

EXAMINATION OF EDUCATION RETURNS WITHIN THE CONTEXT OF SECONDARY AND HIGHER EDUCATION LEVELS

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Abstract: Education exhibits the characteristics of a mixed product and provides social and private returns. The main purpose of this study is to analyze the private and social returns of education at the secondary and higher education levels between 2010 and 2014, giving also an outlook based on gender and country. This study is a document research. The data have been taken from the OECD Education at a Glance issued between 2010 and 2014. It is observed that private rates of return at higher education level are higher than the secondary education level except for the male context in 2014. The private rates of return at secondary education level in Turkey are lower than OECD averages both in 2010 and 2014. The social rates of return increased at higher education level in 2014 compared to 2010 based on both genders. Considering both education levels, while social rates of return tend to decrease in secondary education, they tend to increase in higher education. The social rates of return in Turkey are lower than OECD averages based on both gender and period dimensions. Considering private and social rates of return, it can be observed that private rates of return are higher than social rates of return based on both education levels and other variables. Various qualitative and quantitative studies have been suggested for private and social returns based on different years and education levels.

Keywords: education, economy, private returns, social returns, secondary education, higher education

INTRODUCTION

The relationship between education and economy can be approached in various contexts. First of all, education and economy interact mutually

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as social institutions. This principal relationship, undoubtedly, results in certain processes and outcomes. As a matter of fact, education exhibits the characteristics of a mixed product regarding its production, consumption and distribution. Another feature of education is the fact that it avails both individual and society economically and socially (Gölpek 2015).

The economic qualities of education need to be known in order for its economic and social benefits for both individual and society to be understood better. Economically, education shows the characteristics of private, public, semipublic and moral goods and externality. Furthermore, economy functions as an infrastructure institution while education functions as a superstructure institution. The qualities stated here are the qualities which describe education economically. These principle qualities are related to what the function of education is and what kind of a role it has in social structure. Apart from these qualities, education has the qualities which are about economic development and the gains of individual and society. In fact, education is both consumer and investment good (Aslan 2011).

RETURNS OF EDUCATION

Education, by a classical classification, provides individual and society with various financial and nonfinancial returns. In this context, private and social return values are emphasized in order to determine what kind of returns and how much individuals and society obtain. Private returns, in a sense, are the individual-based gainings which education redounds due to its quality of being a private good. Social returns are the gainings which are related to social groups or structure due to the education's quality of being a social good (Akça 2011; İlyas 2012).

Studying the returns of education in Turkey Karadeniz, Köse and Durusoy (2007) group social returns as the following based on their results: Increase in social peace, increase in labor force participation rate, increase in income and maintenance of a healthy society. Decrease in crime and divorce rates, increase in life satisfaction come to the forefront within the context of increase in social peace. Labor force participation leads to decrease in unemployment rates. Increase in income results in decrease in poverty, social insecurity child labor. Within the context of healthy society, such returns as increase in fertility rate and decrease in mother and infant mortality rates, prevention of malnourishment of infants become prominent.

The approaches which deal with the relationship between education and returns have the view that generally a positive correlation exists between the two. According to the Human Capital theory, education affects the returns owing to the fact that it also affects efficiency. Moreover, the view that a positive correlation exists between returns and the time spent for education or education level or receiving training specific to a profession and which is demanded by Fordist production (Kurul Tural 2002).

The returns of education are expressed in a four cell matrix by Psacharopoulos (2009) classifying them into market and nonmarket; private and social returns. Private returns based on market are employability, high income, low unemployment, flexibility and higher mobility in labor market. Nonmarket private returns are consumer efficiency, better individual and familial health, and better child raising. Social returns based on market are higher efficiency, higher net tax revenue and less dependency on state goods. Nonmarket social returns are decrease in crime and fertility rates, prevention of infectious diseases, social adaptation and codetermination.

PRIVATE RETURNS

Private returns are the benefits which the individual obtains who receives education and are not directly reflected on society. Individual's acquisition of knowledge, skill and attitude, attainment of job and profession, increase in individual income, regular utilization of labor force market and gaining a social status are some examples of private returns. Wage is the pecuniary benefit which an educated individual obtain directly. In a sense, education provides individual with other benefits due to its externality quality. These can be summarized as continuation to education, protection from technological unemployment, being qualified, social status, self-realization, benefiting civil rights, efficiency in consumption and production process and economization (Özgü 1993).

Some of the private returns carry social and psychological value while others carry economic values. Some of the benefits which are obtained provide individual with the future employment opportunity and higher income by improving his productivity and money earning capacity. This benefits which are expressed financially are compared to private costs and defined as the individual private rate of returnⁱ (Psacharopoulos 2008; Baum and Payea 2014).

SOCIAL RETURNS

Social returns are the benefits which an individual cannot appropriate and reflect on the other members of society. These benefits are the increase in tax revenues and contribution to national income thanks to the fact that educated individuals increase their productivity. Social returns are measured via social rate of return and considered to be a criterion for the decisions of a society on resource allocation. Accordingly, social rate of return evaluates the relationship between the social costs of education which must be borne by society as a whole and the benefits which it is estimated to provide.ⁱⁱ

In a sense, social returns are gainings for the society. It is a social benefit that the state levies a higher rate of tax on the individual whose income increases thanks to education and it can collect income tax which increases due to the investment in education without the need of any additional costs and legal regulation (Gölpek 2012). Social benefits are measured by social rates of return. Social returns are considered to be a criterion for the decisions of a society on resource allocation. Thus, it becomes possible to ensure efficient utilization of scarce resources by estimating the social returns of education expenditures. Accordingly, social rate of return estimates the relationship between the social costs of education which must be borne by society as a whole and the benefits which it is estimated to provide (Baum and Ma 2007).

Education-employment and education-income relationships are important indicators in the studies conducted in order to examine the relationship between education and return. A consensus exists in literature on the fact that a positive correlation between education and return regardless of the developmental level of countries and higher returns is the case particularly for the higher education. Graduates can find high wage jobs easily in many countries which suffer the lack of educated labor force. These wages may vary depending on the higher education programmes and the subjects in which one has majored (Psacharopoulos, 2009).

PURPOSE

Main purpose of this study is to analysis the private and social returns of education at the secondary and higher education levels between 2010 and 2014. The answers of the following questions have been sought based on this purpose.

SUBGOALS

1) What is the general outlook of the private returns of education at the secondary and higher education levels between 2010 and 2014 based on gender and country? What is the case for Turkey compared to the OECD countries within this context?

2) What is the general outlook of the social returns of education at the secondary and higher education levels between 2010 and 2014 based on gender and country? What is the case for Turkey compared to the OECD countries within this context?

3) What is the developmental tendency of private and social returns of education between 2010 and 2014?

METHOD

This study is a document research which is one of the analytic research methods (McMillan and Wergin 2006). The document research is a research type in which concepts, events and views are examined by analyzing documents and records (Ersoy 2009). Examination of a document includes reaching it, originality, understanding, analysis and utilization steps (Yıldırım and Şimşek 2013). With this respect, the data utilized in the study have been taken from the OECD Education at a Glance issued between 2010 and 2014 (reaching documents). The documents are original in that they are based on OECD reports. The data of primary sources are utilized in the study. These resources include the education surveys of OECD in 2010 and 2014. Cost and benefit analysis of the countries at secondary and higher education levels are undertaken for the data analysis. Private and social rates of return are calculated for each of the education levels by using internal rate of return method which is one of the cost-benefit analysis techniques. The data obtained through these estimations are assessed. Based on the main purpose and subgoals of the study, private and social rates of return of twelve countries for the period between 2010 and 2014 are assessed based on the OECD data. In other words, the data which is subject to the analysis and the study, in terms of data, are limited to OECD data of 2010 and 2014.

This cost-benefit analysis which is adopted in the literature is utilized for the data analysis. Thus, it is aimed to measure the cost and benefits of the education expenditures and assess them for all individuals and society. Three decision making technique in this assessment. These are (1) net present value technique (NPV), (2)

internal rate of return technique (IRT) and (3) cost-benefit technique (C/B) (Akalm, 2004, 65).

Net present value technique (NPV) takes time value of money into consideration and converts the flow of the net benefits in time into present value terms. This technique deals with the present value of costs and benefits which are created by investments. Annual costs (ct) are expressed by the value equation which includes year (n) and discount rate (1+i) as the following (Tokatlıoğlu 2005, 77):

$$\sum_{t=0}^n b_t / (1+i)^t - \sum_{t=0}^n c_t / (1+i)^t = NHD$$

Internal rate of return technique (IRT) is based on the determination of discount rate (r) which equates the present value of benefit flow to the present value of costs. According to this, internal rate of return (r) is expressed as the following (Işık et. al, 2005, 342)

$$\sum_{t=0}^n b_t / (1+i)^t - \sum_{t=0}^n c_t / (1+i)^t = r$$

Cost-benefit rate is the proportion of the present value of the benefit to the present cost value of investment. This technique enables to choose the projects having the highest cost-benefit rate and includes the rule of refusal of the projects with the rate below one. The equation includes the years in which the analysis spans (n), total benefits (bt), total costs (ct), the year in which the analysis is performed (t), discount rate (i) and expressed as the following (Ünsal 2009, 4).

$$B_t / C_t = \frac{\sum_{t=0}^n b_t / (1+i)^t}{\sum_{t=0}^n c_t / (1+i)^t}$$

In NPV technique, costs and benefits are reduced to present values over a certain discount rate and expressed in numbers. Internal rates of return are expressed in percentages. The decision bodies often do not find the solutions of net present value which is expressed in absolute numbers meaningful and consider them in percentage. This is because, numbers expressed in percentages allow easy consideration and sensitivity analysis (Yıldız 2010, 5).

The benefit in the analysis includes the gainings obtained by individual. The gainings obtained by individual consists of the

difference between net lifelong gainings which individual would obtain as a high school graduate and a university graduate. The cost of a university graduate includes the direct cost and the earnings which the individual waives due to the fact that he prefers university education to working and the expenses which he bears during his education. The time period spans the age at which the individual starts working and he retires (Bulutoğlu 1988, 346).

FINDINGS AND INTERPRETATION

General outlook of the private returns of education at the secondary and higher education levels between 2010 and 2014 based on gender and country is presented in Table 1.

Table 1: Private Rates of Return Based on Education Levels in Some Countries
(%, 2010-2014 Years)

	Secondary Education				Higher Education			
	2010		2014		2010		2014	
	Male	Female	Male	Female	Male	Female	Male	Female
German	7,8	6,5	7,5	6,4	9	6,5	13,4	8,5
Australia	14,4	11,5	19,9	12,7	9,1	11,3	9	8,9
Denmark	5,8	3,4	11,7	9,1	4,4	4	8,4	8,5
Netherlands	4,4	4,8	5,7	5,1	6,6	5,6	7,2	7
Britain	13,4	10,5	18,2	6,7	11,2	8,5	14,3	12,3
Spain	11,7	14,6	35,3	16,5	9,3	11,6	11,2	14,5
Sweden	14,3	10,2	16,5	11,5	6,1	5,3	7,4	7,1
Italy	7,2	8,5	8,1	8,4	11,5	6,6	8,1	6,9
Canada	12,	9,2	13,3	7,1	9,6	8,8	10,2	6,5
Korea	11,1	0,9	13,1	11,3	9,4	12,9	12,8	11
Portuguese	11,6	12	12	11,3	18,4	18,4	18,3	22
Turkey	9,4	8,9	9,5	9,2	19,1	19,1	19,3	19,2
OECD	10,6	9,3	15,8	12,5	11,5	10,7	13,9	13,2
Mean								

Reference: OECD (2010). Education at a Glance: Compiled from Table A8, OECD (2014) Education at a Glance.

Private rate of return is about 11% and 9% for males and females, respectively based on OECD mean at secondary education in 2010. However, these rates are approximately 16% and 13% for males and females respectively, in 2014 (Table 1). Accordingly, it is observed that private rates of return increased in 2014 compared to 2010 both for males and females.

At higher education level, on the other hand, private rate of return is about 12% and 11% for males and females, respectively, in 2010; and 14 % and 13% for males and females, respectively, in 2014 (Table 1). Thus, it can be suggested that private rates of return increased in 2014 compared to 2010 for females.

Considering the secondary and higher education levels comparatively within the context of private rates of return, it is observed that private rates of return at higher education is higher for both genders except for the males in 2014 compared to secondary education (Table 1). Therefore it can be concluded that private rates of return at higher education are higher compared to secondary education. In a sense, it can be suggested that higher education graduates obtain higher earnings compared to secondary education graduates.

The private rates of return of education in Turkey and OECD countries between 2010 and 2014 based on gender and education levels are presented in Table 2.

Table 2: The Private Rates Of Return Of Education In Turkey And OECD (% , 2010-2014 Years)

	Secondary Education				Higher Education			
	2010		2014		2010		2014	
	Male	Female	Male	Female	Male	Female	Male	Female
Turkey	9,4	8,9	9,5	9,2	19,1	19,1	19,3	19,2
OECD	10,6	9,3	15,8	12,5	11,5	10,7	13,9	13,2
Mean								

Reference: OECD (2010). Education at a Glance: Table A8 and OECD (2014).
Compiled from Table A7, OECD (2014) Education at a Glance.

Considering the private rate of returns, OECD mean and Turkey’s figures altogether, it is observed that the private rates of return in Turkey at secondary education level are lower than OECD means both in 2010 and 2014 (Table 2). On the other hand, it is seen that the private rates of return in Turkey at higher education level are higher than OECD means. This indicates that majority of the expenses at higher education are funded by public and more resources are allocated to higher education compared to the other education level. As a matter of fact, it can be observed that the resources which are allocated to higher education are twice as much as the resources allocated to secondary education. Additionally, it can be suggested that private returns of higher education graduates increase owing to such

opportunities as better job and higher wage possibilities. This supports the arguments of human capital theories and Gümüş and Şişman's view (2012) that as the educational level of an individual increases, his private returns increase, as well.

Social rates of return in some countries in 2010 and 2014 based on gender and education level are presented in Table 3.

Table 3: Social Rates of Return in Some Countries in 2010 and 2014 Based On Gender and Education Level in Some Countries
(%, 2010-2014 Years)

	Secondary Education				Higher Education			
	2010		2014		2010		2014	
	Male	Female	Male	Female	Male	Female	Male	Female
German	13,4	8,8	6,8	13,7	11,8	8,4	11,9	6,9
Australia	8,6	17,2	17,1	18,4	12,4	12,5	12,9	13,5
Denmark	18,2	16,3	7,6	4,8	7,3	4,5	3,8	0,4
Netherlands	8,1	11,6	9,8	14,6	7,5	6,3	7,2	6,5
Britain	13,6	22,2	27,1	19,3	10,4	10,1	26,1	36,4
Spain	5,8	5	6,1	5,2	6,2	6,6	5,6	7,5
Sweden	13	11,5	14,3	13,6	5,7	2,3	5,2	2,8
Italy	5,7	4,8	6	5,2	10,8	8,3	10,1	8
Canada	7,8	6,9	6,4	2,3	7,8	6,5	8,9	9,5
Korea	1,1	-1,3	2,8	-1	9,5	9,2	12,3	8
Portuguese	7,7	5,9	4,7	2,3	18,3	17,8	16,1	14,9
Turkey	6,3	5,6	6,4	5,8	9,2	9,1	9,3	9,1
OECD	8,2	8,8	6,8	6,9	11	9,5	11,9	10,5
Mean								

Reference: OECD (2010). Education at a Glance: compiled from Table A8. OECD (2014). Education at a Glance: compiled from Table A7.

As can be seen in Table 3, social rate of return is about 8.2 % and 6.8% for males in 2010 and 2014, respectively, based on OECD means and it is 8.8% and 6.9% for females, respectively. Accordingly, it is observed that social rates of return decreased both for males and females.

As for higher education, social rate of return is about 11 % and 10% for males and females, respectively, in 2010 based on OECD means and it is 12 % and 11% for males and females, respectively. Thus, this indicates that social rates of return increased both for males and

females in 2014 compared to 2010. Considering both education levels together, it can be observed that social rates of return tend to decrease at secondary education while they tend to increase at higher education. This indicates that education levels, particularly higher education, are investment goods and the increase in social returns may be observed in time.

Turkey and OECD means of social rates of return and their distribution based on education level are presented in Table 4.

Table 4: Percentages of Turkey and OECD Means of Social Rates of Return Based on Gender and Education Levels
(%, 2010-2014 Years)

	Secondary Education				Higher Education			
	2010		2014		2010		2014	
	Male	Female	Male	Female	Male	Female	Male	Female
Turkey	6,3	5,6	6,4	5,8	9,2	9,1	9,3	9,1
OECD Means	8,2	8,8	6,8	6,9	11	9,5	11,9	10,5

Reference: OECD (2010). Education at a Glance: compiled from Table A8. OECD (2014). Education at a Glance: compiled from Table A7.

Considering the social rates of return, OECD mean and Turkey’s figures altogether, it is observed that the social rates of return in Turkey are lower than OECD means based on both gender and period (Table 4). Beyond question, this is unfavorable for Turkey. It can be also interpreted that education must be reconsidered in terms of efficiency and productivity.

The distribution of social and private rates of return based on education levels, years and gender is presented in Table 5.

Table 5: The Distribution of Social and Private Rates of Return Based on Education Levels, Years And Gender And OECD Means
(%, 2010-2014 Years)

	Secondary Education				Higher Education			
	2010		2014		2010		2014	
	Male	Female	Male	Female	Male	Female	Male	Female
Private Return	10,6	9,3	15,8	12,5	11,5	10,7	13,9	13,2
Social Return	8,2	8,8	6,8	6,9	11	9,5	11,9	10,5

Reference: OECD (2010). Education at a Glance: compiled from Table A8. OECD (2014). Education at a Glance: compiled from Table A7.

Considering the private and social rates of return together (Table 5), it is observed that private rates of return are higher than social rates of return based on both education levels and other variables. Therefore, it can be concluded that the structures which bring private returns of individuals from education to the fore prevail. Moreover, it is another finding that private rates of return at higher education level are higher compared to secondary education. This suggests that “private” returns of higher education graduates are higher. Based on the aforesaid, it can be suggested that higher education is preferred based on private returns and lifestyles. Another reason for the fact that the private returns appear to be higher is that use of advanced technology, as stated by Melen (1997), and the increase in employment opportunities.

DISCUSSION AND SUGGESTIONS

Education is a mixed product and exhibits the characteristics of public and private good. The fact that private returns are higher than social returns at higher education may be due to the dominant characteristics of education as private and investment good. This can be explained in two ways: the possibility that higher education graduates earn individual income earlier is higher compared to the other education levels. Furthermore, although the cost of higher education is higher, the fact that most of it is funded by public funding may result in the increase in the private returns of individuals.

Even though the private returns are higher than social returns at higher education level, it can be suggested that it is a socially profitable investment. Although higher education is an education level which provides individual reputation, it contributes the social and economic development of a country significantly as an investment good. Thus, both citizens and public/private sector demand and supply higher education at an increasing rate.

Considering higher education based on the benefits which cannot be expressed in terms of money, it can be suggested that private rates of return at higher education are higher than social rates of return in any case. These results regarding rates of return entail the requisite that the priorities, particularly in developing countries, be considered appropriately and how much to be invested in primary, secondary and higher education be planned carefully. They may be an indicative for the investment decisions of politicians and implementers.

Suggestions are presented for researchers and implementers, alike.

SUGGESTIONS FOR RESEARCHERS

1) In the study, it is observed that private returns are higher at higher education. Studies which examine the reasons for private rates of return to be high based on various variables may be conducted.

2) In the study, private and social returns are considered at secondary and higher education levels. Estimating the private and social rates of return for the institutions which raise teachers and comparing them with other higher education institutions can be suggested.

3) Studies may be conducted in order to determine the opinions of the students on the returns of education based on at all higher education, in general, and the institutions which raise teachers, in specific.

4) Qualitative researches may be conducted with education economists or experts concerning private and social returns at different education levels.

5) Studies which compare the various majors at higher education such as fine arts, education, science and medicine in terms of returns.

SUGGESTIONS FOR IMPLEMENTERS

1) It is essential that the efforts on meeting demand for higher education and improving its quality in Turkey be continued owing to the fact that higher education in developing or underdeveloped countries contributes the increase in private and social returns.

2) Because the leading motive of private and social returns is the type and quality of the education institutions, the holistic quality approach can be suggested to be implemented strategically.

3) Another suggestion may be on prioritizing the social necessities rather than meeting demand in opening new higher education institutions and vocational schools due to the fact that especially vocational schools and the branches which provide individuals with professional skills increase social and private returns.

4) Legal regulations may be made to allow the institutions such as vocational high schools, high schools, academy and institutes instead of campus universities which include main faculties and high schools.

5) Utilization from education must be reconsidered due to its feature which increases private and social returns and leads to certain positive and negative consequences. Within this context, considering the education as an important factor in maintaining equal opportunity

principle and fair distribution of income, methods for providing education to be utilized by low-income groups must be developed.

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Endnotes

ⁱ Internal rate of return technique (IRR) is based on the determination of discount rate which equates the present value of benefit flow to the present value of costs and considers time value of money. In this technique, choosing the rate at which benefits are discounted is required. In the event that investment is funded through long term loans, the real interest rate must be considered as discount rate. If no loans are used in for project, the interest rate which the Central Bank charges on bonds for long term loans can be considered as discount rate due to the fact that the risk for these bonds is minute amount. r , *return* and C in the formula represent internal rate of return, gain difference and cost, respectively..

Private internal rate of return includes total private cost and return values. Accordingly, private rate of return is calculated by the following formula:

$$IRR_{\text{private}}: 0 = \sum_{t=0}^n \text{return}_p / (1+r)^t - C$$

$$0 = [\text{private return}^t / (1+r)^t] - (\text{private cost})$$

ⁱⁱ Social rate of return is calculated by the same way in which private rate of return is calculated. Social rate of return includes total social cost and social

return values. Accordingly, social internal return is calculated by the following formula:

$$\text{IRR}_{\text{social}}: 0 = \sum_{t=0}^n \text{returns}_s / (1+r)^t - C$$
$$0 = [\text{social return} / (1+r)^t] - (\text{social cost})$$