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Analysis of the Agricultural Potential of Papua Province

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ABSTRACT

Papua is one of the provinces in Indonesia that has enormous agricultural potential because it has very large areas of land. Most of Papua's population works in agriculture. Even though the agricultural sector is still the basis of hope for the majority of the population, its contribution to GRDP is less than 25 percent. For this reason, it is necessary to carry out an analysis to determine the agricultural potential that exists in each regency/city in Papua Province and the basis and non-basis agricultural sectors that exist in each regency/city in Papua Province. The analytical methods used in this research are Shift-Share and Location Quotient. The results of the Shift-Share analysis, seen from the total value (Shift Share) of the Agricultural sector in all Regencies/Cities in Papua Province, is positive, which means that the growth of the sector is progressive and has the potential to be developed. Based on the results of the LQ analysis, there are 27 regencies included in the basis sector, which means these regencies have a surplus in their agricultural sector and meet the needs of their region and other regions. Besides, Mimika Regency and Jayapura City are included in the non-base sector.

Keywords: Analysis Potency Agriculture Papua Province, Economics, GRDP, Location Quotient (LQ), Shift-Share

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INTRODUCTION

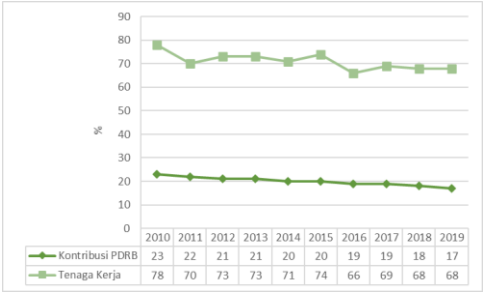
Natural resources in Indonesia are very abundant and Indonesia has extensive and fertile agricultural land, so that Indonesia is known as an agricultural country that relies on the agricultural sector both as a source of livelihood and as a support for development. Acknowledging that many people are relying on agricultural sector as their job, so this the development of this sector is important for the welfare of the society (Nuringsih & Nuryasman, 2021). The development process in Indonesia has made the agricultural sector very important in the national economy because almost the majority of the Indonesian population lives in rural areas with a livelihood as farmers. Apart from making a significant contribution to Indonesia's national income, some of Indonesia's exports also come from the agricultural sector, so that the agricultural sector has an important role in absorbing labor and providing food and clothing needs for the population (Sihabudin et al., 2021).

Economic development area is series activities carried out government area together with public in manage and utilize source existing and forming power something pattern partnership between government area with sector private for create something field Work new and stimulating development growth economy in that region. Therefore, that's the government area along with participation its people and with use source existing power must be capable appraise potency source power required for design and build economy area (Arsyad, 1999).

Main goal development economy area is for increase well-being public with method enhancement quantity and type opportunity Work For public local. In effort for reach objective the government area must be capable make predictions about all potency source existing power, government the region and its people must in a way together take initiative development area. Therefore, that government area along with participation its people and with use source existing power must be capable explore potency source power required for design and build economy area (Arsyad, 2009). With thereby aspect growth economy area be one indicator evaluation success implementation development economy in a region being measured from magnitude mark plus gross *(gross value added)* that arises from all over sector economy in a region period time certain or called with Product Gross Regional Domestic (GRDP).

Agriculture in Papua, which is one of the provinces in Indonesia, has enormous potential because it has very large areas of land, but it has not yet been utilized optimally. This empty land can be used for agriculture and plantations with suitable types of plants. The types of soil in Papua are also very diverse, consisting of volcanic soil, alluvial soil, podzolic soil, laterite soil and peat soil which makes it possible to plant various types of plants. Papua's hilly and mountainous topography provides a variety of good land for agricultural use, including lowland land, hill slopes and highland land. Papua has high rainfall throughout the year making it suitable for the growth of plants that require water such as coffee, cocoa, coconut and rubber.

Figure 1. Contribution of GRDP and Labor in Papua 2010-2019



One of the characteristics of agricultural areas is that most of the people live in rural areas and work in agriculture. According to the characteristics of an agricultural area, the majority of Papua's population works in agriculture. Based on data from 2010 to 2019, agricultural work is still the focus of hope for the majority of the population, although there is a tendency to decline over time. In 2010, agricultural workers were 77.85 percent of all working residents, but in 2019 it fell to 67.73 percent.

Even though the agricultural sector is still the basis of hope for the majority of the population, its contribution to GRDP is less than 25 percent. In 2010 the contribution of the agricultural sector to GRDP was 22.85 percent, in 2019 it was 17.37 percent. This trend, which tends to slow down, shows that the agricultural potential in Papua is increasingly being neglected to be developed, considering that the number of workers accommodated in this sector is so large.

The causes of the slow growth of the agricultural sector in Papua are also very complex and varied. Apart from difficult geographical conditions, various slowdowns in the agricultural sector are influenced by limited infrastructure, uneven accessibility between regions, limited technology, and lack of investment or capital for agriculture. This then influences agricultural productivity and potential in the Province Papua. For this reason, it is necessary to carry out an analysis to determine the agricultural potential that exists in each regency/city in the Province Papua and sector basis and non-basis agriculture that exists in each regencies/cities in Papua Province.

Based on background above that has been outlined and to know more carry on so far This How potency agriculture in Papua Province, then researcher formulate problem as they’re questioning how potency agriculture according to regency/city and how the basis and non-basis agricultural sectors according to regency/city. Thus, to avoid misunderstandings in understanding, the author limits the problem to Potential Agriculture in Papua Province uses sector GDP data agriculture regency/city and provincial GRDP during the year 2010-2020.

LITERATURE REVIEW

Regional Economic Development

Regional economic development is part of the integrity of national development and growth based on the principle of autonomy and national resource which provides opportunities and performance in each region to improve better (Kolinug & Winerungan, 2022). Economic development area is a process where government region and community manage source existing and forming power something pattern partnership between government area with sector private for create something field Work new and stimulating development activity economy in the region (Arsyad, 1999). The economy is considered grow if all real service response to the use of production factor in a given year is greater than the real income of the people in the previous year (Runtunuwu & Kotib, 2021). By general economic development goals is as following: first, develop field Work for existing residents now. Second, achieve enhancement economy area. Third, develop the economic base and opportunities diverse work.

Growth (Region)
Growth regional economy is increasing income society that occurs in the region, namely increase all over mark plus what is happening in the region. Increase income That be measured in real value, that is be measured in price constant. That is also illustrative reply service for factors production operating in the region that. Prosperity a region other than determined by size mark the increase created in the region is also by a large amount big a transfer payment occurs, namely part flowing income to outside the region or get flow of funds from outside the region (Richardson, 1991: 125).

Agricultural Development
Realizing that agricultural sector plays an important role in the economy of Indonesia (Pakpahan, Karsidi, Sugiharjo, & Anantayu, 2022). Commitment in the world must obeyed and implemented in development sustainable is development agriculture. Approach development sustainable in essence is something activity development between aspect economic, social and environmental (Rivai & Anugrah, 2011). Country develops own chain weakest in development that is agriculture, so that required attention special in its construction. The essence of development agriculture that is make income farmer increase good farmers who have land or who rents it with feel exists the increase that causes income will be more increasing (Hakim, 2010: 300).

Agriculture, Forestry and Fisheries Sectors
According to BPS Papua Province (2023), sector agriculture covers all business obtained from nature and constitute things or goods biological (living) results can used for fulfil need life Alone or for sale to party other. Enterprise This including purposeful activities mainly for fulfil need own (subsistence) as in activities business plant food, below description sector agriculture:

Agriculture, Livestock, Hunting and Agricultural Services
Sub category This covers agriculture plant food, plants horticulture, plants plantations, animal husbandry, as well service agriculture and hunting designated animal for sold.

Forestry and Logging
Sub category This covers activity logging all type wood as well as taking leaves, sap, and roots, are included here is supporting services activity forestry based on system reply services/contracts. Commodities produced by activities forestry covers wood spindles (both originating from forest jungle nor forest cultivation), wood grilled, rattan, bamboo, and produce forest others. Also covered in activity forestry This is supporting services activity forestry on base reply services (fee) or contract, incl activity reforestation forest is done on base contract.

Fishery
Sub category This covers all activity catching, seeding, and cultivation all types of fish and other aquatic biota, both in fresh water and brackish water as well as at sea. Commodities produced by activities fishery covers all types of fish, crustaceans, molluscs, grass sea, and other aquatic biota obtained from fishing (in the sea and waters general) and cultivation (sea, ponds, cages, nets floating, ponds, and rice fields). Also covered in activity fishery This is supporting services activity fishery on base reply services (fee) or contract.

Product Gross Regional Domestic
Product Gross Regional Domestic Product (GRDP) is size mark all over goods and services produced by all sector economy in a region or area during One period certain, usually in a year. GRDP is one of the important's indicator to determine the economic condition in the region (Oktaviana & Amalia, 2018). GRDP is used for measure growth

economy and progress a region or country. GRDP is divided into two types, namely upper GDP base applies and GDP above base price constant. Top GDP base price applies measure mark all over goods and services produced by the sector economy at current market prices this, while GDP is above base price constant measure mark all over goods and services produced by the sector economy at market prices in the year certain or price constant (BPS, 2021).

RESEARCH METHODS

Data Types and Sources

Type of data used in analysis potency agriculture according to regencies/cities in Papua are secondary data, in the form of GDP data for Business Fields (Agricultural Sector) above base price constant All districts /cities Papua Province and GDP of Business Fields (Agricultural Sector) above base price constant Papua Province for the 2010-2020 period which was sourced from the official website of the Central Statistics Agency Papua Province.

Data Analysis Methods

Shift Share Analysis Method

Analysis *shift-share* is analysis used for compare difference rate growth sectors in narrow areas (Regency/City) with larger areas area (Province). Analysis *shift-share* has three components namely: *National Share* (N) for knowing shift structure economy something Districts/Cities affected by the shift economy Province, *Proportional Shift* (M) for knowing growth mark plus gross something sector compared to total sectors at level Province, and *Differential Shift* (C) for knowing difference growth economy something Regency/City with mark plus gross the same sector at the level Province. Equality *shift-share* as following:

$$D_{ij} = N_{ij} + M_{ij} + C_{ij}$$
$$D_{ij} = Y_{ij} \,.\, r_n + Y_{ij} (r_{in} - r_n) + Y_{ij} (r_{ij} - r_{in})$$

Y_{ij} = sector GDP i in the Regency/City area
Y_{in} = sector GDP i in level Province
Y_n = GRDP at level Provinces, all of them measured at a year basic
r_{ij} = Change sector i Regency/City
r_{in} = Change sector i Province
r_n = Change Province year base

Location Quotient Method

Analysis *Location Quotient* (LQ) is something analysis used for compare role sector/industry in a regional (regional) against big role sector/industry the in a way national. Regional areas in the form of Regency/City or Province, temporary area national that is Province or Country (Indonesia). Following is formula LQ method:

$$LQ = \frac{X_i^R \ / X^R}{X_i^N \ / X^N}$$

Description:
X = GRDP value (output)
i = Sector
R = Regional (Regency/City)
N = National (Provincial)

The value of LQ can be interpreted as following:

a) LQ > 1, meaning role sector the bigger in the area than national.
b) LQ < 1, meaning role sector the smaller in area than national.
c) LQ = 1, meaning role sector as same as good in the area nor national.

RESULTS AND DISCUSSION

Sector GRDP Shift Share Calculation Results Agriculture, Forestry and Fisheries Regency/City of Papua Province 2010-2020

No	Regency /City	Nij	Mij	Cij	Dij (SS)
1	Merauke	465,774.01	321,874.96	- 73,803.98	713,845.00
2	Jayawijaya	115,568.49	79,864.06	- 42,846.06	152,586.50
3	Jayapura	264,026.63	182,456.64	487,507.74	933,991.00
4	Nabire	200,565.30	138,601.44	103,203.30	442,370.04
5	Kepulauan Yapen	102,503.45	70,835.41	55,920.09	229,258.95
6	Biak Numfor	161,934.83	111,905.70	- 180,325.51	93,515.03
7	Paniai	56,057.29	38,738.61	- 36,683.23	58,112.66
8	Puncak Jaya	50,384.32	34,818.28	- 37,775.51	47,427.10
9	Mimika	195,762.94	135,282.75	41,496.34	372,542.03
10	Boven Digoel	145,823.48	100,771.89	- 11,744.94	234,850.43
11	Mappi	85,634.82	59,178.28	- 67,921.04	76,892.07
12	Asmat	63,923.15	44,174.35	41,520.80	149,618.30
13	Yahukimo	62,560.84	43,232.91	- 35,620.06	70,173.70
14	Pegunungan Bintang	52,574.17	36,331.59	- 16,701.31	72,204.45
15	Tolikara	56,511.04	39,052.18	- 55,064.50	40,498.72
16	Sarmi	96,976.90	67,016.27	9,367.53	173,360.70
17	Keerom	98,445.60	68,031.22	66,556.25	233,033.07
18	Waropen	64,902.12	44,850.87	23,788.60	133,541.59
19	Supiori	37,024.83	25,586.15	16,467.75	79,078.73
20	Mamberamo Raya	33,181.91	22,930.49	18,057.31	74,169.70
21	Nduga	29,480.20	20,372.41	14,521.00	64,373.61
22	Lanny Jaya	40,800.28	28,195.19	13,229.15	82,224.62
23	Mamberamo Tengah	19,768.67	13,661.22	8,666.51	42,096.41
24	Yalimo	30,109.22	20,807.10	17,451.95	68,368.27
25	Puncak	33,026.99	22,823.43	- 23,079.86	32,770.56
26	Dogiyai	41,986.87	29,015.19	2,379.04	73,381.10
27	Intan Jaya	25,969.37	17,946.24	30,353.88	74,269.49
28	Deiyai	33,650.55	23,254.34	539.39	57,444.28
29	Kota Jayapura	179,144.62	123,798.59	212,811.05	515,754.26

Sector GRDP Location Quotient (LQ) Calculation Results Agriculture, Forestry and Fisheries Regency/City of Papua Province 2010-2020

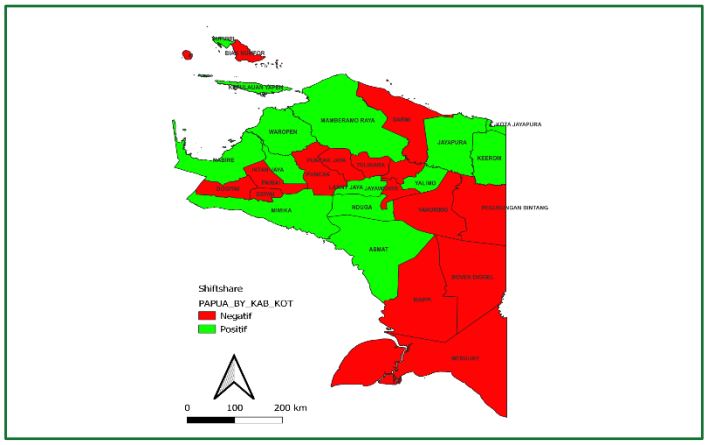
No	Kabupaten/Kota	LQ
1	Merauke	3,18
2	Jayawijaya	1,60
3	Jayapura	2,82
4	Nabire	1,98
5	Kepulauan Yapen	2,39
6	Biak Numfor	2,27
7	Paniai	1,19
8	Puncak Jaya	2,63
9	Mimika	0,13
10	Boven Digoel	2,48
11	Mappi	2,82
12	Asmat	2,93
13	Yahukimo	2,86
14	Pegunungan Bintang	2,37
15	Tolikara	2,81
16	Sarmi	3,66
17	Keerom	3,75
18	Waropen	3,80
19	Supiori	3,08

20	Mamberamo Raya	2,89
21	Nduga	3,50
22	Lanny Jaya	3,31
23	Mamberamo Tengah	2,20
24	Yalimo	3,54
25	Puncak	2,74
26	Dogiyai	3,52
27	Intan Jaya	3,70
28	Deiyai	3,49
29	Kota Jayapura	0,67

Potency Potency Potency Agriculture According to Regency/City
In seeing potency agriculture regencies/cities in Papua Province, on publication this use method Analysis *ShiftShare.* Analysis *ShiftShare* is analysis used for analyze component in determine exists growth an inner region period certain. Components the including components *share* that is *National Share* (N) and shared *shift* components Again into two, namely *Proportional Shift* (M) and *Differential Shift* (C). Analysis *Shift Share* on research this used for understand the growth process sector Agriculture, Forestry and Fisheries all over Regencies/Cities of Papua Province are linked with sector Agrtaller Forestry, and Fisheries at the higher level that is Papua Province.

Based on calculation *shift-share* is visible that mark component growth proportional all over Regency/City of Papua Province is worth positive. It means sector Agriculture, Forestry and Fisheries all over Regencies/Cities of Papua Province specialize at the same level Papua Province is growing relatively faster. So, you can allegedly that income all over Regency/City of Papua Province from side sector agriculture, forestry and fisheries will growing above average growth of Papua Province.

Figure 2. Thematic Map of Differential Shift Values (C) in the Agricultural Sector Regency/City of Papua Province 2010-2020



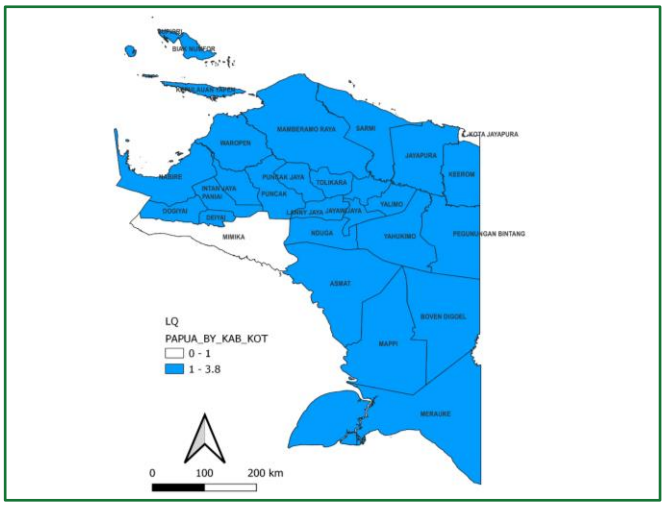
Differential Shift (C) sector value Agriculture, Forestry and Fisheries all over Regencies/Cities of Papua Province in 2010-2020 there were positive and negative ones. The C value is positive means sector Agriculture, Forestry and Fisheries in the Regency/City grow more fast compared in level Papua Province, so potential for developed in spur sector GDP growth Agriculture, Forestry and Fisheries Regency/City of Papua Province. Of the 29 regencies/cities in Papua Province, almost half of its own potency distant farm exceed than the provincial average. Meanwhile, the C value is negative means sector Agriculture, Forestry and Fisheries in the Regency the grow slower compared in level Papua Province.

Viewed from mark the total (*Shift Share*) sector Agriculture, Forestry and Fisheries all over Regency/City of Papua Province is worth positive which means growth sector the progressive. Analysis results *Shift Share* which has mark highest that is Jayapura Regency amounting to 933,991.00 million Rupiah. Merauke Regency has sector Agriculture, Forestry and Fisheries highest second amounting to 713,845.00 million Rupiah. Agriculture, Forestry and Fisheries Sectors highest third is Jayapura City amounting to 515,754.26 million Rupiah.

Third Regency/City own potency sector excellent agriculture in Papua Province. Based on data from the Jayapura Regency Central Statistics Agency (BPS) in 2021, production results Agriculture in Jayapura Regency in 2020 reached 191,744 tons. A number of Potential commodities in Jayapura Regency include rice, sago, cassava, corn, coconut and coffee. Temporary This is based on data from the Maritime Affairs and Fisheries Service Jayapura Regency in 2021 sector Fisheries in Jayapura Regency are also sufficient Potentially, fish production in Jayapura Regency in 2020 will reach 21,759 tons. A number of common types of fish caught in the water Jayapura Regency includes tuna, tuna, snapper and skipjack. Furthermore, Merauke Regency, based on data from the Central Statistics Agency Merauke Regency in 2021, production Rice in Merauke Regency in 2020 reached 56,272 tons. Potential commodities besides paddy including rubber, coconut palm oil, corn, peanuts soil, cassava, and banana. Lastly, sector agriculture in Jayapura City especially focused on development plant food like rice, corn, sweet potatoes, and vegetables. A number of quite a variety of sea fish Lots found in the waters of Jayapura City include snapper, tuna, tuna, marlin, sailfish and layur fish. Apart from fish, there are also fish in the waters of Jayapura City diversity of marine biota like crab, lobster, clams, and shrimp. Resource marine like grass sea and reefs coral also has enough potential big for developed.

District/City Basis and Non-Basis Agricultural Sectors

Figure 3. Thematic Map of LQ Values for the Agricultural Sector Regency /City of Papua Province 2010-2020



Different with special shift share analysis measure inequality development sector agriculture, forestry and fisheries in each regency/city to development sector agriculture, forestry and fisheries Papua Province; LQ analysis shows potency sector agriculture, forestry and fisheries in each regency/city. The LQ calculation results show sector agriculture, forestry and fisheries all over Regencies/Cities of Papua Province on average have excellence, which means sector this own great potential for developed. Seen in the picture above, which has the average value of LQ > 1 is in 27 regencies,

meanwhile Regency/City that has average value of LQ < 1 is Regency Mimika and Jayapura City. LQ > 1 means 27 regencies/cities own sector Agriculture, Forestry and Fisheries classified to in base sector that has power and more dominant compared to sector at level Province.

Analysis results this showing that almost the entire Papua region has potency very superior agriculture, forestry and fisheries If compared to with total potential at provincial level. Agriculture, Forestry and Fisheries Sectors in the Regency/City have a surplus will product that's what it means can fulfil need Regency/City nor other areas as well sector Agriculture, Forestry and Fisheries own potential for developed. On the other hand, Mimika Regency and Jayapura City have the average value of LQ < 1 means sector Agriculture, Forestry and Fisheries classified to in non-basis sector. This thing means, the smaller role sector in Regency/City compared to level Province. As known, in the Mimika Regency is the basis for the sector mining, so allegedly this is what makes the region own potency agriculture, forestry and fisheries are more minimal. Also, the same case with Jayapura City, as capital province, development lots focused on this region, with location of a limited administrative area, Jayapura city also now has shifted to other sectors such as industry and services compared to sector agriculture, forestry and fisheries.

Thereby as well as the average results LQ analysis which describes 29 Regencies/Cities of Papua Province, can be seen that two regencies/cities have it ranking highest and has LQ > 1, namely the first is Waropen Regency owns it the average LQ value is 3.80. Keerom Regency is largest base sector second with an average LQ of 3.75. Waropen Regency own a number of commodity agriculture superior namely: rice, sago, corn, cocoa, cassava, sweet potato, and various type vegetables. Likewise with farm like cows, goats, pigs and chickens race broiler. Furthermore, Keerom Regency own a number of commodity agriculture superior namely: rice, cassava, coconut, and fruit. Excellent livestock farming in the Keerom Regency including free-range chickens, cows, goats and pigs.

By general results analysis potency agriculture at the regency/city level showing that the majority of areas in Papua have potency more agriculture big compared to sector others. Although analysis this still limited only see potency agriculture in a way general without can more far identify potency each subsector, but at least this prove that potency agriculture in Papua enough big. Despite the potential agriculture this big, however if no developed in a way good and proportional so slow gradually development sector This will decrease so that more far can impact on welfare people in Papua itself. For that, development regionally based Papuan agriculture with adapt potency the nature of each region must be mapped and developed more continue.

CONCLUSION

Based on results analysis *Shift-Share* and LQ, the potential for agriculture and the basis and non-basis agricultural sectors according to Regency/City in Papua Province. Viewed from mark the total (*Shift Share*) sector Agriculture all over Regencies/Cities in Papua Province are valuable positive which means growth sector the progressive and potential developed. The results of the Shift Share analysis have mark highest that is Jayapura Regency and Merauke Regency. Based on results LQ analysis, there are 27 regencies included to basis sector which means Regency the have a surplus in sector his farm and can sufficient need the area nor other areas. On the other hand, Mimika Regency and Jayapura City are included to non-basis sector. The results of the LQ analysis have mark highest that is Waropen Regency and Keerom Regency.

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