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The Impact of Number of Employees, Palm Production and Export of Oil Palm on Malaysia Economic Growth

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Abstract: The agriculture sector in Malaysia especially for oil palm agriculture is the largest exporter and supplier after Indonesia the main source that contributes towards Gross Domestic Product (GDP). Growing oil palm agriculture provides the potential and opportunities to increase economic yields and create job opportunities for local people, especially those in rural areas. This study was conducted to examine the impact of the number of workers, palm fruit production and export of palm oil on GDP in Malaysia in terms of long and short term. To achieve the objectives of the study, the researcher has used a sample of secondary data from the Department of Statistics Malaysia from 1974 to 2019, which is 45 years using Time Series data. To identify the stationary of the variables, the Augmented Dickey-Fuller (ADF) test was used. To identify long-term relationships, the Long Run Bound Test (LRBT) was used. Meanwhile, to identify the short-term relationship, the Error Correction Model (ECM) method also was used in this study. The results of the ADF test was found that all the variables studied: the number of workers, palm fruit production and pal oil export were stationary. The effects of the variables in the agriculture sector have been given attention by the local government. Therefore, policy makers can use the result to improve existing economic policies as a measure to expand the country's income sources in palm oil agriculture field and serve as a reference for stimulate country's economic.

Keywords: number of workers, palm fruit production, export of palm oil, gross domestic product.

1. Introduction

The agriculture sector is an important sector that contributes to Malaysia's national income. The agricultural sector has always been a product that contributes to the progress of the country. Various measures have been taken to ensure that the agricultural sector, especially oil palm, continues to thrive. Various production of products and uses produced through oil palm. This led to the establishment of a palm oil processing plant in Kuala Lumpur in 1952 where it can produce various daily use products based on palm oil such as cooking oil, margarine, soap, Vanespati and detergent (Rasiah & Shahrin, 2006) .This

shows that, there is a high demand for this palm oil globally and has a positive impact on the country's export flows. In addition, the Third National Agricultural Policy has been introduced by the government by taking a two -strategy approach, namely the forestry approach which emphasizes capital issues such as land, labor and raw materials, as well as a product -based approach which will provide the ability to bringing products to the global market by identifying consumer demand, market potential and tastes.

The increase in the national economy is in line with the positive increase in terms of investment income, production and foreign exchange earnings (Susila, 2004). The contribution of the oil palm sector can be seen based on the percentage contributed to the country's GDP. GDP is an indicator used as a measure of a country's progress and helps to ensure that the economy grows sustainably. Based on statistics released by the Department of Statistics Malaysia, the agriculture sector has contributed 7.3 percent of RM 99.5 billion to Malaysia's GDP in 2018 and the contribution of oil palm to GDP is the main contribution of 37.9 percent, followed by other agricultural sectors, livestock sector, fisheries, forestry and logging as well as rubber. In the second quarter of 2020, the agriculture sector recorded positive GDP growth compared to other sectors. Oil palm farming not only gives progress to the country's economy, but it also helps to increase the income of its main farmers who are in the rural areas.

Agricultural development in terms of the expansion of oil palm agricultural land has helped provide employment opportunities to residents to generate income and it can also help develop facilities in the rural areas in terms of providing roads, electricity supply, schools and housing and so on. This has indirectly reduced poverty. Agriculture in the oil palm agriculture sector can indirectly increase the productivity of palm oil. However, progress in this sector presents the problem of a declining amount of land for oil palm cultivation. Malaysia is a country that has the potential to develop the oil palm cultivation sector and produce palm oil, which in turn can reduce poverty in rural areas.

2. Literature Review

2.1 Employees

Employees or employment are individuals who are involved in economic activities that are productivity to the production of goods and services of the country. Workers who are human resources in the economy are an important factor in the economy. Productive workers are important in the formation of the country towards development and a sustainable and competitive country (Ismail & Sulaiman, 2007). According to Navarette, García-Terán et al., (2019) quality employment is very important to increase national income. Quality employment in terms of productive and innovative can meet the demand of the global market. However, the quality of labor in Malaysia is still at an unsatisfactory level compared to developed countries but is at a high level compared to Asian countries. Human resource development needs to be emphasized so that the quality of the labor force can be improved and can generate national demand in the oil palm industry. The role of government in creating productive employment needs to be intensified such as providing skills and training, attending seminars is very important to create an employment that can meet global needs and demands.

A study by Aziz et al. (2018) states that the level of dependence of oil palm smallholders varies. These smallholders are not entirely dependent on oil palm-based employment alone, but there are also oil palm smallholders who are involved in entrepreneurship and business to improve their socio-economic status. Furthermore, the problems faced such as the instability of fruit bunch prices and the volatile prices offered by manufacturers causing smallholders of oil palm to be affected in finding a source of income. Therefore, there are a number of those who venture into business and entrepreneurship as a source of side income. Through this study also found that the factor they are involved in business is also due to family encouragement and to increase income to support the family.

Through the study of Alam et al. (2015) there are several issues in the oil palm sector. Among them is the shortage of labor. Based on a report in 2012, it recorded a total number of 491000 workers which consisted of foreign workers from Indonesia. Moreover, the ratio of cultivation labor land is 10.9: 1 ha which is equivalent to 1 worker for 10.9 hectares. This indicates that the occurrence of labor land deficit has a negative impact on oil palm cultivation. Based on the Malaysian embassy in Kuala Lumpur as many as 550, 000 workers which is equivalent to 80 percent of the workers in the oil palm sector are Indonesian workers. This is because the labor force from Indonesia is given priority because of their fluency in communicating in Malay compared to other races. These foreign workers need to be taken into account by the Malaysian Government because it has a negative impact on the Malaysian socio -economy for example in terms of social disorders such as drug abuse cases, increase in sex cases among workers, sabotage, theft, robbery and so on.

2.2 Production of Palm Fruit

Production is defined as a business service that converts input into output according to Haryono et al. (2020). It can be obtained either in the form of goods and services. Production has several benefits which can reduce costs and increase the productivity of a country. According to El Pebrian et al. (2014) the agricultural industry in Malaysia especially oil palm still has low technology and labor -intensive production system compared to modern technology. Labor for oil palm cultivation is mostly undertaken by poor farmers and some also involve young farmers for whom they have no land. The estimated number of labor involved in this production is 860 000 people in Malaysia while in Indonesia it is 2 to 3 million. The low level of mechanism in oil palm cultivation means that this cultivation is labor intensive and because of that, it creates a lot of jobs (Perissinotto et al., 2019).

In Malaysia, the government prioritizes oil palm as the main resource in driving economic growth and progress. It is clearly seen when the government forms FELDA which works to help low -income families. Palm oil also has a high average production compared to other agricultural sectors and it is an efficient oil producer compared to other oil producers (John et al., 2019). World palm oil production is the most traded, also seen a significant jump in production and cultivated areas, as well as production doubling from 1999 to 2001, with Malaysia working with Indonesia in contributing to increased production. It is due to the opening of new land for oil palm cultivation (Mansor et al., 2019)

Berita Harian reported the oil palm sector contributes RM 33 billion to RM 43 billion a year, equivalent to 5 to 7 percent of the country's GDP in 8 years. Meanwhile, in 2018, the oil palm commodity market experienced a decline, but still contributed a high value to the country's GDP of RM 38 billion, which is around 37 percent. However, the National Economic Regeneration Plan program can make palm oil more competitive and can increase global demand where the government has reduced the export duty of Malaysian palm oil (CPO) to zero from 4.5 percent previously. Especially in dealing with this Covid 19 pandemic.

According to Susila et al., (2016) oil palm contributes to the development of Malaysia, including in Sabah. Researchers study the internal and external factors that influence the effectiveness of the oil palm industry. The model formed in this study is based on three equations namely supply equation which these equations include mature area equation and production equation, while demand equation is expanded to domestic and foreign equation as well as identity. It also uses RMSE and RMSPE methods, Theil's Inequality Coefficient (U statistical) method and methods tested using simulation accuracy. Based on this study, there are several solutions found in the long and short term for more sustainable oil palm production as oil palm is an agricultural sector that contributes a lot to the income and socio -economic development of Sabah.

Because palm oil provides benefits to the Malaysian economy, the government has promoted activities upstream and downstream of palm oil to increase national income. Oil palm plantations are based on a private property management system and government plans as well as independent small farmers. Compared to major alternative vegetable oils, palm oil tends to have lower production costs. As a major oil exporter, Malaysia plays an important role in the palm oil trade. Palm oil is traded before and after processing. The main action of the oil palm industry is to accelerate the cultivation of oil palm and increase the production of fresh fruits (Seng et al., 2012)

Through a study conducted by Muda & Ezechi, (2019) the reduction in palm oil production in 2010,2012 and 2016 was due to El-Nino and El-Nina phenomena. This weather occurs due to variations in the temperature of the equatorial Pacific Ocean which leads to significant changes in rainwater which indirectly affects the productivity of oil palms. As the rainfall decreases it causes oil palm production to decrease and the FFB industry will also be affected and indirectly cause the FFB yield to decrease. In general, for standard oil palm growth, the maximum and minimum temperatures required are 29 to 33 degrees Celsius and 22 to 24 degrees Celsius.

The purpose of choosing palm oil in this study is because, palm oil is an important source of economic growth which the oil palm industry has contributed to the annual export of RM60 billion equivalent to US $ 15 billion and RM70 billion equivalent to US $ 175 billion. Furthermore, Malaysia is the second largest producer of palm oil and also the largest global exporter after Indonesia (Wahab, 2020). According to Siregar et al., (2015) oil palm cultivation requires more fertilizer during the first five years of its growth as well as agro-chemical protection. Oil palms are more susceptible to tree mites. Dosage use will vary continuously based on the needs of the tree which is determined by the soil and leaf nutrients required.

The oil palm industry contributes to household welfare in terms of income and assets. Around Rp5 to Rp11 million or an estimated more than 63 percent of household income is derived from oil palm -based activities. A small proportion of less than 10 percent of the poor in the oil palm community is used as an

indicator in the contribution of oil palm to reduce poverty. Moreover, the income distribution in the oil palm area is good with a coefficient of around 3.6 through a study conducted (W. R. Susila, 2004).

According to Amelia et al., (2008), problems encountered in shaping the production of palm oil and palm kernel during oil palm processing such as high loss rate of oil palm yield need to be solved in an efficient manner to maximize yields and reduce costs. Researchers use optimization model with fuzzy system that can save cost, reduce the rate of loss of palm oil during processing and can maximize the result which the method is formed using center of gravity decompression method using Microsoft Excell and optimized with algorithmic method which can overcome inefficiencies faced by manufacturers in producing palm oil and palm kernel.

2.3 Exports of Palm Oil

Malaysia is a country that practices economic openness. Exports are activities that trade local goods and services to foreign countries. According to a study by Roslan et al., (2007) in their study related to the factors that influence Malaysian trade such as AFTA, EU, NAFTA by using the gravity model approach. The study found that factors such as Malaysia's GDP, total population, distance factors, economic role of Nafta and the EU are the variables that influence the quantity of bilateral trade between Malaysia and the trading partners studied.

According to a study by Abdul-Rahman & Janor, (2020) using the ARDL method, they can identify macroeconomic changes such as local palm oil price variables, world palm oil prices, palm oil production, and the true effective rate affecting exports of the main palm oil product, Crude Palm Oil. (CPO) and PKO from 1985 to 2016. Meanwhile, price competition covers the price of substitute products for palm oil, namely soybean oil, canola oil and so on. Yusoff, (1988) added that a reduction in oil palm export tax can increase oil palm production, prices accepted by producers and can reduce world prices and local consumption. The export trend fell during the period 1996 to 2016. In general, the value of Malaysian and Indonesian oil palm exports increased in line with the increase in oil palm cultivation areas. Through a study conducted by Pujiati, (2018) India has become a major destination for Indonesian oil palm exports. This is evidenced when the export value reached US $ 5.2 billion in 2011 with an average annual growth rate of 23 percent from 2000 to 206. Another factor that causes high demand for oil palm is the high consumption per capita which has reached 15 kg each. years and the population of India reached 1.3 billion in 2016. In addition, compared to India and China, Asian countries have become major destinations for Indonesia to refine palm oil exports.

A study by Szulczyk, (2013), palm oil exports contribute 13.7 percent to GDP. And exports lead to high inflows of foreign exchange earnings. In addition, Malaysia has an additional industry that produces biodiesel and can balance the biodiesel market by exporting large amounts of biodiesel and palm oil. However, Malaysia has two barriers to the mass production of palm oil and biodiesel, namely, Malaysia subsidizes petrol and diesel fuel, making Malaysia the country with the cheapest petrol and diesel fuel in the world. Furthermore, Malaysia faces import constraints from the European Union and the United States. The U.S. Environmental Protection Agency ruled that palm oil biodiesel is imported as a renewable fuel because of its life -cycle emissions below the 20 percent threshold. Furthermore, the EU imposes tariffs on palm biodiesel as protection of the palm biodiesel industry from competition.

Oil palm is a major source of exports, employment and value -added in Malaysia and Indonesia. According to Rasiah & Shahrin, (2006) Malaysia leads in the production and export of oil palm, while Indonesia is expected to take over this production and industry gradually. The expansion of the area in Indonesia for oil palm cultivation is faster than in Malaysia. This is because innovation and research in Indonesia is very advanced. In addition, diversification in exports in Malaysia reduces the effects of imbalances in overproduction and falling prices of goods with primary commodities. Just like Malaysia, Indonesia is also trying to reduce poverty by introducing and developing the crop sector with strategic elements.

2.4 Gross Domestic Product (GDP)

Gross Domestic Product is a macroeconomic indicator that measures a country's progress. GDP measures the number of final goods and services produced by a country in one or another period of time. Through a study by Otieno et al., (2016) the researcher stated that Malaysia provides 61 services. In this researcher's model, it is measured in U.S. dollars. The inputs from the parameters studied are oil exports from oil potential and alternative income from alternative capital. GDP per capita is obtained by weighing GDP from the total population that is part of the social module and as an independent input. In general, GDP

is the best indicator to measure the state of the economy. Based on the Agriculture and Plantations report (2014), Malaysia's GDP per capita is among the highest in Southeast Asia. It recorded $ 10,548 in 2013 based on GDP of $ 30725 billion. Malaysia produces 39 per cent of palm oil with exports valued at 44 per cent due to an increase in global demand. Bulk agriculture contributed to GDP which recorded a sector value of 36.5 per cent in 2012 which consisted of rubber agriculture at 8.2 per cent, logging and forestry at 11 per cent, ungags at 7.3 per cent, vegetable cultivation at 8 per cent, fisheries at 14.4 per cent and fruits by 4.1 percent.

3. Materials and Methods

Research methodology is a general term for a structured process in conducting research. There are many different methods used primarily in research and these terms are usually considered to encompass research design, data collection, and data analysis. Research methodology aims to provide information, why the study was conducted, how to determine the research question, how to form the hypothesis, what data was collected, which specific methods were used, and analytical techniques used (Goundar, 2012). The research methodology is also a systematic approach to problem solving. Basically, it is a process in which researchers describe, explain, and predict a phenomenon called research methodology. It is also defined as a research method to acquire knowledge which aims to provide a research work plan. Part of the research method is related to the way research is conducted. For example, research that uses questionnaires, interviews, observations, or experiments. Research methods will be used and usually include procedures for analyzing and interpreting the data collected. It often uses a series of complex statistical analyzes of data to determine the correlation or significance of statistical results. In short, research methods are used to provide a clear idea of how to research. In order to plan and develop research work in a timely manner, research methods provide researchers with an appropriate platform to plan research accurately. In most cases, the purpose of the research and the topic are often different from the purpose and process of the research, however the objectives of the study can be achieved as long as it uses appropriate methods.

3.1 Research Design

The study design consisted of a qualitative study design and a quantitative study design. According to Basri, (2012), qualitative studies are more open and in line with national development and include inductive reasoning. While quantitative research is an empirical study that consists of numbers or statistics (Mohd-Nor et al., 2019). In the study, the dependent variable is Malaysia's GDP, and the independent variable is the number of employees, palm fruit production and palm oil exports using time series data from 1974 to 2019.

3.2 Data Sources

The data source used by the researcher in this study is secondary data. Secondary data used includes reports and documents that have been published by companies such as statistical data. In addition, these secondary data were also obtained from a survey of past studies such as journals, articles and newspaper clippings related to the online oil palm industry obtained from various websites such as Research Gate, Google Scholar, and Scopus. The data used in this study is annual data related to variables related to palm oil which the statistical data is obtained from the Department of Statistics Malaysia (DOSM). To achieve the objectives of the study, the researcher used a sample of 45 years for data on the number of employees in the sector oil palm, oil palm fruit production and palm oil exports from 1974 to 2019.

3.3 Data Analysis

Data analysis is a method of collecting, controlling and presenting data and applying statistical processes to more useful information to help researchers to make decisions. Every data analysis requires hypotheses. Therefore, this section will describe in detail the use of preliminary analysis and the introduction of the data used (Kusairi et al., 2019). The analysis used is also regression analysis which is a statistical method used to study the relationship between independent variables and consequences. The main focus of univariate is to analyze the relationship between dependent and independent variables (Uyanık & Güler, 2013).

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3.3.1 Model Specifications

The multiple regression model is as follows:

$$GDP_t = \beta_0 + \beta_1 JK_t + \beta_2 PBS_t + \beta_3 EMKS_t + \varepsilon_t \tag{1}$$

Where, GDP_t is Gross Domestic Product in period t, JK_t: Number of Employees in period t, PBS_t: Oil Palm Fruit Production in period t, $EMKS_t$: Exports of Palm Oil in the period t, B_0: Intercept, Bi is regression coefficient Estimator (i = 1,2,3) and ε_t: Error Conditions at period t

3.3.2 Estimation Methods

To test the unit root test, Augmented Dickey-Fuller (ADF) was used in this study. This test is used whether the relationship between Malaysia's GDP and the number of employees, palm fruit production and exports of stationary palm oil or vice versa. This method is often used by researchers to test the retention of their data. The ADF unit root test in this study was formed as follows

$$\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 + \beta_3 \sum_{j=1}^{p} \Delta Y_{t-1} + \varepsilon_t \tag{2}$$

Ho = β0 = 0 there is no unit root problem in the variable
H1 = β0 ≠ 0 there is a unit root problem in the variable
Where, ΔY_t: The first differential operator for a variable (GDP, JP, PBS, EMKS) and ε_t is Fixed and residual variance mean 0. Where it serves as the first differential lag and serial correlation remover and the first differential is referred to as Δ. The null hypothesis for the unit root test contains the unit root when the time series is not stationary if the t-statistic is greater than the critical value, 1 (0). The null hypothesis will be discarded which yields no unit root and is stationary if the t-statistic is smaller than the critical value, 1 (1).

3.3.3 Autoregressive Distributed Lag Bound Test (ARDL)

The ARDL test is used to test the cointegration relationship between Malaysia's GDP and number of employees, palm fruit production and palm oil exports in the long run. Researchers use this method to identify whether there is a long-run relationship between the variables studied. The ARDL test is more frequently used by researchers because it is more flexible for stationary conditions either for mixtures of 1 (1) and 1 (0) or both as long as the variable is no more than lag 1 (e.g., 2). The F test will determine whether to get rid of the null hypothesis. An alternate null result will be accepted if the statistical F value is higher than the upper limit critical value and there cointegration exists. Whereas, the null hypothesis will be accepted if the statistic F is lower than the upper limit critical value and there occurs no existence of cointegration between the variables. According to Nkoro & Uko, (2016) ARDL test also helps researchers in terms of ARDL cointegration to avoid the existence of erroneous estimates and expectations in deciding and study results.

3.3.4 Error Correction Model (ECM) Test

ECM is used to identify whether there is a short -run relationship between the number of palm fruit production workers and palm oil exports to Malaysia's GDP. ECM is the third method in this study. ECM_t will be used to identify short -run relationships when cointegration occurs between variables. ECM describes the percentage change in the past for the present equilibrium (Bala et al., 2015).

$$\begin{aligned} ECM_t = \ln GDP_t - \beta_0 - \sum_{j=1}^{p} \beta_0 \ln GDP_{t-1} - \sum_{j=1}^{p} \beta_1 \ln JK_{t-1} - \\ \sum_{j=1}^{p} \beta_2 \ln PBS_{t-1} - \sum_{j=1}^{p} \beta_3 \ln EMKS_{t-1} \end{aligned} \tag{3}$$

Where, ln is a natural logarithm, JP is Number of Employees, PBS is Production of Palm Fruit, EMKS is Export of Oil Palm and GDP is Gross Domestic Product.

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4. Results

4.1. Descriptive Statistics Analysis

The following is a descriptive analysis that displays the trend of the number of workers, palm fruit production and palm oil exports in Malaysia using time series data from 1974 to 2019.

Table 1. Descriptive Statistics Analysis

Statistics	GDP	JK	PBS	EMKS
Mean	432991.4	246641.2	50586312	9176.522
Median	267763.5	199414.5	38972410	7482.500
Maximum	1513157.0	509831.0	5.54E+08	18524.00
Minimum	22332.00	72784.00	4152843.0	1160.000
Standard Deviation	443413.5	150571.1	79815110	5982.254
Skewness	1.034513	0.415028	5.582999	0.218972
Kurtosis	2.829240	1.596182	35.90175	1.508603
Jarque-Bera	8.260879	5.097756	2313.809	4.630780
Probability	0.016076	0.078169	0.0000	0.098728

Table 1 displays the GDP variable recorded a maximum value and a minimum value of 1513157 and 22332.00. The mean and median values recorded were 432991.4 and 267763.5. Next, the skewness value is 1.034513, while the standard deviation value is 443413.5 which describes a data scatter that is greater than the mean value. For kurtosis and Jarque-Bera values are 2.83 and 8.26. The Jarque-Bera value is 8.26 indicating a normal distribution after comparison with the Chi-Square table. For the variable the number of employees recorded a value recorded a maximum value of 509831.0 and a minimum value of 72784.00. The mean and median values are 246641.2 and 199414. Next, the skewness value is 0.415028, while the standard deviation value is 150571.1 which describes the data scattering that is smaller than the mean value. For kurtosis and Jarque -Bera values recorded values of 1.60 and 5.10. The Jarque-Bera value is 5.10 indicating a normal distribution after comparison with the Chi-Square table.

For the oil palm fruit production variable recorded a maximum value of 5.54 and the minimum value is 4162843. The mean and median values are 50586312 and 38972410. Next, the skewness value is 5.582999, while the standard deviation value 79815110 which describes the data scatter greater than the mean value. For the values of kurtosis and Jarque -Bera recorded values of 35.90 and 2313.8. The Jarque-Bera value is 2313.8 indicating a normal distribution after comparison with the Chi-Square table. For the export variable palm oil recorded a maximum value of 18524.00 and the minimum value was 1160,000. The mean and median values are 9176,522 and 7482,500. Next, the skewness value is 0.2189732, while the standard deviation value is 5982.524 which describes a data scatter that is smaller than the mean value. For kurtosis and Jarque -Bera values recorded values of 1.51 and 4.63. The Jarque-Bera value is 4.63 indicating a normal distribution after comparison with the chi-square table.

4.2. Unit Root Test

The Augmented Dickey Fuller (ADF) test was used in this study to identify the existence of unit causes and stagnation. The study uses the log variable which consists of log (GDP) which refers to the log variable for Gross Domestic Product, log (JK) which is for the log of total employees, log (PBS) which is the log for oil palm production and log (EMKS) which is logs for palm oil exports. The null hypothesis that has been formed is that the variable is not stationary and has a unit root, while the opposite is true for the alternative hypothesis. The findings of the study can be seen based on Table 2:

Table 2. Result of Unit Root Test

Variable(s)	I(0) Level	I(1) First-differences
Log(GDP)	2.723347 1.0000	-7.884291 0.0000
Log(JK)	-1.949632 0.6122	-6.300987 0.0000

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Log(PBS)	-6.575724 0.0000	-6.504862 0.0000
Log(EMKS)	-1.699582 0.7351	-6.881470 0.0000

Note: *** significance at the 1% level, ** significance at the 5% level and * significance at the 10% level

Table 2 displays the results of the stationary test using ADF test. This study concluded that all variables namely LGDP, LPS and LEMKS are stationary at the base differentiation of 1 (0). So, the value is standardized on the second differentiation 1 (2). If the statistical value of the test obtained is greater than the critical value, this means that the case is stationary. Therefore, all variables are stationary at the second differentiation.

4.3. Lag Length Selection Criteria

The lag criterion selection test is very important to avoid autocorrelation problems, based on the Table 3 below the optimal lag selection is 4.

Table 3. Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2304.755	NA	6.56e+42	109.9407	110.1062	110.0014
1	-2113.893	336.5807	1.59e+39	101.6139	102.4414	101.9172
2	-2098.252	24.57822	1.66e+39	101.6310	103.1205	102.1770
3	-2056.709	57.36868	5.20e+38	100.4147	102.5661	101.2033
4	-1977.668	94.09698*	2.89e+37	97.41275*	100.2261*	98.44396*

Note: *** significance at the 1% level, ** significance at the 5% level and * significance at the 10% level

Table 4. Result of Long Run Estimation

Statistic Test	Value	Significance	1(0)	1(1)
F-Statistic	24.38685	10%	2.37	3.2
		5%	2.79	3.67
k	3	2.5%	3.15	4.08
		1%	3.65	4.66

Note: Asymptotic value n = 1000

Table 4 captures the statistical F values are greater than the asymptotic, i.e., 2.37,2.79.3.15 and 3.65 at the levels of 10%, 5%.2.5%and 1%. Therefore, it can be concluded that there is a long -run relationship between the variables of the number of employees, palm fruit production and palm oil exports to Malaysia's GDP.

Table 5. Result of Short-Run Effect

	Coefficient	Std. Error	t-statistic	Prob.
D(GDP(-1))	-0.316230	0.132451	-2.387518	0.0252
D(GDP(-2))	-0.622195	0.091100	-6.829826	0.0000
D(JK)	0.201155	0.082470	2.439143	0.0225
D(JK(-1))	0.355128	0.072312	4.911080	0.0001
D(JK(-2))	-0.662606	0.075041	-8.829876	0.0000
D(JK(-3))	0.320723	0.110740	2.896180	0.0079
D(PBS)	-1.37E-05	2.12E-05	-0.648104	0.5231
D(PBS(-1))	-0.000155	2.78E-05	-5.589882	0.0000
D(PBS(-2))	-4.38E-05	2.48E-05	-1.769318	0.0895
D(EMKS)	-1.447194	3.422681	-0.422825	0.6762
D(EMKS(-1))	-9.241193	3.381281	-2.733045	0.0116
D(EMKS(-2))	-1.933519	4.023698	-0.480533	0.6352

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D(EMKS(-3))	-9.688098	4.454774	-2.174767	0.0397
CointEq(-1)*	0.063991	0.006096	10.49795	0.0000
R-Squared	0.946049		Adjusted R-Squared	0.9210
F-Statistic	18.89262		Durbin-Watson Statistic	1.9898

The lag coefficient for the short -run variable illuminator has an influence on the dependent variable i.e., GDP. Table 5 shows the positive values of the short -run coefficients for the 3 lag illuminating variables for total employees D (JK), palm fruit production D (PBS) and palm oil exports D (EMKS). Among these variables it shows a difference in the estimated value. For the variable number of employees D (JK (-2)) it recorded a value of -0.66 which has a significant value and short -term negative effect at a significant level of 5%. It means that in the short term, a 1% increase in the number of employees causes a decline in GDP in Malaysia of 0.66%. Similarly, the lag of oil palm fruit production, namely D (PBS), D (PBS (-1)) and D (PBS (-2)) which recorded values of -1.37, -0.00 and -4.38 which have significant values and negative long-term effects. short at a significant level of 5% which means in the short run, 1% increase in oil palm production causes a decline in GDP in Malaysia in the short run.

As for the palm oil export variable, D (EMKS), D (EMKS (-1)), D (EMKS (-2)) and D (EMKS (-3)) recorded negative values in the short term with the value -1.45, -9.24, -1.93 and -9.688 which have significant values and short-term negative effects at a significant level of 5%. It means that in the short run, a 1% increase in palm oil exports will result in a decline in Malaysia's GDP in the short run. It differs from the first and second lag for the number of employees D (JK) and D (JK (-1)) which show a positive value of 0.20 and 0.36 which means 1% increase will cause an increase of 0.20 and 0.36 to GDP in Malaysia. The statistical value for the value of R Squared recorded a value of 0.946 or 94.60% which is the variation of Malaysia's GDP which is explained by three non -independent variables namely the number of employees, palm fruit production and palm oil exports. Estimating the statistical F value of 18.89 at p = 0.0000 can explain the change in Malaysia's GDP.

4.4. Wald Test to Test Short Run

Causality to ensure that there is a short-run relationship between GDP and the variables studied in the ECM test, the Wald Test was performed by the researcher to determine the short-run cause and effect between GDP and the independent variables studied. First, the researchers test whether GDP and the number of employees have short -term causes. The null hypothesis is c (3) = (4) = c (5) = c (6) = 0 which means that there is a short-run relationship between the number of employees and GDP in Malaysia. Next, the researcher also tested the variables of palm fruit production and palm oil export with the test c (7) = c (8) = c (9) = 0 and c (10) = c (11) = c (12) = 0. Table 6 shows that palm fruit production has a short -term relationship while palm oil exports show that there is no short -term relationship to GDP in Malaysia.

Table 6. Result of Wald Testing

	Statistic	Value	df	Prob.
c(3)=(4)=c(5)=c(6)=0		75.80922	4	0.0000
c(7)=c(8)=c(9)=0	Chi-Square	54.21384	3	0.0000
c(10)=c(11)=c(12)=0		6.710863	3	0.1099

Since the value of P is less than 5% i.e., c (3) = (4) = c (5) = c (6) = 0 is 0.0000 meaning the null hypothesis needs to be eliminated and there is a short -run relationship for the number of employees. Next, since the value of P is less than 5% i.e., c (7) = c (8) = c (9) = 0 is 0.0000 meaning the null hypothesis needs to be eliminated and there is a short -run relationship for oil palm fruit production. Furthermore, since the value of P is more than 5% that is c (10) = c (11) = c (12) = 0 is 0.1099, then there is no short -run relationship for the variable for palm oil exports to GDP in Malaysia.

4.5. Model Diagnostics

Following are the results of the study for diagnostic tests for long-term variables to test the robustness of each study equation, the test consists of normality test, LM 'Breusch-Godfrey' correlation series test, and heteroscedasticity.

Table 7. Normality Test

Normality Test	Value
Jerque-Bera	211.7845
Probability	0.000000

Table 7 recorded the value of Jarque-Bera (JB) that is the value of P is 0.000000 smaller than 0.05, then it is an abnormal distribution. Most in studies, Jarque-Bera is affected by skewness compared to kurtosis if the sample size is small or medium in size (Mantalos, 2011). The serial correlation test was tested using the Breush-Godfrey Serial Correlation LM test to examine whether the error condition was autocorrelated or vice versa. This test is generally used to examine the relationship of the same variable over a period. It also measures the relationship of the value of the current variable based on the value in the past.

Table 8. Serial Correlation Test

Breush-Godfrey LM	Value
F-Statistic	2.602439
Prob. (F-Statistic)	0.032701

Table 8 shows that the statistic F is 2.602439 and the p value is 0.032701. This indicates a value smaller than 0.05. Then the results need to get rid of the null hypothesis. Heteroskedasticity typically exists when there is a large gap between the smallest value and the largest value of the variable studied in the data set. Time series data can face heteroskedasticity when the dependent variable changes significantly from the beginning to the end of the time series data. In this study this heteroskedasticity used the Breusch-Godfrey test.

Table 9. Heteroscedasticity Test

Breusch-Godfrey Heteroscedasticity	Value
Chi-Square (4)	0.0118
Prob.	0.0000

Table 9 displays the result of heteroscedasticity testing. This study obtained the Chi-Square probability is 0.0118 and 0.0000 which are less than 5%, then the null hypothesis for Heteroskedasticity should be eliminated.

4.6. Model Stability

To identify the stability of the model for the long -run parameters for the equation, the Cumulative Sum test (CUSUM) was performed as in the figure above. The red line is significant at the 5% level for the test, if the plot is outside the red line then it indicates that the regression equation is unstable. Based on the graph above it shows that the resulting line plotted in red line indicates that there is stability for the model studied (Abdallah et al., 2020).
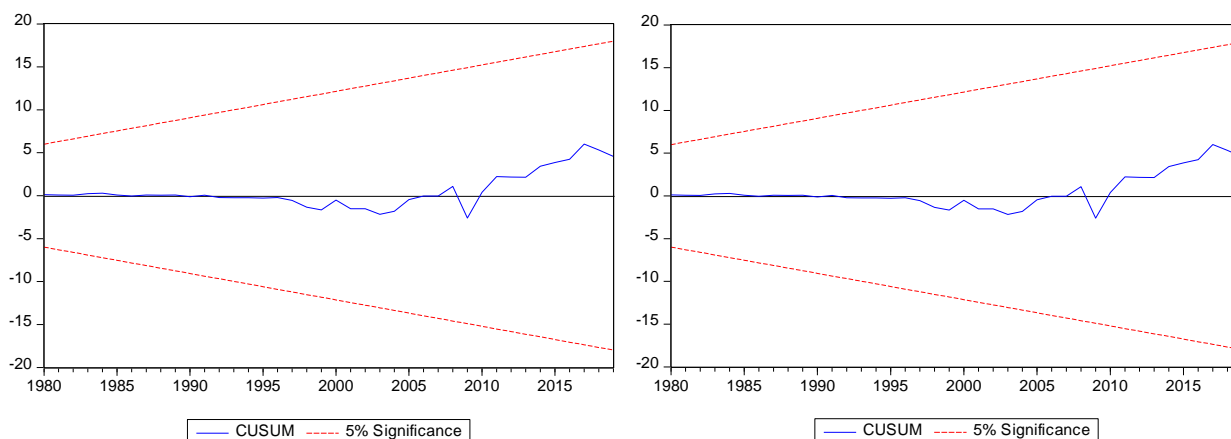
Figure 1. Result of CUSUM Test

Figure 1 captures the result of CUSUM test. Thus, we concluded that there is a long-run relationship between the variables studied and it shows that the stability coefficient plotted based on CUSUM remains with a critical value of 5% for a significant level.

5. Conclusion

This study is written to examine the impact of number of employees, palm fruit production and palm oil exports on gross domestic product in Malaysia. The data used in this study is secondary data of 45 years starting from 1974 to 2019. The data used is in the form of time series data and obtained from the Department of Statistics of Malaysia (DOSM). The study begins with an introductory section that describes the background of the oil palm sector. This study was conducted because long -term and short -term relationships are difficult to determine. This causes the researcher to form several objectives of the study that is to determine whether there is a long-term and short-term relationship for the variables studied. Next, the researcher explains the theory of this study which is Neoclassical theory as well as the concepts and highlights of the study for all the variables studied. Highlights of previous studies greatly help researchers in obtaining information related to the variables studied. Next, to examine whether there is a long -run and short -run relationship for the independent variable that is the number of employees, palm fruit production and palm oil exports to the non-independent variable that is GDP, several methods have been used. ADF stagnation tests were performed to see if the variables studied were stationary or otherwise. The test results found that all variables were stationary at the second differentiation. Then, the researcher conducted an LRBT test to study the first objective. Based on the results obtained, there is a long -run relationship for the variables studied to GDP. Next, to achieve the second objective, the researcher used ECM test and then studied using Wald Test. The results of the test found that all variables have a short -run relationship except palm oil exports.

In general, based on Neoclassical theory, certain inputs play an important role in stimulating economic growth. For this study it focuses on the number of employees, palm fruit production and palm oil exports where these inputs play an important role in stimulating the economy of the palm oil sector and in the palm oil sector. The oil palm industry and cultivation sector provided the main source of income especially for the rural population and this sector also contributed to political and financial stability in 1997 and 1998. This sector is undeniably, has many uses and benefits to the socio-economy not only in Malaysia and even foreign countries, especially oil palm-based suppliers. Therefore, to ensure the progress of the oil palm sector so that it can continue to contribute to economic growth, several measures and approaches need to be taken. Among the approaches that can be done are:

Skills training and seminars for farmers; The government needs to provide skills training and seminars for farmers so that they become more skilled in the oil palm agriculture sector. This should not only be given to farmers, but also should be extended to young people so that they are more exposed to the benefits of oil palm. In addition, with the skills training provided, it can also help provide reforms to develop the oil palm agriculture sector in a more efficient manner and with increasing productivity. For example, farmers are exposed to the genetic knowledge of oil palm seeds so that they can produce quality seeds. Conduct research and development (R&D); R&D must be done actively so that it can produce better quality crops. Authorities

such as the Malaysian Agricultural Research and Development (MARDI) need to be mobilized to improve the quality of efficient products and increase farmers' incomes. To focus on oil palm agriculture, the Malaysian Palm Oil Board (MPOB) is very important in developing the oil palm sector. The results of R&D in oil palm have successfully generated new innovations such as biomass, biodiesel and pest control.

Provide facilities for farmers; The government can make it easier for farmers or beginners to venture into agriculture by providing capital or capital loans with low interest rates. With this facility, it can ease the burden of farmers to do business and agriculture by purchasing machinery and agricultural equipment. Therefore, productive farmers can be born when certain parties strive to provide facilities to farmers and entrepreneurs who want to venture into sectors in Malaysia, especially the oil palm and palm oil sectors. Commercialize the oil palm market; The oil palm market needs to be expanded by encouraging the people to buy locally produced goods. Local products based on oil palm can be diversified to meet the tastes of local people such as palm oil, coconut jam and so on. Apart from that, oil palm agriculture can also be expanded by organizing local agricultural exhibitions abroad and revealing the benefits of oil palm products so that it can attract foreigners to local products.

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