Economic development of south coastal region Purworejo Regency based on superior commodities

I N Puspitaningrum¹ and Sudrajat²

¹Magister of Geography, Faculty of Geography, Universitas Gadjah Mada Yogyakarta Indonesia
²Lecture of Deparment of Environment Geography, Faculty of Geography, Universitas Gadjah Mada, Yogyakarta Indonesia

*Corresponding author: isminuari@mail.ugm.ac.id; sdrajat@ugm.ac.id

Abstract. The diversity of superior potential that exists in the southern coastal region of Purworejo Regency is one of the basic capital in economic development. However, the reality is the diversity of superior commodity potentials from the agricultural sector has not become a basis in the economic development of the southern coastal region of Purworejo Regency. Based on this, the research is focused on examining various types of potential commodity as a basis in the economic development of the southern coastal region of Purworejo Regency. The data used in this study are secondary data. Secondary data were obtained through institutional studies from local government agencies. Data were analyzed using the LQ, Shift share and SWOT models. The results of the study found that there are various types of superior commodities that will be the basis for the development of the southern coastal region of Purworejo Regency.

1. Research Background

Indonesia as a maritime country will certainly have a fairly long coastline reaching around 108,000 Km and is the second longest in the world after Canada with a line length of 202,080 Km [1] [2]. The length of Indonesia's coastline causes almost 60 percent of Indonesia's population to live and carry out economic activities by developing coastal and ocean natural resources. Even in some coastal areas of Indonesia such as the north coast of Java the population density is very high with very rapid economic activity [3] [4]. However, it is different from the condition of the southern coast of Java, which is still lagging behind, even though its natural resource potential is quite large. Therefore, to develop the coastal area, a management that is able to develop the southern coastal area of Java is needed. The management of the coastal area is expected to be able to exploit the potential of its natural resources so that it can improve the welfare of its population and ultimately be able to make a positive contribution to regional income (PDRB) [4] [5].

The development of the southern coast of Java, in addition to being able to create new economic growth opportunities that are based on fisheries production, is also expected to be able to stimulate other economic growth in the fields of tourism, industry and services [6]. But in fact, the development of natural resources that still relies on the fisheries sector has not been fully able to create a higher level of welfare of its population. According to Aleksandru and Raluca, [7] in the results of the study, the cause of the slow economic development in the southern coast of Java was due to incomplete access or not yet optimal use of all potential resources which are its leading commodities.
Potential natural resources in coastal areas that have been widely used by residents include agriculture, fisheries and tourism resources. The potential of these resources has long been a source of livelihood for coastal communities, but until now there are still many who have not yet reached a better level of welfare. This happens because the utilization of coastal resource potential is greatly influenced by various factors such as; related to natural environmental conditions, seasons and market conditions as well as socio-economic and cultural aspects of the community [8]. However, in some areas the potential utilization of coastal resources, especially the fisheries and tourism sectors, has contributed enough to the regional and central economy so that their existence is always maintained [9]. Based on the records of BAPPENAS [10] & Siry [11] utilization of coastal and marine resources in the fields of oil and gas mining, sea transportation, marine industry, fisheries and marine tourism have contributed 20% to the PDRB. This phenomenon gives the meaning that a coastal region if managed properly by the regional or central government will have a positive impact on the regional economy and its people.

The development of an area can be characterized by developments with a low level of complexity of the problem leading to more complex complexity. Increasing the complexity of problems in an area can have an impact on the achievement of regional development policies so that the achievement will be difficult to achieve in the short term. The same thing in the development of coastal areas, the complexity of the problems often arise and often become conflicts in their realization with the community. This phenomenon occurs because people often do not understand the purpose of the policy where the government's goal is to improve the welfare of its people. Therefore, the development of coastal areas must be focused on efforts to empower coastal communities based on superior commodities that exist in the economic system of their communities. However, the government as a policy holder must be able to identify leading commodities that are the basis in the economy of coastal communities [12]. The provincial government has the authority to manage the coastal zone up to 12 nautical miles from the coastline. District and city governments have the authority to manage more than one third of the province's management area, which is 4 nautical miles [13].

Although central and regional government policies have contributed greatly to developing coastal areas, in reality there are still many coastal areas that are still lagging behind. This happens because often the government policy in managing coastal areas is not yet optimal in empowering the potential of superior commodities as an economic basis. Not yet optimal development of the coastal region is evident from several government policies that many develop coastal areas not based on superior commodities. Based on this, the policy formulation of management strategies for coastal areas should be based on superior commodities that are identified both physically and socio-economically and culturally [14]. Armitage [15] said that the lack of optimal government policies in developing coastal areas shows that some government policies in managing coastal areas often neglect physical characteristics related to superior potential, social, economic and cultural characteristics of the people. In fact, coastal communities in the property management system which are often often their indigenous communities are marginalized by interests and political agendas that have power [15]. Even though the development of a more optimal and sustainable coastal region requires a policy strategy that is more focused and mature [16].

The development of the north coast of Java is more advanced compared to the south coast of Java. These developmental differences are closely related to physical conditions, infrastructure conditions, accessibility, social conditions, community economics and others. One of the southern coastal regions of Java, which is not yet rapidly floating, is the southern region of Purworejo Regency. However, the Deandels access road that connects the southern region of DIY to the Cilacap region through Purworejo and Kebumen, has triggered the flow of goods and services from and out of the southern region of Purworejo Regency so that it will have an impact on increasing the development of the region. However, if the access is not matched by the right policies in functioning access as a distributor of goods and services, the area will only become a transit area, making it difficult to develop. In general, the southern coastal region of Purworejo Regency which is an agricultural area of paddy fields and coastal land that produces a lot of agricultural commodities, but in fact the agricultural commodity has not been analyzed as a superior commodity that will become the center of production and distribution agents. Based on
these problems, this study analyzes the types of superior commodities that will be the basis for the
development of the southern coastal region of Purworejo Regency.

2. Research Methods
The research location is in the southern coastal region of Purworejo Regency, Central Java. According
to Kawik [17], Setiawan and Djunaedi, [18] to determine the boundaries of coastal physical space in an
area in several countries and in Indonesia is often done by compromising physical, social, economic and
cultural homogeneity of the community and interdependence and interrelationship with other distant
regions from the coast. Based on this, the southern coastal area boundary approach in Purworejo
Regency in this study uses the district-level administrative region approach. Administratively, the
southern coastal region of Purworejo Regency is in 3 (three) subdistrict regions, namely Grabag District,
Ngombol District and Purwodadi District (Figure 1). As for the basic considerations of the sub-district
approach are (1) related to the involvement of residents in various economic activities both directly and
indirectly in coastal areas such as; in activities in marine fisheries or ponds, tourism as well as
agricultural and other activities and (2) at the sub-district level the data available are more related to the
topic of this complete research.

This research uses secondary data. Secondary data was obtained by conducting an institutional survey
to the Purworejo Regency government agency. The variables used include rice and non-rice food
commodities, land and sea fisheries commodities and Purworejo district government policy variables.
The calculation of superior agricultural commodities is calculated based on data from annual production
results. The calculation model used is Location Quotient (LQ) [19]. Mathematically, the LQ formulation
is as follows :

\[
LQ_{ij} = \frac{X_{ij}}{X_i} \frac{X_j}{X}
\]

LQ value is interpreted using the criteria [20] as follows:
1. LQ> 1 is a base sector and able to meet needs outside the study area has a comparative advantage.
2. LQ = 1, is a base sector but is only able to meet the needs of the region itself.
3. LQ <1, is a non-base sector can not meet their own needs so it must bring in from other regions.
In addition to the LQ analysis in this study also used the Specialization Index analysis using the shift-share method. The shift-share method used to analyze and determine the shift and role of the economy in the study area. Mathematically the shift-share equation is as follows:

$$St = Vjt - \frac{Vt}{Va} \cdot Vja$$

The value of Shift Share $> 1$ = positive (+) indicates that sector growth at the local area level is faster than sector growth in regional areas.

The value of Shift Share $<1$ = negative (-) indicates that sector growth at the local level is slower than sector growth in regional areas.

Meanwhile, for the analysis of the development policy of the southern coastal region of Purworejo, it uses a SWOT (Strength, Weakness, Opportunity and Threat) analysis. The stages of analysis carried out in the SWOT analysis are the identification of SWOT elements, weighting and scoring as well as the formulation of alternative policies [21].

3. Results and Discussion

3.1. Characteristics of the South Coastal Region of Purworejo

The southern coastal region of Purworejo Regency is administratively located in the Grabag District, Ngombol District and Purwodadi District. The length of the coastline is approximately 22 Km stretching from the east bordering the Kulonprogo Regency DIY to the west bordering Kebumen Regency. In 2018 the number of residents entering the southern coastal region of Purworejo Regency with the subdistrict administration approach was 113,167 people spread in 3 (three) districts, namely in Grabag Subdistrict as many as 43,922 people, in Ngombol Subdistrict as many as 31,709 people and in Purwodadi District as many as 37,536 inhabitants. Administratively, the area of the southern coast of Purworejo Regency, which covers the areas of Grabag Subdistrict, Ngombol Subdistrict and Purwodadi Subdistrict, covers an area of 17,414 hectares which covers an area of 15,511 hectares of agricultural land and only 1,903 hectares of non-agricultural land.

3.2. Economic Potential of the South Coastal Region of Purworejo

Economic potential in the southern coastal region of Purworejo Regency as the foundation of people's lives can be seen from the superior commodities of agriculture, animal husbandry, fisheries, and tourism. The agricultural potential utilized by the population includes paddy field agriculture and dryland agriculture. The results of agricultural commodities both from paddy fields and from dry land in the southern coastal region of Purworejo Regency are quite diverse. Commodities produced from agricultural land are paddy, field rice, corn, cassava, sweet potatoes, peanuts, soybeans, green beans, tobacco, sugar cane and cocoa, while fisheries are divided into pond fisheries and pond fisheries. Pond fisheries include, gourami, Tawes, Catfish, Tilapia, and Pomfret. While fishponds include shrimp ponds and value / tilapia ponds. For potential livestock potentials and quite dominant, the community is cultivated including cows, goats, free-range chickens and ducks. Other economic potentials, which have already begun to be developed, are marine tourism, namely Jatimalang Beach, Genjik Beach, Pasir Puncu Beach, Jetis / Patutrejo Beach, Ketawang Beach, Jatikontal Beach, Pagak Ngombol Beach and Kebempuan Beach [22]. The economic potential, if developed, will continue to be a leading commodity in the southern coastal region of Purworejo Regency. The results of agricultural production, livestock and fisheries by type in more detail can be seen in Figure 2, Figure 3 and Figure 4.
In the picture of Figure 2, can be seen that agricultural commodities for the coastal region of Purworejo Regency are dominated by paddy rice and deres palm commodities. Livestock commodities in the coastal area that dominate are free-range chicken, duck and Muscovy Duck (Figure 3). Vanamei shrimp ponds and tilapia/mujahir shrimp ponds dominate commodities in the fisheries sector in the coastal region of Purworejo (Figure 4).

Leading commodities in an area can be said to have very high strategic value if they are able to be utilized optimally. The optimal use of superior commodities will ultimately reflect the ability of a region to produce a variety of superior products from agriculture, fisheries, mining, industry, services and other economic sectors. In fact, with a high ability of leading commodities not only will meet the needs of the region itself but will also be able to meet the needs outside the region [23]. Potential leading commodities will have high economic value, highly competitive and competitive, have high productivity, have a high absorption of local and external labor and have high economic viability [24].

Table 1. LQ Value of the South Coastal Region of Purworejo Regency in 2019

| Commodity     | Ngombol | Grabag | Purwodadi |
|---------------|---------|--------|-----------|
| Paddy         | 1.3     | 0.8    | 1.2       |
| Field Rice    | 0.0     | 7.6    | 0.1       |
| Corn          | 0.9     | 2.4    | 1.0       |
| Cassava       | 0.0     | 0.0    | 0.3       |
| Sweet Potatoes| 1.3     | 4.9    | 0.0       |
| Peanuts       | 0.1     | 0.3    | 0.2       |
| Soybeans      | 0.5     | 1.4    | 0.4       |
| Green Beans   | 0.1     | 1.5    | 0.2       |
| Palm          | 0.9     | 0.1    | 1.0       |
| Deres Palm    | 0.0     | 5.6    | 0.7       |
| Sugar Cane    | 0.0     | 1.8    | 3.8       |
| Guava         | 8.3     | 0.0    | 0.0       |
| Cocoa         | 0.4     | 0.0    | 0.0       |
Based on Table 1 and Figure 5, it appears that the LQ value of each commodity, either agriculture, animal husbandry or fisheries in the southern coastal region of Purworejo is quite varied. Of the 12 commodities in the agricultural sector there are as many as 12 whose LQ value > 1 and there are as many as 24 whose LQ value < 1. LQ value > 1 means that the commodity is a superior commodity and is able to meet the needs of both the sub-district itself and other regions. The biggest LQ value for agricultural commodities is cashew commodity in the Ngombol subdistrict, followed by field rice, deres coconut, and sweet potatoes in Grabag District and sugarcane commodity in Purwodadi District. In the livestock sector, there are 11 commodities having LQ value > 1 while 13 others have LQ value < 1. The highest LQ is in the rabbit commodity in Grabag sub-district followed by ducks and cattle in the same sub-district. Muscovy Duck in Ngombol sub-district also has a high LQ. Then in the fisheries sector, there is a value of LQ > 1 totaling 6 commodities, all of which are farmed fish farming. While fish farming in ponds, a total of 15 commodities have a LQ value < 1. Based on the LQ calculation analysis, the leading commodities in the coastal area are paddy, paddy, corn, sweet potatoes, soybeans, green beans, deres coconut, sugar cane, and cashew for the agriculture sector. Main commodities of livestock sector are cattle, sheep, domestic poultry, ducks, entogs and rabbits. Vanamei shrimp ponds and tilapia / mujahir ponds are excellent commodities in the fishery sector.

Apart from agriculture, animal husbandry, and fisheries, the other leading sectors analyzed are the tourism sector. The coastal region of Purworejo Regency has coastal tourism objects in the form of beaches which are visited by many people and if developed further will bring economic benefits both to the sub-district where the tourism object is located or at the level of Purworejo Regency itself. Each coastal tourism object is then calculated LQ value to determine the level of excellence of the tourist attraction whether it can be a leading tourism sector both at the local or sub-district level of the object's location and Purworejo district level. The results of the LQ value for each coastal tourism object can be seen in the following Table 2.

Table 2. LQ Value of Each Coastal Tourism Object in Purworejo Regency

| Tourism Object       | LQ       |
|----------------------|----------|
| Keburuhan Beach      | 1.681040322 |
| Ketawang Beach       | 0.65517598  |
| Patutrejo Beach      | 0.779051089 |
| Kertojayan Beach     | 0.246813252 |
| Jatimalang Beach     | 1.584415803 |
| Jatikontal Beach     | 0.096624519 |
Based on Table 2 above, it can be seen that the value of attractions that have a LQ value > 1 are found in the Jatimalang coast. LQ value greater than one indicates that the two tourism objects are leading tourism objects and become a base sector where the tourism sector is able to bring economic benefits to the region itself. Keburuhan beach is located in Ngombol sub-district while Jatimalang beach is in Purwodadi sub-district.

3.3. Shifts in the South Coastal Region of Purworejo

Shift share analysis is an analysis to analyze the role or shift of a sector in a region against the national sector. Data analysis used in shift share is data on economic activity or employment and others, so that this analysis can be used as a support for adding data to find out the causes of low numbers in sectors in an area viewed from aspects of economic activity and the number of employment and others - others. Nevertheless, this analysis has a weakness that cannot be used to see interdependencies between sectors (where input output analysis can see these linkages), period data within a certain time period in the middle of an unknown period. So when analyzing the dominant sector in an area it is necessary to use many analytical methods so that the results obtained are clearer.

Table 3. Shift Share Value of the South Coast Region in Purworejo Regency in 2019

| Commodities     | Ngombol | Grabag | Purwodadi |
|-----------------|---------|--------|-----------|
| Paddy           | 2956.4  | 347.7  | -31891.3 |
| Field Rice      | -       | 619.1  | -26.5     |
| Corn            | -138.1  | -1566.9| 783.4     |
| Cassava         | 36.0    | -432.8 | 1225.2    |
| Sweet Potatoes  | 26.7    | 206.9  |           |
| Peanuts         | 13.6    | -273.4 | -31.5     |
| Soybeans        | 59.0    | 276.7  | 57.4      |
| Green Beans     | 0.0     | -450.5 | 59.3      |
| Palm            | 50.6    | -3035.6| 752.3     |
| Deros Palm      | 0.0     | 9920.0 | -449.1    |
| Sugar Cane      | -       | 23.2   | 165.2     |
| Guava           | 3.0     | -      |           |
| Cocoa           | -10.6   | -      |           |
| Cows            | -307.8  | -12759.9| -609.4   |
| Goats           | -40.0   | -57.2  | -356.3    |
| Goats           | -1534.5 | 1493.2 | -1984.9   |
| Sheeps          | 1604.9  | -598.9 | 641.2     |
| Free-Range Chickens | 7447.2   | 9669.8 | 12320.2   |
| Duck            | 8782.0  | 14122.4| -4435.0   |
| Duck            | 8274.2  | 1288.7 | -5308.5   |
| Rabbits         | -       | 2223.7 |           |
| Tawes           | -0.3    | 0.1    | 14.6      |
| Gurameh         | 0.0     | 0.6    | -83.8     |
| Tilapia         | -45584.8| -68443.2| -53114.6 |
| Catfish         | -30000.1| -0.4   | -1138.0   |
| Pomfret         | 0.7     | 0.5    | -12.1     |
| Shrimp Ponds    | 756098.3| 1344580.3| -2747862.1|
| Tilapia Ponds   | 1494.8  | 8848.4 | -15241.3 |
Based on the calculation of Shift Share analysis in Table 3, in Grabag sub-district, positive values were found in commodities: lowland rice, field rice, sweet potato, soybean, deres coconut, sugar cane, Javanese goat, free-range chicken, duck, entog, rabbit, shrimp pond and tilapia / mujahir ponds. Dedicate in Ngombol District, positive values are found in commodities, lowland rice, cassava, sweet potatoes, peanuts, soybeans, green beans, coconut, cashew nuts, sheep, free-range chickens, ducks, entogs, shrimp and tilapia / mujahir ponds. Meanwhile, in the District of Purwodadi the value of Shift Share was positive, namely corn, cassava, soybeans, green beans, coconut, sugar cane, sheep, free-range chickens and Tawes. Shift Share (+) value means that the commodity economic growth occurs at the sub-district level faster than economic growth in Purworejo Regency and the opposite occurs in the value (-).

Furthermore, to determine the grouping of commodities based on their comparative and competitive advantages, it is necessary to combine the results of LQ and Shift Share analysis in the form of a combination matrix. The matrix divides the commodity groups into four quadrants. Quadrant I is a group of commodities that have an LQ value> 1 and a DS value> 0. Quadrant II is a quadrant where commodities are grouped because they have an LQ> 1 value and a DS value <0. Quadrants III and IV are used to classify commodities that have an LQ value <1 and a DS value <0 or vice versa. Commodities that are recommended to be superior in an area are commodities grouped in quadrant I because they have LQ> 1 and DS> 0 values. The combined matrix of LQ and DS values is presented in Figure 6.

![Figure 6. Matrix combination of LQ and DS values](image)

Based on this matrix, commodities included in quadrant I are lowland rice, field rice, maize, sweet potatoes, coconut, sugar cane, cashew nuts, sheep, chickens, ducks, entogs, rabbits, vanamei shrimp ponds and tilapia / mujahir pond development in the Districts of Grabag, Ngombol and Purwodadi. This commodity can be recommended as a superior commodity in the coastal area of Purworejo Regency because it has comparative and competitive advantages in accordance with the area of development.

3.4. Coastal Area Management Policy

After obtaining the results of the mapping of leading commodities and the economic growth trends of each of these superior commodities, several new coastal development strategies can be formulated to complement or replace existing policies. The new coastal de-clearing policy strategy refers to superior commodities as the basis for its management.

The decision making technique in the formulation of a management strategy uses the SWOT method (Strength, Weakness, Opportunity, Threat). Based on literature review and information in the field, it was obtained SWOT factors which were summarized from the many identified factors (Table 4).
Table 4. SWOT Analysis of Coastal Zone Management

| S (Strength)                                                                 | W (Weakness)                                      |
|------------------------------------------------------------------------------|---------------------------------------------------|
| Effective and efficient management that focuses on superior commodities in each region | There is no commodity variation                    |
| In accordance with the land suitability parameters of each leading commodity | Changing existing habits                           |
| Have competitiveness                                                         | Limited capital (financial, infrastructure, knowledge). |

O (Opportunity)
- Become a market leader so as to increase the leverage of regions with maximum production
- Has distinctive features
- Offers of cooperation from parties outside the region
- Sustainability (sustainability & business feasibility)

T (Threat)
- Potential for natural disasters and land degradation
- There is a loss that causes failure
- Competitors for similar commodities elsewhere

Table 5. Economic Development Strategy Matrix for the South Coast of Purworejo

| S (Strength)                                                                 | W (Weakness)                                      |
|------------------------------------------------------------------------------|---------------------------------------------------|
| Management based on superior commodities in each region so that it becomes a market leader that provides benefits (increased regional income) | Minimizing the risk of management failure and increasing investor attractiveness |

O (Opportunity)
- Strategic processing (meets business feasibility and sustainability)

T (Threat)
- A commodity that is managed so that it has a unique value so that it cannot be found in other regions

4. Conclusion
1. Based on the LQ calculation results, the leading commodities in agriculture are cashew, upland rice, deres coconut, yam and sugar cane. Whereas in the field of animal husbandry in the form of rabbits, ducks, cows and Muscovy Duck. Vanamei shrimp ponds and tilapia / mujahir shrimp ponds are the leading commodities in the fishery sector.
2. Based on the specialization index shows broadly that each of the leading commodities in the coastal region experienced faster economic growth than in Purworejo Regency.
3. Strategic processing (meets business feasibility and sustainability) technology is very likely to improve the quality and quantity of development of coastal areas in Purworejo.

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