

Original Research Article

Analysis of The Role of Fisheries Sector In Regional Development of Garut Regency of West Java

ABSTRACT

This research aims to know how the fisheries sector's contribution as an economic base and the fisheries sector growth in the regional development of Garut Regency. This research was conducted from August 2021 until May 2022 in Garut Regency, West Java. The data collection method used in this research is the survey method; the respondents' sampling technique is purposive sampling. This research consists of two types of data: primary and secondary data. The data were analyzed by Shift share analysis, location quotient (LQ) analysis, Localization index (LI) analysis, and specialization index (SI). Calculation of the economic growth rate in the region using LQ, LI, and SI (the LQ average is 1,91, the LI average is 0,00, and the SI average is 0,00) indicates that the fisheries sector is essential but not specialized in the economic sector in Garut Regency. The result of the shift-share analysis suggests that the fisheries sector is a progressive sector but uncompetitive.

Keywords: Economic basis; Economic growth; the fisheries sector; shift-share; location quotient.

1. INTRODUCTION

The leading sector is a sector that has a comparative advantage and competitive advantage with similar sector products from other regions and provides excellent value for benefits [1]. An area will have a leading sector if the region can compete in the same sector with other regions to produce exports [2].

Garut Regency is one of the regencies in West Java that has potential for freshwater aquaculture, covering an area of 26,000 hectares, including aquaculture fishery for ponds, running water system and mina padi. The potential for aquaculture includes aquaculture with an area of 1000 ha and the potential for public waters such as lakes/swamps covering an area of 258 ha and rivers along 1,290.29 km.

The production of fresh fish consumption in Garut Regency in 2017 originating from Pond aquaculture reached 44,633.85 tons, running water system amounted to 798 tons, Mina Padi amounted to 13,182 tons, and aquaculture ponds amounted to 357 tons.

It is recorded in the GRDP of Garut Regency data that the fisheries sub-sector contributes to the economic development of Garut Regency. In 2017, the fisheries sub-sector contributed 46,026,942.20 million rupiah. This figure is the largest contribution of the fisheries sub-sector to the district's GRDP during one year.

The great potential has not been able to determine the role of the large fisheries sector and has an impact on regional development [3]. Based on this, the considerable fishery potential in Garut Regency has not made the sector a base sector that impacts regional development in Garut Regency. Therefore, it is necessary to analyze the role of the fishery sector in regional development in the Garut Regency.

2. RESEARCH METHODS

2.1 Research Time and Place

Research on the Analysis of the Role Fishery Sector in Regional Development of Garut Regency was conducted in Garut Regency, West Java Province. The study was to study from August 2021 to May 2022. Started data collecting, data processing, writing, and reporting of research results.

2.2 Method

The method used in this research is descriptive quantitative. The process of data collection was carried out by the survey method. The data from this study consisted of two types of data, namely primary data and secondary data—the technique of taking respondents using the purposive sampling technique.

Primary data collection was done by interview and field observation. Related parties in question include the Department of Marine Affairs and Fisheries Garut Regency, fish cultivators and fishers in Garut Regency, and other government agencies. The secondary data of this study is time series data for the last five years, namely 2016-2020, obtained from the Garut Regency Fisheries Office, various statistical data, and data relating to the development of the fishery sector in the Garut Regency area from the District Fisheries Service of Garut, Garut Official government, CBS West Java.

The data collection technique used in this research is Literature Study and Interview. A literature study is a data collection technique using literature related to the object of research in data, records, or archives. The data was obtained in the form of secondary data. Interviews were conducted to obtain data directly from primary sources. The sampling method for interviews was performed by purposive sampling method, namely the selected sampling method based on the research objectives. Interviews were conducted semi-structured with parties related to the development of the fisheries sector in the Garut Regency.

The analysis of the data used in this research is descriptive and quantitative. In contrast, the analysis used is Shift Share Analysis, Analysis of Localization Quotient (LQ), Analysis of Localization Index (LI), and Analysis of Specialization Index (SI).

3. RESULTS AND DISCUSSION

3.1 General Condition of Garut Regency

Geographically, the area of Garut Regency is 307.407 ha or about 8.28% of the total area of West Java Province. Geographically, Garut Regency is located in the southern part of West Java Province with coordinate boundaries between 6°56'49" – 7°45'00" South Latitude and 107° 25'8" – 108°7'30" East Longitude.

Garut Regency has an altitude that varies from the lowest area, parallel to sea level, to the highest site at the top of the mountain. Areas located at an altitude of 1,000-1,500 meters above sea level include Cikajang, Pakenjeng, Pamulihan, Cisurupan, and Cisewu districts, while regions 500-1000 meters above sea level include Pakenjeng and Pamulihan districts. Areas located at an altitude of 100-500 meters above sea level include Cibalong, Cisompet, Cisewu, Cikelet, and Bungbulang Districts. In comparison, areas located between lowlands at fewer than 100 meters above sea level include Cibalong and Pameungpeuk Districts.

The government area in Garut Regency includes 42 sub-districts consisting of 442 villages and 21 wards, the same number since 2016. The conditions in the following year did not change in the number of sub-districts, towns, and communities.

The population of Garut Regency in 2020, as a result of the 2010 Population Census (SP2010) projection, is 2,636,637 people, with a male population composition of 1,325,506 and a female population of 1,311,131 people. This number increased from 2016, which amounted to 2,569,505 people. In 2016 there were 838 people per km² to 844 people per km² in 2017, 850 people per km² in 2018, 855 people per km² in 2019, and 860 people per km² in 2020.

3.2 General State of the Economy

Garut Regency's GRDP in 2016-2020 can be seen in Table 1.

Table 1. Contribution of Each Sector in Garut Regency's GDP in 2016-2020 (%)

Categories	Business field	2016	2017	2018	2019	2020
A	Agriculture, Forestry, and Fisheries	34,63	34,63	33,77	32,89	32,34
a	Fishery	1,70	1,70	1,66	1,61	1,59
B	Mining and excavation	2,58	2,58	2,40	2,19	2,10
C	Processing industry	7,86	7,86	7,95	8,34	8,73
D	Electricity and Gas Supply	0,06	0,06	0,06	0,06	0,06
E	Waste Management, Waste and Recycling	0,05	0,05	0,05	0,05	0,05
F	Construction	6,23	6,23	6,37	6,53	6,40
G	Wholesale and Retail Trade; Car and Motorcycle Repair	21,25	21,25	21,23	21,30	20,49
H	Transportation and Warehousing	3,84	3,84	3,86	3,87	3,79
I	Provision of Accommodation and Food and Drink	3,56	3,56	3,68	3,82	3,95
J	Information and Communication	2,80	2,80	2,98	3,14	3,84
K	Financial Services and Insurance	2,84	2,84	2,82	2,83	2,89
L	Real Estate	1,77	1,77	1,85	1,93	2,03
M,N	Company Services	0,54	0,54	0,56	0,60	0,54
O	Government Administration, Defense, and Social Security	3,34	3,34	3,19	3,11	3,02
P	Education Services	4,61	4,61	4,85	4,89	5,30
Q	Health Services and Social Activities	0,73	0,73	0,78	0,81	0,80
R,S,T,U	Other Services	3,32	3,32	3,59	3,66	3,66

Source: CBS Garut Regency in Figures 2020[4].

3.3 Fishery Sector Economic Growth Component Share

The Shift Share analysis technique divides growth as a change in a regional variable, such as labor, added value, income, or output, over a certain period into influences: national growth, industrial mix/balanced growth, and competitive advantage. The Shift Share analysis

compares the differences in the growth rates of various sectors (industries) in the regions with the national ones [5]. Table 2 shows the percentage change in Garut Regency and West Java Province.

Table 2. Changes in GRDP of the Fishery Sector of Garut Regency and West Java Province based on constant prices in 2016-2020.

Year	(ΔY_i)	Persentase Perubahan (%)	(ΔY_j)	Persentase Perubahan (%)
2016/2017	13.350,12	2,32	353,25	3,17
2017/2018	12.998,85	2,21	122,86	1,07
2018/2019	8470,79	1,41	553,38	4,77
2019/2020	3375,33	0,55	709,45	5,83

Description: Y_i = Garut Regency
 Y_j = West Java Province

Table 2 shows the percentage change in the value of GRDP in the fisheries sector in Garut Regency tends to decrease from year to year. The percentage change in the value of GRDP in the fisheries sector in West Java Province is greater than the GRDP value in the fisheries sector in Garut Regency; this is due to the extensive coverage of the fisheries sector in West Java Province, which can provide a more excellent GRDP value than the GRDP value in Garut Regency.

Table 3. GRDP Ratio of the Fishery Sector of Garut Regency and West Java Province in 2016-2020.

Year Analysis	Ri	Ri	Ra
2016/2017	0,023	0.031	0,053
2017/2018	0,022	0,010	0,056
2018/2019	0,014	0,047	0,051
2019/2020	0,005	0,058	-0,024

Description:
 r_i = GRDP ratio of the fisheries sector in Garut. Regency
 R_i = GRDP ratio of the fisheries sector of West Java Province
 R_a = provincial GDP ratio

Table 3 shows that the growth rate of the fisheries sector in Garut Regency and West Java Province can be said to have a declining growth rate. The R_a value is the value of GRDP growth from calculating the difference in the total value of the provincial GRDP in the base year of analysis (2016) divided by the total provincial GRDP of the base year of study (2016). The value of R_a is a value that shows growth or becomes a reference value.

The value of R_i is the value of GRDP growth from the calculation of the difference in the GRDP of the fisheries sector of West Java Province in the initial year of analysis (2020) with the GRDP of the fisheries sector of West Java Province in the base year of study (2013) divided by GRDP of West Java Province in the base year of analysis (2013). The value of r_i is the value of GRDP growth from the calculation of the difference between the GRDP of the fishery sector in Garut Regency in the initial year of analysis (2020) and the GRDP of the fishery sector of Garut Regency in the base year of study (2016) divided by GRDP of Garut Regency in the base year of study (2016).

Based on the reference value (R_a), the 2016/2017 R_i value of 0.031, 2017/2018 of 0.010, and 2018/2019 of 0.047 indicates a lower development than the reference value, while 2019/2020 of 0.058 indicates a higher growth of the reference value. The 2016/2017 r_i value of 0.023, 2017/2018 of 0.022, and 2018/2019 of 0.014 indicates a lower development than

the reference value, while 2019/2020 of 0.005 indicates a higher growth than the reference value. The ratio of GRDP in the fisheries sector in West Java Province tends to be higher than in Garut Regency. Still, in 2017/2018, the GRDP ratio in the fisheries sector in Garut Regency grew to be higher than in West Java Province.

Table 4. Share Components of the Fishery Sector of Garut Regency with West Java Province 2016-2020

Year	KPP
2016/2017	30749,27
2017/2018	33182,66
2018/2019	30492,33
2019/2020	-14903,5

The Proportional Growth Component (KPP) or Share Component is a component of economic growth that explains the increase in GRDP from the provincial level to the district level [6]. The value of the Share component is obtained from the calculation of GRDP in Garut Regency in the base year of the analysis (2016) multiplied by the Ra value. Table 7 shows the value of the provincial growth component or Share component; the importance of KPP in the fisheries sector in Garut Regency and West Java Province shows a fluctuating value. The value of KPP in 2016-2019 the value of KPP shows a positive value; the most considerable KPP value is in 2017/2018 at 33182.66, followed by 2016/2017 of 30749.27, and in 2018/2019 of 30492.33. the year 2019/2020 has a negative value of -14903.5. A sector that has a positive KPP value means that the sector has a fast regional economic growth rate. In contrast, a negative KPP value indicates that the sector's regional economic growth rate grows slowly [7].

3.4 Mix Components

Table 5. Mix Components of the Fishery Sector of Garut Regency and West Java Province in 2016-2020

Year	PP
2016/2017	-1251.01
2017/2018	-2690.
2018/2019	-1843.13
2019/2020	5046.80

Description: PP = Proportional Growth

Table 5 shows the proportional change (PP) in the contribution of the Garut Regency fisheries sector to West Java Province. Based on the balanced growth (PP) of the fisheries sector in 2016/2017, 2017/2018, and 2018/2019, it gave a negative contribution with values of -1251.01, -2690, and -1843.13, indicating that in that year, the growth rate of the Garut Regency fishery sector slower than West Java Province with a PP value < 0. In 2019/2020, the fishery sector made a positive contribution with a value of 5046.80, which shows that in that year, the growth rate of the Garut Regency fishery sector was faster than West Java Province because the PP value > 0.

3.5 Competitive Component

Table 6 shows the value of the Competitive Component or regional share growth (PPW), which has an average of -853.06, which is a value that indicates that the general development during the last five years, namely 2016-2020, the fishery sector in Garut

Regency does not yet have an advantage over the fisheries sector in other regions in Indonesia. West Java province. 2017/2018, the value of the Competitive component shows a positive number of 6709.22. This is because the growth value of the Garut Regency (ri) fishery GRDP growth is more significant, namely 0.022, compared to the West Java (Ri) province's fisheries GRDP growth value of 0.011. The growth of the GRDP value in 2017/2018 was higher because 2017 was the most increased fishery production, which was 60,659.61 tons, so it was able to encourage the rate of economic growth of the fishery sector in Garut Regency. Results of the Competitive Fisheries Sector Components for 2016-2020:

Table 6. Value of the Competitive Components of the Fishery Sector of Garut Regency in 2016-2020

Year	PPW
2016/2017	-4884.15
2017/2018	6709.22
2018/2019	-2018.4
2019/2020	-3218.9
Average	-853.06

Description: PPW = Regional Share Growth

3.6 Fishery Sector Net Shift

Table 7. Fishery Sector Net Shift in Garut

Year	PB
2016/2017	-17399,154
2017/2018	-20183,813
2018/2019	-22021,5
2019/2020	18278
Average	-10331,617

Table 7 shows the net shift value (PB) of the fisheries sector in Garut Regency with an average value from 2016 to 2020, which is -10331,617. The fishery sector shows a PB value < 0, which indicates that the fishery sector in Garut Regency has a slow growth rate.

3.7 Fishery Sector Growth Profile

The growth profile of the fishery sector is determined based on the percentage of PP and PPW values. This value will indicate which quadrant the fisheries sector is in.

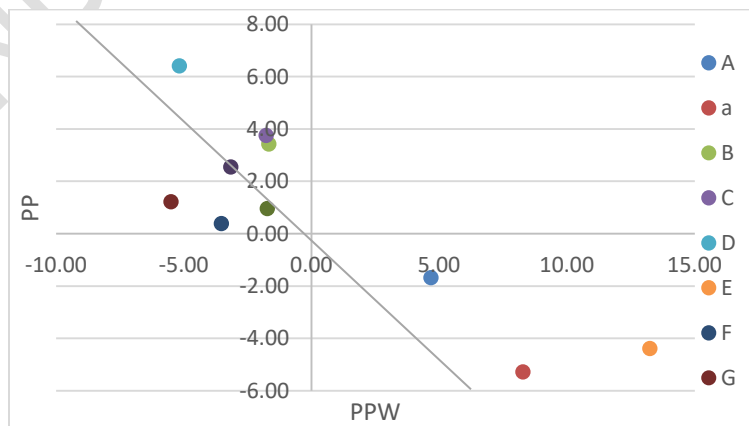


Figure 1. Growth Profile of the Garut Regency Fisheries Sector

Description:

A = Agriculture

a = Fishery

B = Mining and Quarrying

C = Processing Industry

D = Electricity and Gas Supply

E = Water Supply, Waste Management, Waste

F = Construction

G = Wholesale and Retail Trade; Car Repair

H = Transportation and Warehousing

I = Provision of Accommodation and Drinks

3.8 The Role of the Fishery Sector on Regional Development

3.8.1 Localization Quotient (LQ) analysis

The LQ technique is one of the approaches commonly used in the primary economic model as a first step to understanding the sector of activity that drives growth. LQ measures the relative concentration or degree of specialization of economic activities through a comparative approach [8].

The results of the calculation of LQ analysis in Garut Regency are shown in table 8. Table 8 shows how many economic sectors are the basis of the results of the estimate of the LQ value > 1. The Garut Regency fisheries sector is the basis sector, indicated by an average LQ value of more than 1, 1, 91.

Table 8: The results of the calculation of LQ analysis in Garut Regency

Categories	Business field	2016	2017	2018	2019	2020
A	Agriculture, Forestry, and Fisheries	4,50	4,55	4,59	4,53	4,40
A	Fishery	1,95	1,94	1,97	1,91	1,80
B	Mining and excavation	1,21	1,21	1,22	1,26	1,29
C	Processing industry	0,18	0,18	0,19	0,20	0,21
D	Electricity and Gas Supply	0,13	0,15	0,16	0,17	0,18
E	Waste Management, Waste and Recycling	0,63	0,63	0,63	0,65	0,61
F	Construction	0,77	0,77	0,78	0,79	0,78
G	Wholesale and Retail Trade; Car and Motorcycle Repair	1,36	1,37	1,40	1,39	1,39
H	Transportation and Warehousing	0,80	0,81	0,81	0,81	0,81
I	Provision of Accommodation and Food and Drink	1,39	1,40	1,42	1,47	1,49
J	Information and Communication	0,75	0,75	0,76	0,72	0,65
K	Financial Services and Insurance	1,10	1,11	1,12	1,16	1,14
L	Real Estate	1,54	1,54	1,55	1,55	1,50
M, N	Company Services	1,30	1,31	1,35	1,33	1,40
O	Government Administration, Defense, and Social Security	1,66	1,59	1,61	1,57	1,64
P	Education Services	1,68	1,72	1,73	1,77	1,72
Q	Health Services and Social Activities	0,96	1,00	1,01	0,99	0,98
R,S,T,U	Other Services	1,61	1,68	1,69	1,68	1,66

The superior regional sector is the sector that can make a significant contribution to the region, not only to meet the needs of the area itself but also to meet the needs of other areas [6].

3.8.2 Localization Index (LI) analysis

The data used in the LI analysis are Garut Regency GRDP data and West Java GRDP data. The results of the LI analysis are presented in table 9.

Table 9. Calculation Results of LI Analysis for Fisheries Sector in Garut. Regency

Year	LI
2016	0,00
2017	0,00
2018	0,00
2019	0,00
2020	0,00

Table 9 shows the results of the calculation of the LI for the fishery sector. The fishery sector offers an LI value of 0.00, meaning that the fishery sector is dispersed in West Java Province and has not become the focus of excellence in Garut Regency. This shows that in Garut Regency, there is no specialization in the fisheries sector. Although the results of the LQ analysis show that there is a concentration (base sector) of the fishery sector in Garut Regency, while based on the LI analysis, the fishery sector is dispersed (not concentrated in certain areas), it means that the concentration that has occurred has not yet been focused. This is because other districts in West Java have the potential for the fisheries sector according to their geographical area. Each region has geographical conditions that support the fisheries sector with different business branches.

3.8.3 Analisis Spesialization Index (SI)

The results of the calculation of the SI analysis of Garut Regency in Table 10 show the value of the total SI of Garut Regency in 2016-2020 0.00 (below 0.5), which means that fishery sector activities in Garut Regency are dispersed, or there is no concentration/specialization in economic activity. All economic activity in Garut Regency shows evenly distributed activity in various economic sectors. The different sectors of activity need a commodity that is used as a leading commodity in Garut Regency.

Table 10. Calculation Results of Garut Regency SI Analysis 2016-2020

Categories	Business field	2016	2017	2018	2019	2020
A	Agriculture, Forestry, and Fisheries	0,00	0,00	0,00	0,00	0,00
A	Fishery	0,00	0,00	0,00	0,00	0,00
B	Mining and Quarrying	0,01	0,01	0,00	0,01	0,01
C	Processing Industry	0,01	0,00	0,00	0,00	0,01
D	Electricity and Gas Supply	0,00	0,00	0,00	0,00	0,00
E	Water Supply, Waste Management, Waste	0,00	0,00	0,00	0,00	0,01
F	Construction	0,00	0,00	0,00	0,00	0,00
G	Wholesale and Retail Trade; Motorcycle Car Repair	0,00	0,00	0,00	0,00	0,00
H	Transportation and Warehousing	0,00	0,00	0,00	0,00	0,00
I	Provision of Accommodation and Drinks	0,01	0,00	0,00	0,01	0,00
J	Information and Communication	0,01	0,01	0,00	0,00	0,02
K	Financial Services and Insurance	0,00	0,00	0,00	0,00	0,00

L	Real Estate	0,01	0,00	0,00	0,00	0,01
M,N	Company Services	0,00	0,00	0,00	0,01	0,01
O	Government Administration and Defense	0,01	0,00	0,00	0,00	0,00
P	Education Services	0,01	0,00	0,00	0,00	0,01
Q	Health Services and Social Activities	0,01	0,00	0,00	0,01	0,00
R,S,T,U	Other Services	0,01	0,00	0,00	0,00	0,00

4. CONCLUSION

Based on the research that has been done regarding the Analysis of the Role Fisheries Sector in Regional Development of Garut Regency, West Java, it can be concluded that:

1. Location quotient (LQ) analysis of the fisheries sector to the GRDP of Garut Regency from year to year shows an average value of 1.91. This value means that the fishery sector is the economic base sector.

2. Analysis of the growth rate of the fishery sector using the shift-share calculation method from year to year tends to decline. While the growth profile of the fishery sector based on the percentage of PP and PPW values shows that the fisheries sector in Garut Regency is included in quadrant II, a positive pp value indicates that the growth of the fisheries sector is fast. In contrast, a negative PPW value suggests that the competitiveness of the fisheries sector is not good. Progressive because it is located above the sloping line that forms an angle of 45° and intersects quadrants II and IV.

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