THE EFFECT OF HIGHER EDUCATION RETURNS ON ECONOMIC GROWTH IN LIBYA

Ali Mahmoud Ali Alsanousi [1]
Ali Salih Omar Mohamed [2]

[1] Management & Science University
[2] Department of Economics, Accounting and Finance

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Abstract: The development in higher education sector in developed and developing countries is reflected on the economy of these countries. Today, universities pay high attention to increase revenues from recruit more students and develop their education system. The purpose of this paper is to investigate the effect of higher education returns on economic growth in Libya. To measure the strength of correlation between the return from higher education and economic growth in Libya, the study conducted a quantitative survey and statistical analysis based on simple linear regression. The findings from this approach determine of association between higher education quality and economic growth. Higher education contributes to the economic development by enabling those who receives it to contribute to the national development. The results show that Economic Growth is 32.70% predicted by Higher Education Returns. The results of this study highlight of higher education return to Libyan government so that the government increase the spending on higher education in order to develop the level of low income from Libyan universities, which should be reflected positively on the economic growth in Libya. Previous studies in consumer animosity did not investigate the effect of higher education return on economic growth. This study shows that higher education exposes students to what is most needed in the society from their own personal experiences leads to effective and appropriate economic development.

Keywords: *Higher Education Return, Economic Growth, Education Revenue*

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Introduction

Higher education plays a leadership role in education and contributes significantly in the development of societies (Muhammed et al., 2008). Universities, for centuries, had a crucial role in educating the potential professionals, businessmen, political leaders, religious and social scholars, who serve the society, to enrich its values and develop its resources requirements (Crosby, 2004). The return from higher education contributes in developing the economy of many countries in the world (Juran, 2004).

With the rapidly growing economic competitiveness globally, various economic strategies and plans have been delivered widely through higher education in an effort to meet the growing demand for economic growth (Tanwar, 2012). Despite the enormous interest in the relationship between education and growth, the evidences from many empirical studies shows a significant relationship between economic growth and higher education return. For example, a study conducted by Bils and Klenow (2000) in United States showed that States that are richer, faster growing, or have better educational institutions probably find it easier to increase their education spending and develop their economy. However, there is a distinct possibility that correlations between investments in education sector and economic growth are due to reverse causality between them, indeed many studies show a positive correlation (Jose, 2004; Hoxby, 2008).

There is many correlational evidence suggesting that education and economic growth are related, but the evidence points in a variety of directions. For instance, if one favours the education-innovation link, then one might compare Europe and the U.S. in recent years, when Europe has grown more slowly. Sapir (2003) and Camdessus (2004) argue that the slower growth may have been caused by the European Union's relatively investment of 1.1 percent of its gross domestic product in higher education, compared to 3 percent in the U.S., which resulted a higher economic growth in U.S. Another study conducted by Scherer and Hue (1992), who used data on 221 enterprises from 1970 to 1985 showed that enterprises whose executives have a high level of technical education spend more money on research and development that lead to innovations and increased the growth of economy. Aghion et al. (2009) find support for the hypothesis that some investments in education raise growth. For the U.S., where all states are fairly close to the world's technological frontier, we find positive growth effects of exogenous shocks to investments in four-year college education, for all states.

The Problem Statement

Libya citizens are being encouraged to enrol in higher education by providing free education at all levels of learning in an attempt to further improve the economy although there is limited information to justify the growing trend of the Libya economy over the years through higher education (Libya history and educational background, 2013).

Despite all government efforts in Libya, the current higher education return is not satisfactory. Therefore, the problem that will be discussed in this study lies in the lack of economic growth in Libya due to the inability of educational institutes in Libya to raise the level of income from higher education, which is reflected negatively on economic growth in the country.

The Purpose of this study

The aim of this study is to provide a clear understanding of the factors that constrained economic growth in Libya higher education would provide social and cultural capital needed to transform human values, political visions, and the societal rules of the game in the present times Libyan government is undergoing transformation into digitized economy.

The study will examine the causal effect of higher education return on economic growth in Libya. The study attempts to understand how increasing the returns from higher education will contribute positively on increasing the economic growth, and what is the degree of association between these two variables.

Scope of The Study

The scope of the study focuses on the subject of economic growth and higher education. The study confined to higher educations located in Libya. Quantitative data is used to answer the research questions and to meet the research objectives. The place of this study is decided in Tripoli University.

Methodology

To measure the strength of correlation between the return from higher education and economic growth in Libya, the study conducted a quantitative survey and statistical analysis based on simple linear regression. The findings from this approach determine the degree of degree of association between higher education quality and economic growth, This study is based on the theory of innovation systems with emphasis on economic growth through higher education. The theory will be used to explain the factors that influence economic growth through higher education based on the research proposed framework. Theory of innovation systems considers innovation to be at the core of a system. A system is formed of linkages or collaborations among various institutions such as academia, government, private sectors and markets with innovation at the center of all the activities among these partnerships. The interactions between the higher education lead to a new learning process and new knowledge. This could result in increased technological capability and economic growth. Innovation systems literature perceives the innovation process to be evolutionary and social (Edquist 2004). However, it is apparent that the invention possibilities, for industries particularly in the economic sector changes with respect to the exogenous forces to the sector.

Innovation is one of the important components of university-industry collaboration. Regions have depended on new innovative ideas for economic development. The regional innovation capabilities influence productivity and consequently human capital growth (Kirchhoff, et. al 2002). Innovation in higher education increases productivity which leads to higher per capita growth (Romer 1990). Feldman and Florida (1994) describe innovation as the culmination of capitalist firms, entrepreneurs and organizations to harness inputs of innovation which are profitable for economic growth (374). Numerous studies have shown that relationship existed between innovation and economic growth at various levels (Feldman & Florida 1994, Kirchhoff, et. al 2002, Varga 2000, Jaffe 1989).

Economic Growth in Libya

Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP (Dale *et al*., 2014)

Libya is included in the Middle East and North Africa (MENA) countries (Mina, 2012). Libya is one of middle income countries which oil and natural gas contributing to its economic growth (Hanouz *et al*., 2007; Shaaeldin and Saidi-Hammami, 2009; Mina, 2012). According to The Global Competitiveness Report, Libya per capita GDP share of world GDP is 0.11% and 0.13% in 2006 and 2009 respectively. Thus, there has been an increment in GDP after this period (Schwab, 2011).

Economically, in 2010 to 2011, it was found that Libya has been placed in rank of 37th on higher education enrolment rate. Other important economic variables such as a global competitive index, macroeconomic environment, unemployment, were ranked at 100th and 7th (Schwab, 2011).

Higher education serves as a part of investment in human capital development. Libya Herald Press, (2012) reported that Libya's Deputy Prime Minister, Mustafa Abushagur mentioned that Libyan teenagers serve as a Libya future generation. They play a vital role in Libya human capital growth by utilizing their capabilities and knowledge through education. According to World Wise, (2011), there are many challenges pertaining the development and return from higher education in Libya. However, the higher education in Libya has potential to strengthen to contribute to the economic growth through what is called a knowledge economy. It has been noted that knowledge economy can be achieved by providing human capital with well-equipped and qualified lecturers in Libyan universities.

Higher Education in Libya

Education reform is a key philosophy of higher education in Africa including Libya (Mama, 2003). Education plays an important role in economic growth and in human development and became the main component to improve living standards, reduce poverty and reduce wage disparity in Libya (Libya history and educational background, 2013). The Ministry of Education in Libya has taken numerous steps to improve higher education by implementing research innovation and the introduction of knowledge ICT-based learning (The National Report of the Great Libyan Jamahiriya, 2008).

National Tempus Office Libya, (2011) revealed the structure of Libya's higher education. There are three categories of higher education institutions; universities, technical colleges and higher vocational institutions. It was documented that public higher institutions are fully funded by Libya's "General Peoples' Committee for Education & Scientific Research." Therefore, student fees at public institutions are very small.

In 2011, the higher education enrollment rate was estimated at 57 % for female and 90 % for male (340 thousand in populations) in Libyan public universities (National Tempus Office Libya, 2011). At present, a total number of 10 universities which consists of 7 general universities and 3 special nature universities in Libya region. Besides, 4 private universities are formed to boost and support higher education in Libya (Libya history and educational background, 2013).

Although Libya has an outstanding macroeconomics, the standard of education is still very low. The problem with Libya's economy is mostly unskilled labor force which leads to high unemployment rate (Hanouz et al., 2007). Libya is gifted with talented individuals but due to low level of education, limited unskilled labor opportunities and inadequate research innovation, high number of educated graduates are unemployed.

European Training Foundation, (2012) stated that the unemployment rate in Libya is approximately 30 %. Factors responsible for the higher unemployment rates in Libya were attributed to graduates with limited working skills to meet with innovativeness in the industrial sector, traditional curriculum in education and limited qualified lecturers.

Higher education serves as a part of investment in human capital development. Libya Herald Press, (2012) reported that Libya's Deputy Prime Minister, Mustafa Abushagur mentioned that Libyan teenagers serve as a Libya future generation. They play a vital role in Libya human capital growth by utilizing their capabilities and knowledge through education. According to World Wise, (2011), the article documented that higher education role to help Libya pull through from civil war. The article highlighted that civil war damaged the positive influence on economic growth through education. It has been estimated more than 100 students from Garyounis University alone were killed during the war. In fact, the challenge pertaining to higher education in Libya seems the students especially male students were more likely to involve in revolution troop. However, Libya higher education has potential to strengthen the economic growth through knowledge economy. It has been noted that knowledge economy can be achieved by providing human capital with well-equipped and qualified lecturers.

According to Bukhres and Singh-Molares in Hanouz et al., (2007), Libya is improving its higher education sector by providing appropriate courses in order to fulfill the need of labor markets. Besides, the program such as the elite academy has been designed to enhance the performance of Libya's higher education.

Higher Education Return

The context of academic education prepares student for high-skill, high-wage, and high-demand occupations. Promoting the development of services and activities integrating challenging academic standard in university education at all levels prepares students with an employability skills and knowledge. Additionally, modern economies are more driven by flexible on knowledge based-skills demanding that employees are flexible with new skills and practices (Conlon, 2000). However, transferable skills are taught in the schools and in universities based on the context of one's career (Grubb & Lazerson, 2005a). It then implies that the transfer of skills from higher education to industrial provides opportunity to enhance economic growth of Libya. Such relationship is vital and is to be strengthened to accommodate research activities and learning at higher education level in Libya where most learning infrastructure at present day facilitate online activities.

Returns to education can be related to economic growth (Siphambe, 2000). Numerous studies have shown that relationship existed between returns to education and economic growth (Güriş and Çağlayan, 2012). Most of these studies found that returns to education on the labor market are substantial and significant.

In contrast, other studies have reported decline in returns to higher education. Among theses studies includes Qiu and Hudson (2010) in China, Funkhouser (1998) in Costa Rica, Mohapatra and Luckert (2011) in India, Oyelere (2010) in Nigeria and Hawley (2004) in Thailand. A study by Psacharopoulos, (1981) highlighted that the return rates to higher education in both developed and developing countries is distinct in world wide. It was found that returns to higher education are higher in the private than public sectors but declines with the level of academic qualification. However, the returns to higher education are lower in the developing countries than the developed countries.

A study by Oyelere, (2010) reported the returns to higher education in Nigeria and found that it was inconsistent between 1997 and 1999. In other words, declined in returns to higher education may reduce investment in higher education which could result in a negative impacts

towards the economic development. This mal result to decline in enrollment in higher education. The study evaluated the returns to higher education in the rural and urban sector.

In India, Mohapatra and Luckert (2011) analyzed the relationship between returns to education based on gender and found that male laborers received Rs. 40 extra on average daily wage than female laborers. Male and female laborers returns for primary education were 25% as compared to 15%, secondary education was 39% as compared to 31%) and higher education was 30% as compared to 22%. In respect to uncertainty returns to higher education, females received more uncertainty returns than males; for secondary education was 41% as compared to 25%, higher education was 33% as compared to 42%. The findings showed that there was a higher enrollment rate at various educational levels among males than females.

Study in business schools by Anchor et al., (2011) revealed that in Prague, Pardubice, and Liberec, Czech Republic and Huddersfield in England, returns to higher education are higher among England graduates than Czech graduates for male (18.13% and 14.83% respectively) and female (18.91% and 12.85% respectively). Returns to education for Czech vary depending on location. Returns to higher education for Huddersfield declined from 17.12% to 13.15% and to 9.95% in 2004/2005 to 2005/2006 and to 2006/2007 respectively for male graduates and from 20.53% to 16.13% to 15.21% in 2004/2005 to 2005/2006 to 2006/2007 for female graduates respectively. Surprisingly, from 2007/2008 to 2008/2009, returns to higher education increased from 13.18% to 17.96% for male graduates and from 13.11% to 16.53% of female graduates. This was attributed to the increase in student fees.

In the United States, El-Araby and Ragan Jr., (2010) using data on Arab immigrants with different education levels obtained from 13 Arab countries.Returnstoeducation for less than 12 years schooling and more than 12 years schooling were determined. Findings showed that returns to education were higher for 12 years of schooling than education with less than 12 years of schooling.

Economic reforms have shown less worthy beneficial changes in Thailand. Hawley, (2004) described the changes in the returns to education based on recession and peak economy. Changes in higher education system include comprehensive education by incorporating training and increasing the years of education in order to boost the rate of returns. It was noted that the returns to education was influenced by gender, rural or urban areas and demand in the labor force. There is an increment in the mean years of higher education between 1985 and1998 for males (8.5 to 9.66) and females (9.1 to 10.45). The findings depicted that returns to education was lesser in the rural areas than witnessed in the urban area. In addition, the labor force increased between 1960 and 1990 at 17.6% to 33.5% respectively.

In Italy, Dalmazzo and de Blasio, (2007) estimated social returns and private returns to higher education at 2 to 3% and 6 to 7%. The private returns to higher education were higher than public returns to investment and could be due to the larger firms' size and wage premium offered.

In a study by Chuang and Chao, (2000), it was found that there is a significant association between the rate of return to higher education and educational levels in Taiwan. The findings showed that higher education contributed to higher rate returns in human capital growth.

Higher Education Return in Libya

The education system has in Libya has evolved into a viable and vibrant component of the overall economic system in providing a clear strategic focus to the development and diversification of Libya economy by providing quality graduate who is competent with information and communication (ICT) infrastructure such as computer (Libya history and educational background, 2013).

The Libyan government has made a concerted effort since independence in education at all levels by providing free education and school facilities. Notably, there have been increases in enrolment (UN Department of Public Information, 2007).

Libya has invested a great amount in access to education, as demonstrated by high literacy and employment rates, but it has been less successful in improving the quality of education. The training of educators has been limited and in general the system focuses on memorising facts rather than building problem-solving skills (African Economic Outlook, 2015).

It is found that knowledge acquired through higher education contribute immensely to the economic growth of a nation in that it helps in reducing illiteracy level (Brasington et al., 2010; Teal, 2011), provides a swift to knowledge-based economy (Yamarik, 2011) and improves labour productivity (Fleisher *et al.*, 2012). Improving the economy in this way increases human capital growth (Yousif *et al.*, 1996) through the transfer of technology (Mattoon, 2006).

It is found that Libya is improving its higher education sector by providing appropriate courses in order to fulfil the need of labour markets. Besides, the program such as the elite academy has been designed to enhance the performance of Libya's higher education, but all these efforts are still in early stages and need for major development (Bukhres *et al.*, 2007).

The relationship between Higher Education Return and Economic Growth

Previous studies have argued that economic growth can be easily fostered through higher education (Chuang and Chao, 2000; Cai and Yu, 2011; Zhong, 2011; Azam, 2012). Most studies on the economic growth through higher education studies emphasized on the influence to return to education (El-Araby Aly and Ragan Jr, 2010; Qiu and Hudson, 2010).

Anaman (2004) suggested that there is a need to improve higher education in order to improve human capital growth.In Japan, Sugimoto and Nakagawa, (2010) noted that changing in an economic environment by using modern facilities has led to high demand in higher education. They explained that the declining childbirth rate was caused by the high dependency of ICT infrastructure and could cause negative impacts to economic development in Japan especially on the number of workforce.

A more recent study by Wang, (2012) showed that the rate of college enrollments is increased from 16.7% to 20% in 1995 and 2002 respectively. Overall, there is increment in the rate of enrollments for both female (from 11.1% to 14.5% in 1995 and 2002) and males (from 21.7% to 25% in 1995 and 2002). However, the study found that huge inequity between human capital growths and the returns to higher education. This could be due to premium associated with the levels of competence in the use of ICT infrastructures.

Khan and Naru, (2006) reported that education reforms in Pakistan are very low at about2.6% of GDP growth when compared to other countries such as Korea (3.3% of GDP growth), India (3.7% of GDP growth), Malaysia (5.1% of GDP growth) and Thailand (3.5% of GDP growth).

In contrast, a study by Jamison et al., (2007) pointed out that higher education has no influence on economic growth and per capita income. However, the study found that technological progress showed positive outcomes in the economy grows.

Akyola and Athreya, (2005) stressed out that the higher investments and over subsidized higher education by government may impede economic growth. Factors such as students drop-out, escape from class and unable to complete their education may the number of unemployment which has a negative economic effect.

Analysis and Discussion

The test of the following hypothesis is made using Simple Linear Regression, ANOVA, and finally checking Residual Plots for Regression Analysis:

H1: There is a statistical relationship between the Return to Higher Education and Economic Growth.

H0 (Null Hypothesis): There is no statistical relationship between Return to Higher Education and Economic Growth.

In the following analysis the study examines a simple linear regression model (see below) for testing the relationship between Return to Higher Education and Economic Growth (H1) and examining the null hypothesis (H0).
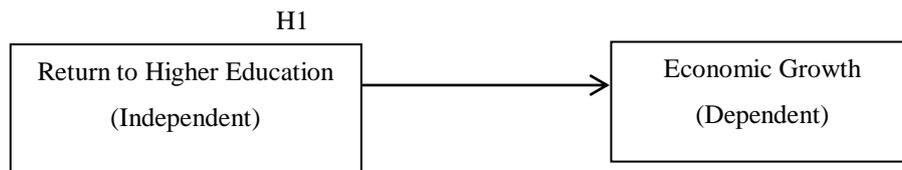
H1

| Return to Higher Education (Independent) | → | Economic Growth (Dependent) |

Figure 1: The regression model between Return on higher education and Economic growth

The Model Summary of Simple Linear Regression

The model summary provides the simple correlation coefficient (R) and coefficient of determination (R2) for the regression model. A correlation coefficient of R= .571 shows a strong positive relationship between Return to Higher Education and Economic Growth.

Table I Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.571ᵃ	.327	.324	.55458
a. Predictors: (Constan)				
b. Dependent Variable: Economic Growth				

The above table provides the R and R2 values. Reading the value of R2 = 0.327 shows that

(32.70%) of the change in Economic Growth can be explained by the change in Return to Higher Education.

The ANOVA Output

The ANOVA table indicates the degree of fitness in the regression equation to fits the collected data.

Table II: ANOVA output

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.759	1	48.759	158.533	.000b
	Residual	100.573	327	.308		
	Total	149.332	328			

This table indicates that the regression model predicts the dependent variable significantly and good degree of association. Reading the F-value > 1, and $p < 0.05$, which is less than 0.05, then the regression model is statistically significantly predicts the outcome variable.

The result shown in ANOVA table indicates a strong correlation between Return to Higher Education and Economic Growth. Since we have a large F ratio then the null hypothesis is found incorrect. Therefore, the study rejects the null-hypothesis (H0) and accept the alternative hypothesis (H1).

The Coefficients

The Coefficients table provides the needed information for the researcher to predict well Economic Growth from Return to Higher Education Return, reading B and beta coefficient will show whether Return to Higher Education contributes to the model (by checking the "Sig." of this correlation).

Table III: Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.906	.113		8.047	.000
	X1_Return_HE	.641	.051	.571	12.591	.000
a. Dependent Variable: Y_economicGrowth						

Based on the result shown in coefficient table, it is found that (B= 0.641 and significant, Sig. = 0.000), Therefore, Economic Growth is highly predicted by the change in Return to Higher Education There is a causal relationship between them.

Summary of Hypothesis test

The following table indicates the summary of results from simple regression outputs between Return to Higher Education and Economic Growth:

Table IV: Regression Summary

Output	Value	Sig. level ($\rho < 0.05$)
R	.571	.000
R^2	.327 (32.70%)	
F	158.533	.000
B	.641	.000
* Correlation between Return to Higher Education and Economic Growth is positive and linear		

The data in the table above shows there is a statistical relationship between the Return to Higher Education and Economic Growth in Libya.

Conclusion

The results of the study show that higher education contributes to the economic development by enabling those who receives it to contribute to the national development. This is because education exposes students to what is most needed in the society from their own personal experiences leads to effective and appropriate economic development. Despite all government efforts in Libya to improve higher education quality, there are difficulties in improving higher education revenues which is found not satisfactory in recent decades. The results show that Economic Growth is 32.70% predicted by Higher Education Return. According to the findings of this study, it is recommended that the Libyan government to pay high attention to increasing the spending on higher education in order to develop the level of low income from Libyan universities, which should be reflected positively on the economic growth in Libya.

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