Influence of Income on Household Consumption Expenditure Patterns in Medan City in 2015 Problem Based Learning Implications of The Keynes Consumption Function

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Abstract. The main purpose of this study is to estimate how income variables can affect household consumption expenditure patterns in the city of Medan in 2021. The data used are cross-sectional data (data according to time) collected from 100 households throughout the city of Medan. While the variable to be estimated is the pattern of household consumption. Based on the estimation results using the multiple regression method using SPSS 18 software, the measure of goodness of fit (R^2) is 82.1%, the independent variable is the pattern of household consumption (KRT) and is significant to household income (PRT). While partially household consumption has a positive and significant effect on household income in Medan City.

Keywords: Household Income, Consumption Pattern

1. Introduction

In everyday life, everyone is always related to consumption, whether it is to fulfill the need for food, clothing, entertainment or for other needs. Public expenditure for food, clothing, and other needs is called spending or consumption. Public consumption expenditure is also one of the economic variables that contributes the most to gross domestic product (GDP), which is 60-70%. This shows that public consumption expenditure has an important role in the income received by the government, when compared to other variables such as spending on investment which contributes 7-11% to GDP (Indonesian economic indicator, BPS).

The rate of economic growth of a country in a certain period is the gross domestic product (GDP) of a certain year minus the gross domestic product (GDP) of the previous year divided by the gross domestic product (GDP) of the previous year multiplied by 100%. An economy is said to be experiencing growth if the economic level is higher than that achieved in the previous year. Seen from table 1.1, in 2000, economic growth was 4.86%, higher than Bank Indonesia's estimate of 3.0 % to 4.0 %. In 2002, it was getting better compared to 2001, according to the calculation of GDP based on constant prices (2000), Indonesia's economic growth rate in 2002 was 4.25% and the economic growth rate in 2001 was 3.83% while in 2003 the economic growth rate was 3.83%. economy by 4.51%.

Table 1. Indonesia's Gross Domestic Product Development

Periods 2000-2010 (constant price 2000) Year	GDP (Billion Rupiah)	Growth (%)
2000	1.389.770,20	-
2001	1.443.014,60	3,83%
2002	1.504.380,60	4,25%
2003	1.572.159,30	4,51%
2004	1.656.516,80	6,00%
2005	1.750.815,20	5,40%
2006	1.847.126,70	5,20%
2007	1.964.327,30	6,00%
2008	2.082.315,90	5,70%
2009	2.177.700,00	4,58%
2010	2.310.700,00	6,10%

In 2004, economic growth of 6.0% experienced a decrease compared to 5.4% in 2005 and 5.2% in 2006. Economic growth decreased due to an increase in fuel prices (fuel oil) in mid-2005. In 2008 economic growth decreased compared to 2007 due to the global crisis that began to be felt, especially towards the end of 2008. This was reflected in a significant economic slowdown, mainly due to the decline in export performance.

The Indonesian economy was still able to grow by 5.7% in 2008. The value of GDP at constant prices in 2008 reached Rp. 2,028.1 trillion, while in 2007 it was Rp.1,963,1 trillion. If viewed based on current prices, GDP in 2008 increased by Rp. 1,004,7 trillion, namely from Rp. 3,949.3 trillion in 2007 to Rp. 4,954 trillion in 2008. Economic growth in 2008 mostly came from the component of exports of goods and services. Of the 6.1% growth in 2006, 4.6% came from the component of exports of goods and services (BPS, February 2009 and Bank Indonesia 2008). Consumption patterns can be identified based on the allocation of their use.

Broadly speaking, the allocation of public consumption expenditure is classified into two use groups, namely expenditure for food and expenditure for non-food. According to the BPS of North Sumatra Province, in cities and villages, public consumption expenditure is the main sector that contributes to economic growth. The ratio of the per capita expenditure of urban residents to that of rural residents tends to be constant from year to year. Likewise with the comparison of expenses. The allocation of expenditure on food among rural people is higher than that among urban people. However, during the 2010-2012 period, the allocation of expenditure on food in these two population groups increased equally.

In addition, the expenses of urban people rose slightly faster than rural people. This can be seen in public consumption expenditures in recent years for food, namely in 2010 cities (46.77), villages (62.33), cities + villages (53.47), in 2011 cities (50.90). , village (62.44), city + village (56.03), and in 2012 city (52.44), village (63.60), city + village (57.50). While public consumption expenditure in the last four years for non-food, namely in 2010 cities (53.23), villages (37.67), cities + villages (46.53), in 2011 cities (49.64), villages (39.98), city + village (45.37), and in 2012 city (47.56), village (36.40), city + village (42.50).

This situation shows that people's income is mostly used for food and non-food consumption rather than for saving. Not to mention the tax burden which has continued to increase over the last four years, namely from 2010 to 2012 which has made public consumption increase, this tax is an income tax and other taxes imposed on public consumption goods also have a significant impact to public consumption.

Keynes distinguished the demand for money according to people's motivations to hold money into three, namely for precaution, transactions and speculative motives, namely looking for money from differences in interest rates. Consumption has a close relationship with the level of savings, saving is the part of income that is not consumed or spent. Interest rates affect public consumption spending through savings. The higher the interest rate, the greater the amount of money saved so that the less money is spent on consumption (Pusposari, 2012).

Siregar (2009) said that inflation as an economic phenomenon that mainly occurs in developing countries such as Indonesia greatly affects economic activities. The inflation rate is an increase in the price of goods in general which causes a substitution effect. Consumers will reduce purchases of goods that are relatively expensive and increase consumption spending on goods that are relatively cheap. The increase in the general price level does not mean that the increase in the price of goods occurs proportionally. This encourages consumers to shift their consumption from one good to another.

Table 2. Consumption of Indonesian Society in 1995-2010 (Constant Price 2000)

Years	Public Consumptions (Billion Rupiah)	Growth (%)
1995	726.185	-
1996	796.185	8.79
1997	859.089	7.32
1998	806.099	-6.57
1999	843.446	4.42
2000	856.798	1.58
2001	886.736	3.49
2002	920.750	3.83
2003	956.593	3.89
2004	1.004.110	4.96
2005	1.043.810	3.95
2006	1.076.930	3.17
2007	1.130.850	5.01
2008	1.191.190	5.33
2009	1.249.010	4.85
2010	1.306.800	4.63

It can be seen in table (2) above, that the largest increase occurred in 1996 by 8.79%, an increase compared to the previous year. In 1998 there was a decline in public consumption by 6.57% compared to 1997. This decline was due to the economic crisis that occurred in Indonesia, causing a weakening of people's purchasing power.

In 2006 there was a decrease of 3.17% compared to 2005. The decrease was due to the increase in the price of BBM (fuel oil) which resulted in a decrease in consumption of Indonesian people. The government's further decline in BBM (fuel oil) increased consumption of Indonesian people in 2007 and 2008. The global crisis in 2008 affected public consumption which resulted in a decrease in consumption in 2009 by 4.85% to Rp. 1,249,010 billion. In 2010 there was a decrease in public consumption by 4.63% to Rp. 1,306,800 billion. Based on

these problems, the aim of the researcher is to see the effect of income on household consumption expenditure patterns in Medan City in 2015 with Keynes's Consumption Function Implications.

2   Methods

This study was conducted to measure the variables that affect the pattern of household consumption expenditure in Medan City using macroeconomic concepts. The economic variables to be studied are monthly household income. As for the location / place of research that the author did is in the city of Medan, North Sumatra.

The population of this study consisted of household population (based on income group) and sub-district population (21 sub-districts in Medan City). Furthermore, the determination of the sample in the household population uses a non-probability method in addition to the quota sampling technique (Kuncoro, 2013: 138), while the population of 21 sub-districts in Medan City uses the probability sampling method (because the number is known) (Arikunto, 2013: 182). This research data is focused on the study of household consumption expenditure and household income data per month.

In this study the researchers used tools, namely: Questionnaires which are useful as a tool during interviews, so that researchers can concentrate on the data collection process without having to record the answers of the subject. In data collection, the new questionnaire can be used after obtaining permission from the subject to use the tool during the interview (Mankiw, 2007).

Research on the effect of income on household consumption expenditure patterns in Medan City in 2015 (implications of the Keynes consumption function) uses cross section data (data by time) for the last ten years. Where the trend analysis in that time period can be analyzed using a simple linear regression model for the least squares method or the Ordinary Least Square (OLS) method which has a minimum variance, namely the BLUE (Best Linear Unbiased Estimator) estimator

3   Analysis and Discussion

Through the substitution of household consumption variable (KRT) as the dependent variable and household income variable (PRT) as the independent variable into the model, the research model is obtained as follows:

$$KRT = \beta_0 + \beta_1 PRT + \mu \qquad (1)$$

Where KRT is Household Consumption (Measured in tens to millions of rupiah) and Domestic Worker is Household Income (Measured in units of hundreds to millions of rupiah), 0 is the Intercept (constant), 1 is the Regression Coefficient, and is the nuisance error (disturbance error). For accuracy of calculations while reducing human error, a computer program specially made to assist statistical data processing is used, namely the SPSS program with a significance level of 10% or 0.1. The overall statistical test of the model was carried out by the F-test. The F test is based on two hypotheses, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

3.1 Assessment

This study aims to analyze the effect between variables partially and simultaneously between income and expenditure for household consumption every month in Medan City. The analytical method used is the Keynes consumption function which is transformed into the form of a natural logarithm, so that it becomes a multiple linear regression model for the ordinary least squares method or OLS (Ordinary Least Square). The data processing method is carried out using the SPSS 18 program.

Size of Goodnes of Fit (R^2)

After the data is processed using the SPSS program, the results obtained are output as follows:

Table 3. Correlation of Coefficients and Size of Goodness of Fit Model Summary

Model	R	R Square	Adjusted RSquare	Std. Error ofthe Estimate	Durbin-Watson
1 Dimension	0,907a	,823	,821	3698669,857	1,913

Predictors: (Constant), KRT Dependent Variable: PRT

The SPSS output table above shows that the value of R Square is 82,1%, thus it can be concluded that the independent variable (Household Income) is able to explain the dependent variable (Household Consumption). While the remaining 17,9% can be explained by other variables. Outside the model studied in this study, such as savings and others. However, the value of the goodness of fit indicates that this model is very good and the measured variables are also in accordance with the Keynes consumption function model.

Correlation of Coefficient (R)

Based on the results of the SPSS output, it can be seen that the value of the correlation coefficient of R = 90,7% means that the correlation coefficient (R) has a positive relationship between the household income variable (PRT) and the household consumption variable (KRT). the value of R is between 0,75 – 1 (Gujarati, 2006). In other words, the average monthly household consumption expenditure is highly dependent on the average monthly household income. The remaining 9,3% is the relationship with the dependent variable outside the independent variables used in this study.

Regression Coefficients

The model used to analyze the variables in this study is the Keynes consumption function model which is transformed into the natural logarithm, namely:

$$KRT = \beta_0 + \beta_1 PRT + \mu \qquad (2)$$

Table 4. Regression of Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-402695,215	425036,616		-,947	,346		
KRT	1,518	,071	,907	21,324	,000	1,000	1,000

Dependent Variable: PRT

Where KRT is Household Consumption (Measured in tens to millions of rupiah) and Domestic Worker is Household Income (Measured in units of hundreds to millions of rupiah), $\beta 0$ is the Intercept (constant), $\beta 1$ is the Regression Coefficient, and is the nuisance error (disturbance error). After data processing is carried out with the SPSS program, the regression equation is obtained as follows: So the regression equation above becomes:

$$KRT = -402695,215 + 1,518PRT \quad (3)$$

From the above equation, the KRT variable has a positive relationship to the output, meaning that if there is a partial or simultaneous change in the variable, the output will also change. As an estimate, if the independent variable, namely household consumption (KRT) is increased by 10%, there will be an increase in output of 151,8%. In this case the KRT variable is a very decisive factor on the PRT variable. The result of the sum of each regression coefficient of the KRT variable is $1,518 > 1$, this indicates that the household consumption scale in Medan City is in a state that continues to increase from time to time.

Testing (Diagnostic Test) Regression of Analysis (Partial Test/T Test)

To test whether the proposed hypothesis is accepted or rejected, the statistical t test is used.
1. If $t_{count} < t_{table}$, then H_a is accepted or H_0 is rejected
2. If $t_{count} > t_{table}$, then H_0 is accepted or H_a is rejected

If the significant level of the PRT variable is below 0.1, then H_0 is rejected or H0 is accepted. It is known that the value of ttable (n-3, with the number of respondents being 100 households), then the value of ttable = 100 – 3 = 97. Based on this output, it can be concluded that the independent variable of household head is positively and significantly related to the dependent variable of domestic workers with a confidence level of $\alpha = 10\%$, in other words the hypothesis Ha is accepted.

Classic Assumption Test

This test is conducted to determine whether the model built is in accordance with the theory and to reveal it, the variables outside of expenditure (KRT) are used in the model.

Multicollinearity Test

Based on the results of the SPSS output, it can be concluded that the correlation matrix of the independent KRT variable is 0.005 or about 0.5%, meaning that it is still below 95%, so it can be concluded that there is no serious multicollinearity.

Heteroscedasticity Test

The variance of the variables in the model is not the same (constant). The consequence of heteroscedasticity in the regression model is that the estimator obtained is inefficient. To test whether there is heteroscedasticity or not, a graphical approach is tested.
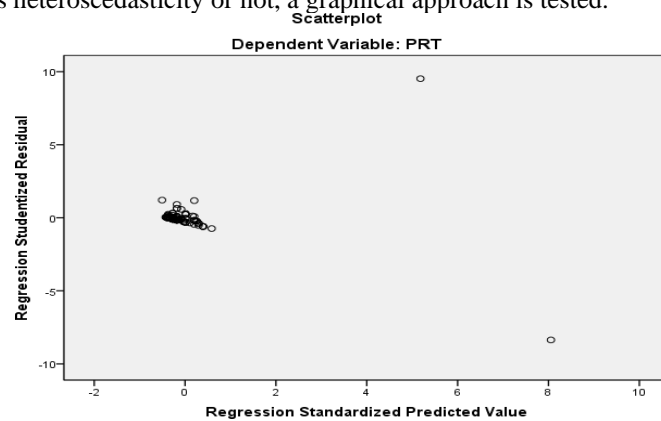

Fig 1. Heteroscedasticity Test

From the scatterplot graph presented, it can be seen that the points do not spread randomly away from the zero point, this indicates that there is no heteroscedasticity in the distribution of the data, it could be because household income on a large scale is accompanied by large consumption expenditures.

Autocorrelation Test

The results of the Eviews output can show that the value of Durbin Watson (d) is 1.913. Based on the Durbin Watson table with = 10%, the number of coefficients estimated is 1 variable (k = 1) and the number of samples α = 100 households, then there is no negative serial correlation between the independent variables in other words there is an autocorrelation.

4 Discussion

The family economy is the basic estuary of the study of expenditure and per capita income of a region or region. Household income is usually based on a person's professional background and occupation (Alpharesy, et.al., 2012; Priyanti, 2007). Then, household income per capita also has a correlation and influence on household consumption patterns.

The fulfillment of household needs carried out by the head of the family (father/father) for family members (mother and children) is based on primary needs, namely clothing, food, housing. In a broad sense, it is defined by clothing, food and drink needs, as well as a decent place to live for a family. Furthermore, the family will place the "residual" income in 2 (two) aspects, namely saving or fulfilling secondary needs (Sugesti, et.al., 2015: 251-259).

Usually, people in urban areas use excess income to spend on secondary needs, including vehicles, sophisticated communication tools, or even following updated trends among peers and the community (Bahrun, et.al., 2014: 1-8). Likewise, it is not uncommon for them to save the excess income in the form of property assets or gold. Thus, household income is assumed to have an effect on per capita household expenditure (Chalid, 2010).

With regard to household expenditure, it can be classified into 2 (two) broad lines, namely needs-based expenditure and desire-based expenditure. Usually, the placement of needs-based spending will make a family have a high level of wealth adequacy compared to those who spend it based on desire, moreover only to follow developing trends. Household spending will increase according to household income, coupled with the financing of children's education (Putri & Setiawina, 2013).

For this reason, an analysis of per capita household income and expenditure by the local government is needed. This is based on efforts to avoid the occurrence of economic and social inequality in the community. The elements or components that are considered in the analysis are household income, household expenses, the profession of the head of the family, the number of family members, the education level of family members, and the age of all family members (Harahap, 2021).

Based on the analysis that has been carried out on income and its effect on household consumption expenditure patterns in Medan City in 2015, it was found that there was an increase in household consumption in Medan City. This shows that the pattern of household consumption in Medan City is still based on the wishes of the community, so it is feared that social inequality will occur, and even poverty in the community.

5   Conclusion

Based on the discussion and research results that have been described in previous chapters, in general it can be concluded that household consumption patterns in Medan City are as follows: First, the independent variables of domestic workers have a significant effect on the dependent variable of household household. Second, partially or individually the independent variable of PRT has a positive and significant effect on the dependent variable of KRT. Third, the pattern of household consumption in vulnerable 2015 shows an ever-increasing pattern.

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