

#### 5.3.1. Convergent Validity

AVE value , which must be greater than 0.5 ( $>0.5$ ), whether it is confirmatory research or exploratory research. Standardized loading factor describes the magnitude of the correlation between each measurement item and its construct. Correlation can be said to be valid if the loading factor value is  $> 0.5$ .

The results of the AVE value are: as follows:

- 1) AVE Value of Human Resources Development (PSDM): 0.825
- 2) AVE Value of Inclusive Regional Economic Development (PERI): 1
- 3) AVE Value of Agglomeration Strength (Agglomeration): 1
- 4) AVE Value of Dispersion Strength (Dispersion): 1

#### 5.3.2. Discriminant Validity ( Discriminant Validity )

Discriminant Validity Value, from the analysis results, can be seen from the square root of AVE and the correlation between constructs. Discriminant validity is fulfilled, if the AVE of the average variance extracted must be higher than the correlation involving the latent variable, Kock and Lynn (2012) . The validity test that will be tested in Partial Least Square (PLS) is construct validity.

The results of the square root of AVE are as follows:

- 1) AVE square root of Human Resource Development (PSDM): 0.908 (Valid) .
- 2) AVE square root of Inclusive Regional Economic Development (PERI): 1 (Valid).
- 3) AVE square root of Strength of Agglomeration (Agglomeration): 1 (Valid).
- 4) AVE square root of Dispersion Strength (Dispersion): 1 (Valid).

### 5.4. Reliability Test Results

The consistency of the results of a construct can be seen in the Cronbach's alpha and composite reliability values . The recommended value for reliability is to look at the Cronbach's alpha value , provided it is greater ( $>$ ) than 0.6, while for composite reliability is to look at the composite reliability value , provided it is greater ( $>$ ) than 0.7.

Composite reliability reliability and Cronbach's alpha coefficient must be equal to or greater than 0.7, Fornell, C., and Larcker (2016) , Kock and Lynn (2012) .

The results of Composite reliability are as follows:

- 1) Composite reliability of Human Resources Development (PSDM): 0.934
- 2) Composite reliability of Inclusive Regional Economic Development (PERI) : 1
- 3) Composite reliability of Agglomeration Strength (Agglomeration): 1.
- 4) Composite reliability of Dispersion Strength (Dispersion): 1

The results of the Cronbach's alpha coefficient are as follows:

- 1) Cronbach's alpha coefficient of Human Resource Development (PSDM): 0.893
- 2) Cronbach's alpha coefficient of Inclusive Regional Economic Development (PERI): 1
- 3) Cronbach's alpha coefficient Strength of Agglomeration (Agglomeration): 1
- 4) Cronbach's alpha coefficient of Dispersion Strength (Dispersion): 1

**5.5. Proposition and Hypothesis Testing Results**

Proposition and Hypothesis testing is obtained using the T Ratio Test and a Confidence Interval of 95% (Confidence level used: 0.950). Critical T ratios (Critical T ratios):

- 1) For one-tailed tests : 1,645.
- 2) For two-tailed tests : 1,960.

T ratios for path coefficients (T ratios for path coefficients):

Variabel	PERI	Aglomrsi	Dispersi	PSDM	Aglomrsi*PSDM	Dispersi*PSDM
PERI				7.708	1.686	-0.371

Table 5. 4. Hypothesis Test Results with T ratio for path coefficient

**5.5.1. Hypothesis 1 (H1): The Influence of Human Resource Development (PSDM) on Inclusive Regional Economic Development (PERI)**

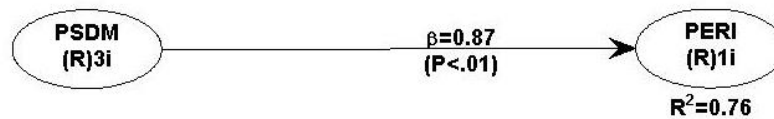


Figure 5. 5. The Influence of Human Resource Development (PSDM) on Inclusive Regional Economic Development (PERI)

The influence of Human Resource Development (PSDM) on Inclusive Regional Economic Development (PERI) is positive and significant and has a path coefficient of 0.87, and  $P < 0.001$ . The value of the Coefficient of Determination ( $R^2$ ) is 0.76 or 76%. The hypothesis was accepted ( $7.708 > 1.96$ ).

Human Resource Development (PSDM) in the three cities of Balikpapan, Bontang City and Samarinda City are in the top three regencies/cities of East Kalimantan Province based on Human Resource Development data from 2016 to 2021.

Inclusive Regional Economic Development (PERI) in Balikpapan City, Bontang City and Samarinda City also occupy the top three regencies/cities in East Kalimantan Province based on Human Resource Development data from 2016 to 2021.

From the results of the analysis, empirical evidence can be obtained that the higher the Human Resource Development, the higher the Inclusive Regional Economic Development (the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI) is Positive and Significant).

Seen in figure 5.9. below, significant cluster differences between cities in high clusters that have Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI), namely Balikpapan City, Bontang City and Samarinda City,

The regencies that are in the low cluster, both in Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI), are Paser Regency, West Kutai Regency, Kutai Kartanegara, East Kutai, Berau, North Penajam Paser, Mahakam Ulu.

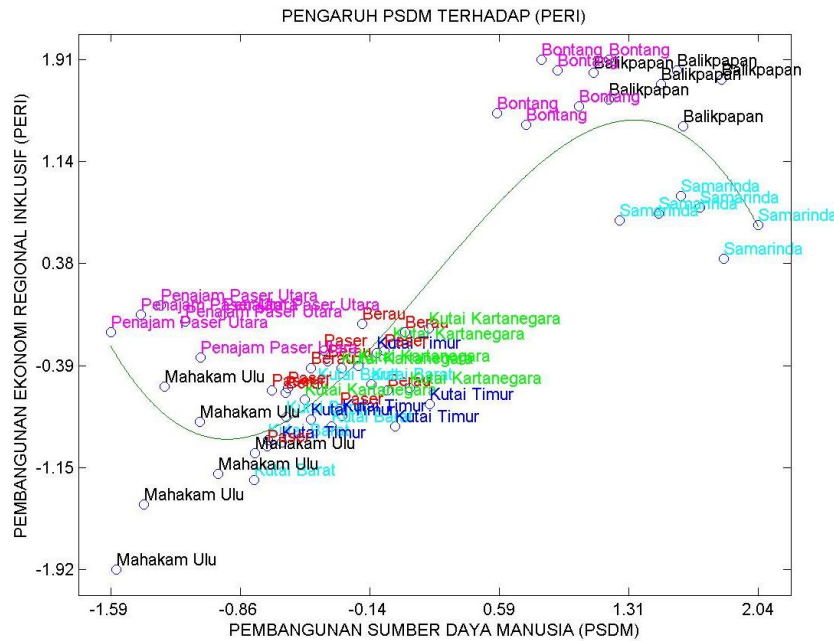


Figure 5. 6. The Influence of Human Resource Development (PSDM) on Inclusive Regional Economic Development (PERI)

**5.5.2. Hypothesis 2 (H2): Influence of the Moderating Role of Agglomeration Force ( agglomeration force ) on the relationship between Human Resource Development and Inclusive Regional Economic Development**

There is a moderating role of Agglomeration Force ( Agglomeration ) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI) and has a path coefficient  $\beta= 0.22$ ,  $P = 0.04$ , Determination Coefficient Value (  $R^2$  ) Inclusive Regional Economic Development (PERI) increased to 0.80 or 80%. The hypothesis was accepted ( $1.686 < 1.96$ ).

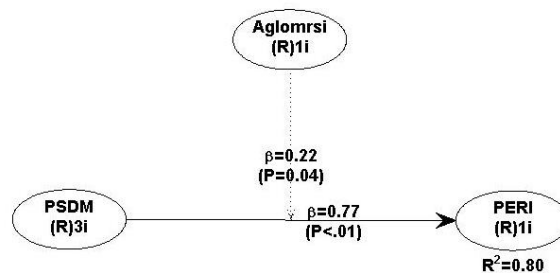


Figure 5. 7. The Moderating Role of Agglomeration Force ( Agglomeration ) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI)

that the Agglomeration Force ( agglomeration force ) (Aglomrsi) of the ten regencies showed that Balikpapan City, Bontang City and Samarinda City had the highest Expansion of Access and Opportunity index among the 10 regencies in East Kalimantan Province.

Based on data from the Pillar of Expanding Access and Opportunities which is an index of Agglomeration strength, which consists of:

- 1) Sub Pillar of Human Capability
  - 1) Indicator of Expected Years of Schooling
  - 2) Indicator Percentage of Toddlers who receive complete immunization.
  - 3) Indicator Percentage of Population who have Health Insurance.
- 2) Basic Infrastructure Sub Pillar
  - 1) Indicator Percentage of Households with adequate drinking water.
  - 2) Indicator Percentage of Households with own toilet facilities.
- 3) Sub Pillar of Inclusive Finance



- 1) Indicator Ratio of the number of TPF accounts to the population of productive age.
- 2) MSME Banking Credit Ratio Indicator.

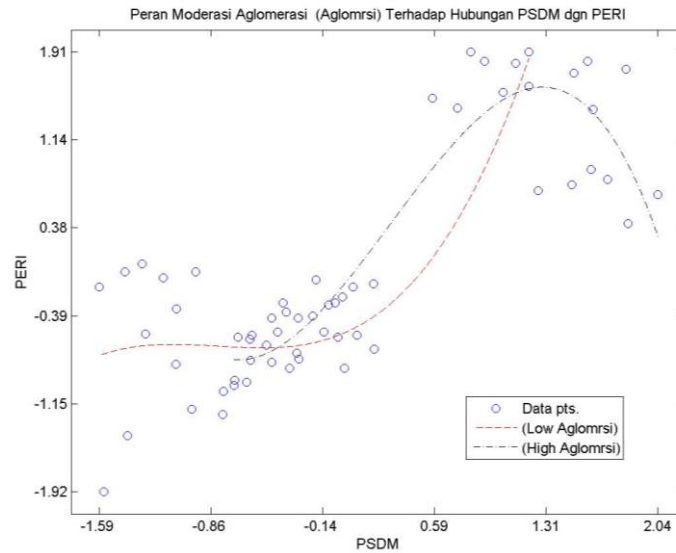


Figure 5. 8. The Moderating Role of Agglomeration Force ( *Agglomeration* ) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI)

**5.5.3. Hypothesis 3 (H3): The influence of the moderating role of dispersion forces on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI)**

There is a moderating role of Dispersion Force ( *Dispersion* ) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI) and has a path coefficient  $\beta = -0.10$ ,  $P = 0.21$ , Determination Coefficient Value ( $R^2$ ) Inclusive Regional Economic Development (PERI) fell to 0.69 or 69%. The hypothesis was accepted ( $-0.371 > -1.96$ ).

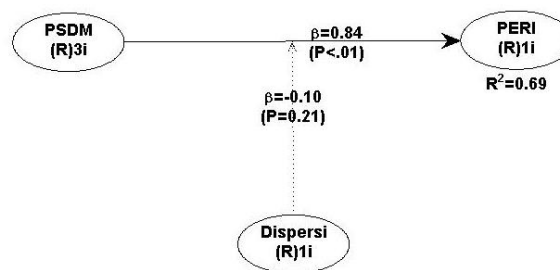


Figure 5. 9. The Moderating Role of Dispersion Force ( *Dispersion* ) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI)

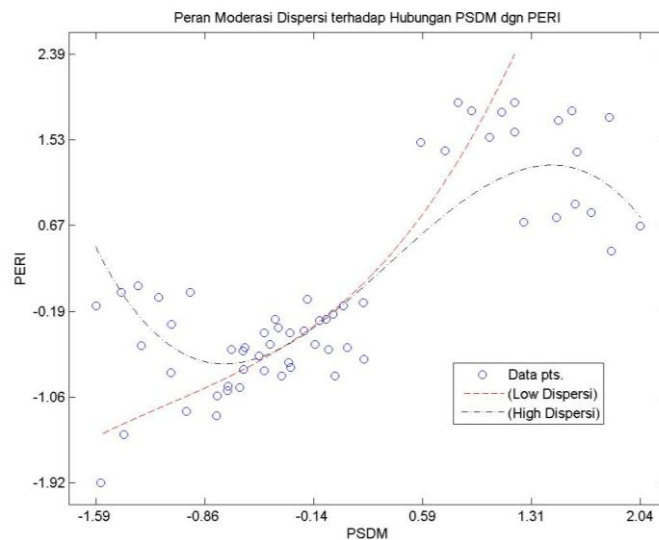


Figure 5. 10. The Moderating Role of Dispersion Force (Dispersion) on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI)

Based on data from the Pillar of Equity and Poverty Reduction;

- 1) Sub Pillar of Inequality
  - i. Gini Ratio Indicator.
  - ii. Indicators of Women's Contributions.
  - iii. Indicator of Average Ratio of Village and City Household Expenditures.
- 2) Poverty Sub Pillar
  - i. Indicator of the percentage of poor people.
  - ii. Indicator of Average Protein Consumption per day.

Strength of Dispersion ( *Dispersion* ) North Penajam Paser Regency (PPU) is ranked first highest with the highest Equity and Poverty Reduction index with an index value of 6.78 and second place is Mahakam Hulu Regency with an index value of 6.74.

Equity and Poverty Reduction Index , with an index value of 5.83 and the second lowest was Bontang City with an index value of 5.99.

#### 5.5.4. Human Resource Development (PSDM) towards Inclusive Regional Economic Development (PERI)

The influence of Human Resource Development (PSDM) on Inclusive Regional Economic Development (PERI) is positive and significant and has a path coefficient of 0.87, and  $P < 0.001$ . The value of the Coefficient of Determination ( $R^2$ ) is 0.76 or 76%. The hypothesis was accepted ( $7.708 > 1.96$ ).

Human Resource Development (PSDM) in the three cities of Balikpapan, Bontang City and Samarinda City are in the top three regencies/cities of East Kalimantan Province based on Human Resource Development data from 2016 to 2021.

Inclusive Regional Economic Development (PERI) in Balikpapan City, Bontang City and Samarinda City, is in the top three regencies/cities of East Kalimantan Province based on Human Resource Development data from 2016 to 2021.

From the results of the analysis, empirical evidence can be obtained that the higher the Human Resource Development, the higher the Inclusive Regional Economic Development (the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI) is Positive and Significant).

Seen in figure 5.9. below, significant cluster differences between cities in high clusters that have Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI), namely Balikpapan City, Bontang City and Samarinda City,

The regencies that are in the low cluster, both in Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI), are Paser Regency, West Kutai Regency, Kutai Kartanegara, East Kutai, Berau, North Penajam Paser, Mahakam Ulu.

#### 5.5.5. The Moderating Role of Agglomeration Forces on the Relationship between Human Resource Development and Inclusive Regional Economic Development

Urban agglomeration is a fundamental factor in regional development and will attract large-scale migrant populations. Urban agglomerations are areas of accumulation of migrant populations. Many people have migrated to 19 urban agglomerations, magnifying regional differences in the distribution of migrant populations. The inter-provincial and

inter-city-regency migrant population dominates urban agglomerations, while the intra-provincial migrant population dominates non-urban agglomerations.

In the future, intraprovincial migration will become the dominant mode of migration. The evolution of migrant population distribution patterns in urban agglomerations is in line with the classical theory of unbalanced regional development.

Economic and governmental forces jointly influence migration; however, economic power outweighs government power. Economic power is more influential in urban agglomerations, while government power plays a more important role outside urban agglomerations.

Increasing income and employment opportunities are the main attractions of urban agglomerations. Moreover, as the development level of urban agglomerations increases, the influence of economic forces increases, while the influence of government forces decreases.

In the era of the network economy, the Internet has become a source of regional competitive advantage and is of great interest to companies. Rapid increases in house prices have increased congestion costs and become the force behind the spread of companies. The Internet amplifies the spreading power of congestion costs manifested in house prices and reshaping economic geography.

Urban vitality is a driving force for sustainable urban development and influences the welfare of its residents.

The three aspects of growth, diversity and mobility, from the research results, are that Bontang City, Balikpapan City and Samarinda City have the highest vitality among the ten City Regencies in East Kalimantan Province.

Meanwhile, in other large cities in the world, such as in Russia, Europe is divided into four groups of cities, namely

- 1) power city,
- 2) early generating city,
- 3) Cities that have the potential to produce innovative processes, and
- 4) A city with weak potential.

It was found that cities launched innovative processes precisely through strategic innovation (supporting institutions, technological environment and agent operators). At the same time, not only the largest cities have great opportunities, but also regional centers that are integrated into regional development programs and are actively driving the transition to smart city platforms.

So the results of this research are in accordance with the conditions of other countries or cities in the world, that Human Resource Development is the most important factor in Regional Economic Development, besides Infrastructure Development (Roads, Bridges, Hospitals, Reservoirs, Power Plants, etc.).

Industrialization and investment levels are the main driving forces of regional economic disparities. The effect of decentralization on regional economic disparities is actually relatively weak, and the level of investment has more influence on regional disparities.

#### **5.5.6. The Moderating Role of Dispersion Force on the relationship between Human Resource Development (PSDM) and Inclusive Regional Economic Development (PERI )**

In the era of Globalization, the influence of the Internet in economic geography based on the "gravity mechanism", has made the Internet influence companies with the Internet's "amplification mechanism" which strengthens the power of the spread of Development (Dispersion Force ), such as the spread of housing development, as well as Other infrastructure development. It can be understood that regional disparities will lead to unequal regional development in the 10 regencies/cities of East Kalimantan Province.

The condition of regional development looks very different in its achievements between cities or between existing districts, many regions are very far behind other regions, be it basic infrastructure, such as roads, bridges, clean water facilities, electricity and health facilities.

Agglomeration forces and dispersion forces *basically* determine urban and regional development . Although the traditional view of agglomeration forces comes primarily from a production perspective. A growing literature focuses on the consumption perspective and suggests that large cities can produce better consumption facilities. City size will increase household spending on non-tradable goods and services, such as restaurants, entertainment, health and fitness, housekeeping services, and clothing. City size will increase consumers' marginal utility by increasing the variety of products or services, favoring certain sectors that have large economies of scale, or expanding the number of retail stores. City size significantly increases household spending on restaurants, entertainment, and health and fitness. These sectors have sufficiently differentiated products or services, or significant fixed costs, that they rely heavily on economies of scale.

Industrial restructuring is widely considered to be an important force in regional economic growth and sustainable development. With increasing globalization and economic transition, dramatic industrial restructuring has occurred.

High-tech and capital-intensive manufacturing industries are clustered in coastal cities, while labor-intensive and resource-based sectors are spatially more dispersed to peripheral areas. The development of service and high-tech industries, rising labor costs, and stricter environmental regulations have facilitated the geographic spread of labor-intensive and pollution-intensive industries.

In addition, regions with advantages in intermediate goods, preferential policies, and economic urbanization are attractive regions for capital- and technology-intensive manufacturing industries.

Development policies must be tailored to specific regions to encourage local production and innovative networks and make the manufacturing industry more competitive.

The populations of most cities in urban agglomerations are still spread out. Although urban populations tend to cluster around a few sub-central urban units, the trend is toward population agglomeration around urban centers.

The decline in technological progress and technological efficiency will affect the spatial structure of urban agglomeration and influence economic efficiency.

The Strength of Dispersion will increase the urban Gini index, and will reduce the size of the urban population, internal urban agglomeration and ultimately the Strength of Dispersion will strengthen economic relations between cities and districts.

## 6.1. Research Findings

### 6.2.1. Theory Development Findings

The results of this research prove the New Economic Geography Theory (NEG), that the New Economic Geography (NEG) provides an integrated and micro-based approach to spatial economics.

This emphasizes the role of clustering forces in producing the unequal distribution of economic activity and income across space. This approach has been applied to urban economics, the emergence of regional disparities, and the origins of international inequality, (P Krugman, 1993) .

In the last three decades, many analytical and quantitative models have been developed that attempt to explain inequalities in the spatial distribution of wealth and people, from international and regional to urban. Shows that a number of theoretical and empirical works have formed the New Economic Geography (NEG), whose framework is defined by general equilibrium models, heterogeneity, and microeconomic data from quantitative models. Early theorists focused on stylized analytical models that made empirical research difficult. The transition to empirical research requires a revision of the canonical assumptions used in the basic model. Quantitative models focus primarily on applied spatial economics issues with significant public policy implications.

The quantitative model validates the analytical model results using classical microfoundations borrowed from urban and transport economics. The Challenge for New Economic Geography (NEG) is an interdisciplinary dialogue with institutional economics, economic sociology, and endogenous growth theory to explore issues of institutional heterogeneity and inequality of opportunity. (Zakharova et al., 2023) .

### 6.2.2. Empirical Findings

- 1) Human Resource Development (PSDM) has proven to be very important to continue to create Inclusive Regional Economic Development (PERI).
- 2) Balikpapan City, Samarinda City, Bontang City, have *agglomeration* forces , while the latest development from existing data is that North Penajam Paser Regency has shifted to become a city that has agglomeration forces in *East Kalimantan* Province.

Bontang City, Balikpapan City and Samarinda City, apart from having *Agglomeration Force* , are also *Dispersion Force* in East Kalimantan Province .

## CONCLUSIONS

After analyzing and discussing the results of this research, the following conclusions can be drawn:

- 1) Human Resource Development (PSDM) is a factor that contributes quite significantly and significantly to the creation of Inclusive Regional Economic Development (PERI).
- 2) The moderating role of Agglomeration Force *makes the region attractive in creating Inclusive Regional Economic Development (PERI)* supported by good and sustainable Human Resource Development (PSDM).
- 3) The moderating role of *dispersion forces* means that the region can become a dispersion for surrounding regions in creating inclusive regional economic development (PERI) with the support of quality human resource development (PSDM).

## REFERENCES

- Achieving the Sustainable Development Goals in South Asia. (2017). In *Achieving the Sustainable Development Goals in South Asia* . <https://doi.org/10.18356/46e2bbe5-en>
- Anand, R., Mishra, S., & Peiris, S. (2021). Inclusive Growth: Measurement and Determinants. *SSRN Electronic Journal* . <https://doi.org/10.2139/ssrn.2282970>
- Barro, R. J., & Sala-i-martin, X. (2005). Guide to Hawk Watching in North America. In *The Quarterly Review of Biology* (Vol. 80, Issue 1). <http://piketty.pse.ens.fr/files/BarroSalaIMartin2004Chap1-2.pdf> <http://www.jstor.org/stable/2937943> <https://www.journals.uchicago.edu/doi/10.1086/431086>

- Baum, K. (2019). Assessing group conflict: Understanding the line-staff relationship in fire service. In *Handbook of Conflict Management*.
- Bhattacharjee, A. (2012). Social Science Research: principles, methods, and practices. In *Book 3*.
- Brown, J.D. (2002). The Cronbach alpha reliability estimate. *JALT Testing & Evaluation SIG Newsletter*.
- Buchholz, M., & Bathelt, H. (2021). Models of Regional Economic Development: Illustrations Using US Data. *Zeitschrift Fur Wirtschaftsgeographie*, 65 (1). <https://doi.org/10.1515/zfw-2020-0040>
- Cerra, V. (2021). An Inclusive Growth Framework. In *How to Achieve Inclusive Growth*. <https://doi.org/10.1093/oso/9780192846938.003.0001>  
*Chapter 10: Location effects, economic geography and regional policy*. (nd).
- Cobb, C.W.; Douglas, P. H. (1928). *Theory of production*. [https://doi.org/10.1007/978-4-431-54433-3\\_9](https://doi.org/10.1007/978-4-431-54433-3_9)
- Cronbach, L. J., & Shavelson, R. J. (2004). My Current Thoughts on Coefficient Alpha and Successor Procedures. *Educational and Psychological Measurement*. <https://doi.org/10.1177/0013164404266386>
- Dutzler, Barbara; Johnson, Simon; Muthoora, P. (. (2021). How to Achieve Inclusive Growth. In *How to Achieve Inclusive Growth*. <https://doi.org/10.1093/oso/9780192846938.001.0001>
- Dutzler, B., Johnson, S., & Muthoora, P. (2022). The Political Economy of Inclusive Growth: A Review. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4026258>
- Ellison, G., & Glaeser, E. L. (1999). The geographic concentration of industry: Does natural advantage explain agglomeration? *American Economic Review*, 89 (2). <https://doi.org/10.1257/aer.89.2.311>
- Felipe, J. (2012). What Is Inclusive Growth? In *Inclusive Growth, Full Employment, and Structural Change*. <https://doi.org/10.7135/upo9781843313557.004>
- Fornell, C., & Larcker, D.F. (2016). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research This*, 18 (1).
- Glaeser, E. (2011). Cities, productivity, and quality of life. In *Science* (Vol. 333, Issue 6042). <https://doi.org/10.1126/science.1209264>
- Glaeser, E.L. (2010). *Agglomeration Economics*.
- Hair, Joe F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19 (2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, Joseph F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate Data Analysis: Pearson New International Edition*. In *Exploratory Data Analysis in Business and Economics*. [https://doi.org/10.1007/978-3-319-01517-0\\_3](https://doi.org/10.1007/978-3-319-01517-0_3)
- Henderson, J. V., Nigmatulina, D., & Kriticos, S. (2021). Measuring urban economic density. *Journal of Urban Economics*, 125. <https://doi.org/10.1016/j.jue.2019.103188>
- Ianchovichina, E., & Lundström, S. (2009). Inclusive growth analytics: Framework and applications. *World Bank, Washington DC*, March.
- Kline, & Rex, B. (2011). *Principles and Practice of Structural Equation Modeling*, 3rd edition Guilford Press. In *The Guilford Press New York London*.
- Kock, N. (2010). Regressing WarpPLS in e-collaboration studies: An overview of five main analysis steps. *International Journal of E-Collaboration*, 6 (4), 1–11. <https://doi.org/10.4018/jec.2010100101>
- Kock, N. (2015). Wheat flour versus rice consumption and vascular diseases: Evidence from the China study II data. *Clidynamics*, 6 (2), 130–146. <https://doi.org/10.21237/C7CLIO6227969>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*. <https://doi.org/10.1111/isj.12131>
- Kock, N., & Lynn, G.S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, 13 (7). <https://doi.org/10.17705/1jais.00302>
- Krugman, P. (1993). *Spatial Economics Overview - Institute of Developing Economies*. <https://www.ide.go.jp/English/Research/Topics/Eco/Spatial/overview.html>
- Krugman, Paul. (1993). On the number and location of cities. *European Economic Review*, 37 (2–3). [https://doi.org/10.1016/0014-2921\(93\)90017-5](https://doi.org/10.1016/0014-2921(93)90017-5)
- Li, S., & Dong, Z. (2023). Evaluation of Spatial Spillover Effect of Multidimensional Hybrid Financial Risk Contagion Based on the DAI Spatial Econometric Model. *Advances in Multimedia*, 2023. <https://doi.org/10.1155/2023/5167499>
- Lundstrom, E.I. and S. (2009). What Is Inclusive Growth? *The World Bank*, 1–6. <https://doi.org/10.7135/upo9781843313557.004>
- Masson, S., & Petiot, R. (2009). Can the high speed rail reinforce tourism attractiveness? The case of the high speed rail between Perpignan (France) and Barcelona (Spain). *Technovation*, 29 (9). <https://doi.org/10.1016/j.technovation.2009.05.013>
- OECD. (2019). Active with Indonesia. *OECD Publishing*.
- Pokrovski, V. N. (2003). Energy in the theory of production. *Energy*, 28 (8). [https://doi.org/10.1016/S0360-5442\(03\)00031-](https://doi.org/10.1016/S0360-5442(03)00031-)

- Pokrovskii, V. N. (2007). Productive energy in the US economy. *Energy*, 32 (5). <https://doi.org/10.1016/j.energy.2006.05.006>
- Puga, D. (2010). The magnitude and causes of agglomeration economies. *Journal of Regional Science*, 50 (1). <https://doi.org/10.1111/j.1467-9787.2009.00657.x>
- Ranieri, R., & Almeida Ramos, R. (2013). Inclusive growth: building up a concept. *International Policy Center for Inclusive Growth (IPC-IG)*, 104.
- Redding, S. J. (nd). *Quantifying Agglomeration and Dispersion Forces | NBER*. Retrieved January 13, 2023, from <https://www.nber.org/reporter/2016number4/quantifying-agglomeration-and-dispersion-forces>
- Reshetilo, V. (2020). PROBLEMS OF TERRITORIAL ALIGNMENT IN INCLUSIVE DEVELOPMENT CONDITIONS. *Municipal Economy of Cities*, 2 (155). <https://doi.org/10.33042/2522-1809-2020-2-155-75-82>
- Rizal, A. (2019). Contribution of Human and Capital on Regional Economic Growth of Sumedang District of Indonesia. *International Journal of Management Science and Business*, 1 (1). <https://doi.org/10.17509/msb.v1i1.17109>
- Romer, P. M. (1994). The Origins of Endogenous Growth. *Journal of Economic Perspectives*. <https://doi.org/10.1257/jep.8.1.3>
- Saleh, H., Surya, B., Ahmad, DNA, & Manda, D. (2020). The role of natural and human resources on economic growth and regional development: With discussion of open innovation dynamics. *Journal of Open Innovation: Technology, Markets, and Complexity*, 6 (4). <https://doi.org/10.3390/joitmc6040103>
- SHARMA, J. K. (2021). INCLUSIVE HUMAN RESOURCE DEVELOPMENT - THE FRUITS OF INCLUSIVE GROWTH IN INDIA. *International Journal of Research -GRANTHAALAYAH*, 9 (1). <https://doi.org/10.29121/granthaalayah.v9.i1.2021.3142>
- Shashyna, MV, Butko, MP, & Tulchynska, SO (2021). Regional Level of Inclusive Development. *Estudios de Economia Aplicada*, 39 (6). <https://doi.org/10.25115/eea.v39i6.5099>
- Shields, P. M. (1998). Pragmatism as a Philosophy of Science: A Tool for Public Administration. *Research in Public Administration*, 4, 195–225.
- Shields, P. M., & Rangarajan, N. (2013). Exploration Working Hypotheses. In *A Playbook for Research Methods*.
- Shields, P. M., & Tajalli, H. (2006). Intermediate Theory: The Missing Link in Successful Student Scholarship. *Journal of Public Affairs Education*, 12 (3), 313–334. <https://doi.org/10.1080/15236803.2006.12001438>
- Solimun, Fernandes, AAR, & Nurjannah. (2017). Multivariate Statistical Method Structural Equation Modeling (SEM) WarpPLS Approach. In *Multivariate Statistical Methods Structural Equation Modeling (SEM) WarpPLS Approach*.
- Tagar, H.K., Nazir, H., Tagar, A.K., & Bijarani, G.A. (2020). A Theoretical and Empirical Review of Development Planning in Pakistan: A Journey from Traditional Planning to Strategic Planning. *Advances in Social Sciences Research Journal*, 7 (9). <https://doi.org/10.14738/assrj.79.9084>
- Taherdoost, H. (2018). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3205040>
- Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M., & Lauro, C. (2005). PLS path modelling. *Computational Statistics and Data Analysis*, 48 (1), 159–205. <https://doi.org/10.1016/j.csda.2004.03.005>
- TVETipedia Glossary (nd). Retrieved January 12, 2023, from <https://unevoc.unesco.org/home/TVETipedia+Glossary/lang=en/filt=all/id=726>
- Yang, C., & An, T. (2020). The Internet reshapes China's economic geography: micromechanisms and macro effects. *Chinese Political Economy*, 3 (2). <https://doi.org/10.1108/cpe-10-2020-0014>
- Yang, Z., & Pan, Y. (2020). Human capital, housing prices, and regional economic development: Will “vying for talent” through policy succeed? *Cities*, 98. <https://doi.org/10.1016/j.cities.2019.102577>
- Zakharova, E.A., Davydov, D.V., & Zemtsova, E.M. (2023). New economic geography: Thirty years later. *Vestnik Sankt-Peterburgskogo Universiteta. Economics*, 39 (1). <https://doi.org/10.21638/spbu05.2023.106>
- Zhou, C., Li, M., Zhang, G., Chen, J., Zhang, R., & Cao, Y. (2021). Spatiotemporal characteristics and determinants of internal migrant population distribution in China from the perspective of urban agglomerations. *PLoS ONE*, 16 (February 2). <https://doi.org/10.1371/journal.pone.0246960>
- Zhou, G., Gong, K., Luo, S., & Xu, G. (2018). Inclusive finance, human capital and regional economic growth in China. *Sustainability (Switzerland)*, 10 (4). <https://doi.org/10.3390/su10041194>