

## **Determinants of Regional Economic Growth in Three Priority Areas of East Java Province: Policy Implication for Socio-Economic Recovery Post-Covid-19 Era**

By:

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### **ABSTRACT**

Regional economic growth is one of the important socioeconomic indicators of social economy in three priority areas of East Java Province, namely: (a) Gerbangkertosusila, (b) Bromo Tengger Semeru, (c) Selingkar Wilis and Lintas Selatan. The main objectives are: first, to analyze the main determinants of regional economic growth in the three priority areas of East Java in Indonesia; second, to discuss how much its contribution to regional economic growth; third, to present the policy recommendations for supporting social and economic recovery during and after the Covid-19 outbreak in East Java. This study uses an econometric approach, namely: Panel VECM or Vector Error Correction Model with Impulse-Response Function (IRF) and Forecast Error Variance Decompositions (FEVD). The findings are that the main determinants of the regional economic growth model in the priority areas of East Java province are the poverty level, health, education, unemployment, and the regional economic growth in the previous period. The empirical results are expected to contribute to formulating policies for provincial and regional governments, especially policies that support social-economic recovery during and after the Covid-19 pandemic in three priority areas of East Java Province.

**Keywords:** Regional Economic Growth, Social and Economic Recovery, Covid-19, Three Priority Areas; East Java

### **ABSTRAK**

*Pertumbuhan ekonomi daerah merupakan indikator penting ekonomi kerakyatan di tiga wilayah prioritas Provinsi Jawa Timur, yaitu: (a) Gerbangkertosusila; (b) Bromo Tengger Semeru, dan (c) Selingkar Wilis dan Lintas Selatan. Tujuan utamanya adalah: pertama, menganalisis determinan utama pertumbuhan ekonomi regional di tiga wilayah prioritas Jawa Timur di Indonesia; kedua, membahas seberapa besar kontribusinya terhadap pertumbuhan ekonomi regional; ketiga, menyampaikan rekomendasi kebijakan untuk mendukung pemulihan sosial dan ekonomi selama dan setelah wabah Covid-19 di Jawa Timur. Penelitian ini menggunakan pendekatan ekonometrika yakni: Panel VECM (Vector Error Correction Model) with Impulse-Response Function (IRF) dan Forecast Error Variance Decompositions (FEVD). Temuan penelitian adalah bahwa faktor penentu utama model pertumbuhan ekonomi daerah di daerah prioritas Provinsi Jawa Timur adalah tingkat kemiskinan, kesehatan, pendidikan, pengangguran, dan pertumbuhan ekonomi regional pada tahun sebelumnya. Hasil empiris tersebut diharapkan dapat berkontribusi dalam perumusan kebijakan bagi pemerintah provinsi dan daerah,*

*khususnya kebijakan yang mendukung pemulihan sosial dan ekonomi selama dan setelah pandemi Covid-19 di tiga wilayah prioritas Provinsi Jawa Timur.*

**Kata Kunci:** *Pertumbuhan Ekonomi Regional; Pemulihan Ekonomi Sosial; Covid-19; Tiga Kawasan Prioritas; Jawa Timur*

## **INTRODUCTION**

In Indonesia, the Covid-19 pandemic has caused a domino effect from health problems to economic and social problems (Wuryandani, 2020). During the crisis caused by the Covid-19 pandemic during 2020, national economic growth experienced uncertainty and led to an economic recession which was indicated by a significant decline in gross domestic product (GDP) from 4.97% (year on year) in the fourth quarter, in 2019 to 2.97% and in the first quarter of 2020 (Indayani & Hartono, 2020; Wuryandani, 2020). The latest report from the Central Statistics Agency or Badan Pusat Statistik (2020) GDP in the fourth quarter of 2020 was -3.49%. The Covid-19 pandemic has not only caused a decline in regional and national economic growth to become negative (Ramly, Muspida, & Loppies, 2022). The contraction also led to an increase in the deficit and government spending in 2020 to 6.27% (Indayani & Hartono, 2020).

In addition, layoffs are also increasing, which recorded 212,294 workers who were laid off in 2020. This means that the unemployment rate is increasing during the current Covid-19 pandemic. The negative impact of the Covid-19 crisis has also caused an increase in the percentage of poor people in Indonesia. Based on the report from the Badan Pusat Statistik (2020), the percentage of the national poor reached 10.19% in the third quarter of 2020, which previously was only 9.78% in the first quarter of 2020. Although poverty is a problem that has existed for a long time. However, the Covid-19 pandemic has exacerbated social problems in Indonesia as indicated by an increase in the percentage of the poor nationally.

The decline in economic growth during the Covid-19 pandemic spread to all provinces in Indonesia. East Java Province is one of the areas that has been badly affected by the crisis caused by Covid-19. East Java Province is one of the big provinces in Indonesia with 38 regencies and cities which contributes the second largest economy after DKI Jakarta Province. The increase in the number of people infected with the Corona-19 Virus has a negative impact on the structure of social and economic conditions in the East Java region. Referring to the BPS report for East Java Province (BPS Jawa Timur) in the fourth quarter of 2020, during the Covid-19 pandemic there was a decline in regional economic growth as indicated by a decrease in GRDP (Gross Regional Domestic Product) of -2.7% from 5.52%, an increase in the percentage of the population. poor by 11.46% from 11.09%, and also an increase in the number of unemployed by 5.84% from 3.82% in the previous period.

On the other hand, East Java Province is also facing the problem of disparity in which regions with an economic base in the manufacturing and trade sectors grow faster when compared to regions with the main support being in the agricultural sector. To minimize the disparity problem, Presidential Decree No. 80 of 2019 concerning the Acceleration of Economic Development in East Java Province, namely by dividing three priority areas, namely: (1) the Gerbangkertosusila area; (2) Bromo Tengger Semeru area; (3) the Selingkar Wilis – Lintas Selatan area (see Table 1).

The strategic indicators based on Perpres no. 80-2019, namely regional output in the form of GRDP, inflation, employment, HDI (Human Development Index), and poverty. All of these strategic indicators have had a negative impact in the era of the Covid-19 pandemic crisis in Indonesia, including in East Java. Currently, policies are needed that can reduce and also recover socio-economically negatively affected by the economic crisis caused by the Covid-19 pandemic and other problems. The latest comprehensive research as material for policy formulation for the government, both provincial and regional governments in supporting the socio-economic recovery of East Java during and after the Covid-19 pandemic in Indonesia.

Table 1. Number of Regencies and Cities in Three Priority Areas in East Java Province

Gerbang-kertosusila	Bromo Tengger Semeru	Selingkar Wilis & Lintas Selatan
1. Kab. Bangkalan	1. Kab. Banyuwangi	1. Kab. Blitar
2. Kab. Bojonegoro	2. Kab. Bondowoso	2. Kab. Kediri
3. Kab. Gresik	3. Kab. Jember	3. Kab. Madiun
4. Kab. Jombang	4. Kab. Lumajang	4. Kab. Magetan
5. Kab. Lamongan	5. Kab. Malang	5. Kab. Nganjuk
6. Kab. Mojokerto	6. Kab. Pasuruan	6. Kab. Ngawi
7. Kab. Pamekasan	7. Kab. Probolinggo	7. Kab. Pacitan
8. Kab. Sampang	8. Kab. Situbondo	8. Kab. Ponorogo
9. Kab. Sidoarjo	9. Kota Batu	9. Kab. Trenggalek
10. Kab. Sumenep	10. Kota Malang	10. Kab. Tulungagung
11. Kab. Tuban	11. Kota Pasuruan	11. Kota Blitar
12. Kota Mojokerto	12. Kota Probolinggo	12. Kota Kediri
13. Kota Surabaya	-	13. Kota Madiun

Source: Central Bureau of Statistics, 2022

Economic growth is a major factor in achieving the welfare and prosperity of many people (Boldeanu & Constantinescu, 2015). Economic growth itself is defined as a process of increasing the amount of production or it can also be said that changes in economic conditions in a country are continuous/sustainable so that it has a positive impact on increasing national income or output during a certain period (Indayani & Hartono, 2020; Isnaini & Nugroho, 2020). Increased economic growth can have a positive impact on improvements in other fields. Thus, national economic growth can boost the increase in national income and achieve the development of all social and economic infrastructure (Santoso Budi & Rachmawati, 2013).

Economic growth is measured nationally using GDP or Domestic Product. Gross. Meanwhile, GRDP or Domestic Product. Gross Regional as a measure of economic growth with a smaller area or regional/regional coverage (Lubis & Izzah, 2020). According to Arsyad (1997, in Isnaini & Nugroho, 2020) GRDP is generally an accumulation of added value (products) from various business activities in an area without regard to the selection of production. Thus, GRDP is a reflection of the ability of a certain region/region (province, city, and district) to increase income or remuneration for all factors that contribute to the process. production in certain regions or areas (Isnaini & Nugroho, 2020). According to Boldeanu & Constantinescu (2015), there are two factors that influence economic growth, namely: First, direct factors such as human resources (HR), natural resources (SDA), and capital and technology; Second, indirect factors such as financial institutions, private administration, aggregate demand, levels of savings and investment, and government budget and efficiency policies.

Several researchers have conducted research related to the determinants of economic growth as social and economic indicators at both national and regional levels in various regions in Indonesia, such as (Garibaldi & Hidayat, 2014; Agusalim, 2016; Maqin & Sidharta, 2017; Ayu & Septiani, 2019; Nabut & Sinabutar, 2021; Sipahutar, Anjelina, Andriyani, & Yani, 2021; Wicaksono, Triwahyuningtyas, & Aminda, 2021; Panjawa, Islami, & Sugiharti, 2020; Lubis & Izzah, 2020, Wulandari, Badriah, & Kadarwati, 2019) who has researched the determinants of economic growth in Indonesia.

Nabut & Sinabutar (2021) using the SEM analysis method, have found that the domestic capital investment as independent variable in the study has an effect on increasing general investment in East Java Province. Meanwhile, the foreign/foreign capital investment variable does not show any effect on investment costs. National income also shows an effect on increasing investment costs. However, domestic investment does not show a positive relationship to national economic growth and also to investment in East Java Province. Lubis & Izzah (2020) concluded that the labor variable and government spending variable have a significant relationship to increasing national economic

growth in Indonesia. While other variables, namely inflation, investment, unemployment, and the labor force are not significantly related to economic growth. However, there are other factors that also contribute to increasing economic growth, namely regional income from the taxation and trade sectors.

Hutajulu et al. (2020) the results showed that the determinants of economic growth in 230 districts and cities in Eastern Indonesia are the variables of poverty, human development, inequality, and fiscal decentralization. The results of their research showed that there are several factors that have a significant relationship to GRDP in the province of West Java, namely: the local revenue variable or .PAD, the transfer income variable, other income variables, and the level of independence of the West Java region (Ayu & Septiani, 2019). The results of his research discussed that there is a positive correlation between the GDP variable and the human development variable as well as the electricity consumption variable in Indonesia (Maqin & Sidharta, 2017). Meanwhile, Agusalam (2016) discussed that from economic factors, the decentralization factor cannot be said to be able to distribute GDP in improving income inequality conditions in Indonesian society. Garibaldi & Hidayat (2014) have found in their research that between HDI and GRDP variables in North Sumatra in 2004-2012 there is a long-term equilibrium relationship between HDI and regional economic growth. Based on the results of the review and personal analysis of both the theoretical basis and previous research.

There are not many studies that use quantitative methods a priori on economic theory and have the advantage of reciprocal influences (Basuki, 2018). In addition, this quantitative method can also analyze the contribution of each determinant of regional economic growth in the East Java region by using the approaches Impulse Response Function or IRF and Forecast Error, Variance Decompositions or FEVD. Furthermore, the objectives of this study are:

- (1) To analyze the main determinants of regional economic growth in the three priority areas of East Java province;
- (2) To determine the contribution of each major factor of regional economic growth in the three priority areas of East Java Province;
- (3) To provide policy recommendations based on empirical findings to support economic and social recovery during the new normal, especially in the three priority areas of East Java Province.

## METHODS

### Types, Data Sources, and Research Variables

Research on the main determinants of regional economic growth, namely the regional economic growth variable is proxied by gross domestic income or PDRB as an economic indicator in the three priority areas of East Java Province. Where this research will use a quantitative method, namely the Panel Vector Error Correction Model (VECM).

This study uses a secondary data source, namely a balanced panel from 38 districts and cities based on three priority areas during the period 2014 to 2020 (the number of observations is 266. The data used is sourced from the Central Statistics Agency (BPS) of East Java (access at <https://jatim.bps.go.id>) The analysis tools used are Eviews 11 software for the VECM Panel. In addition, all existing variables and their operational definitions are summarized in Table 2.

Table 2. Variables and Its Definitions

Variable	Items	Description
Regional Economic Growth	lnPDRB	Gross Regional Domestic Product 2010 Constant Price (Billion Rp)
Poverty Level	PPM	Percentage of Poor Population (%)
Income Inequality	GINI	Gini Rasio
Health	lnAHH	Life Expectancy Number (Years)
Education	lnHLS	Expected Years of Schooling (Years)

Variable	Items	Description
Unemployment	TPT	Open Unemployment Rate (%)
Population	InJP	Total population

Source: Central Bureau of Statistics, 2022

### Panel Vector Error Correction Model (Panel VECM)

In this study, the author also uses the Vector Error Correction Model Panel or the VECM Panel. The VECM panel is a derivative method of Vector Autoregressive or VAR introduced by Christopher Sims (1980) in Gujarati & Porter (2012b). The VECM Panel method assumes that all variables are endogenous variables (without considering the dependent and independent variables). In addition, the VECM Panel requires all data to be stationary at the same differentiation and integrated at the same order or degree (Shrestha & Bhatta, 2018).

The following is a model of econometric equations in the VECM panel model:

$$\Delta x_{it} = \mu_{it} + \Pi x_{it-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta x_{it-i} + \varepsilon_{it}$$

Where,  $X_t$  is the endogenous variable selected in each model, and  $\varepsilon_t$  is the error term. Thus, the specifications of the VECM Panel model formed are as follows:

Regional economic growth model,  $X_t = [\ln PDRB, PPM, GINI, \ln AHH, \ln HLS, TPT, \ln JP]$

Furthermore, based on Ascarya (2015), the following are the stages in testing the VECM panel model with the following explanation:

- (1) Data Transformation: Data is transformed into LN form or natural logarithm except for percentage and index data. This is to produce a valid and consistent analysis.
- (2) Unit Root Test (Stationarity Test): The data stationarity test is carried out by the Augmented Dickey Fuller test or ADF test and also the Phillips-Perron test or PP test. Data is said to have passed the stationary test if it has an ADF/PP statistical value not greater than the critical value with a significance level of 5% or a p-value not greater than 0.05.
- (3) VAR Model Stability Testing: This test is carried out before further analysis. This is because if the estimation results of the combined VAR model do not have stability, it will have an impact on invalid IRF and VD.
- (4) Optimal Lag Test: This test aims to determine the number of lags or orders in the VAR model based on the AIC or Akaike Information Criterion test criteria; SC or Schwarz Information Criterion and HQ or Hannan-Quinnon (HQ). In addition, this lag test is useful in eliminating problems that arise in modeling such as auto correlation.
- (5) Cointegration Test: This test aims to find out all information about the sense of correlation between research variables, especially for a longer period of time. If there is cointegration in the research variables, it can be concluded that there is a long-term influence between the research variables. The method that is usually used in cointegration testing is the Johansen Cointegration test model.
- (6) Then, the IRF and FEVD analysis process. Both analyzes are used in order to be able to see more deeply the dynamic relationships of all variables in a study. IRF provides an overview of the response of endogenous variables to each shock or shock of a certain variable and knows how long the effect is. Meanwhile, FEVD analysis can provide an overview of the percentage of variation in all research variables that can be explained by other research variables

## RESULTS AND DISCUSSIONS

### Descriptive statistics

To analyze the determinants of regional economic growth (lnPDRB) in 3 priority areas of East Java Province, the author provides an overall sample picture. Table 3 is a description of the condition of

the sample before and after being transformed into the form of the natural logarithm (ln). Based on Table 3 below, we can observe that the average PDRB in 38 regencies and cities in the province of East Java is 39,133 billion rupiah with the lowest PDRB in Blitar at 3,650 billion rupiah in 2014, while the highest PDRB is 410,879 billion rupiah in the city of Surabaya in 2018.

When viewed from the PPM variable, the average PPM of districts and cities in East Java province is 11.42% with the lowest value in Batu city of 3.81% in 2019, while the highest PPM is 25.80% in Sampang district in 2014. The Gini ratio variable has an average value of 0.33 with the lowest number being 0.23 (Lumajang Regency) in 2014 and the highest 0.42 (Surabaya city) in 2015. While the HLS and AAH variables average 13.01 years and 71.21 years. Followed by the unemployment rate of 4.27% and a population of 1.03 million people.

Table 3. Descriptive statistics

Variabel		Obs.	Mean	Std. Dev.	Min.	Max.
Regional Economic Growth	PDRB	266	39133	60379	3650	410879
	lnPDRB	266	10.02	0.97	8.20	12.93
Poverty Level	PPM	266	11.42	4.70	3.81	25.80
Income Inequality	GINI	266	0.33	0.04	0.23	0.42
Education	HLS	266	13.01	0.94	10.39	15.51
	ln.HLS	266	2.56	0.07	2.34	2.74
Health	AHH	266	71.21	2.01	65.43	74.18
	ln.AHH	266	4.27	0.03	4.18	4.31
Unemployment	TPT	266	4.27	1.66	0.85	10.97
Population	JP	266	1036433	652046	124719	2896195
	ln.JP	266	13.60	0.79	11.73	14.88

Note: ln adalah natural logarithm

Source: Eviews 11, 2022

### The Results of Data Stationarity Test

Table 4 is a summary of the results of the unit root test (data stationarity) using the ADF and PP test methods using a significance level of 5% (0.05). Where the results of this test show that all variables are stationary in the first difference with all ADF and PP t-statistics values smaller than the MacKinnon critical value or all p-values less than 0.05. Thus, it can be said that all research variables do not contain unit roots or are stationary at the same level, namely the 1st difference.

Table 4. The Results of Data Stationarity Test

Variable	Method	Level		1st Difference	
		t-statistics	p-value	t-statistics	p-value
lnPDRB	ADF	76.654	0.457	107.716	0.010
	PP	176.358	0.000	107.131	0.011
PPM	ADF	121.353	0.001	175.534	0.000
	PP	121.402	0.001	173.114	0.000
GINI	ADF	160.363	0.000	163.042	0.000
	PP	194.450	0.000	210.427	0.000
lnAHH	ADF	25.502	1.000	106.077	0.000
	PP	25.383	1.000	126.815	0.000
lnHLS	ADF	156.542	0.000	144.563	0.000
	PP	190.647	0.000	185.312	0.000
TPT	ADF	96.626	0.055	126.119	0.000
	PP	92.194	0.100	136.943	0.000

Variable	Method	Level		1st Difference	
		t-statistics	p-value	t-statistics	p-value
lnJP	ADF	21.922	1.000	106.160	0.013
	PP	18.241	1.000	115.244	0.003

Source: Eviews 11, 2022

### The Result of VAR Stability Testing

Table 5 shows the results of the VAR stability test which explains the economic growth model and the poverty rate is stable at lags 1, 2, and 3. This means that the VAR model used for IRF and FEVD has been stable at the maximum lag, namely lags 1, 2, and 3 or stable because the modulus range < 1.

Table 5. The Result of VAR Stability Testing

Model	Priority Area	Modulus	Max. Lag
1	East Java Province	0.005561-0.996098	3
2	Gerbang-kertosusila	0.171111-0.978270	2
3	Bromo Tengger Semeru	0.284152-0.992306	1
4	Selingkar Wilis dan Lintas Selatan	0.325520-0.998622	1

Source: Eviews 11, 2022

### The Results of Lag Optimum

The results of the lag selection test before further analysis are carried out to avoid autocorrelation. Table 6 shows that the optimum lag selection based on the criteria of LR, FPE, AIC, SC, and HQ is in the order of 1 and 3.

Table 6. The Results of Lag Optimum

Model	Lag	LogL	LR	FPE	AIC	SC	HQ
1	3	-1494.260	111.4217*	5.25e-17*	-17.63501*	-14.57134	-16.39044
2	1	506.0323	896.0375	7.29e-17*	-17.30893	-15.20760*	-16.50333*
3	1	780.9119	1395.593*	4.27e-18*	-20.13644*	-18.36570*	-19.43150*
4	1	414.4524	544.1733*	2.98e-17	18.22833	-15.83963*	17.37128

Notes: \* indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion

Source: Eviews 11, 2022

### The Results of Cointegration Test

Table 7 shows that the Johansen cointegration test results are based on trace statistics which state that for the research model there is a rank at a critical value of 5% (0.05). Thus, VECM is the appropriate model in this study.

Table 7. The Result of Cointegration Test of Cointegration

Model	Hypothesized No. of CE(s)	Trace Statistic	Prob.**
1	At most 2*	62.42	0.031
2	None*	126.99	0.004
3	None*	125.29	0.005
4	None*	119.95	0.014

Source: Eviews 11, 2022

**The Results of IRF and FEVD for Regional Economic Growth (lnPDRB)**

In the regional economic growth model (lnPDRB), Figure 1-4 is the test result from the analysis of Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD) in three priority areas of East Java Province. Here's a more detailed explanation:

*Model (1): East Java Province (All Samples)*

The results of the IRF and FEVD for the regional economic growth model of 38 districts and cities of East Java can be seen in Figure 1 below. The results of the IRF show that the variables that have an effect on increasing economic growth (lnPDRB) are income inequality (GINI), population (lnJP), and education (lnHLS). Meanwhile, the level of poverty (PPM), health (lnAHH), and unemployment (TPT) are variables that can reduce lnPDRB in 38 districts and cities of East Java Province. Meanwhile, based on the results of the FEVD in Figure 1, the variable that contributed greatly to the increase in lnGRDP is inequality or the GINI variable of 1.52%. Meanwhile, health or the variable lnAHH contributed greatly to the decrease in lnPDRB by 0.90%.

Response to Cholesky One S.D. (d.f. adjusted) Innovations Variance Decomposition using Cholesky (d.f. adjusted) Factors

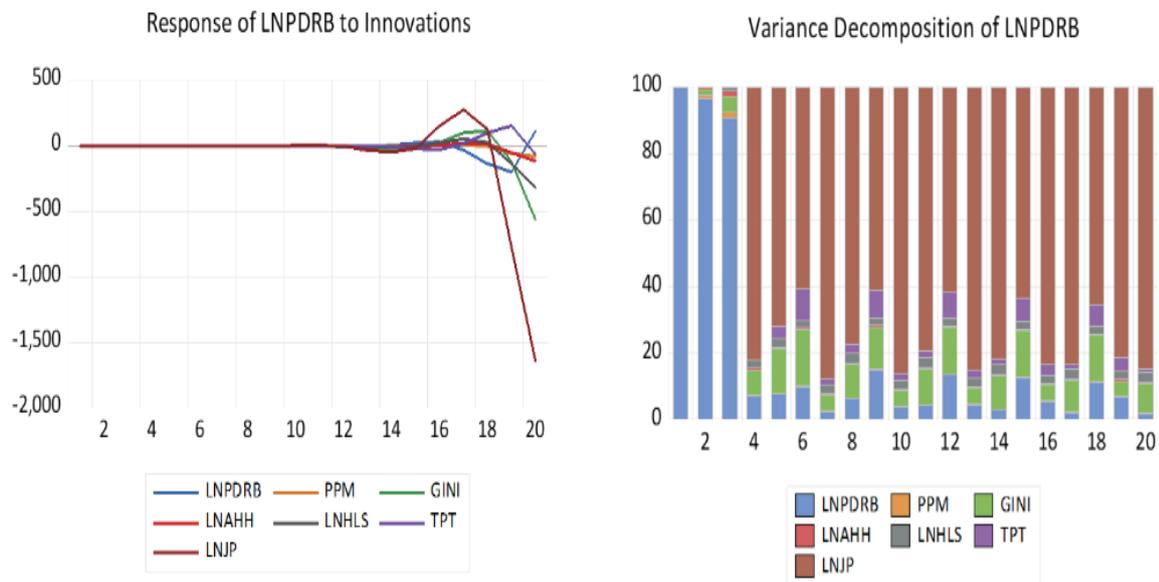


Figure 1. Results of IRF and FEVD in 38 Regencies and Cities of East Java Province  
Source: Eviews 11, 2022

*Model (2): Priority Area 1 Gerbang-kertosusila*

The results of the IRF and FEVD for the regional economic growth model in priority area 1 Gerbangkertosusila can be seen in Figure 2 below. The IRF results show that the variables that have an effect on increasing lnPDRB or economic growth are GINI (income inequality) and lnHLS (education), Meanwhile, the variables PPM (poverty level), lnAHH (health), TPT (unemployment), and lnJP (total population) can reduce lnPDRB or regional economic growth in priority areas 1. The FEVD results show that the major contributing variables are lnAHH by 2.91%. Meanwhile, GINI contributed greatly in increasing lnGDP by 0.93%.

Response to Cholesky One S.D. (d.f. adjusted) Innovations Variance Decomposition using Cholesky (d.f. adjusted) Factors

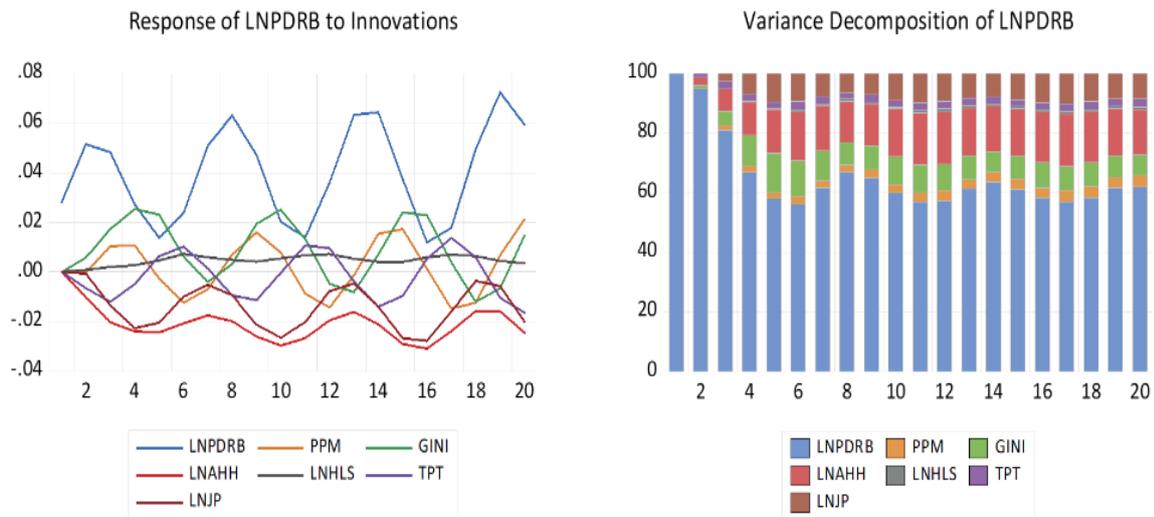


Figure 2. Results of IRF and FEVD in Priority Area 1 Gerbang-kertosusila  
Source: Eviews 11, 2022

**Model (3): Priority Area 2 Bromo Tengger Semeru**

The results of the IRF and FEVD for the regional economic growth model for the Bromo Tengger Semeru priority area 2 can be seen in Figure 3 below. The results of the IRF show that the variables that have an effect on increasing lnPDRB or economic growth are PPM (poverty), GINI (income inequality), lnHLS (education), and TPT (unemployment). Meanwhile, the lnJP variable (population) has a negative influence on lnGDP or regional economic growth in priority area 2. The FEVD results for the regional economic growth model show that the variables that have a major contribution to lnPDRB are the GINI of 6.52%.

Response to Cholesky One S.D. (d.f. adjusted) Innovations Variance Decomposition using Cholesky (d.f. adjusted) Factors

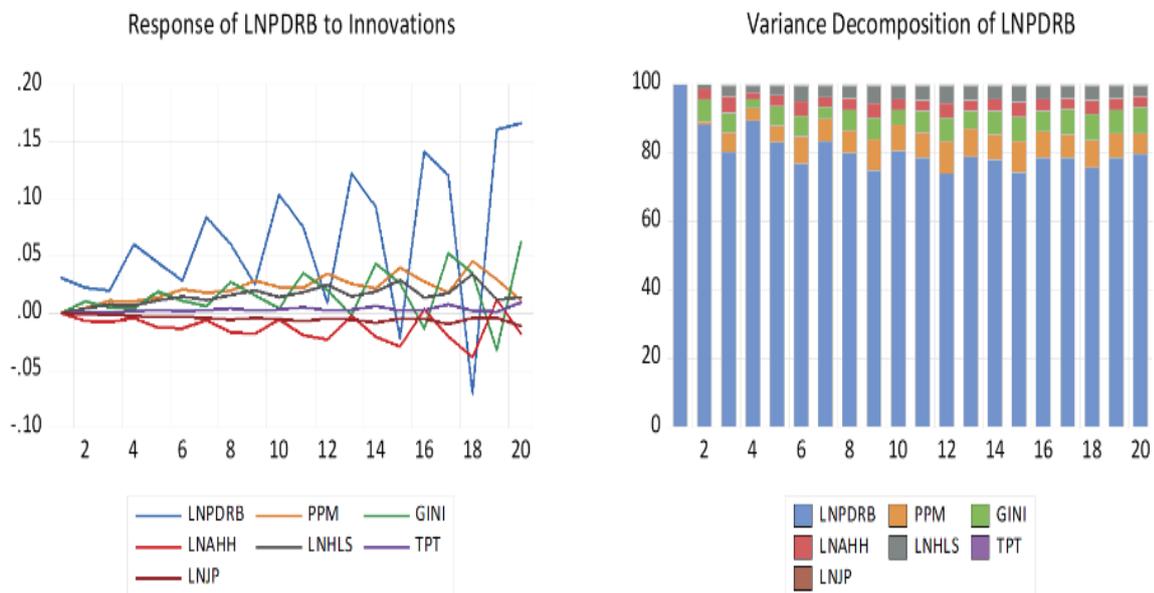


Figure 3. Results of IRF and FEVD in Priority Area 2 Bromo Tengger Semeru  
Source: Eviews 11, 2022

**Model (4): Priority Area 3 Selingkar Wilis dan Lintas Selatan**

The results of the IRF and FEVD for the economic growth model in priority areas 3 Selingkar Wilis and Lintas Selatan can be seen in Figure 4 below. The IRF results show that the variables that contribute to increasing lnPDRB or economic growth are PPM (poverty), GINI (income inequality), and lnHLS (education). Meanwhile, the variables lnAAH (health), TPT (unemployment), and lnJP (population) have a negative contribution to lnPDRB or regional economic growth in priority areas 3. The FEVD results show that the variables that have a major contribution to the decline in lnGDP are lnJP by 1.55%. Meanwhile, TPT contributed greatly to increasing lnGDP by 1.87%.

Response to Cholesky One S.D. (d.f. adjusted) Innovations    Variance Decomposition using Cholesky (d.f. adjusted) Factors

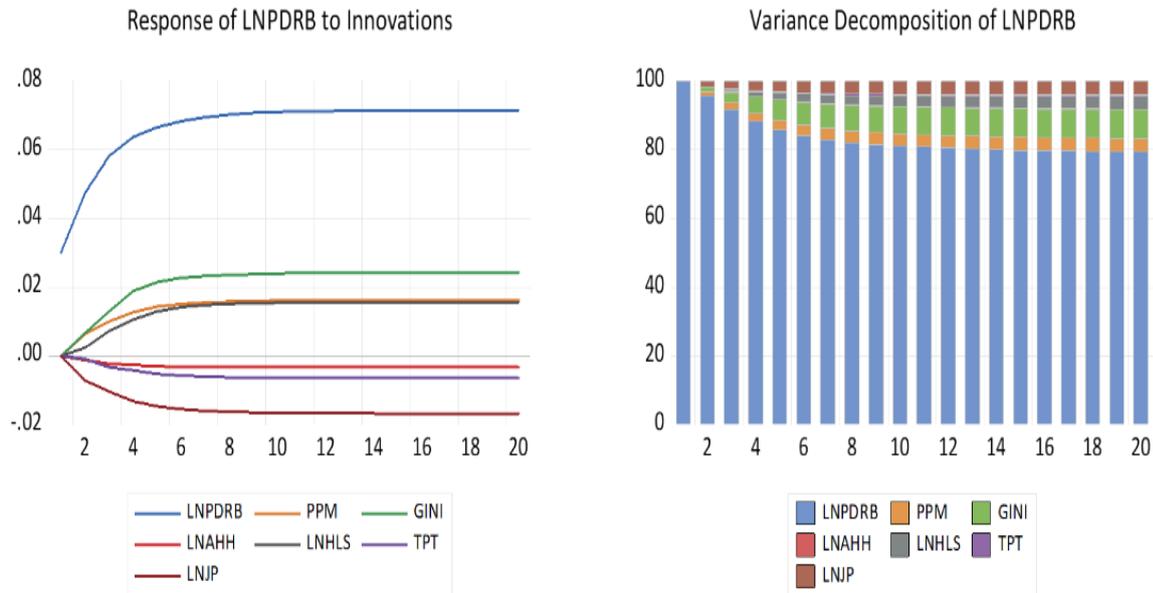


Figure 4. Results of IRF and FEVD in Priority Area 2 Bromo Tengger Semeru  
Source: Eviews 11, 2022

**Summary**

Based on Table 8. The results of the IRF and FEVD regional economic growth models for both districts and cities in the East Java province (including 3 priority areas) show that the GINI variable is a variable that consistently contributes positively to the increase in East Java's GDP. This can lead to inequality in government development and investment in the area (Hutajulu et al., 2020). In addition, it can be concluded that districts and cities in East Java still have income disparities that are not evenly distributed in all regions so that the impact on the quality of regional economic growth is not yet good, this study is in line with (Nuraini, 2017; Putri, Amar, & Aimon, 2015).

Meanwhile, the education (lnHLS) made a positive contribution in increasing regional economic growth in all priority areas. This means that education plays a very large role in supporting economic growth in East Java. In other words, the quality of good educational attainment can encourage people to increase their productivity and think creatively in doing business, thereby increasing income and encouraging an increase in aggregate income.

Table 8. Summary of IRF and FEVD Results of Regional Economic Growth Model (lnPDRB)

Variable	Model (1)		Model (2)		Model (3)		Model (4)	
	East Java Province		Gerbang-kertosusila		Bromo Tengger Semeru		Selingkar Wilis & Lintas Selatan	
	IRF	FEVD	IRF	FEVD	IRF	FEVD	IRF	FEVD
PPM	(-)	0.91%	(-)	0.00%	(+)	1.15%	(+)	1.22%
GINI	(+)	1.52%	(+)	0.93%	(+)	6.52%	(+)	1.34%

Variable	Model (1)		Model (2)		Model (3)		Model (4)	
	East Java Province		Gerbang-kertosusila		Bromo Tengger Semeru		Selingkar Wilis & Lintas Selatan	
	IRF	FEVD	IRF	FEVD	IRF	FEVD	IRF	FEVD
lnAHH	(-)	0.90%	(-)	2.91%	(-)	2.95%	(-)	0.04%
lnHLS	(+)	0.01%	(+)	0.02%	(+)	1.04%	(+)	0.17%
TPT	(-)	0.01%	(-)	1.19%	(+)	0.09%	(-)	0.02%
lnJP	(+)	0.04%	(-)	0.01%	(-)	0.08%	(-)	1.55%

Source: Eviews 11, 2022

## CONCLUSION

Based on the estimation results of the determinants of regional economic growth in the three priority areas of East Java, we conclude that: **First**, the main determinants of the regional economic growth model (lnPDRB) in East Java Province are the poverty rate (PPM), health (lnAHH), education (lnHLS), unemployment (TPT). These four variables have a significant role in (GRDP) or the level of regional economic growth in the province of East Java, especially in the two priority areas 1 Gerbangkertosusila and priority area 2 Selingkar Wilis and Lintas Selatan. In addition, regional economic growth in the previous period (lnPDRBt-1) showed a very high role in increasing economic growth (lnGRDP). So that lnPDRBt-1 is also the main DETERMINANT in the regional economic growth model in all priority areas of East Java Province.

**Second**, based on the IRF and FEVD analysis on the regional economic growth model, the estimation results show that the inequality factor (GINI) and education (lnHLS) are factors that make a positive (+) contribution to economic growth both in the province and in the three priority areas. Meanwhile, the biggest contribution of inequality and education factors to economic growth is in priority area 2 Bromo Tengger Semeru which is 6.52% and 1.04% which has a higher magnitude when compared to other areas. This may indicate that the unequal distribution of income at the beginning of economic development often occurs in the three priority areas of East Java Province. In addition, education is a factor that also becomes the concentration of both provincial and regional governments to be able to increase regional economic growth

### Policy Implication for Socio-Economic Recovery Post-Covid-19 Era

The policy implications based on the results of empirical research are as follows: **First**, the health factor is the main factor that makes a major contribution to increasing regional economic growth in the province of East Java. This illustrates that health is the main issue that the government must concentrate on to increase regional economic growth in poverty in its three priority areas, especially during and after the Covid-19 pandemic. Good health services certainly need to be improved. In addition, health services are also needed in an inclusive manner, especially for people who are at low-income levels in order to get access to good health services, especially vaccination services for the community.

**Second**, education is the main factor in increasing regional economic growth in the three priority areas of East Java Province. Thus, it is necessary to have policies that can lead to improving the quality of education for the community in all these areas. Provincial and regional governments need to work together in carrying out educational innovations, especially technology-based, especially during and after the Covid-19 crisis era. Then, due to the Covid-19 crisis, various sectors, including the education sector, changed the system by using an online system. So that government assistance is needed, especially the availability of free internet services for those who are poor people. This is done to minimize the lag in community learning activities. Because the education factor has a positive impact on economic growth in all priority areas.

**Third**, poverty and unemployment factors are contributing factors in reducing regional economic growth in East Java Province, especially in priority areas 2 and 3. In this era of the Covid-19 crisis, both provincial and regional governments need to support sectors that can absorb many workers such as the MSME sector. The government can provide capital assistance for the MSME sector, especially those who have lost their models and have stopped their business activities due to being badly affected by the Covid-19 pandemic. With the help of business models, it is hoped that the MSME sector can rise and be productive so that it can continue to increase the absorption of more workers. Thus, it can be hoped that this will help in reducing the increase in the number of community unemployment and also the level of poverty in all of its priority areas. In addition, social programs such as skills training for all levels of society, especially people in productive periods who are affected by layoffs or layoffs during the Covid-19 pandemic also need to be carried out.

**Fourth**, the provincial and local governments as well as the central government need to cooperate in optimizing the national program, namely the program for handling the crisis resulting from the Covid-19 problem as well as national economic and social recovery. The East Java provincial regulator can also organize other social and economic programs that can directly affect education factors, health factors, poverty factors, and unemployment factors. So that the government can achieve the goals of economic and social recovery, especially in the three priority areas of East Java province.

**Fifth**, the use of social funds or philanthropic funds in the form of grants, zakat, infaq and other aid funds. All of these funds can be used to assist the government in solving problems arising from the Covid-19 crisis. As research has been done by Sulaeman, Majid, & Widiastuti (2021) that aid funds, especially those sourced from zakat, can significantly assist in dealing with social and economic problems, including after the Covid-19 pandemic era such as reducing poverty levels, increasing people's purchasing power and also increasing economic growth in Indonesia.

## REFERENCES

- Agusalim, L. (2016). Pertumbuhan Ekonomi, Ketimpangan Pedapatan Dan Desentralisasi Di Indonesia. *Kinerja*, 20(1), 53. <https://doi.org/10.24002/kinerja.v20i1.697>
- Ascarya. (2015). *Analysis on Financial Crisis and How to Prevent It using the Islamic Perspective*.
- Ayu, P. P., & Septiani, T. (2019). Determinan Pertumbuhan Ekonomi Ditinjau dari Pendapatan Daerah dan Tingkat Kemandirian Daerah. *Jurnal Kajian Akuntansi*, 3(2), 184. <https://doi.org/10.33603/jka.v3i2.2731>
- Badan Pusat Statistik. (2020). *Indikator Makro Sosial Ekonomi Triwulan IV - 2020 Jawa Timur*. Badan Pusat Statistik Provinsi Jawa Timur.
- Basuki, A. T. (2018). Aplikasi Model Var dan Vecm dalam Ekonomi. *Fakultas Ekonomi Univ. Muhammadiyah Yogyakarta*, (1), 1–41.
- Boldeanu, F., & Constantinescu, L. (2015). The main determinants affecting economic growth. *Bulletin of the Transilvania University of Brasov. Economic Sciences. Series V*, 8(2), 329.
- Garibaldi, M., & Hidayat, P. (2014). Analisis Hubungan Ipm Dan Pertumbuhan Ekonomi Kabupaten/Kota Di Provinsi Sumatera Utara. *Jurnal Ekonomi Dan Keuangan*, 2(9), 14820.
- Gujarati, D. N., & Porter, D. C. (2012). *Buku 2 dasar-dasar ekonometrika* (5th ed.). Jakarta: Salemba Empat.
- Hutajulu, D. M., Panjawa, J. L., Islami, F. S., & Sugiharti, R. R. (2020). Determinan pertumbuhan ekonomi berkelanjutan wilayah induk dan pemekaran di kawasan timur Indonesia. *Jurnal Ekonomi Dan Bisnis*, 23(2), 263–284. <https://doi.org/10.24914/jeb.v23i2.3293>
- Indayani, S., & Hartono, B. (2020). Analisis Pengangguran dan Pertumbuhan Ekonomi sebagai Akibat Pandemi Covid-19. *Jurnal Perspektif*, 18(2), 201–208. <https://doi.org/DOI:https://doi.org/10.31294/jp.v17i2>
- Isnaini, S. J., & Nugroho, R. Y. Y. (2020). Analisis Determinan Kemiskinan di Jawa Timur Tahun 2018.

- Jurnal GeoEkonomi*, 11(2), 176–187. <https://doi.org/doi.org/10.36277/geoekonomi>
- Lubis, R. H., & Izzah, N. (2020). Determinan Petumbuhan Ekonomi Sumatra Utara. *Nusantara: Jurnal Ilmu Pengetahuan Sosial*, 7(2), 613–621. <https://doi.org/DOI : 10.31604/jips.v7i3.2020.613-621>
- Maqin, R. A., & Sidharta, I. (2017). The relationship of economic growth with human development and electricity consumption in Indonesia. *International Journal of Energy Economics and Policy*, 7(3), 201–207.
- Nabut, B. P., & Sinabutar, R. (2021). Pengaruh penanaman modal asing, penanaman modal dalam negeri dan pendapatan asli daerah terhadap belanja modal dan pertumbuhan ekonomi kabupaten/kota di Jawa Timur tahun 2017-2019. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)*, 5(3), 1569–1581. <https://doi.org/https://doi.org/10.31955/mea.v5i3.1565>
- Nuraini, I. (2017). Kualitas Pertumbuhan Ekonomi Daerah Kabupaten / Kota Di Jawa Timur. *Jurnal Ekonomi Pembangunan*, Vol. 15, 79–93.
- Putri, Y., Amar, S., & Aimon, H. (2015). Analisis Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi Dan Ketimpangan Pendapatan Di Indonesia. *Jurnal Kajian Ekonomi*, 3(6), 102918.
- Ramly, F., Muspida, M., & Loppies, L. R. (2022). Dampak pandemik Covid-19 terhadap pertumbuhan ekonomi di provinsi Maluku. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi)*, 6(2), 968–990. <https://doi.org/https://doi.org/10.31955/mea.v6i2.2212>
- Santoso Budi, A., & Rachmawati, L. (2013). Pengaruh Indeks Pembangunan (IPM) dan Inflasi Terhadap Pertumbuhan Ekonomi Di Kabupaten Lamongan. *Jurnal Ekonomi*, 1(3), 6.
- Shrestha, M. B., & Bhatta, G. R. (2018). Selecting appropriate methodological framework for time series data analysis. *The Journal of Finance and Data Science*, 4(2), 71–89. <https://doi.org/10.1016/j.jfds.2017.11.001>
- Sipahutar, T. T. U., Anjelina, S., Andriyani, F., & Yani, A. I. (2021). Pengaruh pengangguran (tenaga kerja), kemiskinan, inflasi dan konsumsi terhadap pendapatan domestik regional bruto Sumatera Utara periode 2015-2019. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi)*, 5(2), 1459–1474. <https://doi.org/https://doi.org/10.31955/mea.v5i2.1252>
- Sulaeman, Majid, R., & Widiastuti, T. (2021). The Impact of Zakat on Socio-Economic Welfare before COVID-19 Pandemic in Indonesia: A Quantitative Study. *International Journal of Zakat*, 6(2), 75–90. <https://doi.org/https://doi.org/10.37706/ijaz.v6i2.301>
- Wicaksono, B., Triwahyuningtyas, N., & Aminda, R. S. (2021). Analisis pengaruh jumlah transportasi darat, infrastruktur dan jumlah penduduk terhadap produk domestik bruto (PDB) Indonesia. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi)*, 5(3), 1472–1487. <https://doi.org/https://doi.org/10.31955/mea.v5i3.1609>
- Wulandari, P. N., Badriah, L. S., & Kadarwati, N. (2019). Determinants of Economic Growth in East Nusa Tenggara Province. *Eko-Regional Jurnal Pengembangan Ekonomi Wilayah*, 14(1), 36–46. <https://doi.org/10.20884/1.erjpe.2019.14.1.1246>
- Wuryandani, D. (2020). Dampak pandemi Covid-19 terhadap pertumbuhan kkonomi indonesia 2020 dan solusinya. *Info Singkat Bidang Ekonomi Dan Kebijakan Publik Pusat Penelitian Badan Keahlian DPR RI*, XII(15), 19–24.