

The Impact of Oil Palm Plantations on Economic Growth of Batanghari Regency

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Abstract— This study aims to analyze the position and impact of oil palm plantations on economic growth in Batanghari Regency. This study uses time-series data for the 2010-2019 period which was collected from related agencies. The analysis method uses location quotient, multiplier effect, and shift-share analysis. The results showed that oil palm plantations are the basic sector in the economy of Batanghari Regency in terms of GRDP at Constant prices and employment ($LQ > 1$). The shift-share values from the aspects of GRDP at Constant prices, GRDP at Current Prices, and labor absorption indicate that oil palm plantations are a potential economic sector to be developed. The value of the multiplier effect generated by oil palm plantations is quite large from the aspect of GRDP at Constant prices of 35.53 and employment of 10.44.

Keywords— Contribution, Quotient Location, Multiplier Effect, Shift-Share.

I. INTRODUCTION

Regional economic development is an activity and policy that aims to improve the standard of living of people in an area. Gross Regional Domestic Product (GDP) is one of the results of the development carried out. GRDP is one of the indicators in determining the direction of development. There are 3 fields that affect Jambi Province's GDP in 2019, namely the agricultural sector which contributes 26.26%, the mining and quarrying sector which contributes 23.95%, and the manufacturing sector which contributes 10.41%. Macro indicators used to determine economic performance are GRDP and employment. Economic growth will be achieved if it is supported by economic sectors that contribute to regional economic development. The economic growth rate of Batanghari Regency for the period 2012-2019 fluctuated. In 2012 the growth rate was 8.40% and in 2019 it was 5.24% with an average growth rate of 5.86% per year.

For Batanghari Regency, in 2019 the agricultural sector contributed to a total GRDP of 4.54 trillion rupiahs

at constant prices in 2010. In 2019 per capita GRDP at constant prices in 2010 was Rp 38,667,904/capita and GRDP per capita at current prices was Rp 54,464,483/farmer household. The development of the land area and the number of farmers experienced an increasing trend, while the total production of oil palm plantations in Batanghari Regency fluctuated during the study period. According to BPS (2019), Batanghari Regency has the third largest land area compared to other districts in Jambi Province with the development of land area increasing every year from 2015 to 2019. In line with the increase in land area, it is expected that the amount of production and absorption of labor is expected to increase. Oil palm plantation work can increase every year. This certainly affects the development of GRDP of Batanghari Regency based on constant prices in 2010 which also increase every year. The development of the oil palm plantation sub-sector in Batanghari Regency according to land area, income, and labor absorption proves that the oil palm plantation sub-sector has strong competitiveness and

has economic prospects. The purpose of this study is to analyze the position and impact of oil palm plantations on regional economic growth in Batanghari Regency.

II. METHOD

This research was conducted in Batanghari Regency as the study area and Jambi Province as the reference area. The selection of the research location was carried out intentionally with the consideration that Batanghari Regency is one of the regencies in Jambi Province that has the potential to develop oil palm plantations. Oil palm plantations are an economic sector that plays a role in GRDP and employment in the Batanghari Regency area which is close to LQ analysis, shift-share, and multiplier effects.

The method used in this research is the descriptive quantitative analysis method. The data used in this study is a type of secondary data in the form of time-series data from 2010 to 2019. The approach method used is contribution analysis, Location Quotation, shift-share, and multiplier effects which refer to Tarigan (2005), Widodo (2006), Sadono (2006), Jhingan (2016), and Todaro (1990).

III. RESULTS AND DISCUSSION

Overview of the Research Area's Economy

The Jambi Province Labor Force Participation Figure in 2020 shows that the population who work over the age of 15 years according to business fields in 2020 is mostly in the agriculture, forestry, and fishery sectors, which is as many as 807,000. people or 46.4% of the total workforce. all business fields in Jambi Province. This is the case with Batanghari Regency. Agriculture is the leading sector that contributes the most compared to other sectors to economic growth. According to BPS Batanghari

Regency (2020), in 2020 the agricultural sector contributed 4.61 trillion rupiahs or 39.51% of the total GRDP of Batanghari Regency. The contribution of the comparison and comparison sector was 15.35% and the contribution of the manufacturing sector was 11.31%. If the GRDP at constant prices, Jambi Province, Batanghari Regency is 10.58 % of the total GRDP at constant prices.

The contribution of oil palm plantation income to GRDP at constant prices and GRDP at current prices is 2.76% and 2.75%, respectively. The average development contribution of oil palm plantations to employment in Batanghari Regency is 9.77%. In addition to oil palm, in Batanghari Regency there are 5 leading commodities with the largest land area compared to other commodities and contributing to the GRDP of the Batanghari Regency, namely rubber, oil palm, deep coconut, cocoa, and areca nut. Rubber plantations provide the largest contribution from the plantation income sub-sector to the GRDP of Batanghari Regency, which is 11.22% based on constant prices and 7.71% based on current prices.

According to the Jambi Province BPS (2020), the total area of Batanghari Regency is 5,804 km² or 11.57% of the Jambi Province's area and is the fourth largest Regency in Jambi Province. In 2019, Batanghari Regency has an area of 144,978 ha of oil palm plantations with a productivity of 6.76 tons/ha. Batanghari Regency has a lower productivity than Jambi Province, which is 11.05 tons/ha (Nainggolan et al., 2019). In 2019, oil palm plantations produced a production of 245,227 tons in the form of Crude Palm Oil (CPO) and also had an impact on the trade sector and the development of the industrial sector in Batanghari Regency.

Location Quotient (LQ) analysis

LQ analysis is an analysis used to determine whether a sector is base or non-basic. Can be seen in Tables 1 and 2.

Table 1. Location Quotient (LQ) of Oil Palm Plantations from Income Aspects Based on Constant Prices in 2010 in Batanghari Regency, 2010-2019

Year	V _i	V _t	V _i	V _t	LQ
2010	193,94	6.840,50	1.452,16	90.618,41	1,77
2011	194,43	792,94	1.487,40	97.740,90	1,71
2012	214,13	8.118,65	1.536,18	104.615,10	1,80
2013	265,53	5.644,80	1.622,60	111.766,10	3,24
2014	283,81	9.298,57	1.639,11	119.984,70	2,23
2015	263,56	9.695,29	1.689,56	125.038,70	2,01
2016	225,50	10.146,14	1.619,30	136.501,71	1,87
2017	261,28	10.634,36	1.171,63	142.902,00	3,00

2018	282,32	11.147,66	1.891,87	149.142,60	2,00
2019	255,71	11.697,11	1.908,73	148.449,87	1,70
Average					2,13

Table 2. Location Quotient (LQ) Oil Palm Plantation Subsector from Aspects of Labor Absorption in Batanghari Regency 2010-2019

Year	vi**	vt**	Vi*	Vt***	LQ
2010	16.278	181.819	185.025	2.349.742	1,14
2011	16.430	170.074	181.079	2.209.503	1,18
2012	17.662	175.323	186.385	2.260.688	1,22
2013	18.068	177.018	187.756	2.318.485	1,26
2014	14.692	180.869	200.991	2.395.083	0,97
2015	15.857	185.786	206.787	2.450.464	1,01
2016	16.228	188.952	210.684	2.505.550	1,02
2017	16.933	192.118	212.833	2.554.395	1,06
2018	24.365	195.706	221.711	2.615.290	1,47
2019	24.564	199.007	228.475	2.671.931	1,44
Average					1,17

Resources: *) Dinas Perkebunan Provinsi Jambi, 2021

***) Badan Pusat Statistik Kabupaten Batanghari, 2021

****) Badan Pusat Statistik Provinsi Jambi, 2021

Tables 1 and 2 show the LQ value of oil palm plantations from the GRDP aspect of constant prices, and the absorption of labor is 2.23; and 1.17. The LQ value > 1 means that oil palm plantations are the base sector in the regional economy. The development of oil palm plantations can act as a driver of economic growth in Batanghari Regency. The contribution of oil palm plantations to the regional economy of Batanghari Regency from the aspect of GRDP at constant prices, and employment of each is 2.76%; and 9.77%.

Consistent with Christiani et al. Oil palm plantations are a leading commodity that is a driving sector in the regional economy in Muaro Jambi Regency (Christiani al., n.d.). Consistent with (Artis, 2017) that in the period 2013 - 2015 there were two leading

commodities in Batanghari Regency, namely oil palm and rubber. From the results of the analysis, it can be seen that palm oil commodities have high competitiveness. Consistent with (Natalina Sianturi et al., n.d.) that oil palm farming in Muaro Jambi Regency has a competitive and comparative advantage despite an increase in input prices for oil palm farming.

Analysis of the Impact of Oil Palm Plantations on Regional Economic Growth

Shift-Share Analysis

The shift-share value of oil palm plantations from the aspect of income at constant prices and the prevailing base price in Batanghari Regency can be seen in Table 3.

Table 3. Shift-share Oil Palm Plantation from Income Aspect at Constant Prices in 2010 Batanghari Regency

Year	Eij**	ΔEij	Eir*	ΔEir	Er***	ΔEr	RP _s	RP _r
2010	193,94		1.452,16		90.618,41			
2011	194,43	0,49	1.487,40	35,24	97.740,90	7.122,49	0,106	0,325
2012	214,13	19,7	1.536,18	48,78	104.615,10	6.874,20	2,897	0,483
2013	265,53	51,4	1.622,60	86,42	111.766,10	7.151	3,635	0,832

2014	283,81	18,28	1.639,11	16,51	119.984,70	8.218,60	6,395	0,147
2015	263,56	-20,25	1.689,56	50,45	125.038,70	5.054	-2,573	0,739
2016	225,50	-38,06	1.619,30	-70,26	136.501,71	11.463,01	3,890	-0,517
2017	261,28	35,78	1.171,63	-447,67	142.902,00	6.400,29	-0,358	-8,531
2018	282,32	21,04	1.891,87	720,24	149.142,60	6.240,60	0,196	9,098
2019	255,71	-26,61	1.908,73	16,86	148.449,87	-692,73	-11,781	-1,893
Average							0,267	0,076

Resources: *) Dinas Perkebunan Provinsi Jambi, 2021

**) Badan Pusat Statistik Kabupaten Batanghari, 2021

***) Badan Pusat Statistik Provinsi Jambi, 2021

Table 3 shows that the RPs value is 1.528 and the RPr value is 0.076. The value of RPs and RPr for oil palm plantations tends to fluctuate. Changes in income based on constant prices in 2010 caused the value of RPs and RPr to fluctuate at both the provincial and district levels. The value of income growth at constant prices in Jambi Province and Batanghari Regency resulted in positive income growth. This means that the economic activities of oil palm plantations in Batanghari Regency and the economic activities of oil palm plantations in Jambi Province have great potential to drive economic growth.

This is quite the case because the composition of smallholder oil palm plantations is large and developing in Batanghari Regency. Consistent with the research (Sianturi et al., 2020), the inverse RPr and RPs values are obtained, namely, the RPr value has a negative value and the RPs value is positive. This suggests that rubber plantations in Jambi Province are moderate, while those in Batanghari Regency experienced growth during the study period in terms of income. The shift-share analysis in terms of labor absorption can be seen in Table 4.

Table 4. Shift-share Oil Palm Plantation from the Aspect of Labor Absorption in Batanghari Regency, 2010-2019

Year	Eij*	ΔEij	Eir**	ΔEir	Er***	ΔEr	RPs	RPr
2010	16.278		185.025		2.349.742			
2011	16.430	152	181.079	-3.946	2.209.503	-140.239	-0,425	0,343
2012	17.662	1.232	186.385	5.306	2.260.688	51.185	2,450	1,257
2013	18.068	406	187.756	1.371	2.318.485	57.797	3,077	0,293
2014	14.692	-3.376	200.991	13.235	2.395.083	76.598	-3,490	2,059
2015	15.857	1.165	206.787	5.796	2.450.464	55.381	2,621	1,240
2016	16.228	371	210.684	3.897	2.505.550	55.086	1,236	0,841
2017	16.933	705	212.833	2.149	2.554.395	48.845	4,123	0,528
2018	24.365	7.432	221.711	8.878	2.615.290	60.895	7,617	1,720
2019	24.564	199	228.475	6.764	2.671.931	56.641	0,274	1,397
Average							1,943	1,075

Resources: *) Dinas Perkebunan Kabupaten Batanghari, 2020

**) Dinas Perkebunan Provinsi Jambi, 2021

***) Sakernas Provinsi Jambi, 2021

Table 4 shows that the growth ratio of labor absorption growth in Batanghari Regency (RPs) and the growth ratio of labor absorption in Jambi Province (RPr) are both positive developments. Changes in the number of workers in oil palm plantations cause fluctuations in the

values of RP and RP both at the Jambi and Batanghari levels. results Based on the MRP analysis, it can be seen that the average value of RPs and RPr is 1,943 and 1,075, respectively. This condition illustrates that the employment of oil palm plantations at the Jambi Province and

Batanghari Regency levels is a potential economic sector. This means that both the study area and the reference area of oil palm plantations are growing well. Consistent with the results of the analysis conducted by (Christiani et al., n.d.) which states that oil palm plantations are the basic sector.

Multiplier effect analysis

The multiplier effect shows the ratio between changes in one of the variables of the oil palm plantation economic sector in economic growth can be seen in table 5.

Table 5. Multiplier Effect of Oil Palm Plantation on Economic Growth in Batanghari Regency, 2010-2019

Year	Y (Billion)	YB (Billion)	K	L (Person)	LB (Person)	K
2010	6.840,50	193,94	35,27	181.819	16.278	11,17
2011	7.492,94	194,43	38,54	170.074	16.430	10,35
2012	8.118,65	214,13	37,91	175.323	17.662	9,93
2013	5.644,80	265,53	21,26	177.018	18.068	9,80
2014	9.298,57	283,81	32,76	180.869	14.692	12,31
2015	9.695,29	263,56	36,79	185.786	15.857	11,72
2016	10.146,14	225,50	44,99	188.952	16.228	11,64
2017	10.634,36	261,28	40,70	192.118	16.933	11,35
2018	11.147,66	282,32	39,49	195.706	24.365	8,03
2019	11.697,11	255,71	45,74	199.007	24.564	8,10
Average				37,35		

Resource: Badan Pusat Statistik Kabupaten Batanghari, 2021

Table 5 shows the development of the multiplier effect of oil palm plantations from the income aspect which experienced a positive development in Batanghari Regency. With a multiplier effect value of 35.53 during the study period, it means that every increase in oil palm plantation income of Rp 100 will be followed by a change in total regional income in Batanghari Regency of Rp 3,553 with the assumption that other sectors are considered non-basic. Meanwhile, from the aspect of income based on current prices, the multiplier effect value is 37.40, meaning that an increase in oil palm plantation income of Rp 100 will increase the total regional income in Batanghari Regency by Rp 3,740 with the assumption that other sectors are considered non-basic. With (Sianturi et al., 2020) that the value of the multiplier effect of rubber plantations in Batanghari Regency in terms of the GRDP aspect is 23.24. This means that the multiplier effect of oil palm plantations is greater than that of rubber plantations in Batanghari Regency.

From table 5, the multiplier effect value of the labor aspect of oil palm plantations is 10.44 during the study period, it states that every employee of 100 workers from oil palm plantations will encourage total employment opportunities in Batanghari Regency as many as 1,044 workers with the assumption that other sectors are considered as non-basic. The greater the value multiplier

effect, the better the development of oil palm plantations in Batanghari Regency. This is due to job opportunities for the Batanghari Regency area caused by the increase in the number of employment in oil palm plantations to the total employment of the Batanghari Regency area. This is because there are other sectors driven by oil palm plantations. The greater the value multiplier effect, the better the development of plantations in the area (Ahdika et al., n.d.).

Research (Syahza, 2007) found that the value multiplier provided by oil palm plantations is 3.23 through business forms, both real and service sectors. Oil palm plantation development activities positively encourage, grow and create jobs because they involve a lot of labor and a relatively large investment. During the process of oil palm plantation activities and their downstream industries in the process of developing goods and services, they will have backward linkages. In this process, other sectors will appear, such as transportation services, farm labor services, trade, and so on. Meanwhile, the production process and post-harvest activities will have forward linkages.

IV. CONCLUSIONS

Oil palm plantations for the 2010-2019 period are the basis of the sector in the economic area of Batanghari Regency. Location Quotient (LQ) from the aspect of income and employment which shows the value of $LQ = 2.13 > 1$ and $LQ = 1.17 > 1$. Oil palm plantations have a significant impact on the development of economic areas. The contribution of oil palm plantation income to GRDP at constant prices in 2010 was 2.8% per year. Meanwhile, the labor indicator for oil palm plantations contributes 9.72% per year. Oil palm plantations in Batanghari Regency during the analysis period (2010-2019) had a fairly large impact. The average multiplier effect value is 10.50 with an average regional workforce growth of 1.12. This means that every 100 manpower absorption of oil palm plantation workers as much as possible encourages total employment opportunities in Batanghari Regency of 1,050 workers. The results of the shift-share growth analysis of labor absorption in the Batanghari Regency and Jambi Province are the potential or growth of the oil palm plantation sub-sector. With shift share and multiplier effects that grow positively, it will increase regional economic growth.

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