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Submission date: 15-Nov-2022 05:18PM (UTC+0800)

Submission ID: 1954636223

File name: WisnuWibowo_Artikel302.pdf (425.02K)

Word count: 6186

Character count: 33531



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²Permalink/DOI: <https://doi.org/10.15294/jejak.v13i2.25736>

Received: May 2020; Accepted: July 2020; Published: September 2020

Abstract

The Indonesian economy, both at the national and regional levels, tended to experience a slowdown during 2010-2019. From the demand side, household final consumption expenditure (HFCE) is the primary cause of the slowdown. Therefore, various efforts are needed to maintain and improve HFCE. One of these efforts is to keep the stability of the macroeconomic factors that influence it. This research aims to reveal the determinants of regional HFCE in Indonesia. The determinants of HFCE were investigated using a dynamic panel data regression model with the first-difference Generalized Method of Moments (FD-GMM) approach and applied to data from 33 provinces during 2010-2019. The application of FD-GMM provides valid and consistent estimates. The results of the parameter significance test provide evidence that the lagged real HFCE, real gross regional domestic product (GRDP), and government spending have a significant positive impact on real HFCE. Meanwhile, both the inflation and unemployment rates had significantly negatively impacted. Thus, the role of policymakers in maintaining the stability of the five macroeconomic factors is necessary so that HFCE increases and the economy can grow even higher.

Key words : Consumption, Inflation, Unemployment, FD-GMM

How to Cite: Sugiarto, S., & Wibowo, W. (2020). Determinants of Regional Household Final Consumption Expenditure in Indonesia. JEJAK: Jurnal Ekonomi dan Kebijakan, 13(2). doi:<https://doi.org/10.15294/jejak.v13i2.25736>

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INTRODUCTION

The Indonesian economy during 2010-2019 experienced turmoil, even tending to show a slowing trend. Data from the Central Statistics Agency (BPS) revealed that economic growth in 2011 was 6.17%. This figure is experiencing a slowdown until 2015 (4.88%). The economy started to improve in 2016 but worsened again in 2019.

The economy is slowing down due to many factors, one of which is a slowdown in household final consumption expenditure (HFCE). Economic and HFCE growth have generally taken the same direction from 2012-2019. Figure 1 shows that when the growth of HFCE slows down, economic growth also experiences a slowdown.

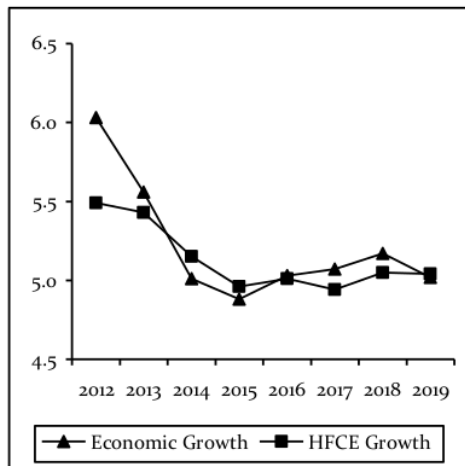


Figure 1. Economic and HFCE Growth 2012-2019 (%)

HFCE grew slowly from 5.05% in 2018 to 5.04% in 2019. The slowdown occurred in consumption expenditures for food, beverages, clothing, footwear, transportation, and communications. This economic phenomenon is one of the causes of Indonesia's economy to deteriorate in 2019 (BAPPENAS, 2020).

HFCE at the national level is the accumulation of HFCE at the regional level. HFCE in most provinces (20 provinces) in aggregate slowed down from 5.16% in 2018 to 4.85% in 2019. The contribution of these twenty provinces to national HFCE and gross domestic product (GDP) is 84.38% and 82.13%, respectively.

Macroeconomists discuss aggregate HFCE for several reasons. First, HFCE is the dominant component in GDP and gross regional domestic product (GRDP) from the demand side. HFCE contributed 56.62% to the formation of GDP in 2019. This variable is also the source of the highest economic growth. HFCE contributed 2.73% to economic growth. Meanwhile, 2.29% came from other components of GDP. Because of the dominant role of HFCE, understanding its dynamics is very important to understand macroeconomic fluctuations and business cycles (Gerstberger & Yaneva, 2013). Second, HFCE determines aggregate savings. The formation of the national capital supply will occur if there is a flow of savings from the financial system (Ezeji & Ajudua, 2015). Therefore, saving and consumption aggregate has a long term strong impact on the capacity of the productive economy (Bonsu & Muzindutsi, 2017). Third, HFCE is one of the main determinants of population welfare (Stiglitz et al., 2009). The consumption-ability of the population reflects the level of income. Income level is a measure of financial well-being.

The three reasons above have positioned HFCE as an essential macroeconomic indicator. Thus, a more in-depth HFCE analysis is necessary. HFCE analysis requires an understanding of its determining factors. This understanding is useful in selecting a more effective policy instrument in the event of shocks to various macroeconomic variables (Alp & Seven, 2019). A better understanding of the determinants of HFCE will provide valuable information to support economic growth (Keho, 2019).

Theoretically and empirically, many economic factors determine household consumption. The determining factors include income, government spending, inflation rate, and unemployment rate.

Keynes (1936) in Arapova (2018) introduced the Absolute Income Hypothesis (AIH). Keynes stated that the current level of income is the dominant determinant of current consumption expenditure. According to Jhingan (2009), Keynes' proposition has three meanings, namely current consumption expenditure 1) mainly depends on current absolute income, 2) a positive function of current income, and 3) the higher current income, the higher consumption expenditure.

There has been much empirical research on the effect of income on household consumption, such as Gali et al. (2007), Akekere & Yousuo (2012), Mahmud & Ahmed (2012), Khan et al. (2015), Sekantsi (2016), Bonsu & Muzindutsi (2017), Demyany et al. (2018), Alp & Seven (2019), Keho (2019), and Obinna (2020). These researchers prove that income has a significant positive impact on household consumption. They use GDP data as a proxy for income.

Government expenditure is the second determinant of household consumption. Keynesians argue that changes given by government spending will produce a multiplier effect on consumer spending because they consider consumption expenditure to be the main component of aggregate demand. This multiplier effect occurs when households begin to spend the additional income they receive from work opportunities funded by government spending. According to the Keynesians, increased government spending should increase "effective demand". Those who get additional income should consume more,

which in turn will increase aggregate demand (Mahmud & Ahmed, 2012).

The IS-LM model can also be used to explain the relationship between government spending and household consumption. An increase in government spending can increase aggregate consumption. Thus, the effect of expansion in government spending on output is getting stronger. In the IS-LM model, consumption expenditure is a function of the level of income of consumers (Gali et al., 2007).

Gali et al. (2007), Arapova (2018), and Keho (2019) investigate the relationship between government spending and consumer spending. They found that higher government spending led to higher household consumption spending. Meanwhile, Mahmud & Ahmed (2012) found evidence that higher government spending suppresses household consumption.

The next factor that determines household consumption is the inflation rate. Consumption expenditure is a primary component of aggregate demand. According to Keynes, an increase in real factors can lead to an increase in aggregate demand (Obinna, 2020). Thus, a reduction in real factors can lead to a reduction in aggregate demand. Inflation causes the money balances and financial assets to decrease in real value, even though their value remains monetary. Thus, the inflation rate negatively affects aggregate consumption (Keho, 2019).

Inflation can change the distribution of household income and influence their consumption behavior. The inflation rate can also affect consumer confidence to increase savings and reduce consumption (Casadio & Paradiso, 2010). Pastor & Veronesi (2013) stated that high inflation rates lead to increased inflation uncertainty. This condition will have an impact on reducing household consumption through precautionary savings channels.

Casadio & Paradiso (2010), Sekantsi (2016), Syazwan et al. (2017), Keho (2019), and Obinna (2020) examined the impact of inflation on household consumption. Their finding is that household consumption is significantly negatively affected by the inflation rate. Another study by Bonsu & Muzindutsi (2017) found evidence to the contrary.

The fourth variable affecting household consumption is the unemployment rate. The theory of precautionary saving indirectly explains the effect of aggregate unemployment on consumption expenditure. According to this theory, an increase in income uncertainty (measured by the aggregate of the unemployment rate) will increase savings and reduce consumption expenditure (Baiardi et al., 2019). Ganong & Noel (2019) revealed that unemployment causes income to fall and results in liquidity needs so that household consumption can decrease.

Research by Campos & Reggio (2015), Khan et al. (2015), Alegre & Pou (2016), Arapova (2018), and Demyanyk et al. (2018) investigated the effect of the unemployment rate on household consumption. The results of the investigation show that the impact of the unemployment rate on household consumption is negative and significant.

Another factor that affects household consumption is the level of previous time consumption. Duesenberry (1949) in Bonsu & Muzindutsi (2017) states that current consumption is determined by prior time consumption, in addition to current absolute and relative income levels.

Investigations of the factors affecting household consumption in Indonesia are still rare. Wiranthi (2014) investigates the effect of national income, interest rates, inflation, and the dummy of fuel prices on macro household consumption expenditure in Indonesia using multiple linear regression

models. Illahi et al. (2018) examined the impact of disposable income, deposit rates, higher education, and the economic crisis dummy on household consumption expenditure in Indonesia using a linear regression model.

In general, previous research used the time series analysis method to investigate the determinants of household consumption, as was done by Gali et al. (2007), Casadio & Paradiso (2010), Mahmud & Ahmed (2012), Khan et al. (2015), Sekantsi (2016), Bonsu & Muzindutsi (2017), Alp & Seven (2019), and Keho (2019). Other research conducted by Akekere and Yousuo (2012), Syazwan et al. (2017), Demyanyk et al. (2018), and Obinna (2020) used a linear regression model. Meanwhile, Arapova (2018) uses a static panel data regression model to find the determinants of household consumption from 13 countries in Asia and 110 other countries from around the world. Unlike previous research, this research contributes to the literature because it is conducted at the regional level within a country and uses dynamic panel data regression analysis.

1 This research aims to reveal the determinants of regional household final consumption expenditure (HFCE) in Indonesia. The determinants of HFCE were investigated using a dynamic panel data regression model with the first-difference Generalized Method of Moments (FD-GMM) approach and applied to data from 33 provinces during 2010-2019. The determinants investigated for their effect on real HFCE consist of lagged real HFCE, real GRDP, government spending, inflation rate, and unemployment rate.

METHOD

26 This research uses panel data. Panel data used is in the form of annual data from 33 provinces (East Kalimantan and North Kalimantan combined) during 2010-2019. The data referred to are real household final

consumption expenditure, real GRDP, realized provincial and regency/city government spending, inflation rate, open unemployment rate, and others.

The HFCE data describes the aggregate household consumption in a region. BPS (2020) states that HFCE includes resident household expenditures on goods and services for final consumption. This research uses HFCE data at constant 2010 prices published by BPS.

Real GRDP data with the base year 2010 is a proxy for income. The production, expenditure, and income approaches are the three methods of calculating GRDP. These three approaches produce the same GRDP value. GRDP with the income approach is the amount of income received by the owners of production factors in a region in a certain period (BPS, 2020).

Furthermore, data on the realization of provincial and regency/city government spending in the province is a proxy for government spending. We obtained this data from the Ministry of Finance and Bank Indonesia.

General inflation data from the sample regency/city for calculating the consumer price index (CPI) in a province reflects the inflation rate. BPS (2012) defines inflation as the percentage increase in the price of a package of commodities (goods and services) that are generally consumed by households.

For provinces that have more than one sample regency/city of the CPI, the formula for calculating the CPI for the province k is (BPS of Central Java Province, 2019):

$$CPI_k = \frac{\sum_{c=1}^n CPI_c w_c}{100} \quad (1)$$

Where CPI_k is the CPI for the province of k , CPI_c is the CPI for the regency/city of c in the provincial of k , w_c is the weight for the

CPI for the regency/city of c in the province of k with $\sum_{c=1}^n w_c = 100$.

The formula for calculating the annual inflation of province k is (BPS, 2012):

$$INF_{k,t} = \frac{CPI_{k,dec,t} - CPI_{k,dec,t-1}}{CPI_{k,dec,t-1}} \times 100\% \quad (2)$$

Where $INF_{k,t}$ is inflation for the province of k in year t , and $CPI_{k,dec,t}$ is CPI for the provincial of k in December year t .

The open unemployment rate data illustrates the aggregate unemployment rate at the age of 15 and over. The open unemployment rate is the percentage of the total unemployed to the total of the workforce (BPS, 2019). This research uses data for August because the sample of the National Labor Force Survey (the data source for calculating the open unemployment rate) this month is more than in February.

Based on previous theory and empirical studies, the relationship between household final consumption expenditure (HFCE) and the determining variables is as follows:

$$HFCE = f(LnHFCE, GRDP, GE, INF, UNP) \quad (3)$$

Equation (3) using dynamic panel regression becomes:

$$\ln HFCE_{i,t} = \psi + \phi \ln HFCE_{i,t-1} + \delta_1 \ln GRDP_{i,t} + \delta_2 \ln GE_{i,t} + \delta_3 INF_{i,t} + \delta_4 UNP_{i,t} + u_{i,t} \quad (4)$$

Where $\ln HFCE$, $\ln GRDP$, and $\ln GE$ are the natural logarithms of real household final consumption expenditure, real GRDP, and government expenditure, respectively. INF is the inflation rate, UNP is the open unemployment rate, i is the research province (33 provinces), t is the research year (2010-2019), ψ is the intercept value, ϕ and δ_r are the estimated parameter coefficient values ($r = 1, \dots, 4$). The error term $u_{i,t}$ follows the one-way error component model as follows:

$$u_{i,t} = \lambda_i + \varepsilon_{i,t} \quad (5)$$

u_{it} consists of λ_i and ε_{it} . λ_i is the province-specific effect (capturing provincial heterogeneity), and ε_{it} is the random disturbance.

By collecting four independent variables ($\ln GRDP$, $\ln GE$, INF , and UNP) in vector X'_{it} , the formula for Equation (4) becomes:

$$\ln HFCE_{it} = \psi + \varphi \ln HFCE_{it-1} + \delta X'_{it} + \lambda_i + \varepsilon_{it} \quad (6)$$

The use of lagged dependent variables in formulas (4) and (6) can cause endogeneity problems so that it will produce biased and inconsistent estimators. Therefore, Arellano & Bond (1991) in Baltagi (2005) proposed a Generalized Method of Moments (GMM) approach.

This research uses a first-difference GMM (FD-GMM) approach. In the FD-GMM approach, the first difference transformation is used as an instrumental variable approach to obtain consistent estimates of parameters (φ and δ) by eliminating the province-specific effect (λ_i).

Equation (6) by applying the FD-GMM estimator is as follows:

$$\begin{aligned} \ln HFCE_{it} - \ln HFCE_{it-1} &= \varphi (\ln HFCE_{it-1} - \ln HFCE_{it-2}) \\ &+ \delta (X'_{it} - X'_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) \\ \Delta \ln HFCE_{it} &= \varphi \Delta \ln HFCE_{it-1} + \delta \Delta X'_{it} + \Delta \varepsilon_{it} \quad (7) \end{aligned}$$

Where $\ln HFCE_{it-2}$ follows the assumption $E(\varepsilon_{it} \varepsilon_{is}) = 0$ for $t \neq s$ and $i = 1, \dots, N$ and exploits the moment condition denoted by $E(y_{it-s} \varepsilon_{is}) = 0$ for $s \geq 2$ and $t = 3, \dots, T$. Likewise, all previous lags of $\ln HFCE_{it-2}$ which are instruments for $\Delta \ln HFCE_{it-2}$, have the same assumptions.

Arellano & Bond (1991) in Baltagi (2005) suggest two model specification tests with the FD-GMM approach. First, the Sargan test is useful for knowing the validity of the use of instrument variables whose

number exceeds the number of expected parameters (overidentifying restriction conditions). The null hypothesis states that there is no problem with the validity of the instrument (valid instrument), or there is no correlation between the instrument variables and the error in the FD-GMM equation. The statistical value of the Sargan test follows the Chi-square distribution with as many degrees of freedom as the sum of instruments minus the total of parameters used. Second, the Arrelano-Bond (A-B) test is useful for knowing the consistency of the estimators obtained from the GMM process. The null hypothesis of the A-B test is that the error term of the first difference order- i has no autocorrelation. Rejection of the null hypothesis occurs when the statistical value of the A-B test (m_i) is higher than the critical value' of the normal distribution (Z) at the α significance level. The model is consistent if the error term from the first difference in the 1st order has autocorrelation while in the 2nd-order there is no.

The parameter significance test serves to determine whether there is a relationship either simultaneously or partially in the model. Simultaneously the significance of the model is checked by the Wald test. The null hypothesis states that the independent variables simultaneously have no significant effect on the dependent variable. Rejection of the null hypothesis occurs when the Wald test statistical value is higher than the Chi-square critical value at the significance level α and degrees of freedom as much as the total independent variables. Meanwhile, partially the significance of the independent variable was examined by the Z-test. The statistical value of the Z-test followed the normal distribution (Z) with a significance level of α under the null hypothesis.

RESULTS AND DISCUSSION

The average real household final consumption expenditure (HFCE) in Java was eight times higher than outside Java during 2010-2019. There are at least three reasons why the real HFCE in Java is very high. First, the proportion of the population in Java is 56.85% higher than outside Java. Second, the inflation rate (INF) in Java is lower, which encourages households to shop and consume more. Finally, the better quality and quantity of infrastructure in Java have accelerated the distribution of goods and services from producers to consumers. Meanwhile, three other variables, namely: real GRDP, government expenditure (GE), and the open unemployment rate (UNP), on average, are recorded higher in Java than outside Java.

Table 1. Descriptive Statistics of Research Variables

Variable	Overall	Java	Outside Java
	Mean		
Real HFCE (trillion rp.)	145.30	520.75	61.87
Real GRDP (trillion rp.)	269.02	860.69	137.53
GE (trillion rp.)	25.30	54.89	18.73
INF (%)	4.83	4.70	4.86
UNP (%)	5.49	6.75	5.21
Standard Deviation			
Real HFCE (trillion rp.)	227.00	314.80	51.71
Real GRDP (trillion rp.)	376.08	523.62	129.83
GE (trillion rp.)	23.56	36.79	11.82
INF (%)	2.47	2.26	2.52
UNP (%)	2.17	2.72	1.92
Coefficient of Variation (%)			
Real HFCE	156.23	60.45	83.58
Real GRDP	139.80	60.84	94.40
GE	93.09	67.03	63.11
INF	51.21	48.03	51.83
UNP	39.60	40.27	36.93

Overall, the open unemployment rate (UNP) is a relatively stable variable with a standard deviation of 2.17%. All variables in 33 provinces during 2010-2019 varied as

indicated by the coefficient of variation of more than 1%. The most variation variable is real HFCE.

Real HFCE growth in Java during 2012-2019 experienced turmoil, even tending to show a slowing trend. BPS data reveal that the real HFCE growth in Java in 2012 was 5.35%. This figure is experiencing a slowdown until 2015 (4.66%). Real HFCE growth in Java started to improve in 2016 but worsened again in 2019.

The growth of real HFCE outside Java also tends to slow down in the same period. Real HFCE outside Java in 2012 was able to grow 5.77%. This figure has slowed down until 2015 (4.94%). Real HFCE growth outside Java began to increase in 2016 (grew 4.98%) but slowed again in 2019 (grew 4.52%).

HFCE at the national level is an accumulation of HFCE at the regional level. Thus, the real HFCE growth at the national level is also in line with the real HFCE growth at the provincial level. BPS data shows that, nationally, real HFCE grew by 5.04% in 2019. This figure is slower than in 2012, which grew by 5.49%.

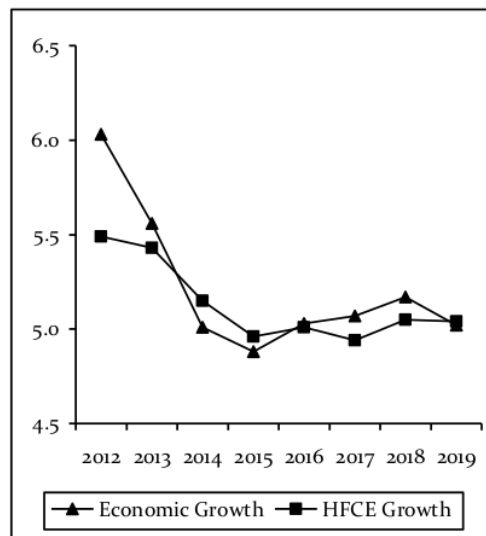


Figure 2. HFCE Growth, 2012-2019 (%)

The HFCE per capita, both in nominal and real terms, in Java is higher than outside Java during 2017-2019. The nominal HFCE in Java in 2019 was 38.17 million rupiahs/capita, while outside Java was 26.92 million rupiahs/capita. Meanwhile, the real HFCE in Java was 25.56 million rupiahs/capita, while outside Java it was 17.54 million rupiahs/capita in the same year. In terms of growth, the real per capita HFCE in Java also grew higher than outside Java during 2017-2019.

Table 2. HFCE per Capita, 2017-2019

Region	2017	2018	2019
	Nominal HFCE per capita (million rp.)		
Java	32.99	35.57	38.17
Outside Java	23.67	25.28	26.92
National	29.11	31.22	33.45
Real HFCE per capita (million rp.)			
Java	23.57	24.55	25.56
Outside Java	16.46	17.02	17.54
National	20.54	21.33	22.14
Growth in real HFCE per capita (%)			
Java	3.86	4.17	4.09
Outside Java	3.13	3.37	3.06
National	3.66	3.81	3.84

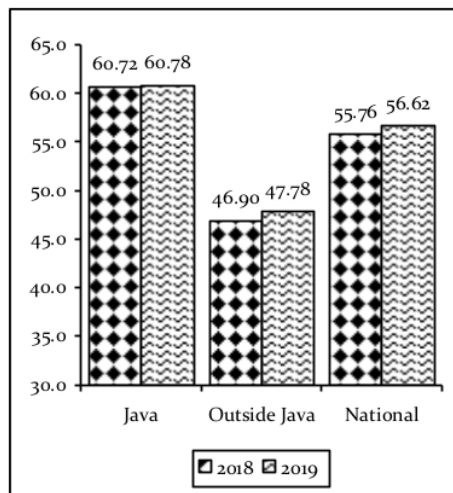


Figure 3. Contribution of HFCE to GDP/GRDP, 2018-2019 (%)

HFCE is a primary component in the formation of GDP/GRDP. The contribution of HFCE to the formation of GRDP in 2019 in Java and outside Java is 60.78% and 47.78%, respectively. Meanwhile, HFCE at the national level contributed to GDP by 56.62%. HFCE in Java contributed 64.31% to the national HFCE, while the rest was outside Java.

The results of the model specification test with the FD-GMM approach shown in Table 3. The Sargan test is useful for verifying the validity of the instrument. The application of this test shows that there is no problem with the validity of the instrument. The statistical value of the Sargan test was 22.6985 below the critical value of Chi-square (35, 0.05) = 49.80, indicating that there was no rejection of the null hypothesis of a valid instrument. Meanwhile, the Arrelano-Bond test results confirm that the estimator is free from inconsistency problems. The significant m_1 test statistic (p-value = 0.0469) and insignificant m_2 (p-value = 0.2246) at $\alpha = 5\%$ showed no autocorrelation in the error term of the 2nd order first difference, meaning that the FD-GMM was consistent.

The Wald test is useful for checking the significance of parameters simultaneously. The application of this test confirms the relationship in the model. The Wald test statistic value 169503.47 is higher than the critical value of Chi-square (5, 0.05) = 11.07 indicates rejection of the null hypothesis. Thus, simultaneously the five independent variables significantly influence the growth of HFCE. Estimates from FD-GMM also show that each independent variable partially has a significant impact on HFCE growth at $\alpha = 5\%$.

The coefficient of lagged real household final consumption expenditure (HFCE) growth is 0.8876. The positive sign of this variable means that the higher real HFCE the previous year will attract more real HFCE in the current year. This condition also shows consumer optimism in consuming if consumption in the past year has increased. Conversely, current

consumption will decline due to consumer pessimism in consuming goods and services in the past year. This result is in line with the thinking of Duesenberry (1949) in Bonsu & Muzindutsi (2017), which states that the level of consumption in the previous period determines current consumption expenditure.

Table 3. Two-step FD-GMM Estimation Result

Variable	FD-GMM
Constant	1.0479* (9.68)
lagged lnHFCE	0.8876* (94.23)
lnGRDP	0.0727* (6.74)
lnGE	0.0072* (3.65)
INF	-0.0002* (-2.85)
UNP	-0.0012* (-8.22)
Wald test statistics	169503.47* p-value = 0.0000
Sargan test statistics	22.6985 p-value = 0.9460
Arrelano-Bond test	
m ₁	-1.9868* p-value = 0.0469
m ₂	-1.2143 p-value = 0.2246

Note: * are statistically significant at $\alpha = 5\%$.

Real GRDP growth increases real HFCE in all provinces. Every time there is an increase in real GRDP of 1%, it will increase the real HFCE by 0.0727%, assuming other factors are constant. These findings confirm

the views of Keynes (1936) in Alp & Seven (2019). Keynes argues that aggregate consumption expenditure increases when real income increases, although not as much as income increases.

The positive effect of real GRDP confirms the high potential for final consumption demand due to high aggregate real income. Implicitly, the provincial and regency/city governments must exploit this potential through the implementation of policies that stimulate revenue, such as policies to absorb local labor for investors in their regions. Thus, household income in the area will increase. This increase in income will attract households to consume more so that in aggregate real household final consumption expenditure will also increase and thus will encourage higher achievement of economic growth.

Another effort to increase people's income is by creating a conducive climate and ease of doing business for all companies, whether micro, small, medium or large. These efforts can be a driving force for an increase in gross operating surplus. The gross operating surplus (GOS) in aggregate is the main component of GDP by income. This component contributed 66.67% to GDP 2010. GOS is also a primary contributor to aggregate income at the regional level, such as East Java (62.23%), Gorontalo (64.07%), and West Papua (68.27%).

The results of this study validate the Absolute Income Hypothesis (AIH) proposed by Keynes (1936) in Arapova (2018). These results are also in line with empirical research conducted by Mahmud & Ahmed (2012), Khan et al. (2015), Sekantsi (2016), Bonsu & Muzindutsi (2017), Alp & Seven (2019), Keho (2019), and Obinna (2020). They find evidence that real GDP growth has a significant positive impact on household consumption.

The government spending factor has a statistically significant impact on real HFCE. Real HFCE increased by 0.0072% due to

government spending, which increased by 1%. In particular, the positive sign of government spending confirms that an expansionary fiscal policy can be useful for encouraging the growth of real HFCE. Government spending is often to cope with economic fluctuations. This fiscal instrument can directly affect consumer welfare (Ma, 2019). Research by Blanchard & Perotti (2002) suggests that higher government spending is a relatively efficient instrument for consumption-driven growth.

The government has pursued an expansionary fiscal policy through government spending channels, such as: providing rice for the poor, school operational funds, and subsidizing fuel oil and electricity. The government has also increased spending on civil servants through the provision of performance allowances. These policies can boost people's purchasing power.

The findings of this study validate the views of the Keynesians. They argue that an increase in government spending should create opportunities for increased income so that it will increase "effective demand". People who get additional income should consume more, and thus will increase aggregate demand (Mahmud & Ahmed, 2012). The results of this research are also in line with the IS-LM model, which predicts an increase in aggregated consumption expenditure due to increased government spending (Gali et al., 2007). Several other empirical studies, such as those conducted by Arapova (2018) and Keho (2019), validate the positive impact of government spending on real HFCE.

The inflation rate has a negative and significant effect on real HFCE. Every 1% increase in inflation will reduce the real HFCE by 0.0002%, assuming the other factors are constant. Households will reduce the level of goods and services demanded

when inflation increases. A high inflation rate can cause distortion and uncertainty in the economy so that it will reduce aggregate consumption and threaten economic growth (Obinna, 2020). The results of this study confirm previous research by Casadio & Paradiso (2010), Sekantsi (2016), Syazwan et al. (2017), and Keho (2019), which prove that the inflation rate negatively affects household consumption.

The relatively small impact of inflation on real HFCE confirms that the government and Bank Indonesia are quite successful in controlling this macroeconomic variable. BPS data shows that the inflation rate in all provinces in 2019 is in the range of 0.27-4.41% lower than the upper limit of the inflation target set at 4.5%. This achievement in 2019 was better than the previous year, where there were four provinces (Central Sulawesi, Papua, West Papua, and Central Kalimantan) whose inflation rate was above the set inflation target of 4.5%. Nevertheless, the inflation rate in 21 provinces in 2019 was lower than the lower limit of the 2.5% inflation target. This condition can be an indicator of weakening people's purchasing power in these provinces.

The unemployment rate is another factor that determines household consumption through its effect on real income. The higher aggregate unemployment rate causes higher income uncertainty. This condition is following the theory of precautionary saving (Baiardi et al., 2019). The negative sign on the coefficient of the open unemployment rate validates the validity of the theory of precautionary saving in this research. Several empirical studies that support the results of this study are Campos & Reggio (2015), Khan et al. (2015), Alegre & Pou (2016), Arapova (2018), and Demyanyk et al. (2018).

BPS data shows that the proportion of unemployed with senior high school education in all provinces in 2019 ranges from 45.60-66.88%. This proportion places the unemployed

with this level of education to dominate the open unemployment structure in all provincial. Providing job training for both unemployed and prospective workforce is one policy that can be adopted. This policy will create a workforce that is ready to work and by the needs of the company, and thereby the number of unemployed people can be reduced. Thus, aggregate income will increase, and ultimately household consumption will also increase.

CONCLUSION

The FD-GMM model provides valid and consistent estimates. This study found that all independent variables, namely: lagged real household final consumption expenditure (HFCE), real GRDP, government spending, inflation rate, and open unemployment rate, simultaneously and partially significantly influence real HFCE.

The lagged variable real HFCE positively and significantly affects real HFCE. Government policies must begin to be oriented towards higher domestic demand because household consumption is a primary determinant of national and regional economic growth.

The real GRDP factor as a proxy for current income positively and significantly affects real HFCE. This evidence confirms the application of the Absolute Income Hypothesis (AIH) in all provinces in Indonesia. This evidence is also consistent with other studies conducted by Mahmud and Ahmed (2012), Khan et al. (2015), Sekantsi (2016), Bonsu and Muzindutsi (2017), Alp and Seven (2019), Keho (2019), and Obinna (2020).

The positive effect of government spending provides a signal that expansionary fiscal policy is effective in increasing household consumption. Meanwhile, the

negative impact of inflation provides the signal to monetary authorities and policymakers to control inflation. Inflation control can be done in many ways, one of which is increasing the quality and quantity of infrastructure. These efforts can facilitate the supply chain and distribution of goods and services from producers to consumers.

The open unemployment rate, which has a negative coefficient, signals the government to take strategic policies to reduce the number of unemployed. The government and related stakeholders can provide job training, create and expand jobs, and attract more investors.

This research only examines the impact of macroeconomic factors on real HFCE. Rahardja and Manurung (2008) in Wiranthi (2014) argue that theoretically, three factors influence household consumption, namely: economic, non-economic, and demographic factors. Therefore, further research can accommodate non-economic and demographic factors that determine household consumption.

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