The Effect of Social Capital on Indonesian Economic Growth Period 1983 – 2008

Y. Sri Susilo
Faculty of Economics
Universitas Atma Jaya Yogyakarta
Indonesia

Lincolin Arsyad
Faculty of Economics and Business
Universitas Gadjah Mada
Indonesia

Abstract

This research aims to identify and analyze the effect of social capital on the economic growth in Indonesia. The social capital in this case is approached with government debt, unemployment, and average real wages variable. In this research there is another independent variable that is the export variable. Economic growth variable used is Gross Domestic Product (GDP) growth variable. Data used is secondary data with observation period 1983-2008. Model and analysis tool used is Error Correction Model (ECM) econometric model. The result of the estimation by ECM model is in the short term social capital variable (government debt) has negative and significant effect on the economic growth. Whereas other social capital in the model (unemployment and average real wages) doesn't have any effect on the economic growth. However, in long term, social capital variable (government debt and average real wages) each has positive and significant effect on the economic growth, while the unemployment variable has negative and significant effect on the economic growth. To the export variable, it has positive and significant effect, both in the short and long term.

Keywords: social capital, export, economic growth, error correction model.

1. Introduction

The concept of social capital becomes more popular lately in the social science. Sociologists, political scientists, economists, and organization theorists tend to refer to the social capital concept in their researches to answer various broad topics which are often caused some stirs in practice (Ariani, 2007). Putnam (1993) defined social capital as traits or characteristics of social organization such as networks, norms, and social trusts that helps coordination and cooperation to mutual benefit. Fukuyama (1995) stated that social capital is individual's ability to cooperate with others for general purposes in groups and organizations. Whereas Akdere (2005) divided the theory of social capital into three levels. The first level is macro level, which includes institutions such as government, the role of law, civil, and political freedom. In this level social capital related to the effectiveness, accountability, and government's ability to carry out its role fairly, economic growth in encouraging corporate and domestic market development, and in encouraging foreign investments or covering the social development and economic growth.

The second level is meso level, which shows networks among communities. Analysis on social capital in meso level focuses on the development and distribution of network structure process, involves team work, and pays attention to the local development and organization's growth. Then level three, that is micro level which emphasizes on the individual's ability to mobilize resources through local network to build trust and shared norms. In organizations, social capital in this level shows recognition, cooperation and mutual trust, solidarity, loyality, reputation, ease of getting information, and human capital, or includes relationship with others, individual's development, and personal growth. In classical understanding, physical capital is considered providing the main contribution in production process and development.

But today, there are several other types of capital which include human capital, institutions, and social capital also has received a greater attention (Subejo, 2004). In globalization era and world economy that pro-free market nowadays, it looks more clearly that the role of non-human capital in the economic system tends to decline (Coleman, 1988). The stakeholders who works within the economic system are increasingly convinced that capital is not only tangible means of production such as lands, factories, equipments and machines, but also of human capital, that is the knowledge and skills.

Other contents of human capital in addition to the knowledge and skills is the ability of communities to make associations with each other (Supriono, *et al.,* 2007). This capability will become an important capital not only for economic life but also for every other aspects of social existence. Such capital is called social capital, namely the ability of communities to cooperate to achieve common goals in a group and organization (Coleman, 1988).

Further, it is not wrong if Bourdieu (1986) argued criticism of the terminology of capital in the conventional economics. He stated that the capital is not just the means of production, but have a broader understanding and can be classified into 3 (three) categories, namely: (1) economic capital, (2) cultural capital, and (3) social capital. In this case the economic capital associated with the ownership of the means of production, whereas cultural capital identified in the form of educational qualifications. Furthermore, social capital consists of social obligations.

How does the effect of social capital on economic development, especially economic growth in Indonesian period 1983-2008? The answer to that question becomes the focus of this paper. This paper consists of 5 (five) sections. After the introduction, the related/previous studies are presented to explain the effect of social capital on economic growth. The third section is research method. The next section describes the result and discussion of the research result. The last section is the closing that contains conclusions and suggestions to complete this paper.

2. The Related/Previous Studies

The studies of the effects of social capital on the economic growth have been carried out by several economists. Jaroslaw (2009) reviewed the effects of social capital on the economic growth in Poland regions. Data used is secondary data published by various institutions in Poland. Variables of social capital in this study was approached by associational activity, community ties, and hobby and interest groups, while the variables of economic growth is approached by regional gross revenue. The study uses econometric model with cross-section data year 2007 showed that variable of social capital (associational activity) has a significant effect on economic growth, while other variables of social capital (community ties, hobby & interest groups) are not significant. Other independent variables in that model that is significant is the investment outlay and the level of participation of high school students.

The study conducted by Neira, *et al.,* (2009), covered 14 OECD countries and data observed between 1980-2000. The dimensions of social capital used in this research are trust and group (the number of active people in an organization). With panel data econometric model it is concluded that social capital has a significant effect on economic growth, in this case real GDP per capita. Other variables are investment and human capital.

Further, Boulila, *et al.,* (2008) conducted a study with a sample of 35 counties classified as developed and developing countries. Data used is secondary data derived from the WVS (World Value Survey) with observation period 1980-2000. Econometric models are developed from cross-section data and panel data. Estimation results with cross-section data and panel data shows that social capital, in this case the trust, has a significant effect at 99% confidence level on the economic growth, in this case the GDP per capita.

Roth (2007) conducted a study on th effect of social capital on the economic growth with data of 24 countries residing in Europe, America, and Asia continent. Data used is secondary data with observation period 1990-2004. The dimension of social capital in the study is trust that covers interpersonal trust and systemic trust and norms applicable in the community. For the economic growth, it used data of the growth in PDB per capita. With the econometric model used, it is concluded that: (1) for the cross-section observation it is proven that social capital has a significant effect on the economic growth at 90% confidence level, (2) For the observation with data panel it is stated that social capital has no effect on the economic growth, and (3) Other factors that affect the economic growth in the research are investement variable and human capital variable.

Perez *et al*., (2006) conducted a study on the effects of social capital, physical capital, and human capital to the economic growth. The analysis used is econometric model with a sample of 15 OECD countries. The observation period is 1970-2001. The variable of social capital used the proxy of several alternatives that are loan/GDP, percentage of junior high school-educated population, Gini index, the unemployment rate, discount rate, life expectancy rate, employment rate, and wage rate. The results of the research shows that social capital, physical capital, and human capital have a positive and significant effect on the economic growth.

Then Casey and Christ (2005) also conducted a study on the effect of social capital on the economic growth. The study was conducted using a data sample of states in the United States. The observation period is 1977-2000. The regression results of econometric model which used panel data technique concluded that social capital does not significantly affect the economic growth. The social capital dimension in this case is Putnam Social Index that covered the relationship in the community organizations, social relationship, trust, and social organizations. The economic growth in this study was approached with Gross State Product (GSP). In the study, variables that affect the economic growth are human capital, private capital, and employment.

Del Rio (2005) conducted a study on the effect of social capital on the economic growth in 33 countries located in America, Europe, and Asia. The data used is secondary data from the period 1960-2000. In this study, the variable of economic growth was defined GDP per capita, while variable of social capital is defined with the participation of residents in the election (vote), and the number of junior high school students. One of the results of the study based on econometric model with cross-section data year 2000 is that social capital has an effect on the economic growth. Other independent variables taking effect are the capital stock and GDP year 1950.

Then Rupasingha *et al.,* (2000) conducted a study with econometric model and technique based on ordinary least square (OLS) multiple regression. It used secondary data with county-level observation which is a part of the state in the United States. Data used is in the period 1990-1996. The definition of social capital in this research is networking in the association/organization activities in the field of sports, business, jobs, politics, religions, and social. Generated from the econometric model, it is concluded that social capital has a significant effect on the economic growth per capita

Scheneider *et al.*, (2000) using secondary data, conducted a study on the effect of social capital on the economic growth in 73 regions in Europe. Data used is secondary data year 1998. Using econometric model based on Ordinary Least Square (OLS). Social capital variable was approached with trust variable, while economic growth was approached with income growth per capita. Estimation results show that social capital has a significant effect on the economic growth at 99% confidence level. Other variable that affected in this case is physical capital.

3. Research Methodology

3.1. The Types and Sources of Research Data

This research uses time series data with observation period from year 1983-2008, as for the data used in this research are as follows: [1]

1) Economic growth (Y) derived from the value of Gross Domestic Product (GDP) on the basis of the constant price of year 2000 calculated by the production approach based on 9 business fields (sector) expressed in percent unit.
2) Government debt (X1) derived from the stock of government's foreign loan expressed in billion rupiahs unit. [2]
3) The value of export (X2) derived from the volume of oil-non oil export multiplied with export price expressed in million US Dollar unit.

[1] Based on Perez *et al.*, (2006) that stated the proxy of social capital variable is: (1) degree of network connections (loans/GDP, loans), percentage of the junior high school-educated employment, Gini Index, unemployment rate, discount rate, life expectancy, employment, and wage. Based on the data availability and completenes, and also trial and error with econometric model, then the data was chosen as independent variable which is the proxy of social capital variable. For the economic growth variable, the alternatives are real GDP growth, real GDP, real GDP growth per capita, and real GDP per capita, based on the data suitability with econometric model then real GDP growth is chosen.

[2] Government debt is a proxy of social capital because trust and network with the creditor/donor are required to obtain debt. Trust and network is the dimension of social capital.

4) The unemployment rate (X3) derived form the percentage of residents who had worked and never worked expressed in percent unit. [3]
5) Average real wagess (X4) derived from the average wages of overall labor wages that come from overall economic sectors expressed in rupiahs per month unit. [4]

Data used is secondary data obtained form Central Statistical Agency (Badan Pusat Statistik/BPS), *International Financial Statistic* (IFS–IMF), and Bank Indonesia (BI) with periode of time from year 1983 to 2008.

3.2. Research Model

3.2.1. Theoritical Model

Theoretical model is a model expressed in the form of functional relationship, a model that described the relationship between independent variables with dependent variables in accordance to the theory. The theoretical model is written as follows (Neira *et al.*, 2009, Boulila, *et al.*, 2008; Roth, 2007; Perez *et al.*, 2006; Rupasingha *et al.*, 2000; Scheneider, *et al*., 2000):

$$Y_t = f(X1_t, X2_t, X3_t, X4_t) \quad \text{..... (1)}$$

Then from the initial model is transformed so that a form of econometric model as follows: [5]

$$Y_t = \propto_0 + \propto_1 (X1_t) + \propto_2 (X2_t) + \propto_3 (X3_t) + \propto_4 (X4_t) + \mu \quad \text{..... (2)}$$

where :

Y_t = Economic growth (%)
$X1_t$ = Government debt (Billion Rupiahs)
$X2_t$ = The value of oil and non-oil export (Million US Dollars)
$X3_t$ = Unemployment rate (%)
$X4_t$ = The average real wagess (Rupiahs per month)
$\propto_0$ = Intercept
$\propto_1, \propto_2, \propto_3, \propto_4$ = Parameter of independent variables
μ = Error Term

In the times series data recognized the stationary data and non-stationary data. Times series data is said stationary if it meets three criterias that are: if the average and variance are constant over time and also the covariance between two time series data only depends on the lag between these two time periods (Stock and Watson, 2007). The non-stationary data will be threatened with the problem in the form of a spurious regression. Spurious regression is the situation where the regression result shows a significant regression coefficient and high value of determination coefficient, and also low Durbin Watson (DW) statistic value, but the relationship between variables in the model are not (Gujarati and Porter, 2009). This is because of the independent and dependent variables in the equation are dominated by trend, so it obtained high value of determination coefficient even though the variables are hardly correlated.

3.2.2. Stage of Testing

3.2.2.1. Stationarity Detection: Unit Root Test

Unit root test is a part of stationarity test because in principle the test is intended to observe whether certain coefficients in estimated autoregressive model has a value of 1 or not. Dickey-Fuller Test is a unit roots test by looking DF_h then compare it with the DF_t value at a certain α level (Enders, 2004).

[3] Unemployment occurs because of the decreased trust in the employers to the workers and because of the lay-off policy by formal institutions, so by these conditions, unemployment can be considered as a proxy of social capital.
[4] The amount of wages can be determined by the wage policy by the formal agencies based on prevailing norms and the trust of rewarders, so by these conditions, wages can be used as a proxy of social capital.
[5] In this research the variables of social capital are government debt, unemployment rate, and average real wagess.

3.2.2.2. Degree of Integration Test

If the relevant variables are not stationary on the unit roots test, then it can proceed with the degree of integration test. Degree of integration test aims to determine on what degree the data is stationary (Wooldridge, 2009). The method of ADF test in this test is similar to the ADF method in the unit root test above, that is by comparing statistic ADF value with the critical value of MacKinnon at the level of significant (1%, 5%, or 10%).

3.2.2.3. Cointegration Test

The purpose of cointegration test is to indicate whether the residual is stationary or not. Cointegration test can be conducted when the data used in the research is integrated at the same degree. If what happened is not integrated at the same degree, then to know whether the variables used are cointegrated or not is by seeing the coefficient value of ECT (Error Correction Term) in the ECM model. If the ECT coefficient is significant, so the variables are integrated (Enders, 2004).

The criteria of cointegration according to Engle-Ganger is divided into two: residual of long-term equation must be distributed normally, and residual of long-term equation is stationary on the level degree. Therefore, the cointegration test is divided into two: long-term equation normality test and long-term equation residual stationarity test that will be explained as follows (Enders, 2004).

a) Long-Term Equation Normality Test
This normality test aims to examine whether the confounding variables (ε_t) has a normal distribution or not.

a) Long-Term Equation Normality Test
This normality test aims to examine whether the confounding variables have a normal distributon or not. Confounding variables that have a normal distribution implies in the validity of of *test-t* and *test-F* statistic test. The normality test in this research uses Jarque-Bera (*J-B test*) method (Widarjono, 2007).

b) Residual Stationarity Test
This residual stationarity test is performed using ADF test (Green, 2008). The procedure to see whether the observed residual stationary or not is by comparing the ADF statistic value with its critical value. If ADF absolute statistic value is bigger than its critical value, then the observed residual has been stationary and if otherwise the ADF statistic absolute value is smaller than its critical value, then the observed residual is not stationary yet.

3.2.2.4. Error Correction Model (ECM)

According to Granger Representation Theorem, if a regression equation is cointegrated, then the equation can be transformed into the form of error correction model (ECM). If the cointegration regression equation is proved having a stationary error term (μ_t), then the equation can be formulated into the form of ECM (Widarjono, 2007). If that occurs is not integrated in the same degree, then to know the variables used cointegrated or not is by seeing the coefficient value of ECT (Error Correction Term) in the ECM model. If coefficient of the ECT is significant, then the variables is cointegrated (Gujarati dan Porter, 2009). In other words, if coefficient of the ECT is not equal to zero, in the long run the estimation of the model used is valid. The model used in this study is known as the standard ECM.

Assumption of the overall research variables in the stationary model on the degree of one then the error correction model derived from the Domowitz and Elbadawi single quadratic cost function can be obtained as follows (Insukindro, 1999):

$$\Delta(Y_t) = \alpha_0 + \alpha_1\Delta(X1_t) + \alpha_2\Delta(X2_t) + \alpha_3\Delta(X3_t) + \alpha_4\Delta(X4_t) + \alpha_5(X1_{t-1}) + \alpha_6(X2_{t-1}) + \alpha_7(X3_{t-1}) + \alpha_8(X4_{t-1}) + \alpha_9[(X1_{t-1}) + (X2_{t-1}) + (X3_{t-1}) + (X4_{t-1}) - (Y_{t-1})] \ldots\ldots (3)$$

The equation (3.25) is equivalent with:

$$\Delta(Y_t) = \alpha_0 + \alpha_1\Delta(X1_t) + \alpha_2\Delta(X2_t) + \alpha_3\Delta(X3_t) + \alpha_4\Delta(X4_t) + \alpha_5(X1_{t-1}) + \alpha_6(X2_{t-1}) + \alpha_7(X3_{t-1}) + \alpha_8(X4_{t-1}) + \alpha_9(ECT) \ldots\ldots\ldots (4)$$

where ECT is equivalent with:

$$ECT = [(X1_{t-1}) + (X2_{t-1}) + (X3_{t-1}) + (X4_{t-1}) - (Y_{t-1})] \ldots\ldots\ldots\ldots (5)$$

where :

$\Delta(Y_t)$: changes in economic growth $[(Y_t) - (Y_{t-1})]$

$\Delta(X1_t)$: changes in government's debt $[(X1_t) - (X1_{t-1})]$

$\Delta(X2_t)$: changes in export value $[(X2_t) - (X2_{t-1})]$
$\Delta(X3_t)$: changes in unemployment rate $[(X3_t) - (X3_{t-1})]$
$\Delta(X4_t)$: changes in average real wagess $[(X4_t) - (X4_{t-1})]$
Y_{t-1} : lags in economic growth
$X1_{t-1}$: lags in government's debt
$X2_{t-1}$: lags in export value
$X3_{t-1}$: lags in unemployment rate
$X4_{t-1}$: lags in average real wages
ECT : error correction term $(X1_{t-1} + X2_{t-1} + X3_{t-1} + X4_{t-1} - Y_{t-1})$
ε_t : error term
t : time period

The effect of independent variable with its dependent variable in long term on equation (3.4) can be determined by performing a calculation on the formulation below:

C $= \frac{\alpha_0}{\alpha_9}$ .....(6)

X1 $= \frac{\alpha_5+\alpha_9}{\alpha_9}$ .....(7)

X2 $= \frac{\alpha_6+\alpha_9}{\alpha_9}$ .....(8)

X3 $= \frac{\alpha_7+\alpha_9}{\alpha_9}$ .....(9)

X4 $= \frac{\alpha_8+\alpha_9}{\alpha_9}$ .....(10)

3.3.3. Methods of Data Analysis

3.3.3.1. ECM Diagnostic Test

To see the result and the truth of the hypothesis, then test of classic assumption is performed that include normality, multicolinearity, heteroscedasticity, and autocorrelation (Gujarati and Porter, 2009). Normality test in this study uses Jarque-Bera method (*J-B test*). In this research, the way to detect multicolinearity is by auxiliary regression method and Klein method. To test the deviation of heteroscedasticity, the Glejser test method will be used. There are several ways to detect the autocorrelation, but in this study will use the Breusch-Godfrey Test.

3.3.3.2. ECM Statistic Test

Statistic test consists of test of parameter significance individually (*t-test*), test of parameter significance simultaneously (*F-test*), and analysis of goodness of fit (R^2) (Gujarati dan Porter, 2009; Stock dan Watson, 2007). *T-test* is used to prove the effect of independent variables on the dependent variables individually with the assumption that other variables is constant. *F-test* is performed to determine whether the overall independent variables are significant statistically in affecting the dependent variable. R^2 value indicates the amount of variation of independent variables in affecting dependent variable.

4. Result and Discussion

4.1. The Estimation Result

4.1.1. Stationarity Detection: Unit Root Test

Based on the estimation result of unit root test as shown in the Table 1, it is known that data series of government's debt (X1), export (X2), unemployment rate (X3), and average real wagess (X4) is not stationary on the level degree, because ADF_h value (*t–statistic, δ)* is smaller than ADF_t (*t–table, Mac. Kinnon critical value*). The variable that is stationary in the level degree or integrated at the degree of zero only the data series of the economic growth variable (Y), because ADF_h value (*t–statistic, δ)* is bigger than ADF_t. value. Therefore, it is necessary to test the integration degree in the data series of the variable of government's debt (X1), export (X2), unemployment rate (X3), and average real wagess (X4) to find out in what degree the data series is stationary.

Table 1: The Results of Unit Root Test / I (0)

Variable	δ	β_0 (*Drift, D*)	β_1 (*Trend, T*)	Lag	Mac. Kinnon Critical Value (5%)	Result
Y	-0.829612 (-4.03773)	4.348136 (2.709371)	---	0	-2.986225	I (0)
X1	0.070423 (1.937480)	---	---	0	-1.955020	---
X2	0.118872 (5.940741)	---	---	0	-1.955020	---
X3	0.027564 (1.031928)	---	---	0	-1.955020	---
X4	-2.601054 (-2.88527)	2728230. (2.823310)	-74932.47 (-2.805975)	8	-3.710482	---

Source: The estimation results (not enclosed)

4.1.2. The Test of Integration Degree

Based on the estimation results of the test of integration degree as shown in the Table 2, noted that data series of the variable of government's debt (X1), unemployment rate (X3), average real wagess (X4) was stationary in the degree of one, because the value of ADF_h (*t- statistic, δ*) of each data series was bigger than the value of ADF_t (*t–table, Mac. Kinnon critical value*) at the level of significant of 5%. As for the export variable data series (X2) is not stationary in the first degree, because the value of ADF_h (*t–statistic, δ)* is smaller than ADF_t (*t–table, Mac. Kinnon critical value*). Therefore, it is necessary to retest the integration degree in the data series of the variable of export (X2) to find out in what degree the data series is stationary.

Table 2: The Results of Integration Degree Test / I (1)

Variable	δ	β_0 (*Drift, D*)	β_1 (*Trend, T*)	Lag	Mac. Kinnon Critical Value (5%)	Result
X1	-0.730147 (-3.24461)	---	---	0	-1.955681	I (1)
X2	0.223045 (0.924753)	---	---	2	-1.957204	---
X3	-0.746441 (-3.63806)	---	---	0	-1.955681	I (1)
X4	-0.619398 (-3.21835)	---	---	0	-1.955681	I (1)

Source: The estimation results (not enclosed)

Then, based on the estimation results of integration degree test at the degree of two as shown in Table 3, noted that data series of export variable (X2) was stationary at the degree of two, because the value of ADF_h (t–*statistic, δ*) of data series was bigger than the value of ADF_t (*t- table, Mac. Kinnon critical value*) at the level of significant of 5%.

Table 3: The Results of Integration Degree Test / I (2)

Variable	δ	β_0 (*Drift, D*)	β_1 (*Trend, T*)	Lag	Mac. Kinnon Critical Value (5%)	Result
X2	-1.385606 (-6.69071)	---	---	0	-1.956406	I (2)

Source: The estimation results (not enclosed)

4.1.3. The Estimation of Error Correction Model (ECM)

Based on the results of stationarity test discussed above, can be noted that the variables used in this research is not integrated at the same degree. The economic growth variable (Y) is stationary at the degree of zero, variable of government's debt (X1), unemplyment rate (X3), and average real wagess (X4) each integrated at the degree of two. As the rules of cointegration according to Engle and Granger explained in the previous chapter, in point (c) explained if $x_t \sim I(1)$, $y_t \sim I(0)$, so $ax_t + by_t \sim I(1)$, where $I(1)$ is the dominant nature. Therefore in this research the variable of economic growth (Y) is assumed to approach the degree of one.

The research variables that have been stationarity tested, then will be used to form the error correction model (ECM), that can be formulated mathematically as follows:

$$\Delta(Y_t) = \alpha_0 + \alpha_1\Delta(X1_t) + \alpha_2\Delta^2(X2_t) + \alpha_3\Delta(X3_t) + \alpha_4\Delta(X4_t) + \alpha_5(X1_{t-1}) + \alpha_6\Delta(X2_{t-1}) + \alpha_7(X3_{t-1}) + \alpha_8(X4_{t-1}) + \alpha_9[\{(X1_{t-1}) + \Delta(X2_{t-1}) + (X3_{t-1}) + (X4_{t-1})\} - (Y_{t-1})] + \varepsilon_t \text{.....(11)}$$

Equation (4.1) is equivalent with:

$$\Delta(Y_t) = \alpha_0 + \alpha_1\Delta(X1_t) + \alpha_2\Delta^2(X2_t) + \alpha_3\Delta(X3_t) + \alpha_4\Delta(X4_t) + \alpha_5(X1_{t-1}) + \alpha_6\Delta(X2_{t-1}) + \alpha_7(X3_{t-1}) + \alpha_8(X4_{t-1}) + \alpha_9(ECT) + \varepsilon_t \text{.....(12)}$$

So the ECT is equivalent with:

$$ECT = [\{(X1_{t-1}) + \Delta(X2_{t-1}) + (X3_{t-1}) + (X4_{t-1})\} - (Y_{t-1})] \text{ .....(13)}$$

The results of error correction model (ECM) based on the model above and as presented in the table 4 below, noted the error correction term (ECT) of the model is significant at the degree of trust of 95% (α = 5%) that explained that the model that have been made is valid, so as to give an indication of short-term and long-term relationship (cointegrated) of the observed variables (Gujarati and Porter, 2009). The model is of course must meet the criteria of classic and statistic assumption to see the truth of the hypothesis. Testing of the classic assumption will be tested diagnostically, including tests of normality, multicolinearity, heteroscedasticity, and autocorrelation. While the statistical testing will include coefficient significance test (*t-test*), goodness of model test (F-test) and goodness of fit analysis (R^2).

Table 4: The Result of Error Correction Model (ECM) Estimation

***Dependent Variable*: Y**

Variable	*Coefficient*	*t - Statistic*	*Prob.*
C	19.61316	1.873111	0.0821
DX1	-4.99E-05	-3.867139*	0.0017
D2X2	0.000597	2.937665**	0.0108
DX3	-1.047190	-0.793238	0.4409
DX4	2.18E-05	0.847137	0.4112
LX1	-1.025700	-6.099047*	0.0000
DLX2	-1.025231	-6.099414*	0.0000
LX3	-3.028311	-3.117577*	0.0076
LX4	-1.025715	-6.099290*	0.0000
ECT	1.025706	6.099220*	0.0000
***R*^{2}**	0.879260		
***Adj. R*^{2}**	0.801642		
F - statistic	11.32799		
Prob. (F – stat)	0.000051		

Source : Estimation results (not enclosed)
Explanation: * significant at α = 1%
** significant at α = 5%
*** significant at α = 10%

4.2. ECM Diagnostic Test

4.2.1. Normality Test

The value of table *chi-squares* used in this testing is based on the distribution of table *chi-squares* with degrees of freedom (df): 2 at the level of significant (α): 5%, of 5.99. Based on the results of normality test as presented in the table (5), noted the value of J-B statistic amounted to 1.63 smaller than its chi-squares table value that amounted 5.99 mean that residual (ε_t) of the data series in this ECM model has a normal distribution.

Table 5: The Results of Normality Test
(Jarque – Bera Test Method)

Skewness	0.359412	***Jarque-Bera***	1.625494
Kurtosis	1.947011	***Probability***	0.443638

Source: Estimation Results (not enclosed)

4.1.2.2. Multicollinearity Test

The number of data or observation (*n*) are 25, and the number of estimated parameters including constanta (*k*) are 10. F-table value with level of significant (α): 5%, numerator degree of freedom (ndf): (k–1) = 9, denominator degree of freedom (ddf): (n–k) = 15, is 2.59. Based on the results of multicollinearity test using auxiliary regression method as shown in Table 6 below, noted the variable of export (D2X2) and average real wages (DX4) indicate the existence of multicollinearity symptoms, as indicated by the F–statistic auxiliary regression value is bigger than its F-table value.

Table 6: The Results of Multicollinearity Test
(*Auxiliary* and *Klein's* Method)

Dependent Variable	***Independent Variable***	***F – statistic***	***F – table***	***R^2***	**Explanation**
DY	DX1, D2X2, DX3,DX4, LX1, DLX2, LX3, LX4, ECT	11.32799*	---	0.879260	**Initial Model**
DX1	D2X2, DX3, DX4,LX1, DLX2, LX3, LX4, ECT	2.049940***	2,59	0.522286	**AUX1**
D2X2	DX1, DX3, DX4, LX1, DLX2, LX3, LX4, ECT	3.947306*	2,59	0.677963	**AUX2**
DX3	DX1, D2X2, DX4,LX1, DLX2, LX3, LX4, ECT	2.117599***	2,59	0.530381	**AUX3**
DX4	DX1, D2X2, DX3,LX1, DLX2, LX3, LX4, ECT	3.251870**	2,59	0.634280	**AUX4**

Source : The estimation results (not enclosed)
Explanation: * significant at α = 1%
** significant at α = 5%
*** significant at α = 10%

To find out the symptoms of multicollinearity are serious or not is by using Klien's rule of thumb, with the following decision criteria (Gujarati and Porter, 2009):

a) If R^2 value in *auxiliary regression* > R^2 *value* of initial regression model, then the regression model contains the elements of multicollinearity between independent variables.
b) If R^2 value in *auxiliary regression* < R^2 value of initial regression model, then the regression model does not contains the elements of multicollinearity between independent variables.

Based on the results of multicollinearity test with Klien method as shown in table (4.6) above, noted the whole R^2 value of *auxiliary regression* of each independent variable in the model is smaller than R^2 value in initial regression model.

Thus it can be concluded that the symptoms of multicollinearity in this research model are not a serious disorder and does not violate the assumption according Klien's rule of thumb. Therefore, it can be ignored.

4.1.2.3. Heteroscedasticity Test

To find out the deviation of heteroscedasticity, then it will be tested with Glejser test formulated as follows:

$$ABS(RESECM) = \alpha_0 + \alpha_1\Delta(X1_t) + \alpha_2\Delta^2(X2_t) + \alpha_3\Delta(X3_t) + \alpha_4\Delta(X4_t) + \alpha_5(X1_{t-1}) + \alpha_6\Delta(X2_{t-1}) + \alpha_7(X3_{t-1}) + \alpha_8(X4_{t-1}) + \alpha_9(ECT) + \varepsilon_t \quad .....(14)$$

In this case, ABS(RESECM) stated the estimated absolute value of residual of the estimation results of ECM equation. The criteria of Glejser test to state the conclusion of passing from the deviation of heteroscedasticity based on the significance of *t-count* value of each independent variable, that are DX1, D2X2, DX3, DX4, LX1, DLX2, LX3, LX4, and ECT. If there is t-count value of independent variables shown is significant at certain (α) degree of significance, then the hypothesis null is rejected or stated the existence of deviation of heteroscedasticity and vice versa.

Based on the results of heteroscedasticity test as shown in Table 7, it is seen the value of *t-count* probability of each independent variable is bigger than the level of significant (α): 5%. Thus, the ECM model in this study does not have any heteroscedasticity problems.

Table 7: The Result of Heteroscedasticity Test
(*Glejser* Method)
***Dependent Variable* : ABS(RESECM)**

Variable	*Coefficient*	*t - Statistic*	*Prob.*
C	2.299223	0.506136	0.6206
DX1	-8.29E-07	-0.147914	0.8845
D2X2	-0.000120	-1.355291	0.1968
DX3	-0.200220	-0.349587	0.7319
DX4	-1.78E-07	-0.015918	0.9875
LX1	0.060486	0.829019	0.4210
DLX2	0.060334	0.827363	0.4219
LX3	0.477051	1.132014	0.2766
LX4	0.060488	0.829073	0.4210
ECT	-0.060489	-0.829085	0.4210
***R*^{2}**	0.248856		
***Adj. R*^{2}**	-0.234023		
F - statistic	0.515359		
Prob. (F – stat)	0.840301		

Source : The estimation results (not enclosed)
Keterangan: * significant at α = 1%
** significant at α = 5%
*** significant at α = 10%

4.1.2.4. Autocorrelation Test

From the autocorrelation test outcome shown in Table 8, it can be concluded that the probability value of *Obs*R-squared* (0,1048) has more value than of *level of significant* (α): 5%, accordingly, the model utilized in this research has nothing to do with any autocorrelation elements. Furthermore, after conducting the ECM diagnostic test, there will be a statistic test consisting of individual parameter significance test (*t-test*), simultaneous parameter significance test (*F-test*), and the last, *goodness of fit* (R^2) analysis.

Table 8: The Result of Autocorrelation Test
(*Breusch-Godfrey Test Method*)

F – statistic	1.388660	***Probability***	0.286757
Obs*R – squared	4.510675	***Probability***	0.104838

Source: The estimation results (not enclosed)

4.1.3. ECM Statistic Test

4.1.3.1. Coefficient Significance Test (*t – Test*)

Based on the results indicated in Table 9, it is known that independent variable of unemployment rate changes (DX3) and average real wages changes (DX4) have no individual significant effect toward the dependent variable. Meanwhile, the independent variable of the government debt changes (DX1), export changes (D2X2), government debt *lag* (LX1), export *lag* (DLX2), unemployment rate *lag* v (LX3), average real wages (LX4), and *error correction term* (ECT) are found to have individual significant effect toward the dependent variable.

Table 9: The Results of t – Test (*t – test*)
***Dependent Variable*: Y**

Variable	*t - count*	*t - table*	*Conclusion*
C	1.873111	1.753	Ho rejected
DX1	-3.867139**	-1.753	Ho rejected
D2X2	2.937665**	1.753	Ho rejected
DX3	-0.793238	-1.753	Ho accepted
DX4	0.847137	1.753	Ho accepted
LX1	-6.099047*	-1.753	Ho rejected
DLX2	-6.099414*	-1.753	Ho rejected
LX3	-3.117577**	-1.753	Ho rejected
LX4	-6.099290*	-1.753	Ho rejected
ECT	6.099220*	1.753	Ho rejected

Source : The estimation results (not enclosed)
Explanation : * significant at $\alpha = 1\%$
** significant at $\alpha = 5\%$

4.1.3.2. Goodness of Model Test (*F – Test*)

According to the estimation result of ECM in the Table 4 above, it is discovered that the *F-statisctic* value is as much as 11.33 bigger than the *F-table* value, 2.59. Thus, the researcher rejects Ho and accepts Ha, which means that overall independent variable in the model, that are variable of government debt changes (DX1), export changes (D2X2), unemployment rate changes (DX3), average real wages changes (DX4), government debt *lag* (LX1), export *lag* (DLX2), unemployment rate *lag* (LX3), average real wages *lag* (LX4), and *error correction term* (ECT) have a significant effect completely to the dependent variable changes of economic growth (DY). It can also be proven through observing the probability value (0.000051) that has smaller number than *level of significant* (α): 5%.

4.1.3.3. Coefficient of Determination (R^2)

Coefficient of Determination (R^2) is utilized to indicate the amount of variation of Independent variable changes in elucidating variation of dependent variable changes and it is also used to figure out how precise the regression line obtained. According to the results of output in the Table 4, it is seen that value $R^2 = 0.879260$, meaning to say that the variation of independent variable changes the variable of government debt changes (DX1), export changes (D2X2), unemployment rate changes (DX3), average real wages changes (DX4), government debt *lag* (LX1), export *lag* (DLX2), unemployment rate *lag* (LX3), average real wages *lag* (LX4), and *error correction term* (ECT)] in the model that can be used for explaining economic growth variation (DY) is by 87.9 percent and the rest number, 12.1 percent, is explained by other independent variables beyond the model.

4.2. Statistical Analysis

ECM models are capable of explaining the dynamic behavior in short-term as well as in long-term. For the short-term, it can be seen from the estimator values $\widehat{\alpha_0}$, $\widehat{\alpha_1}$, $\widehat{\alpha_2}$, $\widehat{\alpha_3}$, and $\widehat{\alpha_4}$, as follows: *Firstly*, the constants value ($\widehat{\alpha_0}$) is 19.61316 significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* 1.873111 greater than the value *t-table* which is 1.753. It is to say, the constant values in the research model or the dependent variable value of economic growth changes (DY) without the independent variable is 19.61 percent, *ceteris paribus.*

Secondly, the coefficient value of government debt changes ($\widehat{\alpha_1}$) is -0.0000499, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* 3.67139 greater than the value *t-table* which is 1.753. This conveys that in short-term, the goverment debt changes are negatively affecting and significant toward the economic growth changes. This means that if the government debt changes raises as much as 1 billion Rupiahs, then the economic growth changes will go down by 0.0000499%, and vice versa if the goverment debt changes drop by 1 billion Rupiahs, then the economic growth changes will increase by 0.0000499%, *ceteris paribus.*

Thirdly, the coefficient value of export changes ($\widehat{\alpha_2}$) is 0.000597, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 2.937665 greater than the value *t-table* which is 1.753. It elaborates that in short-term, export changes have positive effect and significant to the economic growth changes. This means that whenever the export changes increase by US$ 1 million, then the economic growth changes will raise by 0.000597%, and vice versa if the government debt changes drop by US$ 1 million, then the economic growth changes will go down by 0.000597%, *ceteris paribus*.

Fourth, the coefficient value of unemployment rate changes ($\widehat{\alpha_3}$) is -1.047190, not significant at *level of significant*: 5% that is statistically shown from the value *t-statistic* by 0.793238 which is smaller than the value *t-table* by 1.753. It indicates that in short-term, unemployment rate changes do not impact significantly toward the economic growth changes.

Fifth, the coefficient value of average real wages changes ($\widehat{\alpha_4}$) is 0.0000218, not significant at the *level of sigficant*: 5% that is statistically shown from the value *t-statistic* by 0.847137 which is smaller than the value *t-table* by 1.753. This explains that in short-term, the average real wages changes is not significantly affecting the economic growth changes.

Sixth, the adjustment speed toward the long-term balance is as much as coefficient value of the ECT ($\widehat{\alpha_{10}}$). The coefficient value of ECT ($\widehat{\alpha_{10}}$) is by 1.025706, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 6.099220 which is bigger than the value *t-table* which is 1.753. The coefficient value of ECT is not a long-term value but can be used to cover the long-term, this case is often called by *speed of adjustment.* The value of adjustment coefficient, that is 1.025706, which means that around 102.6% of incongruity between the actual economic growth with the desired growth will be eliminated or omitted within a year.

Table 10: Long-term Analysis

Variable	**C**	**LX1**	**DLX2**	**LX3**	**LX4**
Formula	$\widehat{\alpha_0}/\widehat{\alpha_9}$	$(\widehat{\alpha_5}+\widehat{\alpha_9})/\widehat{\alpha_9}$	$(\widehat{\alpha_6}+\widehat{\alpha_9})/\widehat{\alpha_9}$	$(\widehat{\alpha_7}+\widehat{\alpha_9})/\widehat{\alpha_9}$	$(\widehat{\alpha_8}+\widehat{\alpha_9})/\widehat{\alpha_9}$
Result	19.12161965	0.000005849	0.000463095	-1.95241618	0.00000877
Std. Er.	10.47090	0.168174	0.168087	0.971367	0.168170
t – stat.	1.873111	-6.099047	-6.099414	-3.117577	-6.099290

Source : The estimation results (not enclosed)

As stated in the results of long-term analysis above, the interpretation of long-term statistics is as follows: *Firstly*, the coefficient value of government debt in long-term is 0.000005849, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 6.099047 which is bigger than the value *t-table* which is 1.753. It shows that in long-term, government debt will be postive and significant toward the economic growth.

This means that if the government debt raises as much as 1 billion Rupiahs, then the economic growth will increase by 0.000005849%, and vice versa if the goverment debt drop by 1 billion Rupiahs, then the economic growth will go down by 0.000005849%, *ceteris paribus.*

Secondly, the coefficient value of export in the long-term is 0.000463095, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 6.099414 which is greater than the value *t-table* which is 1,753. It shows that in long-term, export value will be positive and significant toward the economic growth. This means that if the government debt raises as much as US$ 1 million, then the economic growth will increase by 0.000463095%, and vice versa if the goverment debt drop by US$ 1 million, then the economic growth will go down by 0.000463095%, *ceteris paribus.*

Thirdly, the coefficient value of unemployment rate in long-term is -1.95241618, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 3.117577 which is greater than the value *t-table* which is 1.753. It shows that in long-term, unemployment rate will be negative and significant toward the economic growth. This means that if the unemployment rate increases by 1%, then the economic growth will decrease by 1.95241618%, and vice versa if the unemployment rate drop by 1%, then the economic growth will increase by 1.95241618%, *ceteris paribus.*

Fourth, the coefficient value of average real wages in long-term is 0.00000877, significant at the *level of significant*: 5% that is statistically shown from the value *t-statistic* by 6.099290 which is greater than the value *t-table* which is 1.753. It shows that in long-term, average real wages has postive effect and is significant toward the economic growth. This means that if the average real wages increases by 1 unit of Rupiah, then the economic growth will increase by -0.00000877%, and vice versa if the average real wages drop by 1 unit of Rupiah, then the economic growth will drop by 0.00000877%, *ceteris paribus.*

4.3. Discussion

Based on the estimation results using aforementioned ECM model, then in short-term, the social capital variable (government debt) is negatively affecting and significant, while the other variables of social capital in the model (unemployment and average real wages) are not significant[6]. In the short-term, it turns out that the variable of government debt has a negative and significant effect, it can be presumed that government debt is generally used for public infrastructure investments. This founding is not in line with the research stating that government debt will encourage economic growth or lead to the occurence of *debt led growth hypothesis* phenomenon (Ali and Issei, 2005; Bhattarai 2009). As is known that in investments of the public infrastructure field, the presence of a *gestation period* in the rate of return takes relatively a long time.

Other variables of social capital discussed in this research (unemployment and average real wages)[7] do not have significance in short-term. It can be considered that unemployment and average real wages are not directly and significantly affecting the economic growth. This research outcome is parallel to one finding of Roth's study (2007) declaring that social capital has no significance to the economic growth.

For the variable of export independence, it evidently has positive effect and it is significant toward the economic growth of Indonesia period 1983-2008. In short-term, based on the estimation results then the *export led growth hypothesis* (ELGH) phenomenon takes place in Indonesia. This finding is in line with several studies of ELG hypothesis conducted by Abual-Foul (2004) and Balaguer & Cantavella-Jorda (2004).

Next, from the estimation outcome of ECM model in long-term, it is known that the variables of social capital (government debt, unemployment, and average real wages) affect significantly to the real GDP growth in Indonesia period 1983-2008. Government debt variable and average real wages variable have positive effect and they are significant to the economic growth. Unemployment variable has a negative effect and it is significant to the growth.

[6] Government debt can be assumed as social capital since it requires *trust* and *networks* with the creditor to obtain debt. As is known that *trust* and *networks* are the dimension of social capital.

[7] Unemployment and average real wages will affect productivity, then will affect production level and in turn will affect economic growth (Kaldaru and Parts, 2208;2005). If unemployment and wages are viewed further, they are proxy and variables of social capital (Perez *et al.* 2005).

This research discovery is corresponding to the earlier research result stating that social capital takes positive effect and it is significant to the economic growth (Neira *et al.*, 2009, Boulila, *et al.*, 2008; Roth, 2007; Perez *et al.*, 2006; Rupasingha *et al.*, 2000; Scheneider, *et al.*, 2000).

Unemployment variable has a negative effect and it is significant toward the economic growth. It is explicable that if there is an unemployment increase, then there will be a drop of people purchasing power and productivity of unemployed labor. In the time, the two points will encourage the occurence of production decline and eventually drop the economic growth, *ceteris paribus* (Kaldaru and Parts, 2005). Otherwise, if an increase of average real wages takes place, then it will encourage work productivity and purchasing power of consumers. Hereafter, this situation will encourage production to raise that in turn will enhance the economic growth, *ceteris paribus.*

For the variable of government debt that affects significantly to the economic growth indicates that this finding is in line with the *debt led growth* hypothesis as proposed by by Ali and Issei (2005) and Bhattarai (2009). This means that in long-term, the effectiveness of public infrastructure investments coming from government debt has managed to work out. Infrastructures being built are able to support and encourage the production activities and in the turn will be able to encourage the occurrence of economic growth, *ceteris paribus.*

For the export variable, it turns out that in long-term, it is consistent with the short-term version. In this case, export has positive effect and it is significant to the economic growth of Indonesia period 1983-2008. Once again, this proves that the *export led growth hypothesis* (ELGH) has taken place in Indonesia and it is corresponding to the study carried out by Abual-Foul (2004) and Balaguer & Cantavella-Jorda (2004).

Explanation about the influence of social capital toward the economic development, including economic growth, can be explained through a mechanism suggested by Kaldaru and Parts (2008; 2005). According to Kaldaru and Parts (2008; 2005), the social capital consists of 2 levels, namely: (1) micro-level that is composed of trust, norms, and networks. (2) Macro-level, comprised of formal institution and social polarization. Conceptually, the effect of social capital to the economic development can be carried out at least by 4 ways of mechanism, specifically Kaldaru and Parts (2005): (1) Social capital (both micro-level and macro-level) directly influences the economic development (GDP per capita growth, human development, and sustainability), (2) Social capital (both micro-level and macro-level) affects the social cohesion and life satisfaction, and furthermore, will have effect on welfare (poverty and income distribution) and later affects the economic development, (3) Social capital will affect the productivity and further will affect the economic development, and (4) Social capital will influence the individual capital and later affect the productivity, and finally have effect to the economic development.

5. Conclusion

As stated in the estimation results using ECM model, it can be concluded that in short-term, the social capital variable (government debt) influences negatively and it is significant toward the economic development in Indonesia period 1983-2008. Other variables of social capital in the model (unemployment and average real wages) do not affect the economic growth. In long-term, the variables of social capital (government debt and average real wages) give positive effect and they are significant to the economic growth, while the variable of unemployment has negative effect and it is significant toward the economic growth. For the variable of export, it affects negatively and it is significant, both short-term and long-term.

Based on the objective circumstance, consequently, the government needs to stimulate and provide facilities for community activities, institutional empowering, and apply other policies leading to social capital improvement (trust, networks, and norms). By the improvement of social capital in the community life, including the economic activities, that in turn will encourage economic growth.

This study can be expanded by elaborating other variables of social capital that have not been discussed in the model, such as capital stock, Gini index, and the number of secondary school enrollment. For the econometric model used, the panel data model can be extended through observing entire provinces of Indonesia in a certain period of time.

References

Abual-Foul. B., (2004), "Testing the Export-led Growth Hypothesis: Evidence from Jordan", *Applied Economics Letters*, 11, pp. 393-396

Akdere, M. (2005). "Social Capital Theory and Implications for Human Resource Development". *Singapore Management Review*, 27 (2), pp. 1-23

Ali, A.M., and Issei, H.S., (2005), "An Empirical Analysis of the Effect of Aid on Growth", *International Advance in Economic Research*, 11 (1), pp. 1 – 11

Ariani, D.W., (2007). "Model Hubungan Motif, Modal Sosial, dan Kepribadian dengan Perilaku Kewargaan Organisasional*", Disertasi*, Program Pascasarjana, Fakultas Ekonomika dan Bisnis UGM, Yogyakarta. (not been published)

Balaguer, J., and Cantavella-Jorda, M., (2004),"Structural change in export and economic growth: cointegration and causality analysis for Spain (1961-2000)", *Applied Economics*, 36, pp. 473-477

Bhattarai, B.P., (2009), "Foreign Aid dan Growth in Nepal: An Empirical Analysis", *Journal of Developing Areas*, 42 (2), pp. 283 – 302

Boulila, G., Bousrih, L., and Trabelsi, M., (2008), "Social Capital and Economic Growth: Empirical Investigations on the Transmission Channels", *International Economic Journal*, 22 (3), pp. 399 – 417

Bourdieu, P., (1986), "The Form of Capital", in Richardson, J., (Ed.), *Handbook of Theory and Research in Sociology of Education*, Greenwood Press, New York.

Cassey, T., and Christ, K., (2005), "Social Capital and Economic Performance in the American States", *Social Science Quarterly*, 86 (4), pp. 826 – 845

Coleman, J.S., (1988), "Social Capital in the Creation of Human Capital", *The American Journal of Sociology*, 94, Supplement, pp. 95 – 120 del Rio, J.M., (2005), "The Social Capital Effect on Economic Growth", *A Senior Honors Thesis*, Department of Economics, Ohio State University. (Unpublished).

Enders, W., 2004, *Applied Econometric Time Series*, 2nd Edition, International Edition, John Wiley & Sons, Inc, Singapore.

Engle, R.F., and Granger, C.W.J, (1987), "Co-Integration and Error Correction: Representation, Estimation, and Testing", *Econometrica*, LV (2), Maret 1987, hlm. 251-276.

Fukuyama, F., (1995), *Trust: The Social Virtues and The Creation of Prosperity*, Free Press, New York.

Green, W.H., 2008, *Econometrics Analysis*, 6th Edition, International Edition, Prentice Hall, Pearson Education International, Singapore.

Gujarati, D.N., and Porter, D.C., (2009), *Basic Econometrics*, 5th Edition, McGraw-Hill International Edition, Singapore.

Insukindro, (1999), "Pemilihan Model Ekonomi Empirik Dengan Pendekatan Koreksi Kesalahan", *Jurnal Ekonomi dan Bisnis Indonesia*, 14 (1), pp. 22 – 30.

Jaroslaw, D., (2009), "Social Capital and Economic Growth in Polish Regions", *Working Paper*, Conference "Civil Society, Social Capital, and Economic Development", Stockholm, 3-4 September 2009. (Unpublished).

Kaldaru, H., and Parts, E., (2008), "Social and institutional factors of economic development: evidence from Europe" *Baltic Journal of Economics*, 8 (1), pp. 29-51

Kaldaru, H., and Parts, E., (2005), "The Effect of Macro-Level Social Capital on Sustainable Economic Development", *Working Paper*, Faculty of Economics and Business Administration, University of Tartu, Estonia. (Unpublished)

Neira, I., Vazquez, E., and Portela, M., (2009), "An Empirical of Social Capital and Economic Growth in Europe (1980-2000)", *Social Indicator Research*, 92, pp. 111 – 129

Perez, F., Fernandez de Guevera, J., Montesinos, V., (2006), "Measurement of Social capital and Growth: an Economic Methodology", *MPRA Paper No. 16006*. Diakses dari http://mpra.ub.uni-muenchen.de/16006/ pada tanggal 15 Agustus 2010.

Putnam, R.D., (1993), "The Prosperous Community: Social Capital and Public Life American Prospect", in Ostrom, E., and Ahn, T.K., *Foundation of Social Capital*, Edward Elgar Pucblishing Limited, Massachussets.

Roth, F.M., (2007), "Social Capital, Trust, and Economic Growth", *Dissertation*, Universitat Gottingen, Germany. (Unpublished).

Scheneider, G., Plumper, T., and Bauffman, S., (2000), „Bringing Putnam the European regions on the Relevance of Social Capital for Economic Growth", *European Urban and Regional Studies*, 7 (4), pp. 307 – 317

Stock, J.H., and Watson, M.W., (2007), *Introduction to Econometrics*, 2nd Edition, Person Addison Wesley, Pearson International Edition, Singapore.

Subejo, (2004), "Peranan *Social Capital* Dalam Pembangunan Ekonomi: Suatu pengantar Untuk Studi *Social Capital* di Pedesaan Indonesia", *Jurnal Agro Ekonomi*, 11(1), hlm. 77 – 86

Supriono, A., Flassy, D.J., dan Rais, S., (2007), "Modal Sosial: Definisi, Dimensi, dan Tipologi", *Makalah*, Fakultas Pertanian UGM, Yogyakarta. (Tidak Dipublikasikan).

Widarjono, A., (2007), *Ekonometrika Teori dan Aplikasi Untuk Ekonomi dan Bisnis*, Edisi II, Cetakan I, Penerbit Ekonosia, Yogyakarta.

Wooldridge, J.M., (2009), *Introductory Econometrics: A Modern Approach*, Third Edition, International Student Edition, Thompson South-Western, Singapore.