

Estimating Aggregate Consumption Function in Indonesia: An Error Correction Approach

Panji Kusumo Prasetyanto, Jihad Lukis Panjawa, Jalu Aji Prakoso,
Suci Nasehati Sunaningsih, Deni Ramdani

Faculty of Economics, Universitas Tidar, Magelang – Indonesia

Corresponding Author: jaluaji@untidar.ac.id

Received: Oktober 2021 | Revised: March 2022 | Accepted: June 2022

Abstract

The aggregate consumption pattern in Indonesia tends to be volatile due to economic, social, political instability, and disasters affecting consumption expenditure and social welfare. Relooking at public expenditure and its determinant with the 1992-2019 time series is the focus of current research. This review aims to find out the change of aggregate consumption in Indonesia with the Life-Cycle Hypothesis. The method used to authenticate the research was the *Direct Error Correction Model*. Using this approach, short- and long-term consumption estimation will be found that is useful to stakeholders. The result of the test shows there is a relationship between determinants and aggregate consumption in Indonesia in both the short and the long terms. In short term, inflation affects the change of aggregate consumption, while in the long term, GDP, interest rate, and inflation affect consumption. Estimation building on hypothesis testing is useful to policymakers, particularly for macro-credential adjustment.

Keywords: Consumption, Gross Domestic Product, Inflation, Interest Rate, Error Correction Model

JEL classification: E21, E43, P44, B23

How to Cite: Prasetyanto P. K., Panjawa J. L., Prakoso J. A., Sunaningsih S. N., Ramdani D. (2022). Estimating Aggregate Consumption Function in Indonesia: An Error Correction Approach, 23(1), 135-145. doi:<https://doi.org/10.23917/jep.v23i1.16104>

DOI: <https://doi.org/10.23917/jep.v23i1.16104>

1. Introduction

Public consumption expenditure has played an important role in one of the indicators to measure public welfare level. Recently, there is an interesting phenomenon related to consumption and welfare. The low public consumption level uncertainly indicates the decreasing public welfare. The decrease of individual consumption, according to Hüttel, Balderjahn, & Hoffmann (2020), does not reduce individual welfare but brings the improvement of his welfare level and helps protect environmental resources due to the declination against high consumption lifestyle or switches to alternative consumption form.

Indonesian economic condition decreases with the weakened consumption growth.

Although nominally it shows an increasing trend, the growth of consumption expenditure slows or stagnates. In addition, the aggregate development of public consumption expenditure has the same direction with aggregate development of income. As shown in Figure 1, consumption expenditure and income growth decreased significantly in 1992 and 1998. Significantly decrease occurring in 1998 was the consequence of Asian financial crisis having an impact on Indonesian economy. Economic recovery done was fruitful, leading to the increasing growths of consumption expenditure and income in 1999. After 1999, consumption and income growths tend to be stagnant and to decrease following the global crisis in 2008.

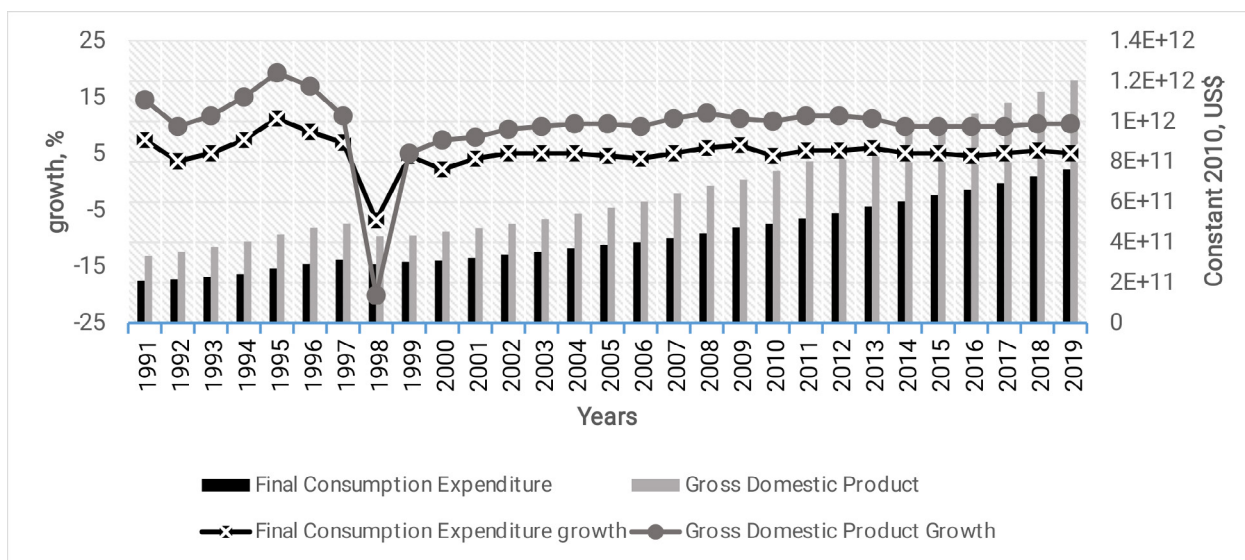


Figure 1. Aggregate Development of Consumption Expenditure and Income in Indonesia in 1991-2019

Diacon and Maha (2015) found different incomes and consumptions in the states with low, medium, and high income. The states with low and medium incomes levels will focus on its consumption use as the logical consequence of limited/minimum income, while those with high-income level will allocate more capital (investment) and will specialize in research and development activities as the logical consequence of income surplus. In addition, Khan, Fei, Kamal, & Shaikh (2015) found that in developed countries (China, Europe, and America), income plays a role in aggregate consumption, both in the short and long terms. Mohammed's study (2020) in developing countries, such as African countries, showed that the increase in consumption was due to the increased incomes with a lack of consumption and connectedness despite insignificant difference.

What about the consumption pattern in Indonesia as a developing country with medium-income category? Indonesians' consumption pattern has varying determinants leading to the volatility viewed from some aspects. Rusdiana et al., (2020) suggests that consumption to fisherman family group is affected by income and number of family members. The relationship between income and consumption in fisherman family group in Indonesia shows that the increased income tends

to be used for consumption with MPC of 0.908. Wijaya, Za, & Darma (2020) study mentions that commuters have consumption expenditure pattern different from that of non-commuters. To commuters, consumption expenditure is allocated more on non-food expense, while the residence community has larger expenditure for food. However, the macro performance is of course faced with the changes of lending interest rate and inflation.

High household spending on home ownership and private vehicles likely increases incomes for households in ten developing countries in Latin America. However, family expenses with female family heads and family heads with self-employment have decreased savings rates. Rising household incomes in some Latin American countries are related to an increase in national income that can be driven for social well-being (Bebczuk et al., 2015). Through this research, an analysis is conducted on the condition of consumption expenditure in time series with national income, interest rate, and inflation being its determinants.

Some worries appear related to the changing income and consumption. It is of course inseparable from the dynamic of consumption expenditure and income occurring in almost

three decades. Moreover, social, economic, and political agitations and disaster can affect public consumption and welfare. Those shocks will result in both national and regional economic vulnerability. Thus, it is interesting to review the relevance of consumption and income translated aggregately in both short and long terms.

Khan, Fei, Kamal, & Shaikh (2015) conducted a study on the determinants of consumption in developed countries rather than in developing countries. Similarly, the results in different country levels are unnecessarily the same. In addition, Mohammed (2020) in his study on the determinants of per capita consumption shows that the aggregate income tendency to save and consume in developing countries is almost the same. Furthermore, inflation, and interest rates have a negative impact on per capita consumption. The study used per capita consumption but did not analyze the determinants of consumption in short and long terms. Ezeji & Ajudua (2015) $C = f(Y)$ revealed a positive relationship between consumption and income expenditure in short and long terms. Similarly, interest rates, and inflation are significant variables explaining consumption behavior. However, the study was conducted in a developing country, namely Nigeria, not in Indonesia. This is interesting to study further one of the developing countries, such as Indonesia.

This study tries to see how the condition of household spending in Indonesia was affected by Gross Domestic Product at purchase price in the long term between 1991 and 2019. It also tries to find out whether or not the changes in household expenditure shows a tendency to decrease household capabilities and the changes in the condition purchase price occurring in Indonesia. Additionally, this research adds some control variables such as price stability and interest rate.

2. Literature Review

Consumption changes with the change of condition affecting a priori. Firstly, in his absolute income hypothesis, Keynes (1936) states that consumption expenditure is currently dependent on income received currently. Generally, it can be said that aggregate consumption is highly affected by aggregate income. Secondly, consumption

assumption is mentioned in Duesenberry (1949) relative income hypothesis stating that consumption level currently is affected by the previous consumption rate. Thirdly, Modigliani and Brumberg (1954) consumption theory about Life-Cycle Hypothesis explaining that aggregate consumption represents some individual habits, in which aggregate consumption is affected by income, interest rate, wealth, and individual's age. Fourthly, Friedman (1957) states that permanent-income hypothesis starts with microeconomic perspective, in which permanent consumption is affected by permanent income. The change of permanent income is affected by interest rate, wealth-to-income ratio, and consumer's preference. There is a similarity between Brumberg's and Friedman's arguments, both of which states that consumption is affected by the changing income due to interest rate, and individual's wealth and perspective (Mei, 2012). However, the consumption theory tends to develop from the experience of developed countries as the primary subject of United States of America. Meanwhile, the empirical development of consumption function in developing countries still needs different study, because of high income gap.

The consumption pattern in developing countries tends to concentrate on the group with high income, leading to the income gap. Khan (1987) conducted a study on the effect of income distribution on aggregate consumption in developing countries. His study found that income gap increases aggregate consumption. Such condition is the problem faced by developing countries in national consumption measurement. Other factors affecting the aggregate consumption in developing countries constituting the participants of G7 are national income and wealth. There is a sharp difference of coefficient between Chinese states, in which aggregate consumption is affected more by people's income measured with the ownership of valuable asset stored in banking (Khan, Fei, Kamal, & Shaikh, 2015). A study Kaplan and Violante (2010) has investigated the long term and short term relationships of GDP and inflation to consumption in Iran. Kaplan's study found that consumption

correlates positively to GDP in short term, while inflation correlates negatively to consumption in long term.

The different factors affecting consumption in developing countries become a relevant topic to be studied more comprehensively. The trend of consumption pattern in developing countries have volatility affected by such factors as investment, employee's work hour, house price, and capital expense (Sapci, 2017). In addition, the interesting element of consumption research is the measurement of population, like Indonesians. Several studies related to the determinant of aggregate consumption conducted in Indonesia used inflation variable. The results of studies show that there is a negative significant relationship between inflation and aggregate consumption of Indonesian people (Nur, 2012; Resagi, 2020). However, the research on aggregate consumption with case study being its determinant in longer period of time has not been conducted yet. This review research using long time series is expected to provide empirical information on aggregate consuming behavior in Indonesia. Life-cycle Hypothesis approach used by knowing the value of MPC and MPS will allow for the identification

of trend consumption pattern in Indonesians. Thus, the result of research will be beneficial to the government in formulating macroeconomic policy.

3. Research Method

Generally, positivistic perspective with deductive approach was used in construct critical economy framework. The perspective explains that the framework started with causal relationship logically derived from causal theory in general theory. The entire process of such perspective leads to empirical test or authentication and confirmation of theory in social life. Positivistic perspective applies deductive approach. The approach can be implemented in theory development and confirmation started with an abstract concept and theoretical relation, leading to a more concrete empirical evidence (Neuman, 2011). Thus, this research employs positivistic perspective with deductive approach supported with time series secondary data in the period of 1992-2019 originating from Indonesia's Central Bureau of Statistic and World Bank. For more detail, see Table 1 about the definition and data source of variable used in this research.

Table 1. Definition and Data Source

Variable	Definition	Source
LCONS	Final consumption expenditure (formerly total consumption) is the sum of household final consumption expenditure (formerly private consumption) and general government final consumption expenditure (formerly general government consumption).	
LGDP	Gross Domestic Product (GDP) at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars. Variable in the form of logarithm	Statistics Indonesia data.world-bank.org
IR	Lending interest rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. Data are in annual percent (%).	
INF	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. Data are in annual percent (%).	

To address the objective of research, to analyze the effect of income on consumption expenditure in Indonesia using quantitative approach and econometric methodology, the instrument of analysis used was *Direct Error Correction Model*. Regression analysis, according to Gujarati & Porter (2009), is not only an attempt of revealing the relationship between variables occurring empirically in real world, but also an attempt of justifying a theory. To get a robust *Direct Error Correction Model*, according to Insukindro (1991), a diagnostic test is required, involving stationarity and classical assumption tests. It is intended to avoid the false linear regression.

A time series data is called stationary when mean, variant and covariant of various lags are constant at any points of measurement. Non-stationary time series data is often called the time series data with time varying mean or time varying variance or both of them. If the time series data is not stationary, its behavior is limited to a specific period. Therefore, it is impossible to generalize its behavior to other periods of time. Stationary test on data using Dickey Fuller test starts with a first-order autoregression process for each of variables at level phase. The result shows stationary data, it is followed with the next test. However, if the data in fact is non stationary in the first estimation, the data should be changed first into its differential form. The basic form of stationarity test is explained below (Gujarati & Porter, 2009; Insukindro, 1991). Y is the variables in the model.

Dickey Fuller (DF)

$$\begin{aligned} \Delta Y_t &= \delta Y_{t-1} + \varepsilon_t \\ \Delta Y_t &= \beta_1 + \delta Y_{t-1} + \varepsilon_t \\ \Delta Y_t &= \beta_1 + \beta_2 t + \delta Y_{t-1} + \varepsilon_t \end{aligned} \tag{1.1}$$

Augmented Dickey Fuller (ADF)

$$\Delta Y_t = \delta Y_{t-1} + \sum_{i=1}^k \alpha_i \Delta Y_{t-i} + \varepsilon_t$$

$$\begin{aligned} \Delta Y_t &= \beta_1 + \delta Y_{t-1} + \sum_{i=1}^k \alpha_i \Delta Y_{t-i} + \varepsilon_t \\ \Delta Y_t &= \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^k \alpha_i \Delta Y_{t-i} + \varepsilon_t \end{aligned} \tag{1.2}$$

The best DF and ADF test model is the one with minimum *Akaike information criterion* (AIC) value. When coefficient (positive), DF and ADF tests are not valid because it means that the time series data tested is explosive (Gujarati & Porter, 2009). Hypothesis of DF and ADF test is (non stationary data) and (stationary data). If prob.t > alpha significance, null hypothesis is supported.

Generally, *Error Correction Model* assumes the existence of direct long term equilibrium causal relationship between two or more economic variables. Nevertheless, there is disequilibrium in short term. Using error correcting mechanism, a proportion of disequilibrium in a period is corrected in the next period. Adjustment process is a means of reconciling short-run and long-term behaviors. Considering this concept, long-term relation can be estimated through short-run relation. Meanwhile, a causality equation model of *Direct Error Correction Model* for long-term is as follows:

$$LCons_t^* = \beta_0 + \beta_1 LGDP_t + \beta_2 IR_t + \beta_3 INF_t + \varepsilon_t \tag{1.3}$$

Error Correction is an error correcting mechanism is applied through minimizing cost function. Minimization, arrangement, and parameterization processes will result in standard causality equation of *Direct Error Correction Model* as follows:

$$\begin{aligned} \Delta LCons_t &= \alpha_0 + \alpha_1 \Delta LGDP_t + \alpha_2 \Delta IR_t + \alpha_3 \Delta INF_t \\ &- \lambda (LCons_t - \beta_0 - \beta_1 LGDP_t - \beta_2 IR_t - \beta_3 INF_t) \\ &+ v_t \end{aligned} \tag{1.4}$$

Apriori, $\alpha_1, \alpha_2, \alpha_3$ are defined as short term coefficients; $\beta_1, \beta_2, \beta_3$ are long term coefficients. λ

is an adjustment coefficient with value ranging from 0 to 1 ($0 < \lambda < 1$). Error correction consists of two elements: correction made by considering the present condition (short-term) and correction made to the past error. The arrangement and parameterization of standard short-term equation of *Direct Error Correction Model* will result in estimator *Direct Error Correction Model*

$$\Delta LCons_t = \gamma_0 + \gamma_1 \Delta LGDP_t + \gamma_2 \Delta IR_t + \gamma_3 \Delta INF_t + \gamma_4 LGDP_{t-1} + \gamma_5 IR_{t-1} + \gamma_6 INF_{t-1} + \omega_t \quad (1.5)$$

where γ_0 is a short term constant; $\gamma_0 = \lambda \beta_0$ to find long term constant; $\gamma_1 = \alpha_1$; $\gamma_2 = \alpha_2$; $\gamma_3 = \alpha_3$ is the coefficient of short term effect for independent variables of income, lending interest rate, and inflation respectively; $\gamma_4 = -\lambda(1 - \beta_1)$; $\gamma_5 = -\lambda(1 - \beta_2)$;

$\gamma_6 = -\lambda(1 - \beta_3)$ to find the long term coefficient of independent variables (income, lending interest rate, and inflation) respectively; $\gamma_7 = \lambda$ is an adjustment coefficient; ECT (*error correction term*) = $LGDP_{t-1} + IR_{t-1} + INF_{t-1} - LCons_{t-1}$.

4. Result and Discussion

When the result of estimated statistic model has been obtained, it is not used automatically to be the basis of decision making. The result of regression is feasible to use as the basis of decision making when it is adequate predictability and passes successfully some tests including= stationarity and regression tests should be tested to in order to ensure that classical assumption and *Goodness of Fit* have been fulfilled. Table 2 shows the result of stationary test with *Augmented Dickey Fuller* Approach.

Table 2. Stationarity Test

Variable	Model	δ	τ stat	Prob. τ	AIC	
Level						
Consumption Expenditure (LCons)	None	0.0017	8.5605	1.0000	-4.2391	
	Intercept	-0.0019	-0.1319	0.9363	-4.1699	
	Trend Intercept	-0.3759	-2.5611	0.2991	-4.2578	
	First Different					
	None	-0.1540	-1.1527	0.2203	-3.7995	
	Intercept****	-0.8672	-4.3945	0.0019***	-4.1547	
Trend Intercept	-0.8669	-4.3055	0.0108**	-4.0810		
Level						
Gross Domestic Product (LGDP)	None	0.0017	6.2758	1.0000	-3.6209	
	Intercept	0.0052	0.2503	0.9710	-3.5506	
	Trend Intercept	-0.2174	-1.9338	0.6095	-3.5987	
	First Different					
	None	0.3158	-2.2418	0.0266**	-3.3683	
	Intercept***	-0.7414	-3.8519	0.0070***	-3.5835	
Trend Intercept	-0.7522	-3.8342	0.0301**	-3.5221		
Level						
Leading Interest Rate (IR)	None	-0.0410	-1.2578	0.1863	5.0275	
	Intercept	-0.1269	-1.0339	0.7255	5.0807	
	Trend Intercept****	-0.8206	-3.4168	0.0717*	4.8044	

Variable	Model	δ	τ stat	Prob. τ	AIC
		<i>Level</i>			
Inflation (INF)	None****	-0.4426	-2.8002	0.0069***	7.7752
	Intercept	-0.8159	-4.2018	0.0029***	7.5831
	Trend Intercept	-0.9179	-4.6354	0.0049***	7.5515

Note: *** Significant 1%; ** Significant 5% and *Significant 10%;
 ****Model is selected with the criteria of AIC minimum, $\delta < 0$ and significant

Table 3. Classical Assumption Test

Classical Assumption Test	Statistic	Prob.
Normality, χ^2 (2) (Jarque-Bera)	0.1705	0.9183
Autocorrelation, χ^2 (2) (Bruesch-Godfrey)	2.4632	0.2918
Heteroscedasticity, χ^2 (7) (White)	12.6643	0.0807
Model Specification, F(1, 19) (Ramsey RESET)	0.4846	0.4948

Source: Output Eviews8

Table 4. Result of regression on Error Correction Model

Variable	Coefficient	t-Statistic	Prob.
C	1.7375	2.9933	0.0072***
Δ L(GDP)	0.1008	0.4127	0.6842
Δ (IR)	0.0008	0.4885	0.6305
Δ (INF)	-0.0019	-2.5083	0.0209**
LOG(GDPC(-1))	-0.0631	-3.0663	0.0061***
IR(-1)	-0.2500	-3.8977	0.0009***
INF(-1)	-0.2447	-3.8836	0.0009***
λ (ECT)	0.2446	3.8899	0.0009***
R-squared	0.9321	DW-stat	1.4551
F-statistic	39.2136	Prob.	0.0000***

Note: *** Significant 1%; ** Significant 5% and * Significant 10%;

Source: Output Eviews8

Table 5. Parameter of Regression Result

Variable	Parameter	
	Short Term	Long Term
C	1.7375	7.1034***
LGDP	0.1008	0.7420***
IR	0.0008	-0.0221***
INF	-0.0019**	-0.0004***

Source: Output Eviews8 processed

Table 6. Marginal propensity to consume and save out of income

Marginal propensity to consume	
Short Term	Long Term
0.1008	0.7420
Marginal propensity to save	
0.8992	0.2580

Based on stationarity test as shown in Table 2, it can be seen that only consumption expenditure and national income variables are stationary at first difference level, while lending interest rate and inflation are stationary at *level* degree.

Table 3 indicates that no problem with classical assumption test. Based on the result of residual normality test, it can be concluded that the residual distribution is normal because Jarque-Bera prob. value is $0.9183 > \alpha$ (0.05). The result of Breusch-Godfrey shows that Chi-square prob. Value is $0.2918 > \alpha$ (0.05), so that it can be concluded that there is no autocorrelational problem. Considering the result of heteroscedasticity test, it can be concluded that residual variation in the model is constant systematically with the change of independent variable, because Chi-square prob. value is $0.0807 > \alpha$ (0.05). Considering the result of model specification test, it can be concluded that the model has been specified appropriately, because p-value is $0.4948 > \alpha$ (0.05) (table 3). Based on the conclusion drawn from tables 2 and 3, it can be proved that the data is stationary for all variables and classical assumption is fulfilled.

Then, the result of regression should undertake goodness of fit test involving model existence test (F test) and the predictability of regression result (R-square interpretation) should be determined. The result of model existence test shows that the model used exists because prob. F is $0.0000 < 0.05$. In addition, R-square value is 0.9321, meaning that 93.21 percent of consumption expenditure variation can be explained in statistic model by the change of national income, lending interest rate, and inflation, while the rest of 6.79 percent is

explained by other variables excluded from the model (Table 4).

Finally, after the result of regression has been feasible to use, the next step is validity test on the effect (t-test) and interpretation of regression value. The result of regression on Direct Error Correction Model is presented in Table 4.

Table 4 presents the result of regression on Direct Error Correction Model. The conclusion drawn is that the model belongs to ECM, because the coefficient value λ (ECT) = 0.2446 ($0 < \lambda < 1$) and is significant ($0.0009 < 0.05$). In short term, only inflation affects significantly the consumption expenditure, while national income and leasing interest rate do not affect it significantly. In long term, national income, leasing interest rate and inflation affect significantly the consumption expenditure in Indonesia. The result of test on Direct ECM is similar to that of Nur's (2012) study indicating that inflation will affect expenditure in long term, while the result of current study shows that inflation affects it in short term. Low inflation value will increase consumption expenditure in both short and long terms. Simultaneously, income, inflation, and interest rate affect consumption. It means that inflation, low interest rate, and high income will increase consumption expenditure in Indonesia.

Considering the result of regression estimation in equation 1.5, it can be reported that *Marginal Propensity to Consume* (MPC) of income in both short and long terms is presented in Table 6. The short-term value is estimated from coefficient γ_1 . The long-term value is calculated from coefficient γ_4 with an assumption that the well-established condition exists for the long-term value of variable. It is noteworthy that the value is very significant in long term but is not significant in short term.

Both indicators suggest that consumption is increases change in Indonesia, with the proportion from 0.10 to 0.75 than to 1. The results of empirical research on household consumption expenditure in Indonesia from 1991 to 2019 showed that MPC in the short term amounted to 0.1008 and MPS is 0.8992.

In short term, household consumption expenditure is smaller than the propensity to save. The condition depends on kind of consumer behavior, but majority consumers tend to hold income in the beginning. The results are in line with Wright, Shroff, & Smith, (2017) research showing short- and long-term conditions for the changes in household consumption in Hungary.

In long term, MPC showed on point 0.7420 and MPS is 0.2580. Based on the findings, such region will be prospective to the advance of trading sector, because the high consumption close to 75 percent of income tends to be consumed. It also indicates that 25 percent of income tends to be saved; therefore, Indonesia is also prospective to the advance of financial service industry sector. At the country level, MPC between 0.5 to 0.9 showed the type of economy and consumer behavioral and value can be used to estimate the Income Multiplier Effect (Al Gahtani, Bollino, Bigerna, & Pierru, 2020). The Income Multiplier effect value implies that the size of income will increase if Indonesia facilitates governmental investment or expenditure.

It is also noteworthy that the factors expectedly affecting consumption expenditure in long term, such as lending interest rate and inflation, have a negative effect on consumption expenditure in Indonesia. Decreased lending interest rate will increase the consumption expenditure because the amount of money supply increases in real sector. High interest rate will lead to a dramatic increase in the capital cost of private sector, thereby generating investment competition. Investment competition implies that investors prefer investing in money market or saving than in capital market. Otherwise, the low lending or saving interest rate will decrease the people's interest in saving and private sector has an opportunity of taking capital loan or investment with low interest. In addition, price stability needs to be considered by controlling inflation. Inflation will influence the people's consuming decision. The increase price of product and service prices will decrease the

people's real purchasing power. This decreased purchasing power of the people will have an impact on their decreased consumption for product and service. Furthermore, economic condition will be shocked and have an impact on the sluggish consumption.

Compared with the condition of household expenditure in other countries, the condition of household expenditure in Indonesia is commensurate. Some findings on the condition of household expenditure in various countries can be written as follows. Firstly, in the long term, MPC is in the range of 0.5 - 0.9 depending on economic conditions and consumer characteristics. Secondly, the impact will be more pronounced in advanced economic conditions compared to developing economies and countries with elderly population conditions. Thirdly, households that have access to financing have lower MPC in the long term. Forth, income effect in the short term in developing countries tends to be greater than that in developed countries.

This study finds that the range of changes in consumption resulting from the income changes was in the appropriate range in other countries, between 0.5 - 0.9, in the long term. The tendency of consumption expenditure in the long term is greater depending on the economies and the type of consumers. In the period after 2000s, Indonesia appears to the dynamic structure of population, the number of youngest citizens is bigger than that of non-productive or old ones and younger population tends to be more consumption.

Result of this study in line with the study of Palley (2010) generates patterns of consumption spending consistent with both long-run time series data for aggregate consumption and empirical findings from cross-section data showing high-income households have a higher propensity to save. The study also explains why consumption inequality is less than income inequality.

5. Conclusion

The result of research shows that Indonesian aggregate consumption has different determinants in short and long terms. The determinant of aggregate consumption in short term is affected by inflation rate. The decreased inflation rate will

increase aggregate consumption in Indonesia. Such condition suggests that inflation is the main factor encouraging the change of consumption in short time interval. Meanwhile, in long term, the changes of GDP, interest rate, and inflation affect aggregate consumption with varying changes. The change of GDP in long term will increase aggregate consumption, while low lending interest rate and inflation will increase aggregate consumption. The *Marginal Propensity to Consume* (MPC) value is 0.75 in long term, meaning that most of income is used for consumption in long term.

The high value of changes in consumption in the long term needs to be considered by the government by taking a fiscal policy approach that is able to make household spending more efficient. The proper allocation of household expenditures on productive activities will provide a multiplier for improving economic conditions.

However, this high consumption trend is the form of consumption postponement in short term and will be done in long term. Further researches are challenged to find out the allocation of aggregate consumption more specific especially for the allocation on the productive activities.

6. Acknowledgement

This research is conducted owing to the fund from Faculty of Economics of Universitas Tidar through middle lecturer research scheme. The fund provided is expected to produce reputable and beneficial scientific works. The output of current research is expected to be beneficial to the Institution to which the authors belong and to the object on which this research focuses attention. Academically, this research can be beneficial to stakeholders' decision making.

7. References

- Al Gahtani, G., Bollino, C. A., Bigerna, S., & Pierru, A. (2020). Estimating the Household Consumption Function in Saudi Arabia: An Error Correction Approach. *Applied Economics*, Vol. 52, pp. 1259–1271. <https://doi.org/10.1080/00036846.2019.1659933>
- Bebczuk, R., Gasparini, L., Amendolagine, J., & Garbero, N. (2015). Understanding the Determinants of Household Saving: Micro Evidence for Latin America. In *Centro de Estudios Distributivos, Laborales y Sociales (CELDAS)* (No. 189). Buenos Aires. Retrieved from <http://sedici.unlp.edu.ar/handle/10915/51620>
- Diacon, P. E., & Maha, L. G. (2015). The Relationship between Income, Consumption and GDP: A Time Series, Cross-Country Analysis. *Procedia Economics and Finance*, 23, 1535–1543. Elsevier B.V. [https://doi.org/10.1016/s2212-5671\(15\)00374-3](https://doi.org/10.1016/s2212-5671(15)00374-3)
- Duesenberry, J. S. (1949). *Income, Saving and the Theory of Consumption Behavior*. Cambridge, MA: Harvard University Press.
- Ezeji, C. E., & Ajudua, E. I. (2015). Determinants of Aggregate Consumption Expenditure in Nigeria. *Journal of Economics and Sustainable Development*, 6(5), 164–169.
- Friedman, M. (1957). *Theory of the Consumption Function*. Princeton: Princeton university press.
- Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). New York: McGraw-Hill Education. Retrieved from <https://www.amazon.co.uk/Basic-Econometrics-Publisher-McGraw-Hill-Education/dp/B00SLRATUU>
- Hüttel, A., Balderjahn, I., & Hoffmann, S. (2020). Welfare Beyond Consumption: The Benefits of Having Less. *Ecological Economics*, 176, 106719. <https://doi.org/10.1016/j.ecolecon.2020.106719>
- Insukindro. (1991). Regresi Linier Lancung dalam Analisis Ekonomi: Suatu Tinjauan dengan Satu Studi Kasus di Indonesia. *Jurnal Ekonomi dan Bisnis Indonesia*, 6(1), 1–13.
- Kaplan, G., & Violante, G. L. (2010). How Much Consumption Insurance Beyond Self-Insurance? *American Economic Journal: Macroeconomics*, 2(4), 53–87. <https://doi.org/10.1257/mac.2.4.53>
- Keynes, J. M. (1936). *The General Theory of Employment, Interest, and Money*. London: Macmillan.

- Khan, A. H. (1987). Aggregate Consumption Function and Income Distribution Effect: Some Evidence from Developing Countries. *World Development*, 15(10–11), 1369–1374. [https://doi.org/10.1016/0305-750X\(87\)90130-6](https://doi.org/10.1016/0305-750X(87)90130-6)
- Khan, K., Fei, C., Kamal, M. A., & Shaikh, S. A. (2015). Determinants of Consumption Function, In Case of China and G7 Countries. *International Journal of Economics and Empirical Research*, 3(4), 202–210.
- Mei, Y. (2012). *U. S. Consumption Function : An Empirical Test of the Life-Cycle Hypothesis* (Trinity College). Trinity College. Retrieved from <https://digitalrepository.trincoll.edu/theses/153>
- Modigliani, F., & Brumberg, R. (1954). *Utility Analysis and The Consumption Function: An Interpretation of Cross-Section Data* (In Post Ke; K. K. Kurihara, Ed.). London: George Allen & Unwin.
- Mohammed, A. D. (2020). Determinants of Consumption Function: A Cross Country Analysis for Selected African Countries. *Journal of Educational Research and Review*, 3(2), 36–44.
- Neuman, W. L. (2011). *Sosial Research Methods: Quantitative and Qualitative Approaches*. Boston: Pearson Education, Inc. Retrieved from <https://www.pearson.com/us/higher-education/program/Neuman-Social-Research-Methods-Quantitative-and-Quantitative-Approaches-7th-Edition/PGM74573.html>
- Nur, E. M. (2012). Konsumsi dan Inflasi Indonesia. *Jurnal Kajian Ekonomi*, 1(1), 55–77.
- Palley, T. I. (2010). The Relative Permanent Income Theory of Consumption: A Synthetic Keynes–Duesenberry–Friedman Model. *Review of Political Economy*, 22(1), 41–56. <https://doi.org/10.1080/09538250903391954>
- Resagi, M. H. (2020). The Determinants of Consumption in Indonesia 2010 - 2018. *Indonesian Journal of Development Economics*, 3(3), 950–958.
- Rusdiana, A., Mulyawan, S., Djati, S. G., Indonesia, W. J., Djati, S. G., & Djati, G. (2020). The Relationship Between Socioeconomic status and Consumption Pattern of Fishermen Household in Indonesia. *Asian Journal of Agriculture and Rural Development*, 10(1), 141–148. <https://doi.org/10.18488/journal.1005/2020.10.1/1005.1.141.148>
- Sapci, A. (2017). Costly Financial Intermediation and Excess Consumption Volatility. *Journal of Macroeconomics*, 51, 97–114. <https://doi.org/10.1016/j.jmacro.2016.12.003>
- Wijaya, A., Zainurossalamia, S., & Darma, D. C. (2020). Life-Cycle Hypothesis for Consumption Pattern: Example from Indonesia. *International Journal of Advanced Science and Technology*, 29(4), 4712–4720.
- Wright, M. K., Shroff, A. A., & Smith, J. G. (2017). Marginal Propensity to Consume in Hungary: The Long Term Verses Short Term Challenges to Policy Makers. *Journal of Eastern European and Central Asian Research*, 4(2), 1–7. <https://doi.org/10.15549/jecar.v4i2.167>