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Determination of Agropolitan Areas Based on Leading Commodities of Horticultural Crop Production, Food Crop Production, and its Effect on the GRDP of the Agricultural Sector of Malang Regency

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A B S T R A C T

The agricultural sector can play a role in reducing the gap between rural and urban areas which has the effect of hindering the growth and development of economic development in Malang Regency. The purpose of this study is to determine the leading commodities and their influence on agricultural sector GRDP to help increase economic growth. The use of LQ analysis to determine the leading commodities of horticultural crop production and food crop production. Panel data regression analysis to determine the effect of independent variables on agricultural sector GRDP. It is known that there are top base sectors in Poncokusumo and Donomulyo sub-districts. Assessed an insignificant positive effect between horticultural crop production on the dependent variable, while a significant positive effect between food crop production on the dependent variable. Has a simultaneous influence between the independent variable and the dependent variable.

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INTRODUCTION

Many causes of failed economic growth are an interesting thing to find a solution to the problem. The fluctuating value of GRDP in the agricultural sector, as well as the uneven infrastructure, is often a benchmark for the success of economic growth in a region. the event that is often encountered is the mass migration of villagers to urban areas. This is driven by the lack of sufficient employment opportunities and the low standard of living in the countryside encouraging villagers to migrate.

Malang Regency is an area with an average migration rate of 22,033 peoplein 2012-2021. The gap that occurs in rural and urban areas is an obstacle toeconomic growth in the region. Rural and urban areas have interrelated access to the production market. The need for synchronized development in rural and urban areas can increase rural income to be used to buy adequate basic needs. Ideal development is needed to produce agricultural products that are able to produce products with competitive advantages for better market competition. The lack of more attention to the agricultural sector makes the sector a little sidelined. Therefore, more attention is needed to avoid the use of green (agricultural) land as residential development that should not stand on green land and the availability of inadequate infrastructure, causing the low competitiveness of the products produced and the decline in the level of education in the region.

Agricultural development is a process of social change that can be aimed at improving the economic welfare and welfare of farmers to the people who live in the region itself. Agricultural development also has an impact on economic growth, social, political, cultural, and one of the forms of maintaining a green natural ecosystem. The agricultural sector can contribute to economic development, because it creates new employment opportunities, improves the community's economy, and earns foreign exchange for the country (Daryanto, 2018). The importance of determining potential in economic development based on the agricultural sector is a form of allocating natural resources appropriately.Economic development planning by utilizing the basic sector and non-basic sectors is expected to be able to encourage economic growth efficiently by developing superior commodities as an example of appropriate superior production (Daryanto, 2018).

The Malang Regency area, which is starting to be densely populated, can make horticultural crop production a new alternative to increase the economy ofrural communities. As for what can add to the value of GRDP other than horticultural crop production, namely food crop production which also plays an important role in increasing the agricultural sector. This is because food crop production produces staple crops that can be consumed by the community. The use of superior commodities in horticultural crop production and food crop production will be able to increase the pace of the economy and affect gross regional domestic product of agricultural sector.

Concept of regional development is basically oriented towards equitable development efforts that are balanced between rural and urban areas. Agriculture, which is synonymous with rural areas, becomes an added

value if itcan be managed properly, if it is able to provide employment, supply daily needs,and as a land for environmental conservation to remain balanced. Of course, these factors must be driven by infrastructure such as technology or qualified human resources to handle these problems.

THEORETICAL REVIEW

Gross Regional Domestic Product (GRDP) Of The Agricultural Sector

GRDP agricultural sector is one of the driving factors of economic growth in a region with a fairly important and strategic role in the national economy. Addition GRDP is also a measure of the success of an economic development applied to the region. If there is a failure in economic development, it can be seenfrom the acquisition of GRDP which is decreasing or there is no growth.

Horticultural Crop Production

Horticultural crop production is a branch of agriculture that deals with certain plant characteristics such as fruit crops, vegetables, ornamental plants, and medicinal plants (Estri, 2021). Another explanation says that horticultural crops also have different planting techniques which can be done with limited media. Horticultural crops are tropical temperature crops that have the potential to be developed in Indonesia with good prospects in the future, as well as beingone of the tools to improve the economy.

Food Crop Production

Food crops are one of the sectors in agropolitan areas that play an important role in increasing the GRDP value of the agricultural sector (Ministry of Agriculture, 2011). Food crops can be defined as crops that produce basic human needs such as tubers, beans, and grains.

Based on the theory above, a hypothesis can be found:

- H1: it is suspected that the production of horticultural crops has a positiveeffect on GRDP of the agricultural sector
- H2: it is suspected that food crop production has a positive effect on GRDP ofagricultural sector

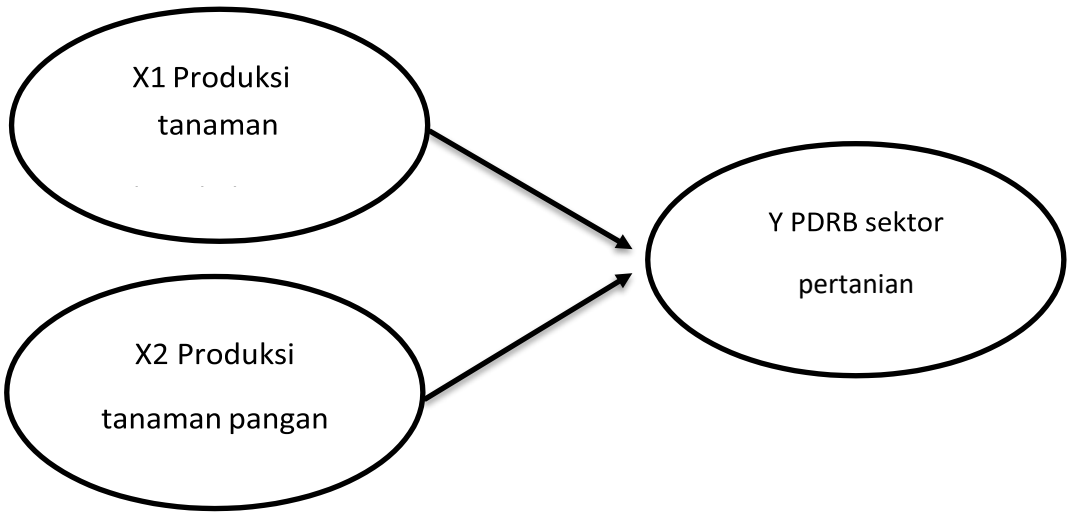

Figure 1. Conceptual Framework

METHODOLOGY

Used data in this research is secondary from 2012 - 2021 taken in Malang Regency through official websites such as the central statistics agency (BPS) and other related ministry pages. The data was tested using Location Quotient (LQ)to determine the leading commodities. Plus panel data regression analysis to determine the relationship between variables individually and together.

LQ analysis technique to analyze the base sector in a region. In addition, LQis also used to determine the concentration of the distribution of production activities in a region and illustrates the comparative advantage in the productionof the region (Saragih, 2015). LQ analysis is expressed if the formula is obtainedas follows (Hendayana, 2017):

$$\boldsymbol{LQ = \frac{Ri/Rt}{Ni/Nt}}$$

Description:

Ri= Crop production in each sub-district

Rt= Total value of crop production in each sub-district

Ni= Crop production in Malang District

Nt= Total production in Malang District

Requirements:

- If the LQ value >1 then it can be interpreted as a basic sector,
- If the LQ value <1, it can be interpreted as a non-base sector.

Panel data regression analysis is combination of time series and cross section data (Ghozali, 2016). Assuming Y as the dependent variable, and X as independent variable, for following research formula can be used:

$$Y_{it} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta\varepsilon$$

Description:

Y= Agricultural sector GRDP (rupiah)

X1= Horticultural crop production

X2= Food crop production

β_0= Constant

β_1= Coefficient of horticultural crop production

β_2= Food crop production coefficient

$\beta\varepsilon$= Error term

RESULTS

LQ results of horticultural crop production in the form of total leading commodities in 2012 - 2021 from each sub-district.

Table 1. Result of Horticultural Plant Productions

No.	Kecamatan	Tahun									
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	DONOMULYO	1	1	1	1	1	1	3	4	5	5
2	KALIPARE	1	2	1	1	1	1	6	6	0	0
3	PAGAK	1	2	2	2	2	1	1	0	2	2
4	BANTUR	0	0	0	0	0	2	7	0	0	0
5	GEDANGAN	0	0	0	0	0	0	0	0	0	0
6	SUMBERMANJING	0	0	0	0	0	0	0	1	0	0
7	DAMPIT	1	1	1	1	1	1	1	4	2	3
8	TIRTO YUDO	1	1	1	1	1	1	1	2	3	3
9	AMPELGADING	0	0	0	0	0	0	4	6	2	2
10	PONCOKUSUMO	15	16	16	16	16	15	15	13	14	14
11	WAJAK	9	9	9	9	9	8	7	8	7	7
12	TUREN	4	5	4	5	5	4	4	1	3	2
13	BULULAWANG	0	0	0	0	0	0	0	0	0	1
14	GONDANGLEGI	0	0	0	0	0	0	0	0	1	1
15	PAGELARAN	0	0	0	0	1	0	0	0	2	2

16	KEPANJEN	0	0	0	0	0	0	0	0	1	1
17	SUMBER PUCUNG	0	0	0	0	0	0	0	2	0	0
18	KROMENGAN	0	0	0	0	0	2	0	1	0	0
19	NGAJUM	1	1	1	1	1	2	4	3	1	1
20	WONOSARI	0	0	1	1	1	1	1	1	0	0
21	WAGIR	0	0	0	0	0	0	0	1	3	3
22	PAKISAJI	0	0	0	0	0	0	0	0	1	1
23	TAJINAN	3	4	3	3	3	3	7	4	4	4
24	TUMPANG	11	11	12	12	12	12	10	14	13	13
25	PAKIS	5	4	4	4	4	4	4	5	4	5
26	JABUNG	2	3	2	2	2	1	1	3	4	4
27	LAWANG	4	5	4	4	4	5	0	1	1	1
28	SINGOSARI	4	4	4	4	4	4	0	0	2	2
29	KARANGPLOSO	3	3	3	3	3	12	13	12	12	12
30	DAU	4	5	6	6	6	2	5	6	4	4
31	PUJON	4	5	4	5	5	6	9	12	16	16
32	NGANTANG	12	12	12	12	12	13	14	15	14	13
33	KASEMBON	0	0	0	0	0	1	3	1	1	1

LQ results of food crop production in the form of total leading commoditiesin 2012 - 2021 from each sub-district.

Table 2. Result of Foods Plant Productions

No.	Kecamatan	Total	No.	Kecamatan	Total	No.	Kecamatan	Total
1	PONCOKUSUMO	150	12	SINGOSARI	28	23	KASEMBON	7
2	NGANTANG	129	13	JABUNG	24	24	WONOSARI	6
3	TUMPANG	120	14	DONOMULYO	23	25	PAGELARAN	5
4	WAJAK	82	15	KALIPARE	19	26	KROMENGAN	3
5	PUJON	82	16	DAMPIT	16	27	GONDANGLEGI	2
6	KARANGPLOSO	76	17	NGAJUM	16	28	KEPANJEN	2
7	DAU	48	18	PAGAK	15	29	SUMBER PUCUNG	2
8	PAKIS	43	19	TIRTO YUDO	15	30	PAKISAJI	2
9	TAJINAN	38	20	AMPELGADING	14	31	SUMBERMANJING	1
10	TUREN	37	21	BANTUR	9	32	BULULAWANG	1
11	LAWANG	29	22	WAGIR	7	33	GEDANGAN	0

Panel data regression results by finding the relationship between the agricultural sector GRDP variable (Y) with horticultural crop production (X1), and food crop production (X2).

Table 3. Result of Foods Plant Productions

Variable	Coefficient
C	58.924733
X1_PRODUKSI_HORTIKULTURA	-0.025269
X2_PRODUKSI_PANGAN	8.328303
R-squared= 0.993882	
Adjusted R-squared= 0.993177	
Prob(F-statistic)= 0.000000	

From the above results, it can be entered into the following formula

$$Y= 58{,}924733 - 0{,}025269 + 8{,}328303 + e$$

Description:

C=58,924733

X1= 0,025269

X2= 8,328303

e= Confounders

DISCUSSION

Based results of LQ analysis on production of horticultural crops in Malang Regency shows areas with superior commodities based on the type of plant is in Poncokusumo District with a total of 150 superior commodities in 2012 - 2021. If taken on average there are 15 types of plants that are classified as superior commodities of horticultural crops in Poncokusumo District every year from 2012 - 2021.

On results of the LQ analysis on food crop production in Malang Regency, it shows that the area with superior commodities based on the type of plant is in Donomulyo District with a total of 36 superior commodities in 2012-2021. If taken on average there are 5 types of plants that are classified as superior commodities of horticultural crops in Donomulyo District every year from 2012 - 2021.

Based on the tests that have been carried out, there is no influence of the totalproduction of horticultural crops on the gross regional domestic product

(GRDP) of agricultural sector of Malang Regency in 2012-2021. The results showed that if there was an increase and decrease in the total production of horticultural crops, it had no impact on increase or decrease in the GRDP of agricultural sector in Malang Regency. The horticultural crop production variable has a positive value direction, which means that any increase will increase the GRDP of agricultural sector. So the hypothesis that horticultural crop production has a positive and significant effect on GRDP in the agricultural sector is rejected.

Based tests that have been carried out, there is an influence of total food crop production on GRDP of the agricultural sector of Malang Regency in 2012-2021. The results showed that if there is an increase and decrease in the total production of horticultural crops, it can have an impact on the increase or decrease in the GRDP of the agricultural sector in Malang Regency. The horticultural crop production variable has a positive and significant value direction, which means that any change will affect the GRDP of the agricultural sector. The hypothesis that food crop production has a positive and significant effect on GRDP in the agricultural sector was accepted.

CONCLUSIONS AND RECOMMENDATIONS

Based on research that has been made using the LQ method and panel data regression analysis, the following conclusions are obtained.

1. From the results of Location Quotien (LQ) horticultural crop production found 3 (three) sub-districts with a total of plant types of superior commodity groups that grow, namely in Poncokusumo District, Ngantang District, and Tumpang District in 2012 – 2021.
2. From the results of Location Quotien (LQ) of food crop production, there are 3 (three) sub-districts with a total type of superior commodity crops that grow, namely in Donomulyo District, Kalipare District, and Pagak District in 2012- 2021.
3. From the results of the research on the variable production of horticultural crops has a positive and insignificant influence on GRDP of agricultural sector in Malang Regency period 2012 - 2021. this is due to the minimalland area and the lack of knowledge of human resources regarding horticultural crops.
4. From the research results on the food crop production variable, it has a positive and significant influence on the GRDP of the agricultural sector in Malang Regency in the period 2012-2021. Food crop production is the production of basic needs that are very important and needed by humans, therefore if the value of food crop production increases, human needs will be abundant.

With the discovery of these results, it is expected to be able to help increase economic growth in the Malang Regency area. At the focus on the sub-district level, superior commodity results have been found that can help other sub-districts to continue to develop and increase their personal competitiveness in production every year. In addition, it can also be seen that the production of

horticultural crops and the production of food crops are proven to have a simultaneous effect (together) on the GRDP of the agricultural sector of Malang Regency.

The results of the conclusions previously described, it can provide recommendations as a form of consideration for readers and other related parties including:

1. Related parties are expected to be able to maximize the horticultural crop sector so that it can help increase GRDP in the agricultural sector optimally. In addition, it can also be considered regarding knowledge about horticultural crops so that the knowledge received can be applied properly and correctly.
2. Parties are expected to be able to maintain and improve supporting factors for food crop production where the crop sector has an important role or a large contribution to the GRDP of the agricultural sector. In addition, food crop production is a sector that produces basic needs, therefore more attention is needed so that the production produced is able to meet existing demand by maintaining good quality.

FURTHER STUDY

It is imperative to acknowledge the limitations of this study, and the results may vary depending on the context and time period. Therefore, further research incorporating relevant factors is recommended to obtain comprehensive results. may vary depending on the context and time period. Therefore, further research incorporating relevant factors is recommended to obtain comprehensive results.

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