JEE 6 (1) (2017) 1 - 10

Journal of Economic Education

http://journal.unnes.ac.id/sju/index.php/jeec

Relationship between Education and Economic Growth in Indonesia, Malaysia and Singapore

Alkeelani Abdulsalam Alkeelani A [1]✉, Titik Haryati[2]

[1.] University of Alzawia, Libya.

[2.] Economic Education Postgraduate Universitas Negeri Semarang, Indonesia.

Article Info

Article History:
Received 12 January 2017
Accepted 1 February 2017
Published 2 June 2017

Keywords:
Economic growth; Education; Education expenditure; Number of high school; Education expenditure

Abstract

History shows that education was originally held informally in the family and held informal in society. Furthermore, formal education was held also in school. Even as you are understandable, these days the world of education experienced rapid development is outstanding. Relationships Education and Economic Life very closed. In connection with the problems as questionable above, based on data obtained from various sources, Sudarja Adiwikarta (1988) concluded that a link is steady and positive between the degree of education with economic life, in the sense that the higher the degree of education the higher the degree of economic life. Education is an essential ingredient of prosperity is at once obvious and contentious. So in this research will analyze the relationship between education (number of school or facilities and school expenditure) and economic growth (GDP). In this research will focused on high school. The reason to choose education because education reflects the country development index especially also in the economic growth.This research will used quantitative research. Data collection method in this research is documentation. Data collection from 1990-2015 from World Bank for data Indonesia, Malaysia and Singapore. Technique analysis data used is normality test, regression model, and correlation analysis, also descriptive analysis. The decsriptive analysis method is a method that describe mean, minimum value, maximum value, and standard deviation.The result showed that there is relationship between education expenditure and GDP in Indonesia, Malaysia and Singapore, this can be seen from the significant value lower than 0,05 so the hypothesis accepted. Another result showed that there is relationship between number of high school and GDP in Indonesia. This can be seen from the significant value lower than 0,05 so the hypothesis accepted. Suggestion for further research is to add another variables that affecting GDP in Indonesia, Malaysia and Singapore, such as employment rate, inflation rate.

© 2017 Universitas Negeri Semarang

✉ Correspondence:
Ez Zauia, Libya.
E-mail: kila.mosa@yahoo.com

p-ISSN 2301-7341
e-ISSN 2502-4485

INTRODUCTION

GDP is the important criteria to know success or not to the government of the country. Gross Domestic Product (GDP) is a calculation used by a country as the main measure for the activity of national economy, but basically the whole GDP measures the volume of production of a region (country) geographically. There is some factors affecting GDP, one of them is education.

History shows that education was originally held informally in the family and held informal in society. Furthermore, formal education was held also in school. Education is an essential ingredient of prosperity is at once obvious and contentious. Obvious because any person able to read this text knows what a difference it makes in their lives to have gone to school, to have learned to read, write and calculate. Contentious because when social scientists try to "prove" that education is a cause of economic growth it turns out to be quite difficult to decide which came first, the chicken or the egg. What is more, even the basic terms such as "what is education" and "what is prosperity" become vast and cloudy terrains for the technical experts like economists, sociologists, education specialists and policy analysts (Fadel and Miller, 2010). There are formal and non formal education.

The role of formal education in economic growth is very important. Relationships education and economic life very closed. Based on data obtained from various sources, Sudarja Adiwikarta (1988) concluded that a link is steady and positive between the degree of education with economic life, in the sense that the higher the degree of education the higher the degree of economic life. Quite a lot of evidence that shows that there is a relationship between the two influence each other, namely that the growth of education affect economic growth, and vice versa, economic growth affects the growth of education. Based on the statements above, it can say that the existence of a reciprocal relationship between the educational growth and economic growth. However, it is not clear which factor comes first is the cause for other factors, whether the growth of education that lead to economic growth, or vice versa, the economic growth that led to the growth of education. Parelius (1978) and Knowles (1982), Sudarja Adiwikarta (1988) suggest that in sociology, the concept of the relationship between education and economic life as described above, has the support of the adherents of the theory of consensus and conflict theory. Both theorists have in common the view that the main function of the institution or institutions of education in relation to economic life is to prepare the youth to fill productive employment. As in the case of adult education, the goal of course is no longer preparing abilities, but to improve it so that learners may be able to face the problems that exist at the time. Therefore, the students get mental education, attitudes, knowledge and skills that are useful. The process occurs in all societies, from the most traditional to the most advanced.

This research will analyze a single overarching generalization about the relationship between education, defined as the classroom school system that has been the predominant way of organizing formal education throughout the 20th century, and economic growth, defined as the monetary aggregate GDP (gross domestic product) that is used widely by economists and the press to measure the economic performance of industrial societies. It is also argued that the specific form of education system, characterized by universal compulsory classroom schooling, is an indispensable component of an industrial growth society. This is a broader, more historically grounded hypothesis that aims to encompass the wide range of economic, social and political reasons for associating education with growth. It is a hypothesis that rests on clarifying the role of one specific way of organizing learning, universal mass compulsory classroom schooling and the preponderant kinds of knowledge that emerge from this process, with the creation of one particular form of prosperity, typically summarized by the metric of gross domestic product (GDP).

Mingat and Tan (1996) for a sample of 113 countries found that higher education has a positive statistically significant impact only in the group of developed countries, while the

primary has a positive effect in less developed and secondary a positive effect in developing. Gemmell (1996) for OECD countries concluded that primary education most affects the less developed countries, while secondary and higher education the developed ones. Mc Mahon (1998) examined the effect of the three levels of education on economic growth for a sample of Asian countries and concluded that primary and secondary level have a significantly positive effect on economic growth, while higher is negative. Abbas (2001) for the countries of Pakistan and Sri Lanka showed that the primary has a negative effect on economic growth, while secondary and higher education have a positive and statistically significant impact on economic growth in both countries.

Petrakis and Stamatakis (2002) found that the growth effects of education depend on the level of development; low-income countries benefit from primary and secondary education while high-income developed countries benefit from higher education. Self and Grabowski (2004) for the case of India showed that except higher education the primary and secondary education had a strong causal impact on economic growth. Villa (2005) investigated the effect of the three levels of education on economic growth for Italy and found that the higher and secondary education has a positive effect on economic growth, while the primary has no significant effect. Gyimah, Paddison and Mitiku (2006) found that all levels of education have a positive and statistically significant impact on the growth of per-capita income in African countries. Lin (2006) for the case of Taiwan found that primary, secondary and tertiary, have a positive impact on economic growth.

This research is important because the issue of the economic growth in Indonesia that indicated by GDP is growing stonger in the last five years and this will be main issue and interesting to be analyzed.

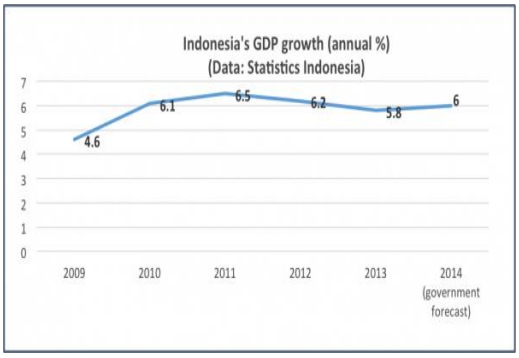

Figure 1. Indonesia's GDP growth 2009-2014

To compare, GDP or economic growth will also compare with another developing countries such as Malaysia and Singapore:

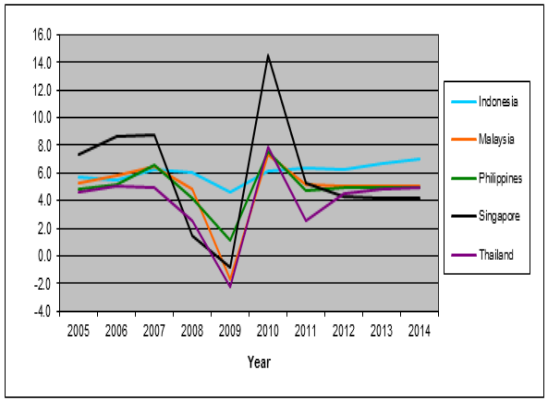

Figure 2. GDP growth among Countries 2005-2014

So in this research will analyze the relationship between education (number of school or facilities and school expenditure) and economic growth (GDP). In this research will focused on high school. The reason to choose education because education reflects the country development index especially also in the economic growth.

Based on the description above, so this research entiled: "Relationship Between Education And Economic Growth In Indonesia, Malaysia And Singapore".

GDP or gross domestic product, is the market value of all final goods and services produced in a country in a given time period. This definition has four parts: Market value, Final goods and services, Produced within a country, in a given time period. Gross domestic product, GDP, is the market value of all the final goods and services produced within in a country

in a given time period. A final good or service is an item that is bought by its final user during a specified time period. In contrast, an intermediate good is an item produced by one firm, bought by another and used as a component of a final good or service. Intermediate goods are not directly included in real GDP. The circular flow of income and expenditure shows real and monetary flows in the economy. The circular flow involves:

Four economic sectors : households, firms, governments, and the rest of the world.

Three major markets : factor markets, goods markets, and financial markets. In these markets people make their economic decisions by choosing the amounts of key economic variables:

Consumption expenditures (C) : total household spending on consumption goods and services.

Investment (I): firms' purchase of new plants, equipment, buildings, and additions to inventories.

Government purchases (G) : government spending on goods and services. Net taxes (T) are taxes paid to the government minus transfer payments received from governments and minus interest payments on the government's debt.

Net exports (NX) : exports (X, sales of U.S. goods and services abroad) minus imports (M, purchases of foreign good and services)

There are two types of GDP, namely:

1. GDP at current prices or nominal GDP, the value of goods and services produced by a country in a given year assessed according to the prices prevailing during the year.

2. GDP at fixed prices or real GDP, the value of goods and services produced by a country in a given year assessed according to prevailing prices in a given year are so used to assess the goods and services produced in other years GDP figures is the result of multiplying the number of production (Q) and price (P), if the prices go up from year to year because of inflation, then the amount of GDP will go up anyway, but not necessarily the increase in the volume of production (real GDP). Perhaps the increase in GDP is caused only by the rise in prices only, while production volumes or slump.

Nominal GDP. This could change at any time, either because there is a change in the number of (real value) of goods and services or there are changes in the prices of goods and services. Hence, nominal GDP Y = P 'y, where P is the price level and real output y is-here output and GDP. Real GDP or, y = yp is the value of goods and services measured using a constant price. The difference between real and nominal can also be applied to other monetary values, such as salaries. Nominal salary (or money) denoted by W and into a real value (w) and the variable price (P). Thus, W = nominal salary = P • w. w = real wage = W / P conversion from nominal to real units allows us to eliminate the problems that arise when measuring the value of the rupiah has changed over time as the price level changes

Chi (2008) showed that in China, higher education has a positive and larger impact on GDP growth than primary and secondary education. Pereira και Aubyn (2009) showed that in Portugal primary and secondary education have a positive impact on GDP, while higher has a small negative effect. Loening, Bhaskara and Singh (2010) for the case of Guatemala found that primary education is more important than secondary and tertiary education. Shaihani, et al. (2011) for the case of Malaysia concluded that in the short run only secondary education has a positive and statistically significant coefficient, while the primary and tertiary exhibit negative and statistically significant results. On the contrary only the higher education has a positive and statistically significant effect in the long run. In the case of Greece, Asteriou and Agiomirgianakis (2001) used the Lucas (1988) model and showed that the growth of enrolment rates in primary, secondary and higher education positively affected the GDP in Greece for the period 1960-1994

Most attention to the value of schooling focuses on the economic returns to differing levels of school attainment for individuals. This work, following the innovative analyses of human capital by Jacob Mincer (1970, 1974), considers how investing in differing amounts of schooling affects individual earnings. Over the past thirty years, literally hundreds of such

studies have been conducted around the world (Harmon, Oosterbeek, and Walker, 2003; Psacharopoulos and Patrinos, 2004; and Heckman, Lochner, and Todd, 2006). These studies have uniformly shown that more schooling is associated with higher individual earnings. The rate of return to schooling across countries is centered at about 10 percent with variations in expected ways based largely on scarcity: returns appear higher for low income countries, for lower levels of schooling, and, frequently, for women (Psacharopoulos and Patrinos (2004).

Much of the academic debate has focused on whether these simple estimates provide credible measures of the causal effect of schooling. In particular, if more able people tend also to obtain additional schooling, the estimated schooling effect could include both the impacts of schooling and the fact that those continuing in school could earn more in the absence of schooling (Harmon, Oosterbeek, and Walker, 2003). For the most part, employing alternative estimation approaches dealing with the problems of endogeneity of schooling do not lead to large changes in the estimates, and many times they suggest that the returns are actually larger with the alternative estimation schemes than with the simpler modeling strategies. The basic estimates of Mincer earnings models are typically interpreted as the private returns to schooling. As is well known, the social returns could differ from the private returns – and could be either above or below the private returns. The most common argument is that the social returns will exceed the private returns because of the positive effects of education on crime, health, fertility, improved citizen participation (Dee, 2004), and on growth and productivity of the economy as a whole (Psacharopoulos and Patrinos, 2004).

If on the other hand schooling was more of a selection device than of a means of boosting knowledge and skills of individuals, the social return could be below the private return. Although there are many uncertainties about precisely how social returns might differ from private returns, there is overall little reason to believe that the social returns are less than the private returns, and there are a variety of reasons to believe that they could be noticeably higher (Lange and Topel, 2006).

Murnane, Willett, Duhaldeborde, and Tyler (2000) provide evidence from the High School and Beyond and the National Longitudinal Survey of the High School Class of 1972. Their estimates suggest some variation with males obtaining a 15 percent increase and females a 10 percent increase per standard deviation of test performance. Lazear (2003), relying on a somewhat younger sample from NELS88, provides a single estimate of 12 percent. These estimates are also very close to those in Mulligan (1999), who finds 11 percent for the normalized AFQT score in the NLSY data. Note that these returns can be thought of as how much earnings would increase with higher quality each and every year throughout the persons' working career. Thus, the present value of the returns to higher quality is large.

Liu and Armer (1993) found that both primary and junior-high achievement variables add explanatory power to economic growth in Taiwan, but senior-high and college education did not exert any significant effects on growth. Tallman and Wang (1994) showed that higher education has a greater positive impact on growth in relation to primary and secondary education for the case of Taiwan.

METHODS

This research will used quantitative research. Quantitative research is the systematic scientific study of the parts and phenomena and relationships. The purpose of quantitative research is to develop and use of mathematical models, theories and or hypotheses pertaining to natural phenomena. The measuring process is a central part in quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

Data collection method in this research is documentation. According Arikunto (2006: 158) "Documentation is looking for and collecting data on things such as notes, transcripts, books, newspapers, magazines,

minutes, rapot, agenda and so on." Data collection from 1990-2015.

Data in this research used is secondary data. Source of the data is from World Bank for Indonesia, Malaysia and Singapore.

Normality test

The purpose of this test is to test whether the regression model, the dependent variable, independent variable, or both normal distribution or not. A good regression model is data distribution to normal or near normal. The regression model is said to be normal or nearly normal if data is spread around the diagonal line and follow the direction of the diagonal of the graph Normal P-P Plot of Regression Standardized Residual (Ghozali, 2006). Normal or not data can also be seen from the histogram curve of normality, when forming a bell line it can be said that the data is normal.

Correlation analysis

The correlation method is a study undertaken to describe two or more facts and properties of objects examined. The study was conducted to compare the similarities and differences of two or more of these facts by a specific framework.The formula for Pearson correlation as follows:

$$r_{xy} = \frac{\Sigma xy}{\sqrt{(\Sigma x^2 y^2)}}$$

No	r	Interpretatoin
1	0.0-0.20	Very poor / weak
2	0.21-0.40	Poor/ weak
3	0.41-0.60	Fair/ moderate
4	0.61-0.80	Strong / High
5	0.81-1.00	Very strong / High

The regression method is a study undertaken to describe the effect of independent variables on dependent variable.

The decsriptive analysis method is a method that describe mean, minimum, maximum, standard deviation of variables in a research. The transformation of raw data into a form that will make them easy to understand and interpret; rearranging, ordering, and manipulating data to generate descriptive information.

RESULTS AND DISCUSSION

Descriptive Statistic of Research Variables

Descriptive statistics provide a picture or description of the data is seen from the average (mean), standard deviation and maximum and minimum values. Descriptive statistical analysis of the results in this study can be seen in Table 1. as follows:

Table 1.

	N	Minimum	Maximum	Mean	Std. Deviation
GDP growth (%)	25	-13.10	9.00	5.1280	4.18793
School expenditure (thousand Rp)	25	45985436.00	95698758.00	85012438.9200	10133023.78628
Number high school	25	6580.00	12821.00	10667.1600	1609.80122
Valid N (listwise)	25				

Source: Secondary data were processed, 2016

Table 1 shows that the amount of data used in this study was 25 data taken from the the year 1990-2014. The profile about GDP of Indonesia, GDP growth has mean 5.1280% and the standard deviation is 4.1873. Minimum value is -13.10% and maximum 9%. School expenditure (thousand Rp) has minimum 45985436 and maximum 95698758 and mean 85012438.92 (in thousand Rp) with standard deviation 10133023.78628. Number of high school in Indonesia has minimum value 6580 and maximum 12821, meanwhile mean is 10667.16 with standard deviation 1609.80122.

Table 2.

	N	Minimum	Maximum	Mean	Std. Deviation
GDP growth (%)	25	-7,40	10.00	5.9640	3.92268
School expenditure (RM billion)	25	1423.89	3862.00	2845,8136	453.18145
Number high school	25	111852.00	280556.00	243638.0000	35563.71375
Valid N (listwise)	25				

Source: Secondary data were processed, 2016

Table 2. shows that the amount of data used in this study was 25 data taken from the the year 1990-2014 in Malaysia. The profile about GDP of Malaysia, GDP growth has mean 5,9640% and the standard deviation is 3.92268. Minimum value is -7.40% and maximum 10%.

School expenditure (RM billion) has minimum 1423,89 and maximum 2845.8136 and mean 2845.8136 (in RM billion) with standard deviation 453.18145. Number of high school in Malaysia has minimum value 111852 and maximum 280556, meanwhile mean is 243638 with standard deviation 35563.71375.

Table 3.

	N	Minimum	Maximum	Mean	Std. Deviation
GDP growth (%)	25	-2.20	15.20	6.3080	4.11257
School expenditure (SGD billion)	25	32.99	51.70	43.0892	4.57370
Number high school	25	10412.00	12409.00	11442.7600	491.12026
Valid N (listwise)	25				

Source: Secondary data were processed, 2016

Table 3. shows that the amount of data used in this study was 25 data taken from the the year 1990-2014 in Singapore. The profile about GDP of Singapore, GDP growth has mean 6,3080% and the standard deviation is 4.11257. Minimum value is -2.20% and maximum 15.20%. School expenditure (SGD billion) has minimum 32.99 and maximum 51.70 and mean 43.0892 (in SGD billion) with standard deviation 4.57370. Number of high school in Malaysia has minimum value 10412 and maximum 12409, meanwhile mean is 11442.76 with standard deviation 491.12026.

Correlation Test Result

Table 4.

		GDP growth (%)	School expenditure (thousand Rp)	Number high school
GDP growth (%)	Pearson Correlation	1	.893**	.631**
	Sig. (2-tailed)		0000	.001
	N	25	.5	25
School expenditure (thousand Rp)	Pearson Correlation	.893**	1	.776**
	Sig. (2-tailed)	.000		.000
	N	25	25	25
Number high school	Pearson Correlation	.631**	.776**	1
	Sig. (2-tailed)	.001	.000	
	N	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Secondary data were processed, 2016

Table 4. shows that the result of GDP growth has positive correlation with school expenditure 0.893 because p-value 0.000 < 0.01 and significant in level 1%. The correlation between GDP growth and number high school has positive correlation 0.631 because p-value 0.001 < 0.01 and significant in level 1%. The relationship between school expenditure and number high school has positive correlation 0.776 because p-value 0.000 < 0.01 and significant in level 1%. So hypotehsis accepted.

Table 5.

		GDP growth (%)	School expenditure (RM billion)	Number high school
GDP growth (%)	Pearson Correlation	1	.790**	.980**
	Sig. (2-tailed)		.000	.000
	N	25	25	25
School expenditure (RM billion)	Pearson Correlation	.790**	1	.833**
	Sig. (2-tailed)	.000		.000
	N	25	25	25
Number high school	Pearson Correlation	.980**	.833**	1
	Sig. (2-tailed)	.000	.000	
	N	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Secondary data were processed, 2016

Table 5. shows that the result of GDP growth has positive correlation with school expenditure 0.790 because p-value 0.000 < 0.01 and significant in level 1%. The correlation between GDP growth and number high school has positive correlation 0.980 because p-value 0.000 < 0.01 and significant in level 1%. The relationship between school expenditure and number high school has positive correlation 0.833 because p-value 0.000 < 0.01 and significant in level 1%. So hypotehsis accepted.

Table 6.

		GDP growth (%)	School expenditure (SGD billion)	Number high school
GDP growth (%)	Pearson Correlation	1	.746**	.658**
	Sig. (2-tailed)		.000	.000
	N	25	25	25
School expenditure (SGD billion)	Pearson Correlation	.746**	1	936**
	Sig. (2-tailed)	.000		.000
	N	25	25	25
Number high school	Pearson Correlation	.658**	.936**	1
	Sig. (2-tailed)	.000	.000	
	N	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6. shows that the result of GDP growth has positive correlation with school expenditure 0.746 because p-value 0.000 < 0.01 and significant in level 1%. The correlation between GDP growth and number high school has positive correlation 0.658 because p-value

0.000 < 0.01 and significant in level 1%. The relationship between school expenditure and number high school has positive correlation 0.936 because p-value 0.000 < 0.01 and significant in level 1%. So hypotehsis accepted.

Table 7. Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-26.185	3.308		-7.917	.000
	School expenditure (thousand Rp)	4.191E-7	.000	1.014	6.844	.000
	Number high school	.000	.000	-.155	-1.049	.306

a. Dependent Variable: GDP growth (%)

Source: Secondary data were processed, 2016

Y = -26.185 + 1.014 X1 – 0.155 X2

Table 4.7. shows that the result of school expenditure has p-value 0.000 < 0.01 and significant in level 1% but number of high school has p-value 0.306 > 0.05 so not significant.

.

Table 8.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-20.171	1,140		-17.693	.000
	School expenditure (RM billion)	-.001	.001	-.086	-1.141	.266
	Number high school	.000	.000	1.051	14.013	.000

a. Dependent Variable: GDP growth (%)

Source: Secondary data were processed, 2016

Y = -20.171 - 0.086 X1 + 1.051 X2

Table 8. shows that the result of school expenditure has p-value 0.266 > 0.05 and not significant but number of high school has p-value 0.000 < 0.01 so significant in level 1%.

Table 9.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-3,297	24.339		-.135	.893
	School expenditure (SGD billion)	,943	.358	1.049	2,633	.015
	Number high school	-,003	.003	-.324	-.813	.425

a. Dependent Variable: GDP growth (%)

Source: Secondary data were processed, 2016

Y = -3.297 + 1.049 X1 - 0.324 X2

Table 9. shows that the result of school expenditure has p-value 0.015 < 0.05 and significant in level 5%, but number of high school has p-value 0.425 > 0.05 so not significant.

CONCLUSION

The result showed that there is relationship between education expenditure and GDP in Indonesia, Malaysia and Singapore, this can be seen from the significant value lower than 0,05 so the hypothesis accepted. Another result showed that there is relationship between number of high school and GDP in Indonesia. This can be seen from the significant value lower than 0,05 so the hypothesis accepted. Suggestion for further research is to add another variables that affecting GDP in Indonesia, Malaysia and Singapore, such as employment rate, inflation rate.

REFERENCES

Abbas, Q. 2001. "Endogenous Growth and Human Capital: A Comparative Study of Pakistan and Sri Lanka." The Pakistan Development Review, 40(4), 987-1007.

Arikunto, S. 2006. Research Procedure A Practical Approach, Revised Ed. VI,. Publisher Rineka PT Cipta, Jakarta.

Asteriou, D., and Agiomirgianakis, G. 2001. "Human capital and economic growth, Time series evidence from Greece," Journal of Policy Modeling, 23, 481-489.

Bhaskara and Singh. 2010. Effects of schooling levels on economic growth: time-series evidence from Guatemala," MPRA Paper.

Lange, Fabian, and Robert Topel. 2006. "The social value of education and human capital." In Handbook of the Economics of Education, edited by Eric A. Hanushek and Finis Welch. Amsterdam: North Holland:459-509.

Lucas, Robert E. 1988. "On the mechanics of economic development." Journal of Monetary Economics 22, no. (July):3-42

Mingat, A., and Tan. J. 1996. "The full social returns to education: Estimates based on countries economic growth performance," World Bank, Washington, DC.

Mulligan, Casey B. 1999. "Galton versus the human capital approach to inheritance." Journal of Political Economy 107, no. 6, pt. 2 (December):S184-S224.

Parelius. 1978. The Sociology of Education. Englewood Cliffs, N.J. : Prentice Hall.

Sudarja Adiwikarta. 1988. Sociology of Education 2 Issues And Hypotheses About. Relations With Public Education, Jakarta: Department of Education Higher.