EDUCATION AND ECONOMIC GROWTH IN UZBEKISTAN

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Abstract: Education is admitted to be one of the fundamental determinants of social and economic progress of any nation. In particular, the quantity and quality of education may have significant effect on economic growth. The research attempted to determine the existence of correlation between quantity/quality of education and the economic growth in Uzbekistan. Regression estimation with GDP growth as dependent variable and school enrollment rates as well as pupils-to-teacher ratio as independent variables revealed weak relationship between education and economic growth in Uzbekistan.

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Introduction

The investment in education sphere by a country is so obvious that its role is prominent in every aspect of our lives and rarely doubted. The education makes people more skilled and these skills would lead to more production and services. Undoubtedly, this process will increase the consumer’s welfare, producer’s income, which in turn, results in more GDP and faster economic growth. Uzbekistan is a developing country and after gaining independence some structural changes have been made in educational sector. During this transitional period, the quality of education in the country has been improved whereas the quantities of educated labors have been declined. But how these changes manipulate the economic wellbeing of the country? So, the purpose of this research is to examine the effect of the quantity and the quality of educated workforce on economic growth in the Republic of Uzbekistan.

The theory and methods of the research

It seems that, cognitive skills have a substantial effect on economic growth of any country. Many economists have been interested in learning of not only the effect of quantity of education but also the effect of quality of education on economic growth. In fact, Barro (1999) examined the schooling quality and economic growth while Hanushek and Kimko (2000), Hanushek and Kim (1995), Hanushek and Woessmann (2008) works study the relationship between quality of education and economic growth. Hanushek, Kim and Woessmann have measured the quality of education based on cognitive skills in
mathematics and science whereas Barro (1999) uses data on internationally test scores to measure the schooling quality and these researchers have found that, qualitative education has a strong and robust influence on economic growth. In this empirical research, the main issue will be to discuss the direct correlation between quantity/quality of education and economic growth in Uzbekistan and to find out whether skilled labor is more important than the quantity of educated workforce in Uzbekistan.

The researchers, Eduardo and Marcio Laurini (2010) from Insper Institute of Education and Research and Ibmec Business School, presented new evidence on the role of cognitive skills in Economic Development. The research was done for the country of Brazil and the paper differs from other paper works with its two novelties. Firstly, rather than using a cross country data set, it uses two different datasets: state and municipality levels. Secondly, the paper is based on the methodology of nonparametric kernel regression estimation with fixed data which allowed them to mix the discrete and continuous data types in the present context. The results showed that, there is strong evidence that economic growth is explained by cognitive skills. Furthermore, they claim that, the effect of cognitive skills is greater in an open environment. However, there are some new findings. On the one hand, the relationship between cognitive skills and GDP per capita appears to be non-linear. On the other hand, their research explains the importance of quantity of schooling. It says that, the quantity schooling remains significant even after controlling for the quality of schooling.

An article by Dr. Robert B. Kozma, (2005) provides a good understanding of knowledge economy and its contribution to economic growth. He refers that, the creation and sharing knowledge feed into the economy to generate knowledge-driven, virtuous cycle sustainable growth which is known as knowledge economy will bring a country sustainable growth for their economy. The researcher illustrates the case of Finland as an excellent example. In the early 1990s, Finnish economy faced a significant recession with an average GDP growth rate of -3.68% from 1990 to 1993. However, from 1994 to 2000, GDP per capita growth rate turned into 4.39% and Finland became one of the competitive economies in the world. During this period, the unemployment rate declined in half, the trade balance moved from large deficit into trade surplus and Helsinki's stock market rose very well over 200%. This dramatic turn was due to the implementation of investments in technological infrastructure, education and research and development, emphasizing the creation and sharing of new knowledge. Thus, 21st century students are required to have cognitive skills in order to continuously learn and create new knowledge which will cause to economic growth. However, Pritchett (1996) does not support the ideas of other researchers who consider the positive relationship of massive education to economic growth. No one denies that there is a partial correlation between enrollment ratios and economic growth. However, Pritchett (1996) claims that, this partial correlation cannot be used in assessing the impact of human capital change. He considers that, there must be another interpretation for the partial correlation of enrollment rates and economic growth. Moreover, Pritchett (1996) argues that, quality of education is impossible to measure across countries as there is no particular reason to believe that physical indicators such as teacher/student ratio or resources
expended per student will adequately proxy the quality of education. Furthermore, he considers that, the years of schooling can create cognitive skills but these skills are sufficiently bad as they are devoted to privately remunerative but socially wasteful, or even counter-productive, activities.

Hanushek and Woessmann (2008) in “The Role of Cognitive Skills in Economic Development” find that, cognitive skills have powerful effects on individual earnings which appear closely related to the distribution of income and on economic growth. These researchers state that, the current problem of developing countries is due to just basing on only school enrollment and attainment. International testing indicates that, even years of schooling and attainment data look considerable better, fewer than 10% of their youth currently reaching minimal literacy and numeracy levels. Because of the facts of international testing, Hanushek and Woessmann consider that, developing countries should take into consideration the quality of education rather than counting just time spent in school.

Another similar study, from Hanushek and Kimko (2000) measures the quality of education using test scores obtained from students participating in international assessments in science and mathematics. They took 31 countries for their research for the period between 1960 and 1990. They took into consideration the educational performances such as distinguishing according to age, the field of competence, namely mathematics and science and year and regressed the average annual growth rate on the initial (1960) of per capita income, the quantity of schooling, the average rate of population growth, the quality of the labor force and a constant. Hanushek and Kimko (2000) came up with the same conclusion as Barro (1997) findings. It says that, there is a positive but insignificant relationship between quantity of education and economic growth. The coefficient of the quality of education variable has positive and significant impact on the average growth on the initial (1960) of per capita income while there is a negative and insignificant coefficient on the rate of population growth.

What is more, Uzbek researchers, Yakov Asminkin and Olga Nemirovskaya (2007) from Center for Social Research, Tashkent have conducted research on education reforms in Uzbekistan. As they report, Uzbekistan have embarked on National Professional Training Program (NPTP) that includes +3 year compulsory vocational education at college or lyceum added to 9 years of secondary school from 1997. After NPTP was adopted, public expenditure on education sector was redistributed and 7.5% of total budget per year was allocated to compulsory vocational education. As evidence, the total of at least $300 million was invested in the system of secondary specialized vocational education and 957 vocational colleges and 99 academic lyceums were constructed by the beginning of 2006/2007.

Last year, on February 16-17, 2012, Tashkent hosted an international conference entitled “Fostering a well educated and intellectually advanced generation - critical prerequisite for sustainable development and modernization of country”. Hundreds of specialists from dozens of countries have taken part in the conference. President Islam Karimov (UzA, 2012) at the Opening Ceremony of International Conference has spoken about the model of reforming educational system in Uzbekistan and experience of its implementation. Islam Karimov (2012) mentions that, about 35% of
Uzbekistan population is children under 16 and 60% are youth under 30, in order the role and significance of this reform to be clear and obvious. As a development of education, especially, higher education institutions, he says that, more than 230 thousand students enrolled at 59 universities and other higher education institutions. Moreover, at the conference Islam Karimov (2012) mentioned about successfully set up of branches of leading educational institutions of Europe and Asia, including Westminster University, Management and Development Institute of Singapore, Turin Polytechnic University, Moscow State University, etc. Furthermore, the President also cites some figures in the education sector: the annual expenditures for development and reforming education in Uzbekistan make 10-12% of GDP, 1.5 times ahead of average salaries of teacher wages during the last 10 years, etc. From his speech, it is clear that, the most attention is paid on education sector in Uzbekistan. The development of the area is not only the quantity of education but also the qualitative education. As a fact, Islam Karimov (2012) said that, Uzbekistan has accomplished wide-ranging works to reorganize the system of training and raising the qualification of teachers and teaching faculty for colleges, lyceums and higher educational institutions of the country. Furthermore, he stated that, last year, National University of Uzbekistan and the Academy of Sciences set up the educational and experimental Center of High Technologies with the leading British institution - Cambridge University. It is aimed at teaching talented students the modern methods of conducting applied innovative scientific research in chemistry, physics, biology, biochemistry, biophysics, geology and geodesy. All things considered, the huge attention is paid on education sector in order to develop the country and through education in Uzbekistan.

Methodology of data collection and overview of the education system in Uzbekistan

As finding the primary data for my research is very complex, the secondary data were collected through internet to conduct the research. The empirical analysis was based on the Republic of Uzbekistan. To measure the quantity of education, schooling enrolment ratio was used while student/teacher ratios helped to proxy the quality of education. The data in the study obtained from the following sources:

- GDP per capita (Y/L): World Development Indicators and Human Development Reports
- Schooling enrolment ratio, government expenditure on education: World Bank indicators
- Student/teacher ratios: UNESCO and World Bank education statistics

In accordance with the Constitution of the Republic of Uzbekistan all citizens of the country are entitled to receive education. The state guarantees everyone a free general education and school education is under the supervision of the state. As a result of the reforms the system of continuous education consists of the following institutions providing educational services (UNDP, 2012):

EDUCATION AND ECONOMIC GROWTH IN UZBEKISTAN

- Pre-school education (for ages 3-7) - by kindergartens, both public and private;
- General secondary education (for ages 7-15) - mainly by state schools;
- Secondary special, vocational education (for ages 16-18) - by state vocational colleges and academic lyceums, providing free services;
- Higher education (after graduation from secondary special vocational education establishment) - by universities and institutes;
- Postgraduate education - at universities, institutes, academies providing education
- Raising the level of professional skills and personal training (during the whole career) - at universities, institutions, specialized institutions for upgrading professional skills, and business schools;

In Uzbekistan, including in all CIS countries, have relatively high index of education and proportionately greater than the indexes of life expectancy and GDP. In world education index with an average of 0.77, Uzbekistan actually ranks with an index of 0.92 amongst the most developed countries such as Malta (0.86), Romania (0.90), Croatia (0.90), as well as the most industrially developed country of Central America - Costa Rica (0.87) and even Hong Kong (0.88).

Correlation between education and economic growth

The Figures 1 and 2 presented in the appendix show the correlation between GDP growth rate and education (more specifically school enrollment ratios in primary and secondary education). Generally, there should be causation works such as higher GDP per capita results in better education which means higher GDP because human capital is an important cause of economic growth. Moreover, the better educated people are the better educated their children will be and so on; this chain of education has long-lasting benefits for economic growth.

**Figure 1. GDP GROWTH RATE VS. PRIMARY SCHOOL ENROLLMENT RATE OF UZBEKISTAN FOR THE PERIOD 1989-2010**

Source: The World Bank, 2012
According to World Bank data, primary school enrollment ratio has been declining in Uzbekistan since 1989. As for the correlation between GDP growth rate and primary school enrollment, it demonstrates negative relationship between them.

**Figure 2. GDP growth rate vs. Secondary school enrollment rate of Uzbekistan for the period 1989-2010**

![Graph showing the relationship between GDP growth rate and secondary school enrollment rate in Uzbekistan](image)

Source: The World Bank, 2012

The same relationship can be observed in between GDP growth rate and Secondary school enrollment ratio in Uzbekistan. There is a negative relationship which means that, although school enrollment ratios have been declining, the GDP growth rate has been increasing year by year.

The same situation can be seen in between GDP growth rate and tertiary school enrollment ratio in Uzbekistan. They are negatively correlated to each other. This phenomenon is different in Uzbekistan compared to other countries. It can be observed that, school enrollment ratios are positively correlated in many countries but not in Uzbekistan. However, it is worthy to mention that, school enrollment ratios are the measures of quantitative education. In African countries, the literacy rates are so low, very few African people go to school, and thus, an increase in the number of people who go to school can have a positive effect on GDP growth rate of their countries. The quantity of education has a large effect on economic growth in African and other less developed countries. However, we are aware that, the literacy rate in Uzbekistan is almost 100%, more clearly, almost every person is enforced to study at school. For Uzbekistan, investment in to the quality of education can be very useful rather than investing in to the quantitative education.

**Choice of variables and functional form**

As the primary objective of the research was to find out the existence of direct relationship between economic growth and education quantity and quality, chosen variables for the estimation are to suit the requirements of the theory.
First of all, it is clear that GDP growth rate is the best to represent economic growth. However, explanatory variables should be selected carefully. During the research many versions of best representative variables of the quantity and quality of education were discussed and compared. One of the theories was to explain economic growth due to education quality via government investment in education sector. But investment in education has no direct effect on education quality - it may enhance teaching tools and facilities, motivate teachers and have many other effects. Therefore, it was needed to find a variable(s) that provide the best explanation for the changes in education quality. For education quality the pupils-to-teacher ratio was chosen, while school enrollment rates were chosen as the best representative of education quantity.

To work with data collected, firstly the need appeared to choose and decide which functional form was appropriate for my data analysis. Firstly, linear, LOG-LIN, LIN-LOG and LOG-LOG models have been tried. Linear model was used to see the relationship between GDP growth and primary, secondary and tertiary enrolment rates. This model assumes that there is direct linear relationship between dependent and independent variables, i.e. absolute change in one or more explanatory variables will cause absolute change in absolute change in regressand.

In LOG-LIN model, the logarithms of GDP growth rate was taken as a dependent variable and school enrollment ratios in primary, secondary and tertiary education were taken as independent variables. This function assumes that absolute change in one or more independent variables will cause relative (percentage) change in dependent variable.

Next, LIN-LOG model has been tried by taking the GDP growth rate as a dependent variable and the logarithms of primary, secondary and tertiary education as independent variables. This functional form assumes that absolute change in regressand is caused by relative (percentage) change in one or more dependent variables.

And finally in LOG-LOG model both dependent and independent variables were taken to logarithms and regressed. This function assumes that relative change in dependent variable(s) will entail relative change in regressand.

To choose between these for functional forms four different regressions were estimated. To choose the proper model, several criteria such as (1) $R^2$, (2) Akaike information criterion (AIC) and (3) Schwarz information criterion (SIC) were used.

We know that $R^2$ is one of the measures of goodness of fit of a regression model and it always lies between 0 and 1. $R^2$ explains how well independent variables fit to a dependant variable. Moreover, when comparing two or more models, the model with the lowest values of AIC and SIC are preferred. It was found out from the results that the independent variables better explains the dependent variable as $R^2$ is the highest in LOG-LIN model. As for AIC and SIC, the lowest values of them are also in LOG-LIN model. It prompted the choice of LOG-LIN model for the analysis.

So, the research uses the following regression model:

$$\log(Y) = \alpha_0 + \beta_1 TR + \beta_2 SC + \beta_3 PR$$  \hspace{1cm} (6)
Where \( Y \) - is GDP growth in %, \( PR \) - rate of primary school enrolment, \( SC \) - rate of secondary school enrolment, \( TR \) - rate of tertiary school enrolment. The regression is run on annual data for 1989-2009 for Uzbekistan obtained from online resources.

However, there is another issue to be considered. As we know education quantity change will have effect on economic growth after many years (if secondary education quantity increases, this will have effect on GDP growth only after the students of secondary schools graduate and start their career). In other words, the quantity of educated workforce puts effort only after this workforce enters the labor market. So, one should be careful with estimating correlation between education quantity and economic growth in current stage.

In order to handle the “time lag” of increased education quantity effect, it was decided to do estimations in two directions: current effect and lagged effect. Current effect will study how change in education quantity of current workforce impacts on economic growth. Population with completed secondary education already can be counted as labor force - thus, enrolment in tertiary schools (HEIs, re-qualification programs, trainings) is expected to have immediate effect on current economic growth of Uzbekistan.

For this reason we estimated current effect with the following model:

\[
\log(Y_t) = \alpha_0 + \beta_1(TR_t) \tag{7}
\]

Where \( Y_t \) - is GDP growth (current), \( TR_t \) - is tertiary school enrolment rate (current). This model tests how the quantity of existing educated workforce is correlated to economic wellbeing of the nation.

Another case is estimating long-term effect of changed education quantity in secondary and primary schooling. Secondary school lasts 5 years and starter grades of secondary school enter workforce only after 5 years - hence, time lag of effect on economic growth is also 5 years. The time lag of primary education effect is even longer - 10 years as first-grade students finish the school after 10 years and join the workforce. If we take into consideration these lags, the estimation of lagged effect of education quantity on economic growth will logically follow the following model:

\[
\log(Y_t) = \alpha_0 + \beta_1(TR_t) + \beta_2(SC_{t-5}) + \beta_3(PR_{t-10}) \tag{8}
\]

Where \( Y_t \) - is GDP growth (current), \( TR_t \) - is tertiary school enrolment rate (current), \( SC_{t-5} \) - is secondary school enrolment rate 5 years earlier the observation period, \( PR_{t-10} \) - is primary school enrolment rate 10 years earlier the observation period. This model tests how the quantity of educated workforce with the education they obtained at secondary and primary schools are correlated to the economic wellbeing of the country.

To take into account the effect of education quality, pupils-to-teacher ratio was added to regression model as an explanatory variable. The slope coefficient of this repressors is expected to explain the relationship between current quality of education and economic growth of Uzbekistan. So, the model is:
$$\log(Y_t) = \alpha_0 + \beta_1(TR_t) + \beta_2(SC_{t-5}) + \beta_3(PR_{t-10}) + \beta_4(P_T) \quad (9)$$

Where $P_T$ - is the pupils-to-teacher ratio, which is the proxy for quality of education. Its slope is the coefficient of relationship between the economic growth and education quality.

This chapter provides all the results of empirical work carried out with data collected. First, it gives estimation results for current effect of education quantity on economic growth and it provides detailed interpretation of possible reasons for the type of relationship revealed between the variables. Then, the estimation results for lagged effect of past primary and secondary education quantity on economic growth is given, followed by corresponding explanations. Finally, the chapter describes and interprets the regression output with inclusion of education quality variable.

First of all, it is worthy to see how the quantity of educated current labor force effects economic growth and to what extent. As we know, educated workers and specialists are the main contributors to the overall output in the economy. Thus, level of education quantity in tertiary schools is expected to have direct effect on economic growth.

The regression results

The estimation returned the following results:

$$\log(Y_t) = 4.2351 - 0.2105 \times TR_t$$

Std. Err. (0.5065) (0.0401)

Both intercept and slope coefficients are statistically significant. The above results suggest that one unit change in number of educated workforce causes nearly 0.2 percent fall in economic growth of Uzbekistan.

It is interesting to observe negative relationship between these two variables. The estimation suggests that increased number of tertiary education enrolment entails fall in GDP growth of Uzbekistan. There may be three different explanations to this situation:

1. Tertiary schools in Uzbekistan are targeted to educate and re-educate existing workers. Organizations send their employees to HEIs to enhance their qualification. This done by freeing them from all work they are actually responsible to do. In most cases, re-educational periods are on a vacation basis. Consequently, when there is more labor force enrolled in tertiary schools, there are fewer actually working employees in the economy. This is the situation when tertiary education is temporarily “steals” labor force from the economy causing in actual output.

2. The more existing employees are trained and re-educated - the more efficient they become. As we know, one high quality specialist can replace many unskilled workers. Thus, increase in tertiary education might have been causing structural unemployment i.e. unemployment due to lack of
skill and experience. Increasing number of highly qualified workforce even more resists the employment of lesser skilled labor. However, there are many spheres that very low skilled employees are needed rather than certified professionals. This argument relaxes the severity of negative impact of increased tertiary education on overall economic wellbeing of the nation.

3. Employees taking tertiary education are motivated by possible higher level of wages because of their higher qualification. Thus, upon completion of tertiary education they require higher salaries. Increased number of highly qualified and expensive workforce puts pressure on employers and drives wage rates up. Organizations may react to these changes by cutting on production in order to minimize costs.

In short, current quantity of education in Uzbekistan is in a negative correlation with economic growth of the country. This is mainly due to balanced time between work and education of existing employees.

Here we provided the estimation results for effect of quantity of education on economic growth in the long-run. It is assumed that quantity of educated children in primary schools in Uzbekistan will serve as economic asset in 10 years after enrolment. Similarly, secondary school students will fill up labor force and make contribution to GDP growth 5 years after their enrolment. These education levels have effect on economic growth with corresponding 5 and 10 year lag.

The estimation returned the following results:

\[
\log(Y_t) = 4.2351 - 0.2105 \times TR_{t} - 0.0144 \times SC_{t-5} - 0.0526 \times PR_{t-10}
\]

\[
\text{Std. Err.} \quad (0.5065) \quad (0.0401) \quad (0.0160) \quad (0.0179)
\]

All coefficients, except the slope coefficient of secondary enrolment rate (SC), are statistically significant. Slope of SC is insignificant. The results suggest that 0.2 percent change in economic growth is explained by unit change in tertiary enrolment rate and about 0.05 percent change - by one unit change in primary education quantity. Negative relationship between tertiary education and economic growth in Uzbekistan is explained in the previous section. The interesting situation is that secondary and primary school enrolment rates also negatively affect the economic growth of Uzbekistan. There may be different reasons for this:

1. Large number of secondary education students will lead to increased popularity of tertiary education. Commonly, people tend to continue their education after secondary school as they value higher education than the secondary or secondary-specialized. As a result, these secondary school obtainers continue to obtain further education instead of entering workforce and contribute to the economic growth.

2. And, what is more appealing, increased number of primary and secondary and the result popularity of tertiary education will cause shortage in labor supply in rural agricultural sectors. People may perceive education as a way to be part of big city and modern civilization and students who obtain higher education are possibly look for “office” jobs. As we know, large share of GDP in Uzbekistan is from agriculture and labor shortage in this sector may cause serious fall in economic growth.
In general, until the economy is service-based rather than production-based - increased number of education (or educated labor force) may have negative impact on economic growth of the country.

Inclusion of education quality

One of the main objectives of the research was to empirically estimate possible impact of education quality on economic growth of Uzbekistan. For that purpose to the model used in lagged effect estimation was added a new variable - pupils-to-teacher ratio as a measurement of education quality. The slope coefficient of the new variable is assumed to represent the effect of quality level of education delivered on outcome economic wellbeing. In the above section we saw that quantity of education can be in an adverse relationship with economic growth due to structural and oriental characteristics of the national economy. And now we examine how actual quality of education influences economic conditions.

The estimation returned the following results:

\[
\log(Y_t) = 4.2351 - 0.2105 \times TR_t - 0.0144 \times SC_{t-5} - 0.0526 \times PR_{t-10} - 0.1490 \times P_t
\]

Std. Err. (0.5065) (0.0401) (0.0160) (0.0179) (0.2023)

Unfortunately, none of the estimated slope coefficients is statistically significant in this case. However, for study purposes it is useful to assess the situation of negative correlation between pupils-to-teacher ratio and economic growth. The estimation suggested that one unit change in pupils-to-teacher ratio brings nearly 0.14 percent change in economic growth in Uzbekistan and the relationship is negative. This supports the theory that education quality has direct effect on economic growth. As we know, the lower is pupils-to-teacher ratio - the better the quality of education is expected to be (as lower pupils-to-teacher ratio indicates that teaching classes are smaller in number of students and one teacher can devote more attention to every of them). Indeed, when the number of students which one teacher is responsible for increases, this puts much pressure on school staff and the quality of education will tend to fall. Workload of every teacher will increase and none will be concerned about the quality of education being delivered. It is worthy to point out the extent of education quality effect on GDP growth of Uzbekistan. Estimation output shows that pupils-to-teacher ratio has very small effect on changes in economic prosperity of Uzbekistan. This may be the result of using generalized data. For the regression overall pupils-to-teachers ratio was taken, being unable to obtain data for separate educational levels. Estimated coefficients would be more representative, if corresponding pupils-to-teacher ratios for primary, secondary and tertiary schools were used in the regression. But in any case, it would not be surprising that education quality is only one of many factors of economic growth.

Conclusion
Uzbekistan is among the top nations in the literacy rate ranking. This indicates that school attendance is very high, which is not surprising if to take into account that in Uzbekistan secondary education is compulsory and schools are under control and provision of government.

Education quantity is being decreasing during the period of study. This is mainly due to structural changes in economy of Uzbekistan. After gaining independence Uzbekistan chose an evolutionary (step by step) strategy of moving from centralized economy to open-market economy. This brought many difficulties for population. Changes of transitional period had their negative impact on the popularity and availability of education. However, the government managed to keep control over education system and prevented degradation of schools and educational institutions. As a result, although the quantity of educated labor force decreased, the quality of education kept at and even was brought above initial level. Assessment of data and comparison of variables pointed out that education quantity is not among important determinants of economic growth. Interesting finding was that quantity of education is negatively related to the economic growth, what indicates the importance of considering the quality of education rather than its quantity.

In the wide scope, research revealed direct relationship between economic growth and education quality and quantity. Although the correlation is weak, number and level of educated workforce is found to have significant influence on economic growth. Especially, education quality is found to be a very critical factor of steady economic expansion in very long-run. The hypothesis of direct relationship between education quantity and economic growth is accepted from the estimation results. The relationship is found to be negative and not very strong. This suggests that targeting to increase the number of educated workforce may be inefficient way of supporting economic growth or even cause fall in actual output.

The hypothesis of direct correlation between education quality and economic growth is also accepted as estimation showed weak positive relationship between these two variables. This indicates the importance of the quality of education for economic growth. Efforts are to be made to improve the quality of education by supporting research and development, experience exchange and modernization in educational institutions. The research provided reliable study of education as a qualitative and quantitative factor of economic growth. We can conclude that research question was answered and all research objectives were achieved. From the academic point of view, the research was a good chance to put all knowledge and experience obtained during the economics course into a real life practice.
References


