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Disparity Analysis Fisherman Income of Payang and Trammel Net Fisherman in Kecamatan Juntinyuat, Indramayu Regency

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The research of inequality budget level analysis in Indramayu Regency has been carried out in April 2019 until September 2020 This study aims to determine the level of budget and analyze the level of inequality in Juntinyuat, Indramayu Regency based on characteristics of Badan Pusat Statistik (BPS) in 2017. The method used in this research is qualitative and quantitative method. Information and data are collected by primary and secondary data that obtained by questionnaire and from relevant agencies. Processing data used the Williamson Index analysis and the Klassen Typology. The results showed that the average budget per capita of the region in Indramayu Regency has reached Rp. 15.311.000, and the results of the Gini ratio analysist has been in the high level because it was higher than 0.5 and the results of the development analysis patterns in Indramayu Regency was in 4 quadrants. It was different in each district. Juntinyuat and Karangampel sub-districts are in I quadrant, Balongan sub-district as in II quadrant, Kedokanbunder sub-district as in III quadrant and Krangkeng sub-district as in IV quadrant.

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1. INTRODUCTION

Indonesia is a country that has a wide ocean with quite high fishery resources. As the largest archipelagic country in the world, Indonesia's territory consists of one third and two areas of ocean waters (oceans) with a land area covering 17508 basic islands by a coastline of 81,000 km [1-8]. The Indonesian Exclusive Economic Zone (ZEEI), covering an area of 2.7 million km, is a zone that can be exploited and managed for its natural resource potential (Murdjijo 2001).

Indramayu Regency is an area where part of its territory is on the coast so that the lives of the people are mostly fishermen [9]. Indramayu Regency has great fisheries potential and is renewable [10-17]. It is hoped that the fisheries sub-sector will continue to develop and become a strategic sector in the development of the Indramayu Regency area (Syarief et al. 2014) [18-21]. Supposedly, with the advantages of this fishery sector, the people of Indramayu can improve the economy [22-25]. Indramayu Regency is a regency with a sloping topography or its area directly adjacent to the sea so that human activities are very familiar with marine and fisheries. Indramayu Regency with a coastal length of 114 km has a large enough potential for fishing in the sea in managing marine resources (Darmadi 2013). In Indramayu Regency, there are several potential areas for producing the most fish, one of which is Juntinyuat District [26] [27-29].

Traditional fishermen generally live below the poverty line [30-35]. This is due to their inherent characteristics, namely subsistence business conditions, small capital, traditional technology and one-day fishing (Susilowati 2001). Fishermen are traditional coastal communities with the main livelihood of utilizing natural resources in the sea in the form of fish, shrimp, seaweed, shellfish and other marine resources [36]. Fishing communities are identical to poverty due to several factors, namely economic factors and social factors [37,38,39].

The low income of fishermen which has an impact on poverty is due to the instability of the fish catch obtained by fishermen (Rahmatika et al. 2013). Fishing gear is one of the income factors for fishermen to catch marine products (Acheson 2013) [40-42]. Furthermore, Fauzi [43] states that simple fishing technology leads to low fishermen's income. The low income of traditional fishermen is a longstanding problem, but it has not been resolved until now [44].

2. MATERIALS AND METHODS

2.1 Location and Time of Research

The research location includes Juntinyuat District, Indramayu Regency, West Java. This research was conducted from April 2019 to September 2020.

2.2 Types and Source of Data

The types of data used in this research are qualitative data and quantitative data. The qualitative data in this study were obtained from the results of filling out the questionnaire, while the quantitative data were in the form of the PDRB value of Juntinyuat District, Indramayu Regency. In terms of acquisition, the data obtained is categorized as non-experimental data, which means data that is not the result of an experiment.

Sources of data obtained in this research include primary data and secondary data. Primary data obtained from the results of filling out a questionnaire conducted by purposive sampling on Payang Fishing Equipment and Trammel net Fishermen. Secondary data also used in this research is data for the period 2015-2019 in Indramayu Regency, West Java.

2.3 Sampling Method

The sampling carried out in this research was purposive sampling in the sense that the respondents were deliberately chosen at the intended target or not randomly (random). The selection of respondents is taken with the consideration that respondents can understand and fill out the questionnaire well.

The sampling in this research is by selecting sub- groups from the population in such a way that the selected sample has a representative character of the population with characteristics based on experience [45].

1. The criteria for respondents are as follows: Respondents are of 20 people who work as fishermen for Payang fishing gear.
2. Respondents are of 20 people who work as fishermen for trammel net fishing gear.

2.4 Analysis Method

2.4.1 Disparity analysis

The analysis of the disparity of opinion is carried out by calculating how much the disparity of fishermen's income in this study uses under the Gini coefficient. The Gini coefficient is expressed in the form of a ratio whose values are 0 and 1. 0 used for indicating perfect equality where all values are equal while the value of 1 shows the highest inequality, namely one person controls while the other is nil.

2.4.2 Analysis of disparity trend

The trend of disparity is observed from the development of the income inequality index value obtained from the calculation of the Gini index described in a table. Based on this table, it has been analyzed descriptively the occurrence of trend of inequality.

2.4.3 Analysis of economic growth patterns

The pattern of economic growth is observed on the basis of systematical combined economic growth rates and per capita income; then it classified into groups / categories according to Klassen Typology. Klassen Typology analysis was used with an aim to identify the position of the economic sector in Indramayu Regency.

3. RESULTS AND DISCUSSION

3.1 Geographical Conditions in Juntinyuat District, Indramayu Regency

Geographically, Juntinyuat District is located between 108 º430 ¹ - 108 º 437 ¹ East Longitude and 6 º 432 ¹ - 6 º 439 ¹ South Latitude. Topographically, Juntinyuat District is generally lowland with a slope of 1 – 3 percent, while the altitude is approximately 3 – 12 m above sea level. Juntinyuat is a sub-district located at the eastern end of Indramayu Regency. Juntinyuat District has an area of 5,003.8 hectares consisting of 967, 2 hectares of land / yards and 4,036, 6 hectares of land for paddy fields.

3.2 Population in Juntinyuat District, Indramayu Regency

Population problems are one of the important issues in planning and evaluating the results of development implementation. Various population indicators can be used to see a condition of the area for other indicators [46-50,44,26]. From these various indicators. Juntinyuat District consists of 12 villages divided into local environmental units (SLS), 84 Rukun Warga (RW), and 295 Rukun Tetangga (RT), which are inhabited by 79,140 people consisting of 41,859 men 37,281 women, so the total number is 79,140 people [51]. The highest population density level was Dadap Village 5,988 people per km2 and the lowest population density was Tinadak Village with 941 people per km2 At the end of 2017 the population of Juntinyuat District, Indramayu Regency was recorded at 76,758 people. The composition of the population of Juntinyuat District in 2018 consists of 40,386 men and 36,732 women.

3.3 GRDP and Growth Rate in Juntinyu at District, Indramayu Regency

The area of Indramayu Regency bordering Juntinyuat District, consisting of Balongan, Karangampel, Kedokan Bunder, and Krangkeng Districts, is one of the coastal areas in Indramayu Regency. The economic scale of Indramayu Regency is reflected in the amount of GRDP during the period 2015 to 2020, as follows:

According to Table 5, in the period 2015 to 2019 the average GDP per capita in Karangampel District has the highest number in Indramayu, reaching 21.128 million rupiah. Furthermore, the second highest average per capita GRDP is occupied by Juntinyuat District, specifically 18.828 million rupiah. Meanwhile, the regions with the lowest average per capita GRDP figures during the 2015 to 2020 period are occupied by Krangkeng District with a value of 9.718 million rupiah.

Furthermore, when viewed every year in the period 2013 to 2019 the highest per capita GRDP figure was always occupied by Karangampel District followed by Juntinyuat District.

Based on Table 4, during the 2015-2019 period, all districts has to increase in GRDP from year to year. Based on Table 5, the GDP per capita owned by each district has increased from year to year.

3.4 Analysis of Economic Growth Patterns in the Indramayu Region

The pattern of economic growth in Indramayu Region using Klassen Typology analysis is carried out by comparing the GRDP per capita at the 2010 current price of each sub-district with the average GRDP per capita based on the 2010 prevailing prices throughout the East Indramayu Regency and comparing the economic growth rate each district with an average rate of economic growth throughout the Indramayu region in each analysis year.

According to Table 4, the results of the Klassen Typology analysis, Juntinyuat District and Karangampel District are in quadrant I, which is an advanced and fast- growing area, because Juntinyuat and Karangampel Districts have higher levels of economic growth and per capita income compared to the average. throughout the East Indramayu region with an average growth rate of 6.86 and 8.40 percent and an average GRDP per capita of 18.8 and 21.1 million. Then in quadrant II there is Balongan District which is included in the fast developing area, because Balongan District has a high level of economic growth but its per capita income is lower than the average of the entire Indramayu region with an average growth rate of 6.50 percent and an average PDRB per capita is 10.8 million. In quadrant III, there is Kedokanbunder Subdistrict which is included in the developed but depressed area because Kedokanbunder District has a low economic growth rate while its per capita income is higher than the average of all regions in East Indramayu with an average growth rate of only 5.10 percent and an average GRDP Per capita amounted to 16.1 million. Then in quadrant IV there is Krangkeng Subdistrict, in quadrant IV it means that each Krangkeng Subdistrict is included in a less developed area because it has a lower level of economic growth and per capita income than the average of all regions in East Indramayu with an average growth rate of 3.72 percent and the average PDRB of Perkapita in Krangkeng District is only 9.7 million.

Table 1. GRDP at effective price for 2017 in Indramayu Regency 2015-2019 (million rupiah)

No	Sub-district	2015	2016	2017	2018	2019
1	Balongan	321	381	419	456	567
2	Juntinyuat	1.173	1.311	1,471	1.502	1.672
3	Karangampel	1.077	1.258	1.380	1.456	1.688
4	Kedokanbunder	597	652	344	576	726
5	Krangkeng	507	584	620	675	702

Source. Badan Pusat Statistik 2020

Table 2. GRDP per capita in Indramayu Region 2015-2029 (million rupiah)

No	Sub-district	2015	2016	2017	2018	2019	Rata-rata
1	Balongan	8.32	9.90	10.86	11.92	12.87	10.774
2	Juntinyuat	15.15	16.78	18.70	20.68	22.83	18.828
3	Karangampel	17.37	20.08	21.86	22.45	23.88	21.128
4	Kedokanbunder	13.55	14.67	16.21	17.66	18.45	16.108
5	Krangkeng	8.01	8.62	9.68	10.42	11.86	9.718

Source. Badan Pusat Statistik 2020

Table 3. Growth rate of total GRDP in Indramayu Region 2015-2020 (percent)

No	Sub-districk	2015	2016	2017	2018	2019
1	Balongan	5.68	6.02	6.43	6.93	7.42
2	Juntinyuat	6.20	6.88	4.30	7.02	9.89
3	Karangampel	4.49	11,11	4,07	10.88	11.46
4	Kedokanbunder	2.24	2,01	5,88	7.35	8.04
5	Krangkeng	1.28	0,68	4,46	5.28	6.88

Source. Badan Pusat Statistik 2020

Table 4. Results of typology analysis of Klassen in Indramayu Regency

Quadrant II	**Quadrant I**
- Kecamatan Balongan	- Kecamatan Juntinyuat - Kecamatan Karangampel
Quadrant IV	**Qudrant III**
- Kecamatan Krangkeng	- Kecamatan Kedokanbunder

Table 5. Gap index of fishermen's income in Juntinyuat District

Category	Fpi	Fci	(Fci+Fci-1)	Fpi (Fci+Fci-1)
First 15% cluster	0,3461	0,15	0,3461	0,0519
Second 15% cluster	0,2308	0,15	0,5769	0,0865
Third 40% cluster	0,3076	0,40	0,5384	0,2153
Fourth 30% cluster	0,1153	0,30	0,4229	0,1268
Sum	1		18,913	0,4805
Gini Index			1-0,4805	0,5195

Source. Primary Data (processed)

3.5 Analysis of Fishermen's Income Gap Level in Juntinyuat District, Indramayu Regency

The income gap level of fishermen in Juntinyuat District, Indramayu Regency uses the Gini Ratio analysis [52-56]. From the calculation of the Gini ratio, the income of fishermen in Juntinyuat District can be described as table 5.

From this table it can be seen that the Gini coefficient value is 0.5195. This score shows that the level of fishermen's income inequality is in the high category, this is because the Gini coefficient score is above 0.5. So based on these results it can be concluded that there is an income gap between Payang fishing gear fishermen and Trammel net fishing gear fishermen in Juntinyuat District, Indramayu Regency.

4. CONCLUSION

During the period 2015 to 2019, the income level in Indramayu Regency experienced an increase in income. The disparity level of payang fishing gear and trammel net fishermen in Juntinyuat District, Indramayu Regency during the analysis period 2015 to 2019 is at a high level disparity because it is more than 0.5. Based on the calculation of the Gini coefficient, the value is 0.5195 which is above 0.5. This indicates a high level of inequality. This is in line with the research conducted by Pakasi, Ngangi, & Kaunang [57], who conducted a study entitled the analysis of the unequal distribution of fishermen's income in the village of Buhias, Kecamatau, South East Siau with the research method using the Gini Ratio. The results showed that the income of sample fishermen in Buhias Village was quite varied and tended to be different. Where fishermen who use KM 7-10 GT fishing fleets have a high average income, while fishermen who use boats without engines have a low average income. The level of income inequality of fishermen in this study is in the high category with a Gini ratio value of 0.531.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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