

UDC 332

ECONOMIC VARIABLES-BASED ANALYSIS OF REGIONAL COMPETITIVENESS: EVIDENCE FROM EAST NUSA TENGGARA

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ABSTRACT

The study aims to analyze the regional competitiveness based on economic variables in East Nusa Tenggara (ENT). The objective is based on the actual condition of the ENT Regional Competitiveness Index, which indicates that the role of regional economic pillars is relatively low. Study approach and problem solving analysis employ Analytical Hierarchy Process (AHP), featuring three indicators and eight variables that are believed to be crucial and have a significant impact on the degree of regional competitiveness based on ENT economic variables. The findings reveal that the ENT regional competitiveness based on the regional economic variables is influenced by variable value-added sector, economic and financial institutional circumstances, and sectoral performance. Furthermore, the dominance of the variable value-added sector is more impacted by GRDP per capita. Meanwhile, the number of Micro Small and Medium Enterprises (MSME) units and the development rate of the secondary sector are the most influential elements impacting economic and financial institutional variables, as well as sectoral performance. The composition of deciding variables impacting the competitiveness of the regional economy in ENT is dominated by the growth rate of the secondary sector, followed by the growth rate of the tertiary sector, the number of MSME units, and a number of other factors. Based on the findings of the research, policies and programs that promote the increased participation of secondary and tertiary sector groups through consistent and sustainable growth of relevant MSME groups are required.

KEY WORDS

Competitiveness, regional economy, analytical hierarchy process.

Various techniques have been used in studies on the sustainability of regional development, with varied degrees of success. The multiplicity of firms at the community and business unit levels fundamentally acts as a demonstration of progress at the micro level. Meanwhile, at the macro level, sustainable development is intended to solve economic, social, and environmental concerns while also providing an overview of sustainability.

Istifadah et al. (2016) and Muhammad et al. (2020) investigated environmental development in East Nusa Tenggara (ENT), calculating a composite index of environmental development based on budget variables for environmental conservation, pollution-free villages, and the proportion of people working in the agricultural sector. According to the study's findings, the average environmental development index in ENT is 0.66, with Kupang City (0.59), West Sumba, and East Manggarai Regencies having the highest (0.70).

Another study on the natural resource curse phenomenon in regional development in Indonesia, undertaken by Mahmud et al., (2008); Kotsia (2015); Diao & McMillan, (2018); Rahma et al (2021), rated ENT 32nd out of 33 provinces in Indonesia, with a Natural Resources Dependence Index (NRDI) of 0.06. Given the relative scarcity of natural resources in ENT in compared to other provinces in Indonesia, the low value of the natural resource dependency index in ENT may be seen as a good and profitable condition. This requirement is significant for the possibility that ENT may avoid the natural resource curse, which other provinces with high natural resource riches experience.

The findings of a 12-pillar regional competitiveness index mapping throughout Indonesia are published by Corrigan et al., (2014); Indig & Gal, (2015); Blackwell, & Vander Meulen, (2016); Anonymous (2019). In 2019, the province of ENT received a score of 3.92.

In the province of ENT, the education and skills pillar gets the lowest score, while the health pillar has the best. The regional economy, availability to finance, market size, and business dynamics are pillars that rank low in relation to a number of other pillars, but not having the lowest scores. In light of this, it is critical to develop policies to boost several areas of the regional economy through greater access to finance and a dynamic market size.

Scarcity and limited natural resources promote the need for the development of potential economic sectors and the enhancement of human resource quality as the essential capital in ENT regional development. Similarly, capitalizing on the potential of the regional economic sector and its human resources is projected to increase regional competitiveness and support long-term regional development. Based on the preceding background information, a study of the level of competitiveness in ENT was undertaken, taking into consideration regional economic features. In light of this, the purpose of this research is to assess the level of regional competitiveness in ENT by the use of regional economic parameters.

METHODS OF RESEARCH

Secondary data was used, which was gathered from reports from the East Nusa Tenggara Central Bureau of Statistics/BPS. It has to do with the human resources data element in this case. The findings of Focus Group Discussions (FGD) on a number of respondents/source persons who supplied perceptions of a range of human resource characteristics, in this case to examine present problems and the requirement of future management, were used to collect primary data.

Respondents/informants were selected from a diverse range of backgrounds, including corporate actors, scientists/researchers, students, and development actors. The sources were chosen on the basis that they have a good grasp of the themes under examination, are interested in them, and can address the problems and constraints connected with human resource development. Research Variable

The variables used to measure the level of regional economic competitiveness are:

a. Value-added:

X1 = GRDP (Gross Regional Domestic Product);

X2 = GRDP Growth Rate;

X3 = GRDP Per Capita;

b. Sectoral Performance:

X4 = Primary Sector Productivity Growth Rate;

X5 = Secondary Sector Productivity Growth Rate;

X6 = Productivity Growth Rate of the Tertiary Sector;

c. Economic and Financial Institutions:

X7 = Banks and cooperatives;

X8 = MSME Unit.

Data Analysis

The data was analyzed by using the Process Hierarchy Analysis (AHP) methodology as directed by Saaty (2008). The axiomatic foundation of the *Analytical Hierarchy Process* (AHP) is as follows:

- *Reciprocal Comparison*, which implies that the pairwise comparison matrix formed must be inverse. For example, if A is k times more important than B then B is 1/k more important than A;
- *Homogeneity*, which in comparisons denotes resemblance. For instance, comparing an orange to a tennis ball in terms of taste is preposterous, but it makes more sense in terms of weight;
- *Dependence*, which means that each level has a relationship (*complete hierarchy*) even though imperfect relationships may occur (*incomplete hierarchies*);
- *Expectation*, which means highlighting expectations and preferences of decision making. Assessment can be both quantitative and qualitative data.

The AHP approach is applied in stages in accordance with the requirements of the analysis that must be carried out. The principles referred to are:

(a) *Decomposition*:

Decomposition is an effort to break or divide an issue into its component parts and organize those parts into a hierarchical decision-making process where each component or components is interrelated. There are two types of decision hierarchy structures: *complete and incomplete*. If there is a connection between every element at one level and every element at the level above it, the decision hierarchy is said to be *complete*. The antithesis of a *complete* decision hierarchy is an *incomplete* hierarchy. The decomposition structure takes the following form: a) Decision objectives (*Goal*) are at the first level; b) criteria are at the second level; and c) alternatives are at the third level.

(b) *Comparative Judgment*:

A comparison of two items at one level in reference to the level above it is the basis of *comparative judgment*. The key to implementing AHP is *comparative judgment* since it will influence the order in which the items are prioritized. The evaluation findings will be presented in the form of a *pairwise comparison matrix*, which will comprise the preference levels of various options for each criterion. The preference scale utilized ranges from 1 the lowest (equal importance) to 9 (highest level, extreme importance).

(c) *Synthesis of Priority*:

Synthesis of Priority is carried out using the eigenvector method to obtain relative weights for the elements of decision making.

(d) *Logical Consistency*

Logical Consistency is done by all eigenvectors obtained from various hierarchical levels and then a weighted *composite* vector is obtained which produces a sequence of decisions.

1. Formulation of the hierarchy of objectives, criteria and alternatives of this study:

The structure of the hierarchical form explains the steps used to solve the problem. The first level is the objective of achieving the goals of the system. While helping to accomplish the objective of the first level, the second and third levels.

2. Determine the priority of elements:

- The initial stage in establishing element priority is to do pair comparisons, which include comparing items in pairs according to the provided criteria;
- Numbers are used to signify the relative relevance of one element to other elements in the pairwise comparison matrix.

3. Synthesis:

Considerations against pairwise comparisons are synthesized to derive overall priorities. The routines for this stage are as follows:

- Sum the values in each matrix column;
- To acquire matrix normalization, divide each value from the relevant column by the total of that column;
- To get the average value, add up the values in each row and divide by the number of items.

4. Measuring Consistency

It is critical to understand the consistency of judgements while making decisions since we do not want conclusions based on inconsistent assessments. The actions in this stage are as follows:

- Multiply each value in the first column by the relative priority of the first element, the value in the second column by the relative priority of the second element, and so on;
- Total every row;
- The resulting total of the rows is added to the associated relative priority element;
- Multiply the total results from the additions above by the total number of elements, and the result is known as λ max.

5. Calculate the *Consistency Index* (CI), with the formula: $CI = (\lambda \text{ max} - n)/n$; where $n =$ the number of elements;

6. Calculate the *Consistency Ratio* (CR), with the formula:

$$CR=CI/IR; \text{ where } CR=\textit{Consistency Ratio}; CI = \textit{Consistency Index}, \text{ and } IR = \textit{Random Consistency Index}$$

7. Check the consistency of the hierarchy:

If the value is more than 10%, then the data judgment assessment must be corrected. However, if the consistency ratio (CI/IR) is less than or equal to 0.1., then the calculation results can be declared correct.

RESULTS AND DISCUSSION

NTT Regional Economic Structure

The composition of a region's economy may be gleaned from the quantity and share of its gross domestic product (GRDP) generated by different industries. Changes in regional economic structure can describe sectoral development imbalances and provide clues about the role of the economic sector in the regional economy.

The ENT province's GRDP was at IDR 59,678.10 billion in 2016 and is projected to be worth IDR 68,806.67 billion in 2020, both at constant 2010 prices. In contrast, annual growth averaged 3.66 percent between 2016 and 2020. The wholesale and retail sectors, as well as the technology and communication industries, follow agriculture as the most vital to the economy. Changes in sector value within the cited time period, while mostly driven by agriculture, typically display diminishing returns. At the same time that this industry was declining, others were growing, indicating a significant change in the ENT regional economy. Many researchers, including Caselli and Coleman II (2001), Duarte and Restuccia (2010), Moyo et al. (2014), McMillan and colleagues (2014), Karaalp-Orhana (2019), and Agbenyo (2020), have found that structural change has a major impact on the way agriculture evolves and transforms into industry and services. In a similar vein, structural change theory analyzes the inner workings of national economies, putting special attention on the shift from rural subsistence farming to urban manufacturing and service industries..

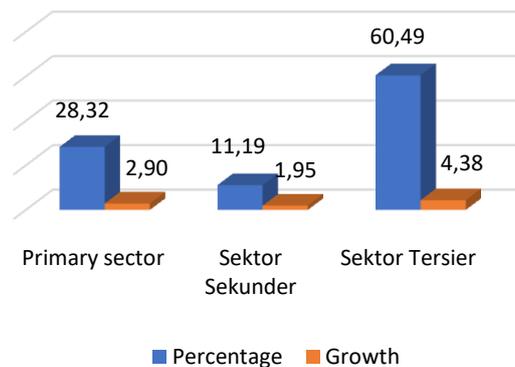


Figure 1 – 2020 GRDP (%) and Growth (%/Year) of Economic Sector Groups in ENT 2016-2020

Prior to 2020, it appears that the tertiary sector has the highest percentage value and growth rate, followed by the primary sector and the secondary sector. The significance of these findings is that even while the agriculture industry dominates the primary sector group, it nevertheless contributes relatively little and grows more slowly than the tertiary sector group.

GRDP Value, Per Capita Income and Poverty

Distribution of GRDP and regional revenue to its population is quantified by looking at the value of GRDP and per capita income. The per capita income indicator provides a high-level picture of an economy's growth, which may be used to inform future development goals, as well as the quality and implementation of economic development.

In 2021, the average ENT resident is expected to earn IDR 20.58 million (at today's exchange rates) through their labor and other investments. As for the interim, it was calculated to be IDR 12.92 million using constant 2010 base year prices. The national per capita income in 2021 will be IDR 62.20 million (around \$9,000) at current prices. If we look at the NTT population instead, we see that their per capita income is only 33.09% of the national average. Compared to the rest of Indonesia, ENT has a relatively low per capita income, making it one of the provinces with the highest poverty rate.

The BPS defines the poverty line as the percentage of the ENT population whose monthly income is less than IDR 519,889 in urban areas and IDR 397,370 in rural areas. If the trends described above continue through 2021, more ENT residents will live in poverty in rural areas than in urban ones (Figure 2). In ENT, 1,038,125 people, or 24.75 percent, live below the poverty line, with a total of 119,670 people living in poverty in urban areas.

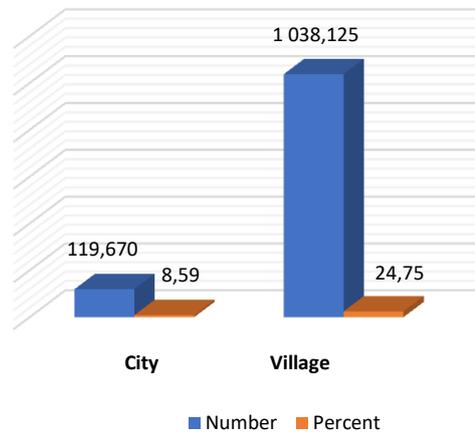


Figure 2 – Number and Percent of Urban and Rural Poor Population in NTT, 2021

The high number and proportion of impoverished people in rural parts of ENT relative to metropolitan areas is a widespread issue that affects many places, including ENT. Limited business opportunities and/or sources of income are factors thought to be triggers. Furthermore, due to the strong dependency on the agricultural industry and its seasonal nature, the rural workers may not always have access to agricultural employment.

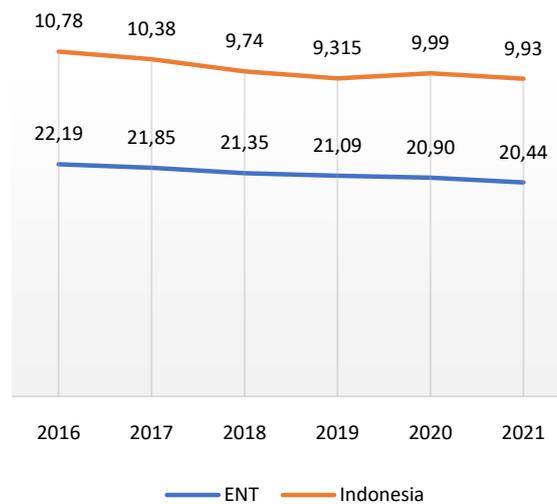


Figure 3 – Percentage of National Poor Population and ENT, 2016-2021

Despite a decrease from recent years, the poverty rate of the ENT population in 2021 will still be rather high. The proportion of impoverished people in the country has reduced from 10.78% in 2016 to 9.93% in 2021. Additionally, the proportion of persons living in poverty in ENT has reduced from 22.19% in 2016 to 20.44% in 2021. The distinction is that while the percentage of the impoverished in the country has already fallen into the single digits, it is still high in ENT. Even yet, ENT still has a poverty rate that is twice as high as the national average.

The relatively high percentage of poor individuals in ENT suggests that, while there has been a drop, it has not been sufficient to classify ENT as a low-poverty zone. Even in comparison to other provinces in Indonesia, ENT is still the third poorest province, ahead of the other two. This outcome concurrently motivates local governments and communities to keep tackling the challenges they encounter, one of which is by maximizing sectoral economic potential and already-existing and owned human resources.

Regional Economic Competitiveness

The regional economic competitiveness is essentially a representation of the performance factors and indicators that comprise it. Economic competitiveness rises with improved performance of the metrics that make it up, and vice versa.

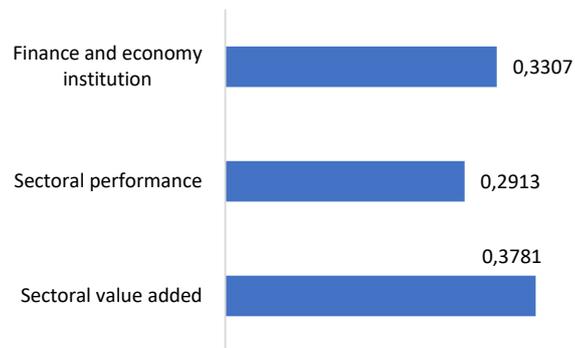


Figure 4 – Regional Economic Variable Competitiveness Value

Compared to sectoral performance and economic and financial institutions, sector added value plays a significant and strategic role. Sector added value is the variable that outranks the other two in terms of importance. This essentially illustrates the significance of making genuine efforts in the administration of the industrial sectors, which are backed by the availability of local people and natural resources in ENT.

The second-ranking variables relate to regional economic and financial institutions, suggesting that in order to advance and expand the role of regional economic aspects in ENT, a solid institutional framework is required. This will allow the potential of local resources to be translated into regional economic sectors and the support of natural resources and human resources to be effectively realized.

Sector Added Value Variable Competitiveness

The weight and order of its constituent elements represent the competitiveness of the variable added value of the economic sector in ENT. Three key factors—the Gross Regional Domestic Product (GRDP) value, the GRDP growth rate, and the GRDP per capita—are weighted in this research. The analysis results suggest that the per capita GRDP factor, followed by the growth rate factor and the GRDP value, is a deciding factor for competitiveness at the level of sector added value variables (Figure 5).

The fact that the GRDP per capita element has a high weighting and ranking essentially shows how the GRDP value may be used to distribute additional value to the people while also serving as a measure of the added value achieved. This is due to the

uncertainty around whether the GRDP achieved really reflects the capacity of the local populace.

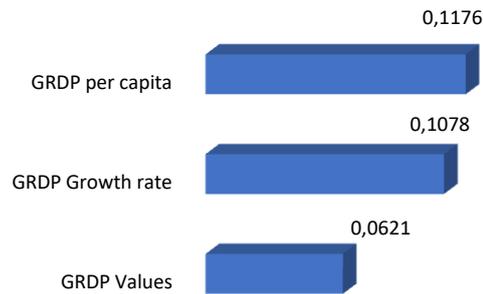


Figure 5 – Value of Weighted Determinants of Competitiveness Variable Value Added Sector

GRDP per capita is frequently used as a gauge for population productivity in an area. Because of this, the potential of an area to promote greater competitiveness via raising the growth rate and GRDP value, which may then be given to inhabitants in the region, can be described using the GRDP per capita indicator in the context of regional competitiveness.

Sectoral Performance Variable Competitiveness

The growth rates of three sector groups—the primary sector, the secondary sector, and the tertiary sector—are used to map sectoral performance factors. The secondary sector has the largest weight, followed by the tertiary sector, and the primary sector has the lowest, according to the results of the analysis of the competitiveness of the performance factors of the economic sector in ENT. The primary sector, which was once a crucial sector for the local economy and the citizens of ENT, is no longer playing the same essential role, as indicated by the high weight of the secondary sector. This change also guarantees that, while the primary sector continues to dominate in terms of absolute value, the secondary sector and the tertiary sector group have seen a relative growth in value.

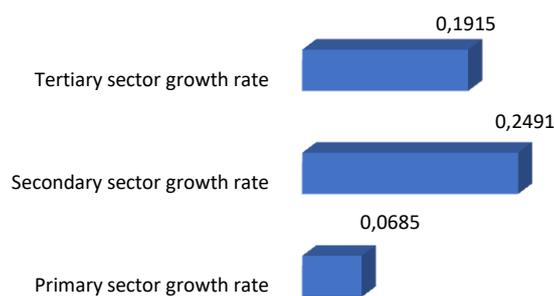


Figure 6 – Weighted Value of Competitiveness Determinants of Sectoral Performance Variables

Suwarni (2006), citing Chenery (1979), defines structural transformation as a series of adjustments to aggregate supply (production and use of factors of production, such as labor and capital) and aggregate demand (exports and imports) that are required to support the development process and sustainable economic growth.

Consumer demand shifted from food and other necessities to manufactured goods and the accumulation of physical and human capital as per capita income increased, as reported

by empirical studies (Tambunan, 2003; Yiridoe et al., 2005; Lorek & Spangenberg, 2014; Papargyropoulou et al., 2014) in agreement with the findings of Saa-Perez & Garca-Falcón, (2002) and Lin & Ho, 2003. (1975). This is analogous to the slower urbanization and smaller family sizes that occur as cities and industry expand into previously rural regions. This causes a change in the economic structure of a country, with non-primary sectors, notably industry, becoming more important than agriculture and/or mining.

Research like these makes it abundantly evident that the government need to encourage the development of the secondary and tertiary sectors, especially those with links to the main economy (Debackere & Veugelers, 2005; Dawes & Helbig, 2010; Weerawardena et al., 2010; Qureshi & Syed, 2014; De Vries et al., 2016). This suggests that there may be room for growth in the establishment of industrial activity units that utilize agricultural and animal products as their primary raw materials. In addition to improving the value of agricultural products as a whole, this is essential for sustaining growth in regional competitiveness.

The Institutional Variables of Economic and Financial Competitiveness

Consideration of economic and financial institutional elements is warranted since their presence significantly affects the success and progression of economic growth at both the macroeconomic and microeconomic levels. Redek & Sujan 2005; Muthama et al. 2013; Ulman 2013; Janda & Zetek 2014; Prasetyo & Kistanti 2020; Aman et al. 2022. The study's sub-variables included the availability of financial institutions like banks and cooperatives, as well as the total number of MSME units.

The existence of MSME units, which have played a very big role in many experiences, has been shown to be crucial to the survival of the MSME sector, even after the economic crisis that was experienced in Indonesia and in ENT in particular. More than that, it may be seen as a social and financial safety valve for those who have been through a disaster. When it comes to meeting the financing needs of businesses on a local and regional scale, cooperatives and financial institutions are also effective community funding mechanisms.

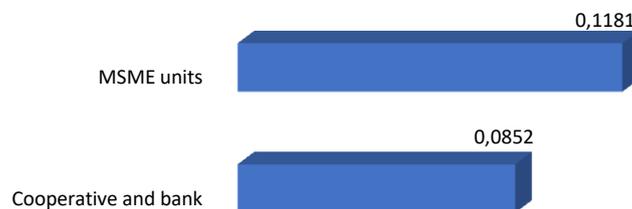


Figure 7 – Weighted Average of Factors Affecting the Competitiveness of Economic and Financial Institutions

Figure 7 shows that unlike banks and cooperatives, the presence of several MSME units increases competition and significance. Evidence that Indonesia's micro, small, and medium-sized enterprises (MSMEs) are crucial to the country's economic success can be found in the following examples: 1) In 2020, MSMEs will account for 61.97 percent of the national GDP, or IDR 8,500 trillion; 2) MSMEs will employ 97.0 percent of the workforce. thirdly, in 2018, micro, small, and medium-sized enterprises (MSMEs) accepted around IDR 1 trillion (\$100 million) in loans.

Given the importance of ENT in so many facets of daily life, it seems reasonable to include banks and credit unions among the institutions to which we should give our attention while thinking about financial resources. There were 252 government and commercial banks and 189 regional development banks (RDB) in ENT as of the year 2020. The City of Kupang is home to the greatest concentration of RDBs, but East Sumba, Kupang, Ende, and Manggarai Regencies all have substantial RDB communities as well. The Ende, Belu,

Ngada, Manggarai, and TTS areas are not exempt, nor are any other government-owned banks or enterprises.

Financial institutions were strategically placed in different districts and cities to better serve locals and take advantage of emerging opportunities in the local economy and population. Even with a variety of credit service schemes, both consumption and production, and the simplicity of services given, the role of financial institutions in bolstering regional economy and the welfare of people will be increased (Clark, 2002; Mahanty et al., 2013; Spangenberg, 2014; Bobinaite & Tarvydas, 2014; Swacha-Lech, 2017).

Combination of Determinants of Regional Economic Competitiveness

The analysis of the combination of numerous variables of the competitiveness of the regional economic competitiveness variable in ENT reveals that the role of the growth rate of the secondary sectors takes precedence over other aspects. The growth rate of tertiary industries, MSME units, and a variety of other parameters are then considered (Figure 8).

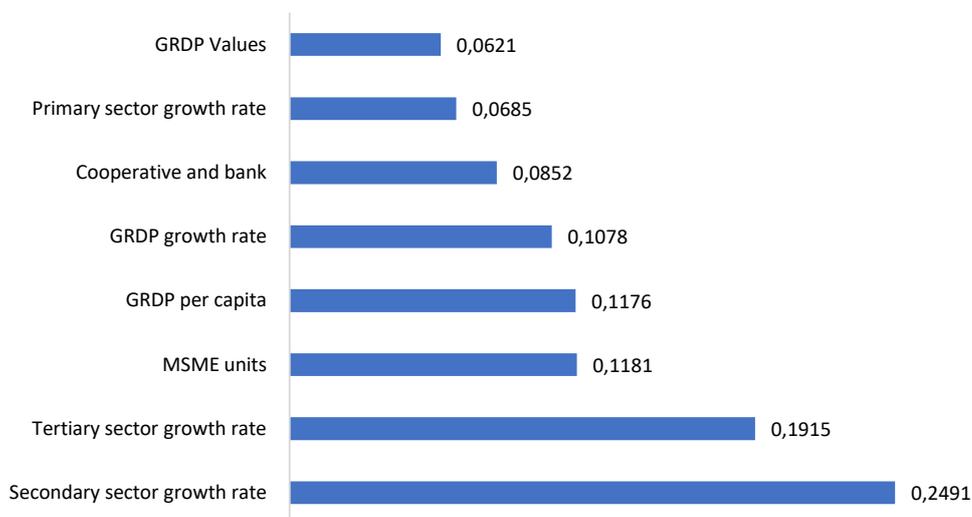


Figure 8 – Combined Weight Value of Determinants of Regional Economic Competitiveness in ENT

It shows that shifts in the present economic structure in ENT are fairly consistent with the relevance of secondary and tertiary sector group factors in impacting the competitiveness of the regional economy. Data on the growth rate of the regional economic sector in ENT over the past ten years reveals that the primary sector's GRDP value is still larger in absolute terms than the GRDP value of the secondary sector or the tertiary sector. Given the prominence and purpose of the two sector groups and their stronger potential to handle employment difficulties, this situation is to be expected in the context of regional expansion. It is generally accepted that the proliferation of MSME units alongside other business types acts as an effective safety valve, allowing local economies to better absorb and adapt to economic shocks. This was evident when the Covivirus D19 pandemic swept the globe, especially Indonesia and ENT, and even earlier when micro, small, and medium-sized enterprises (MSMEs) came to dominate local economies at the community and regional levels.

CONCLUSION

Sectoral added value factors, economic and financial institutional circumstances, and sectoral performance all have an impact on how competitive the regional economy in ENT is.

The GRDP per capita factor has a greater impact on the dominance of sector value added factors. This indicates that when the GRDP value is attained and rises, it is anticipated that it would be able to improve regional economic competitiveness in ENT. The number of

MSME units and the development rate of the secondary sector, however, are the main influencing factors for economic and financial institutional variables as well as sectoral performance.

The growth rate of the secondary sector dominates the combination of characteristics affecting regional economic competitiveness in ENT, followed by the growth rate of the tertiary sector, the number of MSME units, and a number of other factors.

Based on the study findings and the above discussion, it is essential to establish policies and programs that promote the expansion of secondary and tertiary sector groups through the steady and sustainable growth of pertinent MSME groups. The elements and characteristics that affect the competitiveness of the regional economy and human resources in ENT also need to be studied in more detail.

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