



# Demand for Vocational Labor : An Analysis of Regional Potential in South Sumatra

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**Abstract.** This study examines the mismatch between graduates of vocational education and the labor requirements of key sectors in South Sumatra Province. Utilizing a combination of the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) methods, the analysis identifies the leading sectors in South Sumatra as plantation, forestry, mining, paper, warehousing, and railway transportation. These sectors have significant potential and require a skilled workforce, which should be a primary concern for policymakers in vocational education. It is recommended that vocational education programs adapt to industry needs by focusing on curriculum development and providing training that aligns with technological advancements and the specific characteristics of the job market.

**Keywords:** Labor Force, Vocational Education, Location Quotient, Dynamic Location Quotient

## 1 Background

Vocational education is believed to be a driver and accelerator of economic growth in Indonesia, where this education focuses more on applied skills and prioritizes the abilities of practitioners, so that it can have a broad impact on society. Schools can motivate students to pursue further studies in vocational education and encourage them to choose careers that align with their practical skills. Parents also play a significant role in guiding their children toward vocational education, highlighting the importance of media in shaping public perception [1]. Skilled and competent human resources are essential for creating a high-productivity workforce that industries urgently need. This is a critical factor in driving the industrial sector and fostering quality economic growth. Furthermore, high competence and skills can lead to an improved standard of living for the community [2]. However, according to the Central Statistics Agency (BPS), there were 7.47 million unemployed individuals in Indonesia as of August 2024. Notably, a significant portion of these unemployed are Vocational High School (SMK) graduates,

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7.47 million unemployed individuals in Indonesia as of August 2024. Notably, a significant portion of these unemployed are Vocational High School (SMK) graduates, particularly those from the Automotive Engineering, Computer and Informatics Engineering, and Mechanical Engineering departments [3].

One of the employment challenges in South Sumatra Province, according to the official BPS report from November 2024, is the low percentage of the working population with vocational education (from vocational schools and diploma programs). Specifically, the percentage of workers with high school diplomas is 25.20%, while only 7.63% of the working population holds vocational school certificates. Additionally, the employment rate for university graduates is 9.17%, compared to just 1.91% [4] for those with diplomas. This data indicates that vocational education is not effectively contributing to labor absorption in South Sumatra Province. Despite being a type of higher education designed to equip individuals with specific skills, vocational education still faces significant challenges in the job market.

### **1.1 Number of Graduates from SMK South Sumatra**

Information quoted from [5] that the study program and the number of vocational school graduates in South Sumatra Province which have the most from Computer and Network Engineering have the most graduates with 7,568. In second place is occupied by the competence of Automotive Light Vehicle Engineering expertise as many as 5,202 graduates and the third place is the competence of Automation and Office Governance expertise as many as 4,571 graduates. Meanwhile, the bottom three with the least number of vocational school graduates are occupied by the competence of Oil and Gas Production Engineering as many as 16 graduates, Industrial Automation Engineering as many as 15 graduates and Ceramic Creative Crafts as many as 10 graduates.

### **1.2 Number of Graduates from Diploma South Sumatra**

The largest Diploma graduate information in South Sumatra comes from the Nursing study program, which is 1,167. In second place is occupied by the Informatics Management study program as many as 753 graduates and in third place the Accounting study program as many as 634 graduates. Meanwhile, the bottom three with the least number of PTV graduates are occupied by the International Business Administration study program as many as 7 graduates, Radiodiagnostics as many as 1 graduate and Health Analyst as many as 1 graduate.

### **1.3 South Sumatra Labor**

The official news from BPS South Sumatra as of November 2024 also describes that the contribution of employment that absorbs the most labor in South Sumatra is from the agricultural sector at 45.30%, the second largest sector from trade at 16.88%, and then the third largest sector from the processing industry at 5.97%. The official news from BPS above shows that vocational education expertise from vocational schools and diplomas in South Sumatra has not been aligned with the needs of the

workforce in South Sumatra. In an effort to increase the vocational workforce working in South Sumatra, what areas of expertise should be prepared from vocational education? This study tries to analyze the labor needs of South Sumatra based on the regional potential analysis method using a combination of the Location Quotient (LQ) method and the Dynamic Location Quotient (DLQ) method. The purpose of analyzing the potential of the South. The purpose of the analysis of the potential of the South Sumatra region is to be able to analyze the role of an economic sector that has contributed to regional economic growth, then to be able to see the opportunities of the economic sector in the future, so that vocational education needs to adjust the applied skills of graduates needed by business actors in the economic sector that are in accordance with regional potential.

## 2 Regional Potential Analysis

LQ method was first introduced by Hagate, is used to in the field of economics to analyze industrial potential in an area and as a quantitative tool to evaluate industrial efficiency. The benefits of calculating the location quotient of various industries in a particular region, a value is obtained stating that the industry is an advantage or economic potential in the area [6] The sector economy that is compared in the region must be the same as the sector economy national and the time of comparison must also be the same. Location Quotient can be selected to determine the level of sectoral concentration of the Company [7]. How to calculate LQ by comparing GDP with the amount of gross national income (GNP) [8]. The criteria for Location Quotient (LQ):

- a.  $LQ > 1$ , means indicating the possibility of exporting in the sector (Relative Spezialisierung in Sector). Exports are carried out due to a surplus.
- b.  $LQ < 1$ , means that the sector needs to import (Production Deficit in Sector). Imports are carried out because the sector has not match with the needs of the region.
- c.  $LQ = 1$ , means that the productivity of the sector is balanced. This means that it is only enough to meet the needs of the people in the area so that it is still not suitable for export (Average Production in Sector)

DLQ method is a development method of LQ based on the calculation of national income growth based on the percentage growth sector economic each year [9]. The combination of LQ and DLQ is useful for policy makers to see the contribution of an economic sector to the economy, containing the potential of the sector in the future. The provisions for the DLQ value are: The provisions for the DLQ value are:

1.  $DLQ > 1$  shows that the observation sector in the region is poised for development.
2.  $DLQ < 1$  shows that the observed sector in the area lacks the potential to evolve into an economic cornerstone in a particular location.

LQ analysis is a method to determine the leading sector. If the LQ coefficient value  $> 1$  means that the subsector in the region is a leading subsector that has the potential to improve the regional economy, conversely if the LQ coefficient value  $< 1$  then the subsector is not a leading sector because its output can only be consumed in the region concerned. The results of calculations and analysis of the location quotient (LQ) can be a reference for the government to determine regional development policies and improve

[10] While the calculation and analysis results of the Dynamic Location Quotient (DLQ) method accommodate the growth rate of gross regional domestic income per year with a DLQ value > 1 meaning it is a potential economic sector and DLQ < 1 is a non-potential economic sector.

### 3 Results and discussion

This study uses secondary data sourced from BPS South Sumatra, namely Gross Regional Domestic Product (GRDP) data for 2019-2024.

**Table 1.** Matrix of LQ and DLQ Mean Values Combined

<b>CRITERIA</b>	<b>LQ &gt; 1</b>	<b>LQ &lt; 1</b>
<b>DLQ &gt; 1</b>	<b>FLAGSHIP</b>	<b>MAINSTAY</b>
	<ol style="list-style-type: none"> <li>1. Plantation Crops</li> <li>2. Forestry and Timber Logging</li> <li>3. Coal and Lignite Mining</li> <li>4. Mining and Other Excavations</li> <li>5. Coal Industry and Oil and Gas Refinery</li> <li>6. Paper and Paper Goods Industry; Printing and Media Reproduction Recording</li> <li>7. Rail Transportation</li> <li>8. Real Estate</li> </ol>	<ol style="list-style-type: none"> <li>1. Tobacco Processing Industry</li> <li>2. Textile and Apparel Industry</li> <li>3. Metal Goods Industry; Computers, Goods Electronics, Optics; and Electrical Equipment</li> <li>4. Electricity</li> <li>5. Trading of Cars, Motorcycles and The Repairs</li> <li>6. Wholesale and Retail Trade, Not Cars and Motorcycles</li> <li>7. Air Freight</li> <li>8. Provision of Accommodation</li> <li>9. Preparation of Meals and Drinks</li> <li>10. Financial Support Services</li> </ol>
<b>DLQ &lt; 1</b>	<b>PROSPECTIVE</b>	<b>LEFT BEHIND</b>
	<ol style="list-style-type: none"> <li>1. Food Crops</li> <li>2. Animal Husbandry</li> <li>3. Agricultural and Hunting Services</li> <li>4. Fisheries</li> <li>5. Oil, Gas, and Geothermal Mining</li> <li>6. Food and Beverage Industry</li> <li>7. Rubber Industry; Rubber and Plastic Goods</li> <li>8. Water Procurement; Waste, Waste, and Recycling Management</li> <li>9. Construction</li> </ol>	<ol style="list-style-type: none"> <li>1. Horticultural Crops</li> <li>2. Metal ore mining</li> <li>3. Leather, Leather Goods, and Footwear Industry</li> <li>4. Wood Industry, Goods from Wood and Cork; and Woven Goods from Bamboo, Rattan, and the Like</li> <li>5. Chemical, Pharmaceutical, and Traditional Medicine Industries</li> <li>6. Non-Metallic Mineral Goods Industry</li> <li>7. Basic Metal Industry</li> <li>8. Machinery and Equipment Industry</li> <li>9. Transportation Equipment Industry</li> </ol>

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10. Furniture Industry
  11. Other Processing Industries; Repair and Installation Services of Machinery and Equipment
  12. Gas Procurement and Ice Production
  13. Land Transportation
  14. Sea Freight
  15. River, Lake, and Crossing Transportation
  16. Warehousing and Transportation Support Services; Post and Courier
  17. Information and Communication
  18. Financial Intermediary Services
  19. Insurance and Pension Funds
  20. Other Financial Services
  21. Corporate Services
  22. Administration, Government, Defense, and Compulsory Social Security
  23. Educational Services
  24. Health Services and Social Activities
  25. Other Services
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Table 1 analyzes the Location Quotient (LQ) for South Sumatra, showing that the following economic sectors have LQ and Dynamic Location Quotient (DLQ) values greater than 1: Plantation Crops, Forestry and Timber Logging, Coal and Lignite Mining, Other Quarrying, Oil and Gas Refinery, Paper Industry, Printing and Reproduction, Rail Transportation, and Real Estate. These are classified as superior sub-sectors from 2019 to 2024. Furthermore, prospective categories in the economic sub-sectors in South Sumatra are in the sub-sectors of Food Crops, Animal Husbandry, Agricultural and Hunting Services, Fisheries, Oil, Gas, and Geothermal. Mining, Food and Beverage Industry, Rubber Industry; Rubber and Plastic Goods, Water Procurement; Waste, Waste, and Construction Recycling Management. This is shown from the  $LQ > 1$  and  $DLQ < 1$  values. Economic sectors that fall into this category have opportunities for development by policymakers. Policy support and adequate infrastructure development will help in the development of the economic sector. The prospective sector is an economic sector that has the opportunity to grow and develop, marked by an increase in gross regional domestic income, so it needs attention and support from the government and stakeholders. In addition, the sectors that are categorized as mainstay sectors in South Sumatra Province are the sub-sectors can be seen from the  $LQ < 1$  and  $DLQ > 1$  values. Furthermore, for the underdeveloped

categories in the economic sub-sectors in South Sumatra, shown by the  $LQ < 1$  and  $DLQ < 1$  values.

## 4 Conclusion

The results can conclude that the superior potential of South Sumatra Province requires a skilled workforce so it should be a concern for decision-makers in vocational education to prepare graduates according to the superior sector so that vocational graduates can increase the participation rate of the workforce in South Sumatra. Vocational education that has been running needs to adapt to the needs of the industry so that the focus is on curriculum development [11] and prepare training that adapts to technological developments to the characteristics of the job [12].

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