



UDC 332

## ANALYSIS OF THE CONTRIBUTION OF PALM OIL CULTIVATIONS TO THE ECONOMY IN PASER DISTRICT OF EAST KALIMANTAN, INDONESIA

**Solehuddin M. Habib\*, Aziz Yusuf, Fajeri Hairin**

Master's Program of Agricultural Economics, Faculty of Rural Industry,  
University of Lambung Mangkurat, Banjarbaru, South Kalimantan, Indonesia

\*E-mail: [mhabibsolehuddin@gmail.com](mailto:mhabibsolehuddin@gmail.com)

### ABSTRACT

Economic progress can be gauged by sustained increases in countrywide revenue or Gross Domestic Product (GDP), the growth of per capita revenue, and the attainment of overall economic well-being. Notably, the rural industry and cultivation industries play a significant role in driving the economic enhancement of Paser district. This research purposes to assess the role of oil palm cultivations in fostering the economic growth of Paser district while investigating the correlation between territory area and the economic participation of oil palm cultivations in the region. The research was carried out in Paser district by January to April 2023. The choice of this location was deliberate, given that Paser district hosts a diverse array of oil palm goods, including small-scale farmers cultivations, privately belonged estates, the oil palm handling industry, and various supporting industries. The information utilized in this research comprise secondary information origind by the Paser district Central Bureau of Statistics and the Paser District Office. The findings indicated a consistent annual rise in the participation of oil palm cultivations to the Gross Regional Domestic Product (GRDP) of Paser district. Additionally, the research revealed that variations in territory area did not have a significant impact on the participation of oil palm cultivations to the economic enhancement of Paser district.

### KEY WORDS

Economics, regional development, policy, market, income.

Economic enhancement is distinguished by the presence of infrastructure, heightened educational levels, technological advancements, and expanded employment opportunities, leading to increased revenues and well-being among the populace. The trajectory of economic enhancement plays a pivotal role in shaping a country's overall economic progress. As stated by Jhingan (2010), economic enhancement can be gauged by sustained growth in countrywide revenue (Gross Domestic Product), enhancements in per capita revenue, and the establishment of economic well-being.

The agricultural division, as one of the economic industries, holds significant potential for contributing to countrywide economic growth and enhancement (BPS). The economic structure of Paser in 2022 is characterized by three primary industries: Mining and quarrying comprising 76.37 percent, rural industry, Forestry, and Fisheries accounting for 10.05 percent, and handling Industry making up 4.17 percent. Additionally, the agricultural division also represents the largest workforce in the region.

The enhancement of the cultivation subdivision constitutes an integral component of both the agricultural division and countrywide enhancement. This subdivision plays a significant role in the Indonesian economy, contributing notably to its overall growth. At the countrywide level, the cultivation subdivision has played a pivotal role in alleviating structural and cultural disparities by augmenting the revenue of farming communities and their neighboring zones. Oil palm stands out as one of the goods anticipated to make substantial participations to the economy within the cultivation subdivision.

The agricultural division encompasses several sub-industries, namely the food crops subdivision, the cultivation subdivision, the horticulture subdivision, the fisheries subdivision, the livestock subdivision, and the forestry subdivision. Within the overarching framework of enhancement in East Kalimantan Province, it is elucidated that the agricultural division



stands as a priority division in regional enhancement. The cultivation subdivision significantly bolsters the economic enhancement of Paser, given its reputation as a prominent palm oil producer. According to the Bureau of Statistics (BPS, 2022), this division consistently demonstrates growth in manufacturing, further enhancing Paser's economic vitality.

Oil palm cultivations are distributed across nearly all sub-districts within Paser District. Oil palm cultivations are predominantly situated in rural zones within Paser. The existence of these cultivations undoubtedly presents an opportunity for the surrounding community to engage as laborers in the oil palm cultivation enterprises. So that it has an impact on the revenue of the surrounding community. The current total number of oil palm cultivation enterprises in Paser district in 2022 is 37 enterprises, with 17 CPO mills. The absorption of labour in oil palm cultivations is 31,419.

The rural industry, livestock, forestry, and fisheries industries made the most substantial participations to the economy of Paser district compared to other industries, totaling 3,902.01 (10.55%). The rural industry, livestock, forestry, and fisheries division, along with the mining and quarrying division, contributed 27,117.66 (73.33). However, it's noteworthy that within the rural industry, forestry, and fisheries division, oil palm stands out as the second-largest contributor to Paser district's economy, making a substantial impact.

Table 1 – Gross Regional Domestic Product (GRDP) at Constant Prices by enterprises field in Paser district in 2022

No.	Enterprises field	2022	Percentage (%)
1	Rural industry, forestry, fisheries	3.902,01	10,55
2	Mining and quarrying	27.117,66	73,33
3	Handling industry	1.639,54	4,43
4	Electricity and das procurement	10,09	0,03
5	Water supply, waste treatment and recycling	8,27	0,02
6	Construction	882,18	2,39
7	Wholesale and retail trade	1.472,69	3,73
8	Transport and related	169,13	0,46
9	Provision of accommodation and meals	101,80	0,28
10	Information and communication	344,19	0,93
11	Financial services and insurance	143,19	0,39
12	Real estate	111,77	0,30
13	Corporate services	17,36	0,05
14	Government administration, territory, and compulsory social security	377,06	1,02
15	Education services	489,55	1,32
16	Health and social services	214,01	0,58
17	Other services	72,65	0,20
	Total	36.980,15	100

The escalating Gross Regional Domestic Product (GRDP) is attributed to the growing output of various industries, notably the cultivation sub-division. As a result, advancing cultivation enhancement will fuel economic growth. Heightened productivity within cultivations will not only boost revenues for workers in the division but also create more job opportunities, ultimately bolstering people's buying power (Arsyad, 2010). Several factors influence the participation of oil palm cultivations, including territory area, manufacturing output, and labor force engagement. In Paser district, a significant portion of the population is involved in oil palm farming, making it a crucial origin of revenue. This research is focused on analyzing the impact of oil palm cultivations, territory area, manufacturing output, and labor on the economic enhancement of Paser district. The necessary information to investigate these aspects are covering the years 2011 to 2022: information on Gross Regional Domestic Product of Paser district at Constant Prices by enterprises Field for 2011-2022; information on the size of oil palm cultivations in 2011-2022 Paser District; manufacturing information of oil palm cultivation crops in 2011-2022 in Paser district; labor.

Based on the background described above, the problems addressed in this research can be formulated as follows:

- To what extent does palm oil contribute to the Gross Regional Domestic Product (GRDP) of Paser district?



- What is the impact of territory area, manufacturing output, and labor on the participation of oil palm cultivations to the economic enhancement of Paser district?  
Based on the aforementioned issues, the objectives of this research:
- Analyze the participation of palm oil goods to the Gross Regional Domestic Product (GRDP) of Paser district;
- Examine the impact of territory area, manufacturing, and labor on the participation of oil palm cultivations to the economic enhancement of Paser district.

## **METHODS OF RESEARCH**

The research was conducted in Paser district, East Kalimantan Province, by January to April 2023, covering all phases by preparation and information collection to report compilation. The choice of this location was purposefully made, taking into account that Paser District is a key hub for oil palm manufacturing, with a significant portion of its population relying on oil palm farming as a primary origin of revenue. This research focuses solely on the participation of oil palm to the economic enhancement (GRDP) of Paser district. This is achieved by analyzing the roles of oil palm cultivations, territory area, manufacturing, and labor.

To define the criterions for assessing the participation of the agricultural/cultivation division to the Gross Regional Domestic Product (GRDP), we refer to Regulation number 86 of 2017 issued by the Minister of Home Affairs of the Republic of Indonesia. Following this, the participation of the Palm Oil Commodity to the Gross Regional Domestic Product (GRDP) is computed mathematically.

To address the first objective, we purpose to decide the participation of Palm Oil to the enhancement level in Paser district by 2011 to 2022.

To fulfill the second objective, which entails identifying and analyzing the impact of territory area, manufacturing, and labor on the participation of oil palm cultivations to economic enhancement in Paser district, the ARCGIS application was utilized for spatial regression analysis.

As per LeSage & Pace (2009), the spatial autoregressive model arises by the interdependence of the dependent variable values across locations. The criterion  $\rho$  elucidates the level of spatial dependence within the observed sample. The criterions estimated in the SAR model include  $\beta$ ,  $\sigma$ , and, naturally, the  $\rho$  criterion. If the  $\rho$  criterion equals zero, it indicates the absence of spatial dependence in the cross-sectional information observation  $Y$ .

The Moran index is utilized to research the extent to which sizes of spatial interaction and environmental excellence contribute to spatial smoothing (Osterritory, Sandvig, & Thorsen, 2022). The Moran index has a value that ranges by -1 to 1. A Moran index value of zero suggests that the information is not spatially clustered by region. On the other hand, a positive Moran index value indicates positive spatial autocorrelation, implying that neighboring regions share similar spatial effect values and tend to cluster together. On the contrary, a negative Moran index value indicates a negative spatial autocorrelation, suggesting that neighboring regions exhibit distinct spatial effect values (Taufik, 2017).

## **RESULTS AND DISCUSSION**

The oil palm area experienced growth by 2011 to 2022, albeit with a slight decrease observed in the years 2020 and 2021. The oil palm territory area reached its peak in 2019 at 183,575 hectares, while its lowest point was recorded in 2011, with an area of 124,451.70 hectares. The increase in oil palm territory area by 2011 to 2019 can be attributed to territory function transfers undertaken by farmers. The conversion of territory to oil palm cultivation was driven by the rising price of crude palm oil (CPO) and the proliferation of oil palm cultivation enterprises in Paser district.

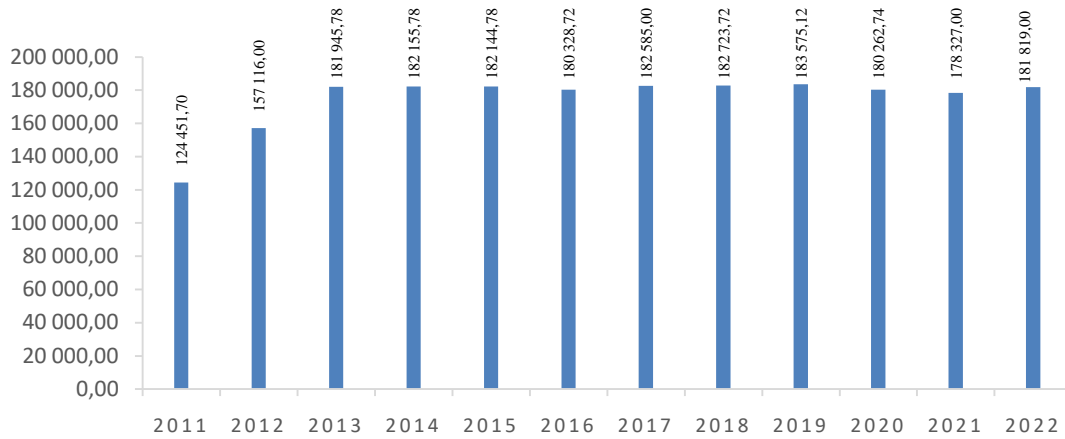


Figure 1 – The expansion of oil palm cultivation area in Paser district, ha

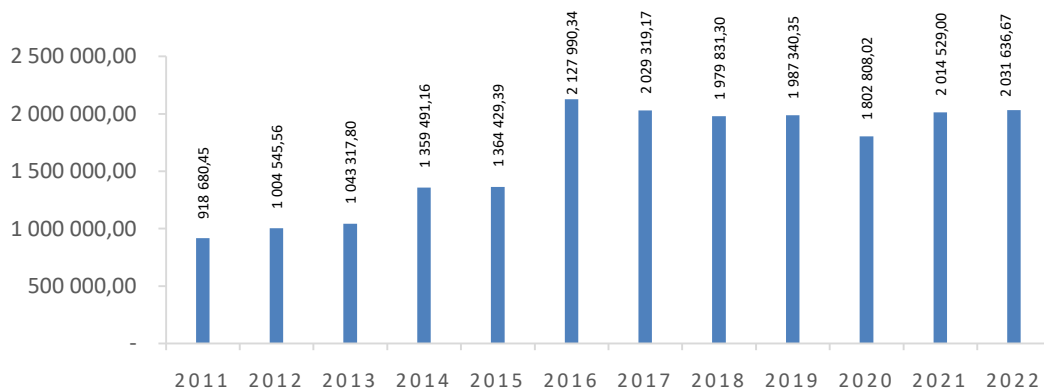


Figure 2 – The evolution of oil palm manufacturing in Paser district

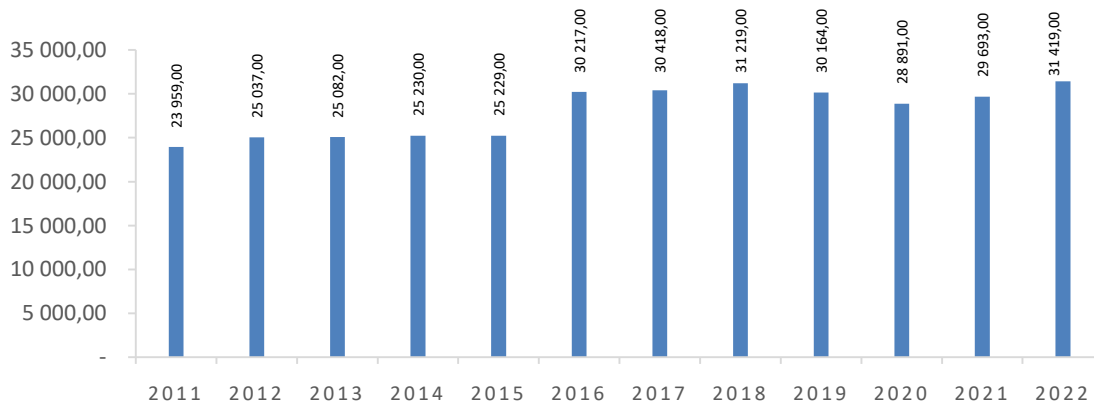


Figure 3 – Workforce growth in the oil palm cultivation division in Paser district

The oil palm manufacturing fluctuated by 2011 to 2022, with the highest manufacturing recorded in 2016 at 2,127,990.34 tons and the lowest in 2011 at 918,680.45 tons. The decline in oil palm manufacturing by 2019 to 2020 can be attributed to the outbreak of the Covid-19 disease in Indonesia. However, by 2021 to 2022, manufacturing began to rebound and increase. During the outbreak, farmers faced difficulties in working freely due to the restrictions, resulting in decreased manufacturing. Then with the liberation in working, the increase in oil palm manufacturing shows an increase in community participation to develop oil palm because in addition to being easy to plant and maintain and promising potential revenue, oil palm is also indispensable in various industries so that farmers do not worry about marketing and can be marketed at any time.



The workforce in the palm oil division fluctuated by 2011 to 2022, with the highest number of workers recorded in 2022 at 31,419 and the lowest in 2011 at 23,959. By 2018 to 2020, the oil palm labor force experienced a decline, attributed to the outbreak of the Covid-19 disease in Indonesia. However, by 2021 to 2022, there was resurgence in the labor force, experiencing an increase once again. When the outbreak hit farmers had difficulty being able to work freely because of the outbreak so that work was also limited. Then with the exemption in work, the increase in employment in the palm oil division shows an increase again.

The significant role of the oil palm cultivation sub-division in boosting economic revenue in Paser district is underscored by the substantial participation it makes to the Gross Regional Domestic Product (GRDP) of the region.

Table 2 – Agricultural Gross Regional Domestic Product (GRDP) at Constant Prices by Oil Palm revenue of Paser district in 2022

Year	Oil Palm Revenue	Agricultural GRDP (Million)	Percentage (%)
2011	1,166,774,698,924.75	1,921,840	60.71
2012	1,275,828,111,205.80	2,073,150	61.54
2013	1,325,070,988,479.00	2,283,510	58.03
2014	1,726,628,545,213.80	3,447,710	50.08
2015	1,732,900,368,916.45	3,589,390	48.28
2016	2,702,664,766,188.48	3,806,170	71.01
2017	2,577,346,958,454.35	3,773,890	68.29
2018	2,514,494,641,721.50	3,791,290	66.32
2019	2,524,031,548,219.25	3,918,190	64.42
2020	2,289,665,339,841.10	3,877,430	59.05
2021	2,558,562,629,095.00	3,725,680	68.67
2022	2,580,290,310,916.85	3,902,010	66.13

Source: Central Bureau of Statistics of Paser district.

Table 3 – Participation of Oil Palm cultivation goods to the GRDP of Paser district at Constant Prices of Paser district in 2011-2022

Year	Oil Palm Revenue	GRDP Paser	Percentage (%)
2011	1,166,774,698,924.75	30,224,908	3.86
2012	1,275,828,111,205.80	31,693,485	4.03
2013	1,325,070,988,479.00	33,281,880	3.98
2014	1,726,628,545,213.80	34,782,536	4.96
2015	1,732,900,368,916.45	34,472,875	5.03
2016	2,702,664,766,188.48	32,761,336	8.25
2017	2,577,346,958,454.35	33,131,442	7.78
2018	2,514,494,641,721.50	34,362,050	7.04
2019	2,524,031,548,219.25	35,734,750	7.27
2020	2,289,665,339,841.10	34,712,070	6.60
2021	2,558,562,629,095.00	36,581,320	6.99
2022	2,580,290,310,916.85	36,980,150	6.98

Source: Central Bureau of Statistics of Paser district.

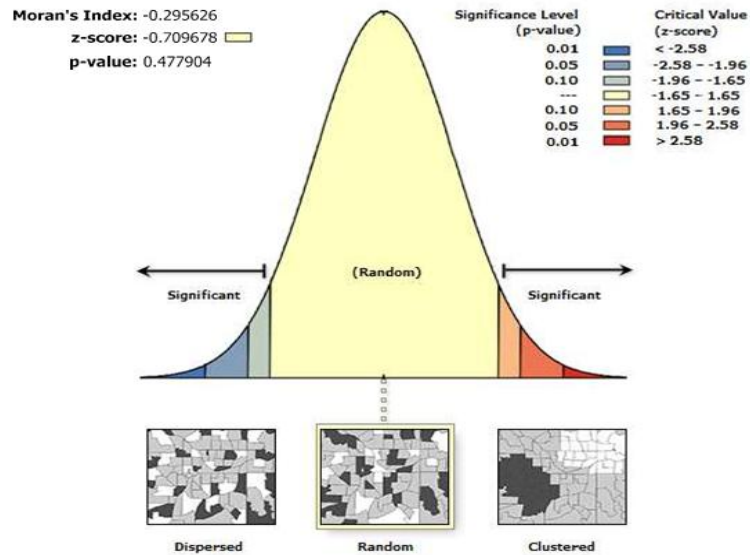
The fluctuating participation of the cultivation sub-division to the Gross Regional Domestic Product (GRDP) at constant prices in Paser district. The highest participation of the cultivation sub-division to GRDP was recorded in 2016 at 71.01, while the lowest participation occurred in 2014. The fluctuating participation of the cultivation sub-division to GRDP occurs because of the ever-changing government policies towards oil palm cultivations due to several export bans.

The participation of the cultivation sub-division to Paser's Gross Regional Domestic Product (GRDP) at constant prices fluctuates but exhibits an overall upward trend. The highest participation of the cultivation sub-division to GRDP was recorded in 2016 at 8.25, while the lowest participation occurred in 2011. The fluctuating participation of the cultivation sub-division to GRDP occurred because of the ever-changing government policies towards oil palm cultivations due to several export bans. Then the participation made by oil palm



cultivations also to the GRDP value of Paser district changes because the origin of participation is not only by oil palm cultivations, there are many participations by other industries. The high division in Paser district now is the mining and quarrying division which is still the prima donna.

To investigate the factors influencing the participation of palm oil revenue to the economic enhancement of Paser district, we conducted a simple linear spatial regression analysis.



Given the z-score of -0.709677902594, the pattern does not appear to be significantly different than random.

Dataset Information	
Input Feature Class:	ORDINARY LAST SQUARES
Input Field:	STDRESID
Conceptualization:	INVERSE_DISTANCE
Distance Method:	EUCLIDEAN
Row Standardization:	True
Distance Threshold:	35041.5191 Meters
Moran's Index:	-0.295626
Expected Index:	-0.111111
Variance:	0.067599
z-score:	-0.709678
p-value:	0.477904

Figure 4 – Spatial Regression Analysis of territory Area, manufacturing, Labour on the participation of Oil Palm cultivation revenue in Economic enhancement in Paser District

The analysis outcomes indicate a Moran's index value of -0.295 with a corresponding P-value of 0.477904. Thus, it can be inferred that territory area, labor, and manufacturing do not exert a significant influence on the participation of oil palm cultivations. The research findings reveal that the highest predicted value of cultivation Gross Regional Domestic Product (GRDP) occurred in 2016, reaching 71.01%, whereas the lowest was recorded in 2014 at 50.08%. Notably, there was a significant increase in GRDP value in 2016. Furthermore, for Paser district's GRDP, the highest value was observed in 2016, accounting for 8.25%, whereas the lowest was in 2011, with a value of 3.86%. The enhancement of oil palm cultivation plays a crucial role in stimulating economic growth and enhancing capital accumulation within a region. The research findings underscore that the territory area, total revenue, and participation of oil palm cultivations to the economy significantly impact various aspects, including the cultivation division, rural industry, and the Gross Regional Domestic Product (GRDP) of Paser district.



In summary, oil palm cultivations contribute to local revenue in Paser district, albeit not reaching their full potential. The participation could be significantly enhanced with larger zones under cultivation and increased levels of manufacturing. This notion is supported by Ambardi (2002), who asserts that regional revenue plays a pivotal role in determining the success of local government administration. Higher regional revenue allows the region to conduct enhancement activities more freely, thereby fostering well-being for its inhabitants. In addition to this, according to Rifai, et al. (2008) productivity is also influenced by oil palm maintenance. Furthermore, Mursidah (2009) stated that the optimal level of revenue will be achieved if the use of factors of manufacturing has been efficient and the prevailing price can guarantee this situation, so that the manufacturing obtained reflects the level of efficiency of the farm.

## **CONCLUSION**

Based on the outcomes and discussions regarding the participation of oil palm cultivations in Paser district, several conclusions can be drawn.

- The participation of palm oil to the Gross Regional Domestic Product (GRDP) of Paser district averaged 6.06 percent for the period 2011 to 2022. This is due to certain aspects of the Palm Oil Commodity that were not considered in this research, namely: manufacturing by the handling of Fresh Fruit Bunches (FFB) into semi-finished goods (such as Crude Palm Oil (CPO) and Kernel Palm Oil (KPO)); utilization of industrial waste and cultivation waste; and derivative products by the downstream industry;
- The Palm Oil commodity became the leading division commodity in Paser district for the period 2011 to 2022, by taking more than 50 percent influence each year in the rural industry, forestry and fisheries section, but if the overall total is still far behind mining which takes a role of < 70 percent each year and palm oil only contributes with an average of 6 percent of the total GRDP of Paser district. However, the potential in oil palm cultivations can still continue to grow with the large amount of territory in Paser district.

The recommendations that can be provided based on the outcomes and discussion:

- As a regulatory authority, the Regional Government should be capable of guiding and emphasizing to enterprises involved in agri-enterprises, particularly in the Palm Oil Commodity, to ensure that in conducting their operations, they not only focus on upstream activities but also extend to the downstream industry. This includes exploring derivatives by Crude Palm Oil (CPO) and Palm Kernel Oil (PKO) in the form of processed food and non-food products;
- In formulating policies related to government expenditure, particularly those concerning economic improvement, especially in the agricultural division, it is advisable to allocate more funds towards facilitating and incentivizing farmers or enterprises entities to enhance their agricultural practices and agricultural enterprises. This is particularly crucial for enterprises involved in the enhancement of the Palm Oil Commodity, spanning by upstream to downstream industries;
- For enterprises already involved in agri-industry, particularly oil palm, it is advisable to expand their operations by raw material handling to semi-finished material manufacturing and ultimately to finished product handling. This strategy purposes to enhance company profitability and generate new employment opportunities capable of absorbing a significant labor force. Research demonstrates that the revenue of oil palm cultivation workers is indeed higher within oil palm cultivations;
- Farmers are advised to always use seeds that meet the nationwide Standard in cultivating oil palm so that enterprises that require FFB will continue to receive the resulting manufacturing at a price that is not cheap and utilize garden waste (in the form of fronds and leaves) for animal feed (for example; cattle) so as to increase the revenue of the Farmers themselves.



## REFERENCES

1. Arsyad, L. 2010. Economics of Agricultural enhancement. First Edition, BPFE, Yogyakarta.
2. Ambardi, U.M. 2002. Regional Original Revenue and Balancing Funds as a origin of Regional Revenue. In Regional enhancement and Regional Autonomy. BPPT. Jakarta.
3. Central Bureau of Statistics. 2022. East Kalimantan in Figures. BPS East Kalimantan.
4. BPS Paser. 2022. Paser in Figures, Forestry and cultivation Service of Paser district 2009-2013. Paser.
5. BPS Paser. 2014. Paser in Figures, Gross Regional Domestic Product Year 2022. Paser.
6. Jhingan, ML. 2010. Enhancement Economics and Planning. PT Raja Grafindo Persada. Jakarta.
7. LeSage, J.P. and Pace, R.K. (2009), Introduction to Spatial Econometrics, R Press, Boca Ration.
8. Mursidah. 2009. Optimization of Oil Palm Farming revenue. Journal of Agricultural Economics and enhancement (EPP). Vol. 6. No. 2. Pp. 9-15.
9. Republic of Indonesia. 2017. Regulation of the Minister of Home Affairs Number 86 on Procedures for Planning, Controlling and Evaluating Regional enhancement, Procedures for Evaluating Draft Regional Regulations on Regional Long-Term enhancement Plans, Regional Medium-Term enhancement Plans, and Regional Government Work Plans. State Secretariat. Jakarta.
10. Rifai, A., Syaiful H, and Nurul Q. 2008. Research of Community Oil Palm Enhancement in Riau Province. Sago Journal. Vol 7 No. 2. September 2008. Pp. 1-6.