

# The Economic Disparity on Environmental Security, Social, Economic, and Rural Development Index Perspective in Three Typology Regions of East Java Province

Totok Hendarto

University of Dr. Soetomo Surabaya  
thunitomo@yahoo.co.id

**Abstract.** Economic development should be benefited and enjoyed by all people in various regions. Economic disparities between regions are considered as an imbalance in economic growth. Inequality provides implications for the level of inter-regional welfare that affects government policy formulation. Regional economic growth is the increase of added value which occurs in the region. The amount of added value created in the region shows the prosperity of a region. Analysis of output formation, gross value added, and primary sector revenues often show the occurrence of disparities in different regional typologies. The overall disparity in the utilization of primary resources in the perspective of coastal area management led to the development disparity of coastal areas of the North, land areas, and coastal areas of the South in East Java Province. The research problem is whether there is a potential economic disparity in the three typologies of East Java Province based on the index of environmental resilience, economic endurance index, social security index, and village index build. The purpose of the study is to know whether there is a potential economic disparity in the three typologies of East Java Province. Build Village Index (IDM) is a composite index constructed from social, economic, and cultural dimensions. The three dimensions consist of variables and are reduced to operational indicators. The current study concluded that: 1) Variables of Environmental Resilience Index (IKL), Pantura, Mainland, and Pansela areas are categorized in high disparities, 2) There is no disparity among Variable Economic Endurance Index (IKE), Pantura, Mainland, and Pansela area, 3) There is no disparity among Variables of Social Security Index (IKS), Pantura, Mainland, and Pansela area, 4) Variables of Village Development Index (IDM), Pantura and Mainland and Pantura and Pansela are categorized in high disparities, and 5) There is no disparity among variables of Village Development Index (IDM), Mainland, and Pansela area.

**Keywords.** *economic disparity, economic environmental and social security, rural development index*

## INTRODUCTION

Economic development programs should be conducted across the country equally, not only in the central government area but also in other areas so that the benefit can be enjoyed by all members of society. Economic disparities between regions are an imbalance of economic growth in a region. Inequality provides implications for the level of inter-regional community welfare affecting the formulation of regional development policies undertaken by the government [1].

Regional economic growth is the increase of added value which occurs in the region and function to show the region prosperity. The added value is determined by how much the transfer of payment that flows in and out of the region [2].

The factors affecting economic growth include the quality of human resources and infrastructure. The rate of economic growth in a developing country requires good human resources as a central factor. Therefore, improving human resources' quality as a development investment is needed. Efforts to improve the quality of human resources can be initiated by the government through education, health, employment, and migration [3]. Investment in human resources is an important factor to accelerate economic growth, one of which is through technological progress that could lead to increased productivity in the future [4].

Quality human resources are an important factor, especially for developing countries. Good quality resources followed by high socio-economic development are expected to improve the welfare of the community. The socio-economic development supported by technology will produce innovations for the country's development [5].

The gap in infrastructure and budget absorption is often the source of the development disparity in a region. Investment and infrastructure have a strategic role in developing economic activities in the real sectors, which ultimately can increase economic growth in a region [6].

When the increase of infrastructure aspect is ignored, it affects to slower economic growth and welfare distribution effect [7].

Studies showed that infrastructure could improve welfare and reduce poverty [8]. The analysis of output formation, gross added value, and primary sector income are often used to show disparities in different regional typologies. The overall disparity of resource utilization primer in the perspective of coastal area management resulted in development disparity of coastal areas of the North, mainland, and coastal areas of the South in East Java Province [9].

The research problem is that there has been a potential economic disparity in the three regional typologies of East Java Province based on the environmental sustainability index, economic resilience index, social security index, and rural development index. The purpose of the research is to know whether there is a potential economic disparity in the three typologies of East Java Province based on the index of environmental resilience, the index of economic resilience, social security index, and rural development index.

#### METHOD

##### **Regional Economic Inequality**

Economic development is one of the ways to improve the lives and welfare of people in a country. Economic development is conducted through a sustainable plan to create better conditions, not only in the central government area but also in other areas so that all societies can enjoy the benefits. The programs run by the government are expected to absorb a lot of workforces and reduce unemployment. Thus, the government should pay attention to the infrastructure as one of the capitals to increase productivity. Adequate infrastructure can also attract investors to invest in the country. Other factors that also affect the development of a country are the improvement of human resources quality, health services, and education.

Economic disparities between regions are an imbalance of economic growth and a common aspect of economic activity in a country. Inequality arises because of differences in natural resources and demographic conditions in each region. Inequality provides implications for the level of inter-regional community welfare affecting the formulation of regional development policies undertaken by the government. Some of the main factors causing economic imbalance are [10]: differences in natural resources, differences of demographic conditions, substandard mobility of goods and services, different concentrations of regional economic activities, and the allocation of Intergovernmental Development Funds.

##### **Theory of Economic Growth**

Regional economic growth is described as the increase in people's income and added value, which is measured in real value and is expressed in constant

prices. The remuneration of production factors is operated in the area (land, capital, labor, and technology) to describe the level of prosperity of the region. The prosperity of the region is not only determined by the amount of added value created but also determined by the transfer payment of income that flows in and out of the region [2].

To measure economic growth, economists use the gross domestic product (GDP), which is based on the total income of everyone in the economy sector. The Solow growth model shows how savings, population growth, and technological advances affect the level of economic output and growth over time [11].

##### **Factors Affecting Economic Growth**

A new growth theory provides a theoretical framework for analyzing endogenous growth. Economic growth is a result of the economic system. Technological progress is endogenous; growth is part of the decisions of economic actors to invest in knowledge. The role of capital is greater than just a part of income, specifically if the capital is not only in the form of physical capital but also human capital. Capital accumulation is also the main source of economic growth [11].

##### **Build Village Index (IDM)**

Build Village Index (IDM) is a composite index constructed from social, economic, and cultural dimensions. The three dimensions consist of variables, and each variable is reduced to an operational indicator. Procedures for calculating the Build Village Index are [13]: 1) Each indicator has a score between 0 and 5; the higher the score reflects the level of significance, for instance, scores for access indicators of primary school education; if Village A has physical access  $\leq 3$  Km, then Village A has score 5, and Village B has physical access  $> 10$  Km, hence has score 1. Therefore, villagers A have better access than villagers B; 2) Indicator scores are grouped into variables, resulting in a variable score. For example, health variables consist of indicators (1) travel time to health services  $< 30$  minutes, (2) availability of doctors, midwives, and other health personnel, (3) access to Poskesdes, Polindes, and Posyandu, (4) (5) membership of the Social Security Administration Agency (BPJS), and 3) To determine the status of each Village, classification is made by calculating the range obtained from the maximum and minimum values. The range of values obtained becomes the limit status of each Village.

#### RESULT

##### **Normality Test Result**

Most of the data has spread normally, yet the sig value of IKE, IKS, and IDM on the land area is under  $< 0.05$ . From the three regions (Pantura, mainland, and Pansela), only the mainland which results not normal, thus next analysis will be carried out using One Way ANOVA.

**Tests of Normality**

	Wilayah	Shapiro-Wilk			
		Sig.	Statistic	df	Sig.
Indeks Ketahanan Lingkungan	Pantura	*	.961	7	.826
	Daratan	*	.902	10	.229
	Pansela	*	.938	9	.559
Indeks Ketahanan Ekonomi	Pantura	*	.878	7	.216
	Daratan	*	.773	10	.007
	Pansela	*	.908	9	.305
Indeks Ketahanan Sosial	Pantura	*	.950	7	.729
	Daratan	*	.813	10	.021
	Pansela	*	.908	9	.305
Indeks Desa Membangun	Pantura	*	.970	7	.896
	Daratan	*	.791	10	.011
	Pansela	*	.885	9	.178

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**ANOVA Result**

Descriptives										
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max		
					Lower Bound	Upper Bound				
Indeks Ketahanan Lingkungan	Pantura	7	.63991	.019936	.0075350	.621477	.658352	.6110	.6727	
	Daratan	10	.66207	.014910	.0047151	.651404	.672736	.6463	.6929	
	Pansela	9	.68233	.020078	.0066926	.666900	.697767	.6526	.7112	
	Total	26	.66312	.024260	.0047577	.653321	.672918	.6110	.7112	
Indeks Ketahanan Ekonomi	Pantura	7	.53619	.026121	.0098727	.512028	.560343	.5044	.5651	
	Daratan	10	.57224	.055000	.0173926	.532895	.611585	.5161	.7122	
	Pansela	9	.57034	.033852	.0112838	.544324	.596365	.5205	.6105	
	Total	26	.56188	.043279	.0084976	.544396	.573358	.5044	.7122	
Indeks Ketahanan Sosial	Pantura	7	.69187	.030587	.0115608	.663583	.720160	.6550	.7479	
	Daratan	10	.70347	.037429	.0118361	.676695	.730245	.6661	.7964	
	Pansela	9	.71020	.039004	.0103013	.686445	.733955	.6743	.7759	
	Total	26	.70268	.032982	.0064683	.689355	.715999	.6550	.7964	
Indeks Desa Membangun	Pantura	7	.62264	.011941	.0045133	.611599	.633687	.6068	.6413	
	Daratan	10	.64595	.029888	.0094513	.624570	.667330	.6210	.7192	
	Pansela	9	.65430	.020063	.0066877	.638878	.669722	.6328	.6952	
	Total	26	.64257	.025493	.0049996	.632269	.652862	.6068	.7192	

**Test of Homogeneity of Variances**

	Levene Statistic	df1	df2	Sig.
Indeks Ketahanan Lingkungan	.852	2	23	.440
Indeks Ketahanan Ekonomi	.791	2	23	.465
Indeks Ketahanan Sosial	.041	2	23	.960
Indeks Desa Membangun	1.357	2	23	.277

All data (IKL, IKE, IKS, IDM) can be assumed to be homogeneous, and the value is greater than 0.05 (sig value  $\geq 0.05$ ), meaning that the One Way ANOVA test can be continued.

**ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
Indeks Ketahanan Lingkungan	Between Groups	.007	2	.004	10.733	.001
	Within Groups	.008	23	.000		
	Total	.015	25			
Indeks Ketahanan Ekonomi	Between Groups	.006	2	.003	1.801	.188
	Within Groups	.040	23	.002		
	Total	.047	25			
Indeks Ketahanan Sosial	Between Groups	.001	2	.001	.593	.561
	Within Groups	.026	23	.001		
	Total	.027	25			
Indeks Desa Membangun	Between Groups	.004	2	.002	3.922	.034
	Within Groups	.012	23	.001		
	Total	.016	25			

Sig value. IKL = 0.001 and IDM = 0.034, the sig value.  $\leq 0.05$  so that the conclusion rejects H0, which means there are significant differences between regions (Pantura, mainland, and Pansela) seen from the IKL and IDM variables.

Sig value. IKE = 0.188 and IKS = 0.561, the sig value.  $> 0.05$  so that the conclusion accepted H0 which means there is no significant difference between regions (Pantura, mainland, and Pansela) seen from variables IKE and IKS

**Further Testing of Duncan**

**1. IKL (Environmental Tenacity Index)**

Indeks Ketahanan Lingkungan				
Wilayah	N	Subset for alpha = .05		
		1	2	3
Duncan <sup>a,b</sup>				
Pantura	7	.639914		
Daratan	10		.662070	
Pansela	9			.682333
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 8.475.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

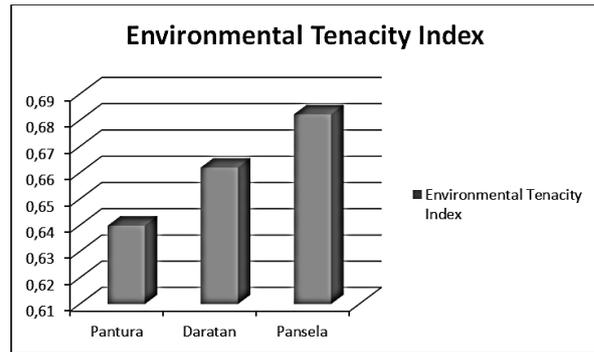


Figure 1. Environmental Tenacity Index

Based on the further tests of Duncan, Pantura, mainland, and Pansela areas are seen in different columns, meaning that these three regions have significant differences. Thus, it can be concluded that based on IKL variables, there is a high disparity between Pantura, mainland, and Pansela regions.

**2. IKE (Economic Tenacity Index)**

Indeks Ketahanan Ekonomi			
Wilayah	N	Subset for alpha = .05	
		1	
Duncan <sup>a,b</sup>			
Pantura	7	.536186	
Pansela	9	.570344	
Daratan	10	.572240	
Sig.		.107	

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 8.475.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

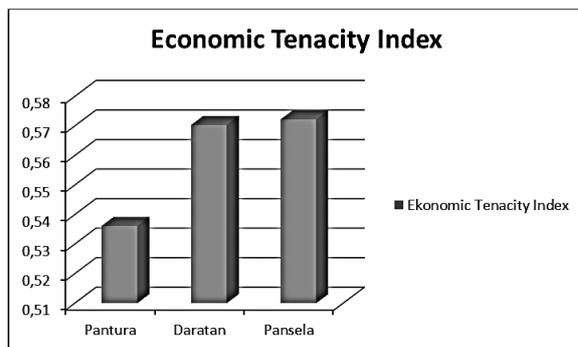


Figure 2. Economic Tenacity Index

Based on the further test of Duncan, Pantura, mainland, and Pansela areas are seen in the same column, meaning that the three regions have no significant differences, so it can be concluded that based on IKE variables there is no disparity between Pantura, mainland, and Pansela.

### 3. IKS (Social Tenacity Index)

Indeks Ketahanan Sosial

Wilayah	N	Subset for alpha = .05	
		1	
Duncan <sup>a,b</sup> Pantura	7	.691871	
Daratan	10	.703470	
Pansela	9	.710200	
Sig.			.299

Means for groups in homogeneous subsets are displayed.

- a. Uses Harmonic Mean Sample Size = 8.475.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

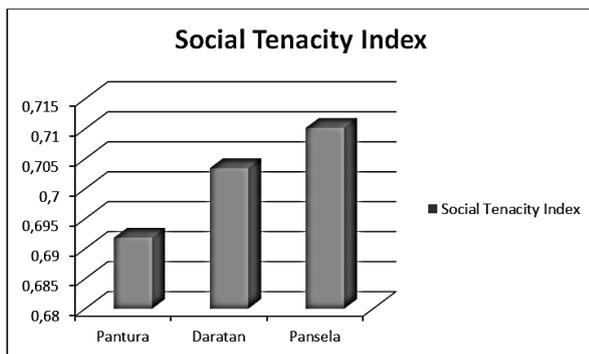


Figure 3. Social Tenacity Index

Based on the further test of Duncan, the Pantura, mainland, and Pansela areas are seen in the same column, meaning that the three regions have no significant differences, so it can be concluded that based on IKS variables there is no disparity between Pantura, mainland, and Pansela.

### 4. IDM (Rural Development Index)

Indeks Desa Membangun

Wilayah	N	Subset for alpha = .05	
		1	2
Duncan <sup>a,b</sup> Pantura	7	.622643	
Daratan	10		.645950
Pansela	9		.654300
Sig.		1.000	.461

Means for groups in homogeneous subsets are displayed.

- a. Uses Harmonic Mean Sample Size = 8.475.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

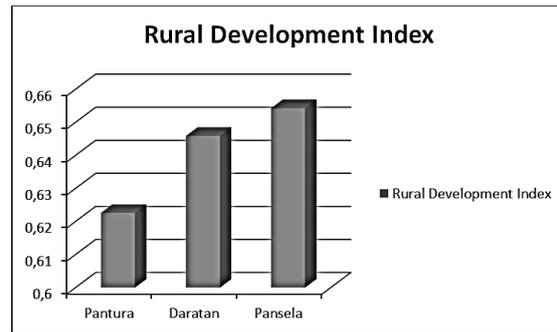


Figure 4. Rural Development Index

Based on the further tests of Duncan, Pantura and mainland areas and Pantura and Pansela are seen in different columns, but the mainland and Pansela regions are in the same column: 1) Pantura and mainland areas and Pantura and Pansela have significant differences, so it can be concluded that based on IDM variables, there is a high disparity between these areas, and 2) While the mainland area and Pansela have no significant differences, so it can be concluded that based on the IDM variable, there is no disparity between the mainland area and Pansela.

### CONCLUSION

The Duncan's further tests show that: 1) There is a high disparity among Variable Environmental Endurance Index (IKL), Pantura, mainland, and Pansela; 2) There is no disparity among Variable Economic Endurance Index (IKE), Pantura, mainland, and Pansela; 3) There is no disparity among Variables of Social Security Index (IKS), Pantura, mainland, and Pansela; 4) There is a high disparity among Village Development Index variables (IDM), Pantura and mainland areas, as well as Pantura and Pansela, and 5) There is no disparity among Variable Village Index Build (IDM), mainland area, and Pansela.

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