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THE CONTRIBUTION OF FISHERIES SECTOR IN REGIONAL DEVELOPMENT OF PANGANDARAN REGENCY WEST JAVA PROVINCE.

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Contribution of Fisheries Sector, Regional Development, Growth Indices Analysis, Trade Area Capture and the Pull Factor Analysis, Minimum Requirement Approach Analysis.

ABSTRACT

The purpose of this research is to analyze the growth of the fisheries sector, analyze the strength of the commodity market, and analyze the strength of the fisheries sector-based sector in regional development in Pangandaran Regency. The method used in this study is a quantitative method using secondary data which is then analyzed using descriptive statistics and qualitative methods using primary data obtained through interviews. The analysis used is growth analysis, Trade Area Capture (TAC) analysis, Pull Factor analysis (PF) and Minimum Needs Approach (MRA) analysis. The results of the growth index analysis show that the GDP of the fisheries sector in the Pangandaran Regency increased revenue by 3% within two years. The results of the 2014-2016 TAC analysis showed the value of the TAC> population showed that Pangandaran Regency was able to estimate the trade value of other regional fishery products. The PF value of the Pangandaran Regency fisheries sector> 1 which shows that the Pangandaran Regency region can attract customers from other regions. The results of the MRA analysis of Pangandaran Regency obtained the largest base multiplier in Kalipucang District with a value of 32,6 which means that every 320 workers in the base sector are expected to create 6 workers in the non-base sector.

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INTRODUCTION

Regional dimension development, in general, is often referred to as regional economic development in the context of the macroeconomy, for example, regional development in both provinces and cities (Setiyanto *et al*. 2015). The purpose and objectives of regional development are to advance economic growth and regional competitiveness, as well as reduce disparities between regions and develop community life (Bappenas 2015). Gross Regional Domestic Product (GRDP) is one indicator of the level of development progress and community welfare in an area

Pangandaran Regency is a New Autonomous Region which was formed on October 25, 2012, based on the Law of the Republic of Indonesia Number 21 of 2012 which consists of 10 districts. Pangandaran Regency had previously become an important area and became a strategic area in West Java. This regency is strategically located, because it is located on a provincial road, is on the coast by 91 Km long, and has a variety of potential to be developed (Bappeda Pemprov Jawa Barat 2016).

The potentials of the Pangandaran Regency are in the marine and fisheries, agro-industry and tourism sectors. The population in the Pangandaran Growth Center Area is predominantly earning a living as farmers, which is 50,139 people or 66% of the population works. Furthermore, the population of those working in the trade sector is 9.466 people or 12% of the total working population. Furthermore, farmers and servants constitute the next largest business field, 4.200 people and 4.141 people or 5% of the total population working in the Pangandaran Growth Center (Bappeda Pemprov Jawa Barat 2016).

Pangandaran Regency has a long coastline, relatively large sea area and abundant marine wealth. Even though it has a high marine potential, the people of the Pangandaran Regency do not forget the potential of aquaculture. The amount of capture fisheries production in 2016 in Pangandaran was 2.589,24 tons and aquaculture was 874,632 tons. The commodity with the largest amount of production value is layur fish for capture fisheries and tilapia, carp, catfish for aquaculture (BPS Kabupaten Ciamis 2018).). The contribution of the fisheries sector in the Pangandran Regency is not significant to West Java's GRDP. Production must be optimized seeing the magnitude of the potential of the Pangandaran Regency in the fisheries sector.

The level of public education in an area will influence the development of the area. Education is considered as an effective way to enhance development. The education level of the fishing community in the Pangandaran Regency tends to be low due to poverty in the fishing community. The fishing community is described by the characteristics of the low level of life (low income and low standard of living) of the community. The characteristics of poverty are very visible in the fishing community, namely the pattern of living and the availability of their poor boards and the standard of living of the fishing community is at a decent standard of living (Kusumo *et al.* 2013).

Regional development must be following the conditions of the potential and aspirations of people who grow and develop. If the implementation of regional development priorities is not following the potential of each region, the utilization of existing resources will be less than optimal so that it can result in a slow process of economic growth in the area concerned (Juhanis 2012). Pangandaran Regency has advantages and problems in the fisheries sector in regional development efforts. Therefore it is necessary to research "The Contribution of the Fisheries Sector in Regional Development of Pangandaran Regency West Java Province".

This research aims to determine the contribution of the fisheries sector in the regional development of the Pangandaran Regency by analyzing the growth of the fisheries sector, the strength of the fisheries commodity market and the strength of the base and non-base sectors in Pangandaran Regency. The results of this research are expected to be useful as a reference in decisions or policies, particularly the local authorities as a consideration in drawing up the planning strategy for the development of fisheries sector as well as a reference to the another to add to the knowledge and insight into the information.

METHODS

This research was conducted in Pangandaran Regency, West Java Province in April 2019 - January 2019. The types of data used are quantitative and qualitative data. Data sources used are primary data and secondary data. Primary data were obtained through interviews with fisheries communities and fisheries stakeholders in Pangandaran District. Secondary data was obtained through the Central Statistics Agency of Ciamis Regency, the Department of Maritime Affairs, Fisheries and Food Security of Pangandaran Regency, the Central Statistics Agency of Pangandaran Regency and other relevant institutions. This research uses quantitative methods and qualitative methods. The quantitative method uses data consisting of numbers and analyzed using statistics. The data that has been obtained is then analyzed to be able to answer the problem formulation and the proposed hypothesis. The statistics used to consist of descriptive statistics that analyze data by analyzing or describing data that has been collected. The qualitative method uses an interview questionnaire that will describe the condition of fisheries in the Pangandaran Regency and the aspirations of the fishing community in the development of fisheries in the Pangandaran Regency. Qualitative methods are used to explain a phenomenon profusely by collecting data (Sugiyono 2017)

Data analysis

Analysis of the data used in this research is quantitative and qualitative. The quantitative analysis used is:

Analysis of Growth Indices

Analysis of Growth Indices is used to view the growth of the fisheries GDRP in a given period. To calculate the growth indices is used the following formula (Fauzi 2010) :

$$GI_i = \left(\frac{Y_{it}}{Y_{i.base}}\right) \text{x } 100$$

Description :

GI_i = The ratio of economic variables to be measured

Y_{it} = Economic variables to be measured in a certain period

$Y_{i.base}$ = The same economic variable in the base year

Analysis of Trade Area Capture (TAC)

Analysis of Trade Area Capture (TAC) to measure the strength of the commodities market fisheries at the same time linkages with socio-economic indicators such as income and the buying ability society. The TAC formula from fisheries in region A can be formulated as follows (Shaffer *et al*. 2004):

$$TAC_a = \frac{AS_a}{PCS_{base}\left(\frac{PCI_a}{PCS_{base}}\right)}$$

Description :

AS_a = The actual sales value of fisheries commodities in the area a

PCS_{base} = Per capita sales of fish products in the base area

PCI_a = Per capita income for the area analyzed

PCI_{base} = Per capita income in the base area

If the numbers obtained from TAC > total population in the area analyzed then it can be said that the number of inhabitants has a pattern of expenditure against fishery products is greater than the base region (e.g. national). Conversely, if TAC < total population then the region lost a potential trade of fishing and has a pattern of spending that is lower than national. TAC measure purchases by residents and also the inhabitants of non-residents.

Analysis of Pull Factor (PF)

Analysis of Pull Factor (PF) aims to measure the strength of interest from the locals would a commodity, in this case, the fish products. Pull Factor (PF) can be calculated using the following formula (Fauzi 2010):

$$PF_a = \frac{TAC_a}{P_a}$$

Description :

TAC_a = *Trade Area Capture* in the area a

P_a = Number of population in the area a

If the value PF > 1 then market fishery products in A region able to attract customers from other regions. Conversely, if PF < 1 then A region losing customers against markets of the other competitors.

Analysis of Minimum Requirement Approach (MRA)

Analysis of Minimum Requirement Approach (MRA) is used to measure how big strength of the base sector by measuring base multiplier. The Minimum Requirements Approach (MRA) can be formulated as follows (Ullman & Dacey 2005):

$$X_a^i = \left(\frac{E_a^i}{E_a} - \frac{E_{\min peer}^i}{E_{minpeer}}\right) E_a^i$$

Description :

E_a^i = number of fisheries workers in the area a

E_a = number of workers in the area a

$E_{\min peer}^i$ = number of fisheries workers in the *peer* area

$E_{minpeer}$ = number of workers in the *peer* area

Calculation of the MRA in this study using a variable workforce (E = Employment) as one of the indicators. The formula above States that the basic employment sectors i (in this case fisheries) in A region is the multiplication of the total labor of the sector i in A region with a different share of the fishery sector with share a minimum share of the nearest sector (peer).

RESULT AND DISCUSSION

The Contribution of Fisheries Sector In Regional Development

Analysis of Growth Indices

Growth Indices analysis is used to monitor the growth of GRDP in the Pangandaran Regency in a certain period. Calculations carried out in this study use the variable Gross Regional Domestic Product (GRDP) of the Pangandaran Regency based on Constant Prices According to Business Field in 2014 - 2016 as an indicator. Details of the results of the calculation of the Fisheries Growth Index in Pangandaran Regency can be seen in Table 1 below:

Table 1. The Results of Calculation of *Growth Indices* at Constant Price Year 2014-2016

Pangandaran Regency GRDP Based On Constant Prices According To Bussines Field 2014-2016				
Year	Fisheries Sector GRDP In 2014	Fisheries Sector GRDP In 2016	*Growth Indices*	Fisheries Sector GRDP
	$Y_{i,base}$	Y_{it}	GI_i	(%)
2014	522.409.225.600	535.522.448.000	103	3

Calculation results from the growth index of Pangandaran Regency in 2014-2016, obtained a growth index value of 103. Details of the GI calculation results can be seen in Table 1. Based on these values it can be concluded that the PDRB of the Pangandaran Regency fisheries sector has fluctuated, but overall has increased by 3% within two years. The growth index calculation is used GDP data with constant prices on business to eliminate the impact of inflation on regional income. Also, the increase in the GDP of the fisheries sector in the Pangandaran Regency is allegedly due to the establishment of the Pangandaran Regency as a growth center which causes a greater concentration of regional development to be carried out in Pangandaran Regency. This caused significant growth in almost all sectors in Pangandaran Regency.

Previous research by Hasiholan (2018) produced a GDP growth rate of the fisheries sector in Bogor Regency by 65%. The GRDP growth rate of the fisheries sector in the Bogor Regency is greater than the growth rate of PDRB fisheries in the Pangandaran Regency. This is presumably because, in the method of calculating the growth index, a study by Hasiholan (2018) uses the GRDP of the fisheries sector on the current price according to the business field so that it still gets the influence of inflation. The cause of Bogor Regency's GRDP growth is higher than that of Pangandaran Regency, allegedly because the number of workers in Bogor Regency is greater, the quantity and quality of investment is better, the population is larger and is located in a large city area (metropolitan)

Analysis of Trade Area Capture (TAC)

The TAC calculation carried out in this study uses the variable value of actual fish sales in Pangandaran Regency (ASa) which was adopted through the value of fisheries production in Pangandaran Regency, the per capita value of fish product sales in West Java Province (PCSbase), per capita income in Pangandaran Regency (PCIa), and per capita income in West Java Province (PCIbase). Based on the results of the TAC calculation of the Pangandaran Regency fisheries sector in 2014 - 2016, the Pangacaran Regency's TAC value in 2014 was 445.324, then 450.204 in 2015, and 493.777 in 2016. Details of the TAC calculation results in the Pangandaran fisheries sector can be seen in Table 2 below :

Table 2. Calculation Result of Trade Area Capture In The Pangandaran Regency 2014- 2016

Year	P_a	AS_a	PCS_{base}	PCI_a	PCI_{base}	TAC_a
2014	422.586	213.180.531.200	1.019.588	14.135.699	30.107.259	445.324
2015	402.413	230.945.575.467	1.074.594	15.583.732	32.644.963	450.204
2016	405.683	263.323.832.043	1.144.311	16.255.136	34.879.922	493.777
$\bar{x}$	410.227					463.102

TAC calculation results illustrate the number of residents who will buy fishery products. If seen from the calculation results and the average of the fisheries sector TAC in the Pangandaran Regency in 2014-2016, the fisheries sector TAC in Pangandaran Regency is greater than the population in Pangandaran Regency (TAC> Pa). In 2014, the TAC value was greater than the population (445,324> 422.586), then in 2015 the TAC value was greater than the population (450.204> 402.413), and in 2016 the TAC value was greater than the population (493.777> 405,683). So it can be concluded that the fisheries sector of the Pangandaran Regency can capture the opportunities of trade in fisheries products in other regions and the community of Pangandaran Regency has a pattern of spending on fishery products that is greater than in West Java Province. The TAC essentially measures purchases by residents and outsiders.

Based on previous research in Bogor Regency by Hasiholan (2018), the TAC value of Pangandaran Regency and Bogor Regency is greater than the total population. This indicates that Bogor regency and Pangandaran regency can capture trade opportunities in other regional fishery products. The strengths of the fisheries sector in Bogor Regency are the large number and value of aquaculture production while the advantages of the fisheries sector in the Pangandaran Regency are the amount and value of large capture fisheries production. For example, the superior commodity of vaname shrimp in the Pangandaran Regency can capture the opportunities of trade in fisheries products in other regions and even penetrate foreign markets.

Analysis of Pull Factor (PF)

The PF calculation in this study uses the TAC value in Pangandaran Regency and the population in Pangandaran Regency. Details of the calculation of the PF value of Pangandaran Regency in 2014-2016 can be seen in the following Table 3:

Table 3. Calculation Results Of Fisheries Sector Pull Factor 2014-2016

Year	P_a	TAC*a*	PF_a
2014	422.586	445.324	1,05
2015	402.413	450.204	1,12
2016	405.683	493.277	1,21
	$\bar{x}$		1,12

The average PF fishery sector in Pangandaran Regency in 2014-2016 shows that the PF value of the fisheries sector in the Pangandaran Regency is greater than 1. This is due to the increased contribution of the fisheries sector in the GRDP in the Pangandaran Regency and the high market demand from other regions for commodities Pangandaran Regency fisheries, especially fishery products. So it can be concluded that the Pangandaran Regency can attract customers from other regions or Pangandaran Regency has a specialization in fishery products. According to Fauzi (2010), if the PF value > 1 indicates that the fishery product market in the region can attract customers from other regions in the vicinity. Conversely, if PF <1 then the region loses customers to other competing markets.

Based on previous research by Hasiholan (2018) the PF value of the Pangandaran Regency and Bogor Regency is more than 1 (> 1). This means that these two regions can attract customers from other regions. The power to attract better customers is found in Pangndaran Regency because PF Pangandaran Regency> PF Bogor Regency. This is presumably because the fisheries production results of the Pangandaran Regency are better able to meet the needs of fisheries in other regions compared to Bogor Regency which is only focused on aquaculture. The main commodity of the fishery which becomes specialization of the Pangandaran Regency are layur fish, bloated fish, vaname shrimp, tilapia and gourami. This commodity can meet regional demand and attract customers from other regions in West Java, outside West Java to foreign countries

Analysis of Minimum Requirement Approach (MRA)

The MRA calculation in this study uses the labor variable (E = Employment) as an indicator. The MRA technique uses areas that have the same characteristics that are used as a reference or peer. In this study, other areas used as a comparison are all districts in Pangandaran Regency, which amount to 10 districts, namely: Cimerak, Cijulang, Cigugur, Langkaplancar, Parigi, Sidamulih, Pangandaran, Kalipucang, Padaherang, and Mangunjaya districts. Calculation of labor share values between regions is explained in the following Table 4:

Table 4. Inter - District Fisheries Sector Workforce Share In Pangandaran Regency 2016

District	Total Workforce	Total Fisheries Work-force	*Share* Workforce
Cimerak	15.422	216	0.0140
Cijulang	9.378	109	0.0116
Cigugur	6.850	76	0.0110
Langkaplancar	32.203	287	0.0089
Parigi	17.632	312	0.0176
Sidamulih	14.274	268	0.0187
Pangandaran	7.303	142	0.0194
Kalipucang	18.830	745	0.0395
Padaherang	63.757	689	0.0108
Mangunjaya	9.787	92	0.0094

The share value is obtained by comparing the number of fisheries work arrangements with the total workforce in a district. Based on the data obtained it can be seen that the sub-district that has the lowest share value is the Langkaplancar District. This happens because the number of workers is relatively large in Langkaplancar District, but the number of fisheries workers is relatively small for the number of workers. Besides that, Langkaplancar District does not have a sea area so fisheries workers, especially fishermen, tend to be little or nonexistent. The district with the highest share value is the Kalipucang sub-district. This is due to Kalipucang Subdistrict located on the edge of the beach (sea area) which causes many fisheries workers, especially fishermen. Also, the total labor force that is not too much in the Kalipucang District causes the value of the share of the fisheries sector in the District to be higher. The share value of the Langkaplancar sub-district fisheries sector is the lowest so it is used as a peer area. Details of the 2016 Pangandaran District MRA calculation results are explained in the following Table 5:

Tabel 5 . Calculation Of Minimum Requirement Approach For Inter-District Fisheries Sector In Pangandaran Regency 2016

District	*Share* Sektor	Minimum *Shares Peer*	Total *Em-ployment* Sektor	Total *Em-ployment*	*Basic Em-ployment*	*Basic Mul-tiplier*
Cimerak	0.0140	0.0089	216	15.422	78,55	196,3
Cijulang	0.0116	0.0089	109	9.378	25,42	368,9
Cigugur	0.0110	0.0089	76	6.850	14,95	458,1
Langkaplancar	0.0089	0.0089	287	32.203	Wilayah Acuan (*peer*)	
Parigi	0.0176	0.0089	312	17.632	154,85	113,8
Sidamulih	0.0187	0.0089	268	14.274	140,78	101,3
Pangandaran	0.0194	0.0089	142	7.303	76,91	94,9
Kalipucang	0.0395	0.0089	745	18.830	577,18	32,6
Padaherang	0.0108	0.0089	689	63.757	120,784	527,8
Mangunjaya	0.0094	0.0089	92	9.787	4,77	2.049,8

The data variables obtained in table 5 can be used to calculate the base multiplier of the fisheries sector which is calculated based on the ratio between the total workforce in the fisheries sector divided by basic employment. Kalipucang District in the MRA analysis has a basic multiplier value of 32,6. This shows that every 32 workers created by the base sector will produce 0.6 workers in the non-base sector. Or for every 320 workers in the base sector is expected to create 6 workers in the non-base sector. Previous research Ramadona (2012), Padang city has a basic multiplier value of 177,6 which shows that every 177 workers in the base sector are expected to be able to produce 0,6 workers in the non-base sector. Based on these data the multiplier effect of Padang City is lower than that of Kalipucang Subdistrict, this is because Padang City is considered as an area prone to earthquake and tsunami disasters, this is a problem in developing the fisheries sector in Padang City (Ramadona et al. 2012).

Aspiration of Fisheries Development in Pangandaran Regency

The implementation of regional development must be based on a development plan prepared based on the conditions, potential, and capability of the resources owned by the region. The Regional Government gives authority to the regions to draw up regional development plans which are an integral part of the national development planning system. Based on the 2016-2021 Pangandaran Regency RPJMD, several missions will be formulated to be achieved in the development of Pangandaran Regency, namely:

• Achieve an accountable, clean and serving governance

• Achieve harmonious spatial planning and control for the use of environmentally sound spaces
• Provide quality infrastructure and facilities
• Strengthening the resilience of local wisdom values
• Building Human Resources that are independent, quality and competitive
• Build a resilient, developed, equitable and sustainable economy
The above mission is a general mission in the medium term to be achieved by the Pangandaran Regency government

Regional development cannot be separated from the aspirations that develop in the community. The Pangandaran Regency fishing community has its aspirations in developing the Pangandaran Regency area. Based on the results of interviews with the fishing community, the people's aspirations for the government are:
• Hopes that the government will provide services to the community by the process
• The government is more professional in implementing policies and on target
• Assisting the community in a periodic and scheduled time
• The government must meet frequently with the community in the field to find out complaints from the community
The aspirations of the Pangandaran community towards the government tend to be non-specific only focused on the obligations that are supposed to and should be carried out by the government and based on the conditions felt by the community

CONCLUSIONS

Based on research conducted, it shows that the GDP of the fisheries sector in the Pangandaran Regency in 2014-2016 has fluctuated, but overall the GDP growth rate of the fisheries sector has increased by 3%.

The value of Trade Area Capture (TAC) of the Pangandaran Regency in 2014-2016 is always greater than the population. TAC in 2014 amounted to 445,324, in 2015 amounted to 450,204 and in 2016 amounted to 493,777. This means that the Pangandaran Regency fisheries sector can capture the opportunities of trade in fisheries products in other regions. The Pull Factor (PF) value of the Pangandaran Regency fisheries sector in 2014-2016 was more than 1 (PF> 1). This means that Pangandaran Regency fishery products can attract customers from other regions.

The best value of the Basic Multiplier in the Pangandaran Regency is in Kalipucang District, which is 32.6. This means that every 320 workers in the base sector, is expected to create 6 workers in the non-base sector
Based on these results it is expected that an increase in fisheries production, especially aquaculture in Pangandaran Regency to be able to compete with Pangandaran capture fisheries production

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