



DETERMINANTS OF INVESTMENT, LABOR MARKET ON ECONOMIC GROWTH IN MEDAN CITY

Albert Gamot Malau¹, Jan Hotman², April Gunawan³

¹Open University School of Science and Technology, albert@ecampus.ut.ac.id

²Open University School of Science and Technology

³Jakarta High School of Naval Science

Corresponding Author: First Author

Abstract: One of the indicators of economic growth in a country is that the income in a country has increased. Economic growth can be calculated from real national income. Economic Growth Medan City is one of the cities that has a fairly high level of economic growth. So this study aims to analyze the determinants of investment, interest rates, labor on economic growth in the city of Medan. The results obtained from this study are (1) the Gross Regional Domestic Product of Medan City is positively related to all explanatory variables, namely the Medan City workforce and Medan City's Gross Regional Domestic Product last year (PDRBt-1). All signs of the alleged parameters are in line with expectations, the variable that has a significant effect is the Regional Domestic Product of Medan City last year. The estimation results show that an increase in the number of Medan City workers by 10 units will encourage an increase in Gross Regional Domestic Product by 99 units per year, (2) Medan City Household Consumption is positively related to all explanatory variables namely Consumer Price Index, Gross Regional Domestic Product Medan City, Export Value and Household Consumption of Medan City last year (PRKTt-1). All signs of the estimated parameters are in line with expectations, the variables that have a significant effect are the Consumer Price Index and the Regional Domestic Product of Medan City. The estimation results show that if the Medan City Consumer Price Index is increased by 10 units, it will encourage Medan City Household Consumption by 10 units.

Keywords : Investment, Employment and Economic Growth

INTRODUCTION

Economic growth is the development of activities in the economy that causes goods and services produced in society to increase. According to Sadono (2006) that in the long term two important factors can increase the ability of a society to produce goods, (1) increase in production factors, and (2) technological progress. One of the indicators of economic growth in a country is that the income in a country has increased. Economic growth can be calculated from real national income. According to Adam Smith, economic growth is still strong on the interaction between the rate of population growth and the rate of output growth. According to BPS, National Income has increased by 5% from last year. Hilman Tisnawan said economic growth in North Sumatra throughout 2018 will reach 5.24% or higher than 2017's 5.12%. Economic growth shows an increase in the physical production capacity of goods and services. Although the production capacity increases, the income of the new Medan city will increase only if there is an increase in public expenditure (Lincoln Arsyad, 2011). Real per capita income in the long term is also an indicator of economic growth.

Medan City is one of the cities that has a relatively high economic growth. Table 1 shows that the rate of economic growth in Medan City, North Sumatra Province, for the period 2007-2014. Economic growth occurs when the Gross Regional Domestic Product increases. Medan

City's gross regional domestic product fluctuates every year. To increase the growth of the Medan City Government, the government has made a breakthrough by simplifying permits which will have an impact on a better investment climate, this can be seen by the increase in foreign investment and domestic investment. The growth rate of the Gross Regional Domestic Product of Medan City in 2009 decreased to 11.23%, but in 2010 it increased to 27.4%. The high foreign investment and domestic investment will support the absorption of labor. Therefore, this research is deemed necessary to see how big the determination of investment, the job market is on economic growth in the city of Medan.

Medan is one of the cities with the highest population which is conducive to increasing the city's economic income. Increased economic development will also be accompanied by economic growth in the country. Economic growth in any Medan city is certainly inseparable from the role of investment. Regional Autonomy Law Number 23 of 2014 article 23 concerning Regional Long-Term Development Plans, hereinafter abbreviated as RPJPD, is a regional planning document for a period of 20 (twenty) years that will protect investments in Medan City. Medan City's investment in 1999 decreased by 0.6%, this is due to the global economic crisis that will occur in 2000. Investment in Medan City has increased by 30%, this indicates investor confidence in the Medan City economy. The increase in investment was also followed by the rate of employment. The absorbed workforce has increased by 50% in 2009. From the formulation of the problem above, this research will identify, analyze and find answers related to: (1) How are Investment Determinants, Interest Rates, Labor on Economic Growth in Medan City, (2) How is the impact of government policies on Investment, Interest Rates, Employment, on Economic Growth in Medan City. In general, this study aims to determine the Determinants of Investment, Interest Rates, Labor on Economic Growth in Medan City. Specifically, this study aims to (1) analyze the factors that influence the investment determinants, interest rates,

LITERATURE REVIEW

Economic growth

This theory was formed by economists Roy Harrod and Evsey D. Domar which tries to show the conditions needed so that the economy can grow and develop steadily in the long term is through the role of investment. As for meeting this investment need, in a regional or state economy, a part of the income must be set aside for savings. Because this savings will form a new investment through the addition of a new net capital stock (Sanusi, 2002: 27).

Harrod-Domar theory is a development of Keynes' macro theory in relation to long-term economic growth. This Harrod-Domar theory analyzes the conditions needed for an economy to grow and develop and develop in the long term. In other words, this theory tries to show the conditions needed for an economy to grow and develop steadily (steady growth). According to Harrod-Domar, capital formation is an important factor that determines economic growth. Capital formation can be obtained from the accumulation of savings, capital formation is seen as an expenditure that will increase the ability of an economy to produce goods and services, as well as an expenditure that will increase the effective demand of the whole community.

Invest

In economics, it is stated that there are 3 kinds of investment, as for the investment as follows, (1) business fixed investment, business fixed investment which includes structures and equipment purchased by the company, and simple investment (2) inventory investment which includes goods which is placed in the warehouse and (3) housing investment, according to the classics, investment depends on the size of the interest rate (r) so if the interest rate is high, the investment will be smaller, on the other hand, if the interest rate is low, the investment will be

higher, then the investment function is a a function of the interest rate; $I = F(r) = \frac{\Delta I}{\Delta r} = e$

In the short term, the Investment function is as follows: $I = I_0 - er$, where e stands for positive, because of the inverse relationship between investment and interest rates.

According to Keynes, what affects the amount of savings is the level of income as well as the interest rate. In a state of balance, the amount of savings must be equal to that of investment and this shows that the actual level of investment depends also on the level of income, in the sense that the greater the income, the relatively large the level of investment or vice versa. $I = I_0 + \sigma Y$ Where σ is the Marginal Propensity of Invest, namely the ratio between changes in the amount of income to changes in investment in a certain period.

Labor Offer

Discussions about decision making by domestic workers (husband and wife) in order to improve family welfare cannot be separated from their involvement in various activities that can contribute returns for their families. This involvement is expressed as their willingness to work (offer labor) both inside and outside the family. The supply of labor is the amount of time allocated to a job according to a certain wage level. Bellante and Jackson (1990) state that an increase in wages will increase a person's income from the work he does. However, when their wages and income are high, which indicates their high economic status, they tend to increase their consumption and enjoy more leisure time, so they will reduce their working hours. This relationship can be explained by a graph as in Figure 1,

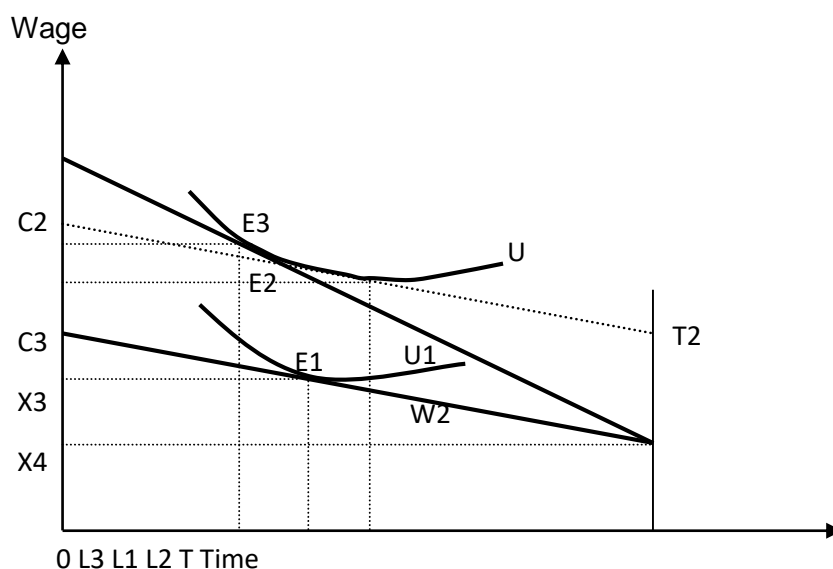


Figure 1. Indifference Curve with Change in Wage Level,

U1 is called an indifference curve, all points on the curve have the same level of satisfaction. The level of satisfaction on the U2 curve is higher than U1. The satisfaction level of U1 (position E1) can be increased to U2 (position E2) with an increase in income that allows households to add consumption and leisure goods together. The total time owned by the household (limited) is OT hours and C1T1 is the budget line at the W1 wage level which reflects the combination of income level with the number of hours worked so that the amount of time used is fixed. The maximum level of satisfaction can be achieved if the satisfaction function (U1) touches the budget line (point E1) with a combination of leisure of OL1 and working time of TL1. By working TL1 hour, households earn wages equivalent to consumption goods as much as OX1. The value of consumer goods that can be purchased from the work of one hour is called the wage rate, which is reflected by the slope of the budget line.

METHODOLOGY

The model is an explanation of the actual phenomenon as a system or process (Koutsoyiannis, 1977). Econometric model is a special pattern of algebraic model which is a stochastic element that includes one or more variables (Intriligator, 1978). The specificity of the econometric model lies in the stochastic element which takes into account random elements. Understanding the framework of thought and literature review, an econometric model is formulated which is expected to capture the problems and objectives of the research. The econometric model can be described as in (Figure 1).

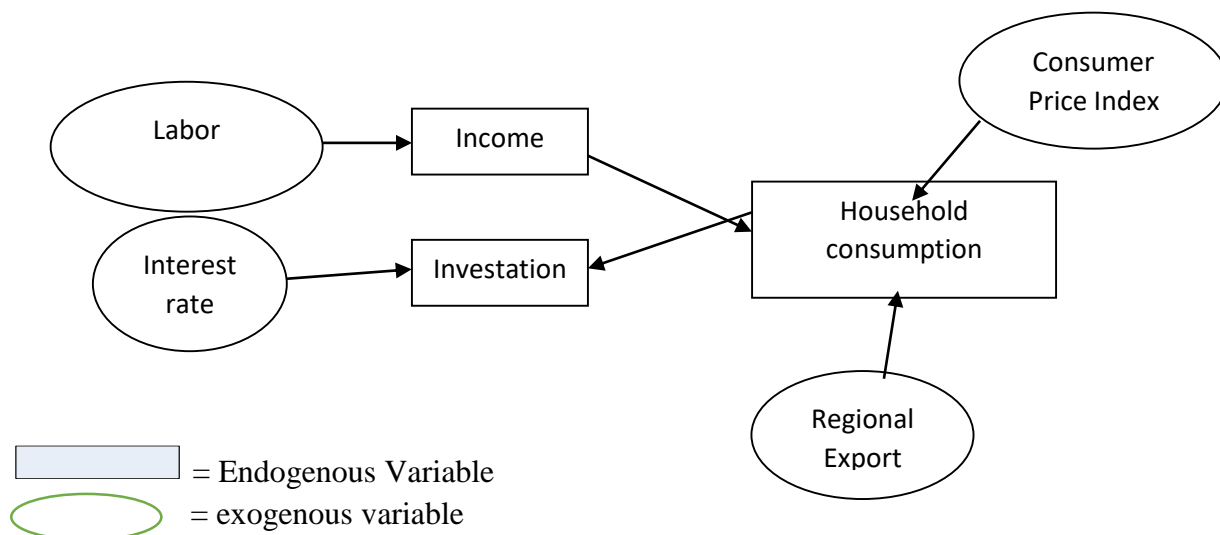


Figure 1. Model Framework for the Effect of Investment, Interest Rates, Labor on Income in Medan City

This econometric model describes the relationship of each explanatory variable to the endogenous variable (dependent variable), especially regarding the sign and magnitude of the regression coefficient which is estimated a priori and economic theories. The equation model will be formulated as follows:

Gross Regional Domestic Product Revenue

The variables that are expected to have an effect on the income of Medan City's Buto Regional Domestic Product are Medan Manpower, and last year's Gross Regional Domestic Product Medan City. Then the Gross Regional Domestic Product of the field with exogenous variables affecting as follows:

$$PDRB_t = a_0 + a_1 JP_t + a_2 PDRB_{t-1} + \mu_1 \dots\dots\dots(1)$$

The estimated parameters (hypothesis) are:

$$a_0, a_1, > 0 ; 0 < a_2 < 1$$

Where

- GDPT = Gross Regional Domestic Product of Medan City in year t (million rupiah)
- JPt = Quantity Year t field labor (Person)
- GDPT-1 = Medan City Gross Regional Domestic Product last year (Rupiah)
- 1 = annoying variable

Investment in Medan City

The variables that are expected to affect Medan City's investment are interest rates, and household consumption. Exogenous variables that affect the following:

$$INV_t = b_0 + b_1 SB_t + b_2 KS_t + \mu_2 \dots\dots\dots(2)$$

The estimated parameters (hypothesis) are:

$$b_0, b_1, > 0 ; b_2 < 1$$

Where;

- INV_t = Investment year ket (million rupiah)
- SB_t = year t interest rate (percent)
- KSt = household consumption number of years t
- 2 = nuisance variable

Household consumption

The variables that are expected to affect Medan City Household Consumption are income, consumer price index, regional export value and last year's household consumption. exogenous variables that affect the following:

$$KS_t = c_0 + c_1CPI_t + c_2PDRB_t + c_3EK_t + c_4 KS_{t-1} + \mu_3$$

.....(3)

The estimated parameters (hypothesis) are:

$$c_0, c_1, c_2, c_3 > 0 ; 0 < c_4 < 1$$

Where;

- KSt = Household Consumption in year t
- CPI_t = Consumer price index year t
- EK_t = Medan city regional export year t (million Rupiah)
- 3 = Error

Model Identification

Model identification is a problem of model formulation rather than model estimation or assessment (Koutsoyiannis, 1977). The econometric model in the simultaneous form is said to be complete if the number of endogenous currents is equal to the number of equations. To identify the model, there are several aspects that need to be considered, including: (1) Number of Current endogenous variables in the model (G), (2) Number of Current endogenous variables contained in each equation (g), (3) Number of predetermined variables in the model (K), (4) The number of predetermined variables contained in each equation (k). The formula for identifying structural equations based on order conditions according to Koutsoyiannis, (1977) is as follows:

$$(G - g) + (K - k) > (G - 1) \text{ or } (K - k) > (g - 1) \text{.....}$$

..... (4)

If:

1. (K – M) = (G – 1) then the equation in the model is said to be exactly identified
2. (K – M) < (G – 1) then the equation in the model is said to be unidentified
3. (K – M) > (G – 1) then the equation in the model is said to be over identified

The investment, labor and economic growth model consists of 3 structural equations and the model consists of 4 endogenous current variables. Following the order condition procedure, it can be seen that the model identification result is over identified. In other words, every equation in the developed model is over-identified. If the structural equations in the model are all over identified, then the equation can be estimated using the Two stage square (2SLS), Three Stage Least Squares (3SLS), Limited information maximum Likelihood (LIML) or full information Maximum Likelihood (FML) methods.

Data Sources and Types

The data used in this study is secondary data from the city of Medan in 1999 – 2017. While the data sources are obtained from the Central Statistics Agency, the Ministry of Manpower and Transmigration, the National Development Planning Agency, the Investment Coordinating Board.

RESULTS AND DISCUSSION

Overview of the Conjecture Model

The model that has been formulated is the Determinant of Investment, Interest Rate, Labor to Economic Growth in Medan City which is a simultaneous equation model and is thought to use

the 2SLS (Two Stage Least Squares) method. After respecification, several variables were excluded from the model because they did not match the hypothesis and were not statistically accepted (not significant). Thus, these variables are replaced with other relevant variables. The results of the evaluation of the predicted model parameters show that most of the predicted parameter signs in each equation are in line with expectations. Overall the value of the coefficient of determination (R²) is quite high and ranges from 0.5002 to 0.9607, and the value of statistical probability F in all equations is real to very real, ie the value ranges from 0.1141 to 0.0001. This means that the diversity of each endogenous variable can be clearly explained by the diversity of its explanatory variables, both individually and collectively. The results of the t test show that in general, the estimated parameters of the explanatory variables in the model equation, some are not real and some are significantly different from zero at the real level.oup to 30 percent. To see the response of the endogenous variables to changes in the explanatory variables of each equation, the average elasticity value for both the short and long term is calculated.

Discussion of the Alleged Model

Gross Regional Domestic Product

The Gross Regional Domestic Product of Medan City is hypothesized to be influenced by the number of workers. The results of the estimation of the Regional Gross Domestic Product equation for Medan are presented in Table 1.

Table 1 . Parameter Estimation Results of the Regional Gross Domestic Product Equation of Medan City, Year 2002-2019

No	Variable Explanation	Parameter guess	Prob. t	Real level	SR elasticity	LR elasticity
1	GDP					
	Intercept	-13085188				
	kindergarten	9.971421	0.4946			
	GRDP1	1.113073	0.0000	A	0.33	-
R ² = 0.988627; adj. R = 0.98702; Prob. F = 0.000000						

Information :

A = significant effect on the level of α 1 – 10%

Medan City Gross Regional Domestic Product) is positively related to all the explanatory variables, namely Medan City Labor and Medan City Gross Regional Domestic Product last year (GRDP-1). All signs of the alleged parameters are in line with expectations, the variable that has a significant effect is the Regional Domestic Product of Medan City last year. The estimation results show that an increase in the number of workers in Medan City by 10 units will encourage an increase in Gross Regional Domestic Product by 99 units per year.

The coefficient of determination R² is 0.98862 which means that 98.86 units of variation of the endogenous variable can be explained by the explanatory variables included in the equation. The probability value of F is 0.0001, meaning that the explanatory variables together can explain the variation of Medan City's Gross Regional Domestic Product. The results of the t-test indicate that the Gross Regional Domestic Product of Medan City last year was significantly different from zero at the level α 1 – 10 percent,

Household consumption .

Medan City Household Consumption is hypothesized to be influenced by the consumer price index, Medan City Gross Regional Domestic Product, Medan City Exports and Medan City Household Consumption Last year The results of the estimation of Medan City Household Consumption equations are presented in Table 2.

Table 2. Parameter Estimation Results of Household Consumption Equation in Medan City,

Year 2002-2019

No	Variable Explanation	Parameter guess	Prob. t	Real level	SR elasticity	LR elasticity
1	KRTt					
	Intercept	145497.8				
	CPI	901.4095	0.2426	C	0.15	0.23
	GDPt	0.000816	0.2742	C	0.67	1.03
	EXPt	21927.28	0.4021	-		
	KRTt-1	-0.016653	0.9729	-		

R2 = 0.840752; adj. R =0.787669; Prob. F =0.000860

Information :

C = significant effect on the level of α 1 – 30%

Medan City Household Consumption is positively related to all explanatory variables, namely Consumer Price Index, Medan City Gross Regional Domestic Product, Export Value and Medan City Household Consumption Last Year (PRKTt-1). All signs of the estimated parameters are in line with expectations, the variables that have a significant effect are the Consumer Price Index and the Regional Domestic Product of Medan City. The estimation results show that if the consumer price index of Medan City is increased by 10 units, it will encourage Medan City Household Consumption by 10 units.9014 per year..

The coefficient of determination R2 is 0.840752 means that 84.07 units of variation of the endogenous variable can be explained by the explanatory variables included in the equation. The probability value of F is 0.0001, meaning that the explanatory variables together can explain the variation of Medan City Household Consumption. The results of the t test show that the Gross Regional Domestic Product of Medan City last year was significantly different from zero at the . level α 1 – 30 percent,

Medan City Investment

Medan City Investment is positively related to the explanatory variable, namely Medan City Investment last year, but has a negative effect on interest rates and household consumption. All signs of the predicted parameters are in line with expectations, the variables that have a significant effect are household consumption and investment in Medan City last year. The estimation results show that if the interest rate is increased by 10 units, it will encourage a decrease in investment by - 290.101 per year.

The coefficient of determination R2 is 0.828837 means that 82.88 units of variation of the endogenous variable can be explained by the explanatory variables included in the equation. The probability value of F is 0.0001, meaning that the explanatory variables together can explain the variation of Medan City Investment. The results of the t test show that the Gross Regional Domestic Product of Medan City last year was significantly different from zero at the . level α 1 – 10 percent,

Table 3. Estimation Results of the Investment Equation Parameters for Medan City, 2002-2019

No	Variable Explanation	Parameter guess	Prob. t	Real level	SR elasticity	LR elasticity
1	INV					
	Intercept	753022.4				
	SB	-29010.14	0.4320			
	KRT	-0.689614	0.2265	C	0.67	1.03
	INVT-1	0.842642	0.0007	A		

R2 = 0.828837; adj. R =0.789338; Prob. F =0.002191

CONCLUSION

Conclusion

Based on the results and discussion in the previous chapter, several conclusions can be drawn according to the objectives of this study, namely: (1) Medan City's Gross Regional Domestic Product P is positively related to all explanatory variables, namely Medan City Labor and Medan City's Gross Regional Domestic Product last year (PDRBt). -1). All signs of the alleged parameters are in line with expectations, the variable that has a significant effect is the Regional Domestic Product of Medan City last year. The estimation results show that an increase in the number of Medan City workers by 10 units will encourage an increase in Gross Regional Domestic Product by 99 units per year, (2) Medan City Household Consumption is positively related to all explanatory variables, namely Consumer Price Index, Gross Regional Domestic Product Medan city, Value of Export and Household Consumption of Medan City last year (PRKTt-1). All signs of the estimated parameters are in line with expectations, the variables that have a significant effect are the Consumer Price Index and the Regional Domestic Product of Medan City. The estimation results show that if the consumer price index of Medan City is increased by 10 units, it will encourage Medan City Household Consumption by 10 units.9014 per year. (3) Medan City Investment is positively related to the explanatory variable, namely Medan City Investment Last year, but has a negative effect on interest rates and household consumption. All signs of the predicted parameters are in line with expectations, the variables that have a significant effect are household consumption and investment in Medan City last year. The estimation results show that if the interest rate is increased by 10 units, it will encourage a decrease in investment by- 290.101 per year.

BIBLIOGRAPHY

- Arief Daryanto, 2012. *Quantitative Models for Regional Economic Development Planning Concepts and Applications*. IPB Press IPB Taman Kencana Bogor Campus
- Adriani, D. 2000. *The Impact of Government Policies on the Performance of the Labor Market and Migration During the Period of Economic Crisis in Indonesia*. Master of Science Thesis. Postgraduate Program, Bogor Agricultural University, Bogor.
- Ananta, A. 1991. *Labor Market Inequality in Indonesia*. Demographic Institute, Faculty of Economics, University of Indonesia, Jakarta.
- Baldwin. 1987. *Development and Economic Growth in Developing Countries*. Literature Development, Jakarta.
- Central Bureau of Statistics. 2017. *Economic Report of Medan City Province*. Central Bureau of Statistics, North Sumatra Islands.
- Bellante, D. and M. Jackson. 1990. *Employment Economics*. University of Indonesia Publishing Institute, Jakarta.
- Borjas, GJ1996. *Labor economics*. The McGraw Hill Companies, Singapore.
- Dawan, MR 2003. *The Role of Workers in Economist Development*. *Journal of Economic Reform*, 4(1): 51-70.
- Debertin, DL 1986. *Agricultural Production Economics*. Macmillan, New York.
- Dhanani, S. 2001. *Labor Market Adjustment to Indonesia's Economic Crisis*. *Indonesian Economic Studies Bulletin*, 37(1):113-115.
- Dumairy, 1997. *The Indonesian economy*. Erlangga, Jakarta.
- Fariad, WM1990. *Introduction to Economics Series: Macroeconomics*. BPFE Publisher – Yogyakarta, Yogyakarta.
- Koutsoyiannis, A. 1975. *Modern Microeconomics*. McMillan Press Ltd, London.
- Koutsoyiannis, A. 1977. *Theory of Econometrics: An Introductory Exposition of Econometric Methods*. McMillan Publishers Ltd, London.
- Manning, C. 2000. *Labor Market Adjustment to Indonesia's Economic Crisis*. *Indonesian Economic Studies Bulletin*, 36(1): 105-136.
- Prihawantoro, S. 2002 *Economic Crisis and Its Impact on Income Distribution DKI Jakarta*: *Journal of Economics and Finance*, 19(2): 157-169.

- Rasyid, R. 2000. Autonomous Regions Have Opportunity to Encourage Investment in the Agricultural Sector. Clipping Sinar Tani 26 April – 2 May 2000. Agricultural Socio-Economic Research Center. Bogor.
- Safrida, 1999. The Impact of Minimum Wage Policy and Macroeconomics on Inflation Rate, Employment Opportunities and Aggregate Demand and Supply Performance. Master of Science Thesis. Bogor Agricultural University Postgraduate Program. Bogor.
- Simanjuntak, P. (2000) . Introduction to Human Resource Economics. Publishing Institute Faculty of Economics, University of Indonesia, Jakarta.
- Suharsono, Y. 1999. Employment Conditions During Crisis and Globalization Era. Journal of Indonesian Studies, 9(1): 33-50.
- Suroto. 1992. Development Strategy and Employment Opportunity Planning Second Edition. Gadjah Mada University Press. Yogyakarta.
- Supahrmoko, M. 2002. Economics of Development. Publisher Faculty of Economics Yogyakarta, Yogyakarta
- Sukirno, S. 2006. Introduction to Microeconomic Theory Second Edition. PT Raja Grafindo persada, Jakarta
- Herlambang, T. 2001. Macroeconomics: Theory, Analysis, and Policy. Publisher PT Gramedia Pustaka Utama Jakarta, Jakarta.
- Tjiptoharijanto, P. 1996. Worker Readiness in Improving the Quality of Industrial Products/Services Facing Free Market Competition. Indonesian Journal of Economics and Finance, XLIV (3): 229-249.
- Todaro, PM 1998. Economic Development in the Third World. Translate. Erlanga, Jakarta.
- Widarti. 1984. The Relationship Between the Service Sector and the Informal Sector in the Indonesian Labor Force. CV Bandar Maju, Bandung.
- Wirosoehardjo. 1978. Prospects of Urbanization in Indonesia and Its Effect on Labor. Directorate of Manpower Program Development, Directorate General of Bina Guna, Ministry of Manpower, Jakarta.
- Wiyono, NH 1996. Increased Productivity: Why Is It So Important? Demographic News,(26) 5:4-8.