

The Trends of Returns to Education in the Arab Countries

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Summary:

This paper aims to study the trends of returns to education in the Arab countries. The study allows these trends' specific nature to be understood and compared with international trends. To do so, we conducted a survey of the available national studies in the Arab World and found sixteen studies. The main findings of this study are as follows: (1) The average rate of return to education is 7.1%. (2) There is a positive relationship among the average number of years in school, per capita income, level of education and return to education. Furthermore, (3) return to education tends to increase over time.

Keywords: Rates of return to education; Mincer Earnings Function; Arab countries

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I- Introduction :

Investing in education builds a solid foundation for economic progress and social advancement, as education empowers individuals and enables them to acquire the cognitive skills and knowledge needed to join the labour market and improve their productivity. In fact, the role of education transcends these objectives and extends to all aspects of an individual's private life. Many studies have concluded that education is instrumental in improving the health conduct, civil behaviour and social habits of individuals, as well as countless other aspects of a person's life, and the positive impact that education has on health and good citizenship is quite obvious. It even leads to a reduction of fertility levels in women and improves the care that they give to their children while having far-reaching effects on a person's private and social life.

Researching the relationship between education and income is a very useful tool in education economy. Measuring the rate of return to education helps a decision maker adopt the most appropriate education policies in various education-related fields. The rates of return on education are a meaningful indicator that determines the directions of focus and interest. Thus, it is no wonder that the rates of return on education have become a key part of national and international reports, such as the World Development Report of the World Bank and the annual report "A Look at Education" issued by the OECD. Many governments and organizations are increasingly financing a growing number of studies on the return to education, with a view to aiding the decision-making process and thereby organizing and financing education reform programs. In addition, the return on education is an indicator of the real productivity of education and is an auxiliary practical standard in making decisions for individuals in connection with investing in human capital.

In this context, this study seeks to identify the trends of return on education in the Arab countries, seeking to understand its patterns and compare them with modern global trends based on national studies of the returns on education. Many conclusions were drawn from the study and helped highlight the similarities and differences between the return trends in the Arab countries and the global trends.

This research paper is divided into three parts. The first discusses the literature related to the subject of return to education, the second presents the research methodology and the third discusses the results of the study.

II- Literature review:

Montenegro and Patrinos (2014) presented a key international study on estimating and comparing the returns to schooling around the world, following earlier studies by Psacharopoulos and Patrinos (1994, 2004). The study identified a good number of valuable findings that may be summarized as follows:

- The world rate of return to education (in 139 countries) is estimated at 10%.
- The rate is higher for females (11.7) than for males (9.6).
- The relationship between the education stage and the rate of return is positive.
- The relationship between the number of years of education and the rate of return is negative.
- The relationship between the average per capita income and the rate of return is negative.
- The rate of return in the sub-Saharan region of Africa is high (12.4).
- The rate of return in Asian countries is medium (9.4).
- The rate of return in the Middle East and North Africa is low (7.3).
- The rate of return to higher education is the highest, followed by elementary education and secondary education.
- The return to education tends to decline over time.

III– Methods and Materials:

To identify trends in the rate of return to education in Arab countries, a survey was conducted among countries with estimated rates of return to education. In doing so, a methodology based on the gain equation developed by Mincer (1974) was used:

$$\text{Ln}(w_i) = a + \beta_1 S_i + \beta_2 X_i + \beta_3 X_i^2 + \mu_i$$

where $\text{Ln}(w)$ represents the income logarithm, S the average schooling years and X experience.

The exercise was limited to the most recent available study for countries with more than one estimate so the comparison results would be indicative in terms of time. It would be inappropriate to include estimates from the 1970s or the 1980s.

It was possible to obtain information about the results of studies conducted in sixteen Arab countries, approximately 70% of the Arab World's twenty-two countries. From the entire sample, an estimate of the rate of return to education in the individual countries was assessed. For those countries for which data were unavailable, the average rate was not calculated and only an estimate of the rate of return was adopted in terms of gender, education stage or work sector, but these were stated according to their individual cases.

IV- Results and discussion :

Through the presentation of sixteen national studies of Arab countries (see the research appendices), the key findings for the rate of return to education in the Arab countries may be summarized. Having done so, it would be possible to attempt to trace their trends and compare them with modern international trends.

Figure (1) indicates the rates of return to education in eleven Arab countries where the average rate of return was found to be 7.1%, a rate close to the 7.3% estimate reached by Montenegro and Patrinos (2014) for the Middle East and North Africa region (MENA). Nevertheless, the estimated rate is less than the global average of 10% reported by Montenegro and Patrinos (2014) and Psacharopoulos and Patrinos (2004). The results of the individual country studies show that the highest rate of return to education in the Arab World was that registered in Djibouti (11.6), and the lowest recorded rate was in Yemen (1.8).

With regard to gender, it is noted that the average rate of return to education among females is higher than that among males (8.3 compared to 6.3). The same finding was reached for each Arab country separately, in line with the studies of Montenegro and Patrinos (2014) and Psacharopoulos and Patrinos (2004). However, it is evident that the rate of return to education for males is below the global average rate for males (6.3 against 9.5) but close to the average rate for males in the Middle East and North Africa region (6.3 against 6.5), as estimated by Montenegro and Patrinos (2014). Similarly, for females, the average rate of return to education for females is 8.4 compared to the global average rate for females (11.7) and that for females in the Middle East and North Africa region (11.1), according to the estimates of Montenegro and Patrinos (2014). (Figure 2)

By comparing the average return to education and the average years of education, it is clear that, in general, there is a positive relationship between them (Figure 3). This result conflicts with international patterns, as the results of the studies by Montenegro and Patrinos (2014) and Psacharopoulos and Patrinos (2004) indicate that the average rate of return to education worldwide tends to decline in relation to the number of years of education an individual has.

Similarly, upon considering the relationship between the average rate of return to education and the average per capita income in Arab countries, it is found that the relationship is positive; the rate of return to education rises when the average per capita income increases (Figure 4). This result conflicts with global trends, where the average rate of return to education is negative in relation to the average per capita income worldwide, as found by Montenegro and Patrinos (2014) and Psacharopoulos and Patrinos (2004).

The results of the studies of individual Arab countries indicate that the rate of return to education in oil countries is high compared to that of non-oil countries (8.9 compared to 6.0, as indicated in Table 5).

Looking at the rate of return to education in relation to education levels, Figure (6) shows the national study results for nine Arab countries. The results indicate that the average rate of return to primary (elementary) education in the Arab country sample (3.8) is low compared to the worldwide average for this stage, which is 10.6, according to Montenegro and Patrinos (2014). The results in the table indicate that the rate of return to primary (elementary) education is negative in Mauritania, which has the lowest performance of this indicator in the group, and is highest in Djibouti, at 10.

With regard to secondary education, it was found that the rate of return to education during this phase was 6.8 in the Arab countries sampled, close to the 7.2 average rate of return to secondary education worldwide. The lowest value was registered in Jordan (1.4), and the highest was found in Djibouti (10.8).

Looking at university education, it was found that the average rate of return to education in Arab nations at this level is lower than the global average (9.8 compared to 15.2, respectively), as it was with elementary education. In fact, the lowest average rate of return to university education in the Arab countries is 4.5, whereas the highest is 17.2, in the Sultanate of Oman.

Figure (7) points to a general trend in the relationship of the rate of return to education and the stage of education in Arab countries: the rate of return to education increases with every stage of education. This is contrary to the worldwide trend identified by Montenegro and Patrinos (2014), although the figure shows a higher rate of return to university education compared to secondary education worldwide.

By considering gender when measuring the rates of return with various levels of education, the following findings were reached, as indicated by Table (4).

There is no single pattern for all countries in the sample concerning the relationship between the rate of return to education and the education level; indeed, the above result shows higher rates of return to education for females compared to males. Of the nine Arab countries, only four had higher rates of return to education for females than for males at all levels of education; these were the Sultanate of Oman, Morocco, Algeria and Sudan. The results for the other countries were quite different at each stage of education.

For the rate of return to education by work sector, the rate of return to secondary and university education was higher in the public sector than in the private sector, where as the rates of return to elementary education were lower in both sectors in the three countries where all relevant data were available, the Sultanate of Oman, Djibouti and Algeria, as indicated in table (1).

Finally, in an attempt to monitor the development of the return to education in the Arab countries sampled, Table (5) gives results within this group over time, leading us to draw the following conclusions:

- There is a decline in the rate of return to education in Sudan and Saudi Arabia.
- There has been improvement in the rate of return to education in Egypt, Algeria and Jordan.
- The rates of return to education fluctuate in Morocco, Kuwait, Tunisia and Palestine.

One would conclude that there is no single pattern in the development of the rate of return to education over time in the Arab countries. However, one can see a slight increase taking place over the past four decades (Figure 8), and this development conflicts with the global trends found by Montenegro and Patrinos (2014) and by Psacharopoulos and Patrinos (1994, 2004), showing conflicting trends of the rate of return to education over time.

V- Conclusion:

Judging by the results of the return to education studies in sixteen Arab countries, there is a general variance in the trends of these countries compared to the worldwide trends recognized in relevant literature. The main trends seen in the rate of return to education in the Arab countries sampled were the following:

- A low rate of return to education in the Arab countries, in general, compared to the worldwide average (6.7 to 10).
- A low rate of return to education for males in Arab countries, compared to females. This result corresponds to the international literature and trends.
- There is a tendency for the rate of return to education in Arab countries to be higher where the average per capita income is high, and the rate of return to education in the Arab oil countries is higher than in the corresponding rate in non-oil Arab countries.
- The rate of return to elementary education is lower compared to the worldwide average (3.8 compared to 10.6).
- The rate of return to secondary education is lower compared to the worldwide average (6.8 compared to 7.2).
- The rate of return to university education is lower compared to the worldwide average.
- Contrary to worldwide trends, the rate of return to education in Arab countries tends to increase with the level of education, with the average rate of return to university education being two and half times higher than that for elementary education and one and a half times higher than that for secondary education. The average rate of return to education at the secondary level is one and a half times higher than that of the return to elementary education.
- The rate of return to education in Arab countries tends to rise where the average number of years of education increases. This result breaks with worldwide trends.
- The rate of return to education in the public sector is higher than that in the private sector, specifically for secondary and university education
- The rate of return to education in Arab countries tends to increase over time. This result also conflicts with worldwide trends.

-Appendices :

Table (1): Rate of Return to Education According to Education Level and Work Sector

Country (Survey Year)	Educational Level	Public Sector	Private Sector
Oman (1996)	Elementary	4.5	4.1
	Secondary	7.5	14.6
	University	20.3	23
Djibouti (1996)	Elementary	2.4	6.7
	Secondary	9.9	6.6
	University	9.0	0.8
Algeria (2010)	Elementary	2.62	-
	Secondary	8.83	6.2
	University	9.47	6.5

Table (2): Average Return to Education, Average Years of Education and Average Income

Country	Average per Capita Income (\$) **	Rate of Return	Education Years *	Survey Year
Jordan	3,591	5.5	8	2000
Algeria	6,081	7.2	6.4	2010
Saudi Arabia	20,321	6.6	7.2	1997
Sudan	1,397	6.1	2.8	1996
Kuwait	38,359	11.4	6	1997
Mauritania	1,771	6.9	3.3	1996
Oman	18,995	10.5	5.5	1996
Morocco	2,915	8.2	3.9	1999
Yemen	2,120	1.8	1.8	1999
Palestine	3,195	2.5	8.0	2001
Djibouti	1,756	11.6	3.8	1996
Average	9,136	7.1	5.1	2014

Worldwide (Montenegro and Patrinos)	10,540	10	10.4	2014
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* 2005 Statistics, see World Bank.2012. Human Development Report, Washington

**2000 Statistics, see World Bank.2012.World Development Indicators

Table (3): Average Rate of Return to Education by Gender

Country	Source	Females	Males	Sample	Survey Year
Jordan	Altalafhah (2003)	7.6	5.8	5.5	2000
Algeria	Boutayeba (2010)	9.5	6.4	7.2	2010
Sudan	Ali Abdelgadir (2006)	6.3	6.0	6.1	1996
Kuwait	Almansouri& Others (2003)	14.7	12.3	11.4	1997
Mauritania	Ali Abduqader and Almaaloum (2003)	10.7	5.8	6.9	1996
Oman	Al-Hajri&Meqled (2003)	11.5	9.9	10.5	1996
Morocco	Alsharqawi et al (2003)	9.5	7.6	8.2	1999
Yemen	Alasali (2003)	2.3	1.8	1.8	1999
Egypt	Salehi-Isfahani et al. (2009)	-	5.4	-	2006
Palestine	YoucefDaoud (2005)	3.6	2.4	2.5	2001
Arab countries	Boutayeba (2014)	8.4	6.3	6.7	2014
World	Montenegro &Patrinos	11.7	9.6	10	2014

Table (4): Average Rate of Return to Education According to the Level of Education

Country	University	Secondary	Elementary
Jordan	8.85	1.43	1.39
Algeria	9.40	8.86	1.47
Kuwait	9.6	7.00	3
Oman	17.2	7.9	4.7
Morocco	9.7	8.47	4.23
Mauritania	10.43	8.07	-0.96
Djibouti	8.9	10.8	10.0
Sudan	15	7.3	4.37
Lebanon	4.93	2.56	5.63
Arab Countries	9.88	6.82	3.85
World	15.2	7.2	10.6

Table (5): Rate of Return to Education According to Level of Education and Gender

Country	Level	Females	Males
Jordan (2000)	Elementary	-0.72	1.31
	Secondary	0.17	1.36
	University	12.22	9.7
Oman (1996)	Elementary	8.6	4.6
	Secondary	7.6	6.6
	University	21.0	15.2
Morocco (1999)	Elementary	4.93	2.45
	Secondary	15.95	15.53
	University	10.75	9.97
Mauritania (1996)	Elementary	1.80	-1.03
	Secondary	6.58	8.52
	University	20.98	6.73

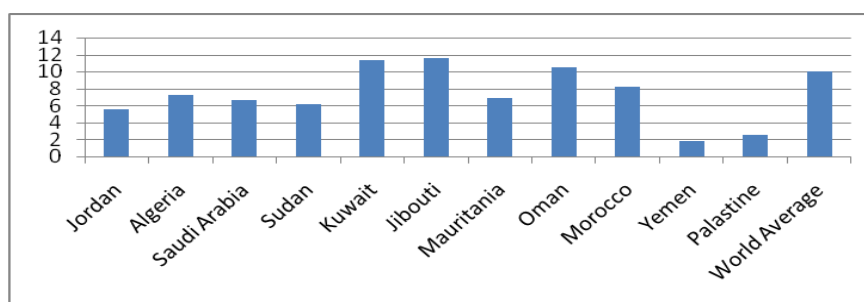
Algeria (2010)	Elementary	2.18	0.38
	Secondary	10.45	8.63
	University	11.42	7.57
Djibouti (1996)	Elementary	15.1	8.2
	Secondary	8.7	13.2
	University	4.3	10.5
Qatar (2012)	Elementary	2.5	0.7
	Secondary	2.5	5.2
	University	5.7	10.8
Sudan (1996)	Elementary	4.7	4.2
	Secondary	3.1	1.3
	University	17.3	14.8
Lebanon (2010)	Elementary	5.6	6
	Secondary	9.33	14.29
	University	9.38	8.33

Table (6): The evolution of the Rates of Return to Education

Country	Source	Survey Year	Rate of Return
Jordan	Benhabib& Spiegel (1994)	1985	2.9
	Altalafhah (2003)	2000	5.5
Palestine	Daoud (2005)	1999	2.75
	Daoud (2005)	2001	2.57
	Daoud&Tansel (2011)	2008	4.1
Tunisia	Psacharopoulos (1994)	1980	8.0
	Benhabib& Spiegel (1994)	1985	3.8
	Barouni&Brooecke (2012)	2012	22
Algeria	Benhabib& Spiegel (1994)	1985	4.7
	Boutayeba (2010)	1997	7.2
Saudi Arabia	Benhabib& Spiegel (1994)	1985	7.4

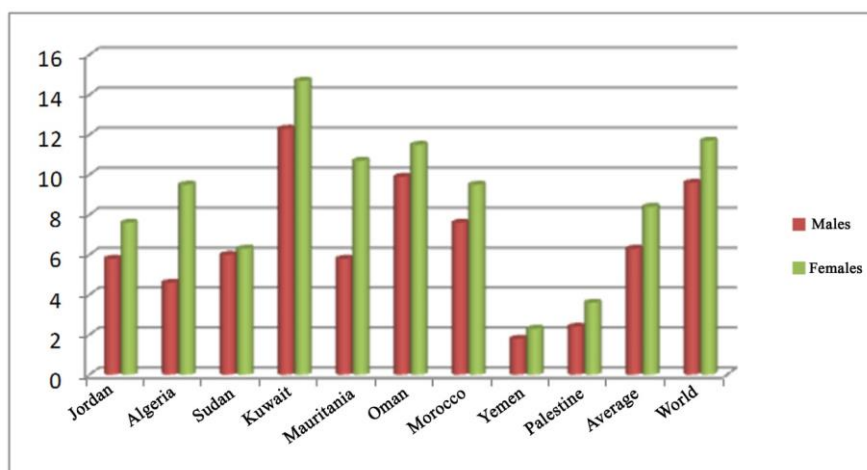
	Almaleki& Bin Obtaid (2003)	1997	6.6
Sudan	Benhabib& Spiegel (1994)	1985	10.4
	Cohen & House (1994)	1989	9.3
	Ali Abdelgadir (2006)	1996	6.1
Kuwait	Psacharopoulos (1994)	1983	4/5
	Banhabib& Spiegel (1994)	1985	3.1
	Almansouri et al (2003)	1997	7.7
	Ministry of Education and the Arab Planning Institute (2015)	2015	8.3
Egypt	Benhabib& Spiegel (1994)	1985	3.8
	Lambropoulos (1994)	1997	5.2
	Salehi-Isfahani et al. (2009)	2006	5.4
Morocco	Psacharopoulos (1994)	1970	15.8
	Banhabib& Spiegel (1994)	1985	6.2
	Lane, Hakim and Miranda (1999)	1991	9.9
	Alsharqawi et al. (2003)	1999	8.2

Figure (1): Average Rate of Return to Education in Arab Countries (%)



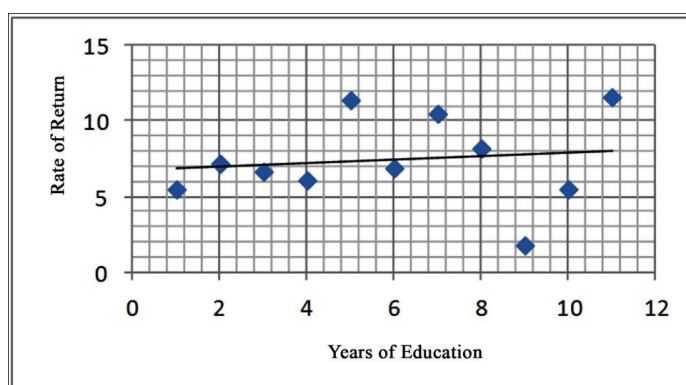
Source: Based on the table (2)

Figure (2): Average Rate of Return to Education by gender



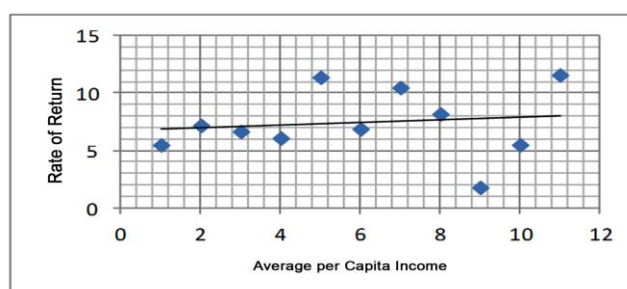
Source: Based on the table (3)

Figure (3): Relationship Between the Rate of Return to Education and the average number of years of education



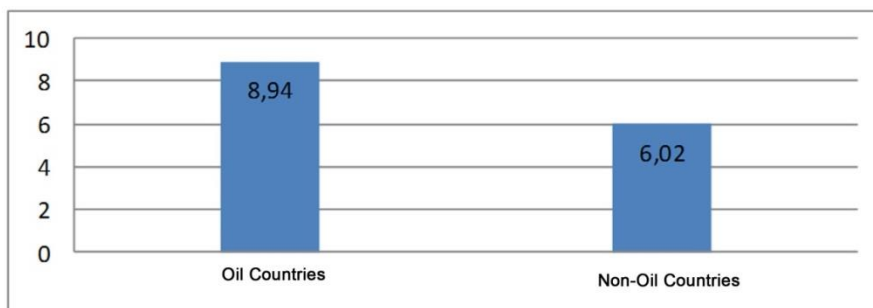
Source: Based on the table (2)

Figure (4): Relationship between the Rate of Return to Education and the average per capita income



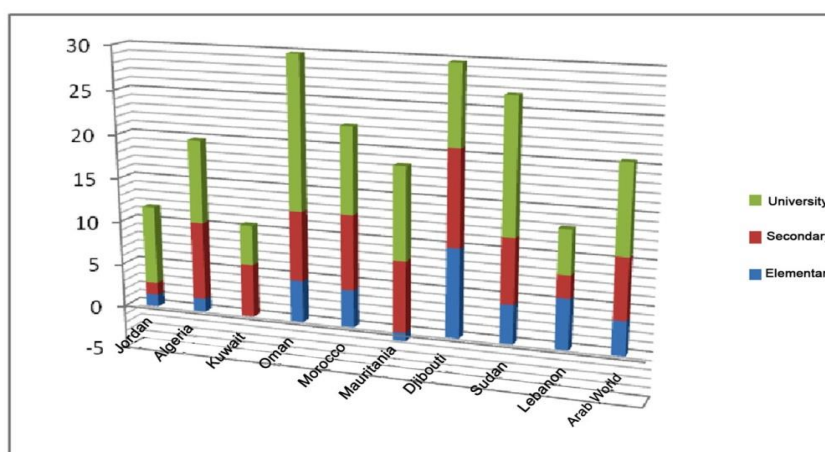
Source: Based on the table (2)

Figure (5): Rate of Return to Education in Arab Oil and Non-Oil Countries



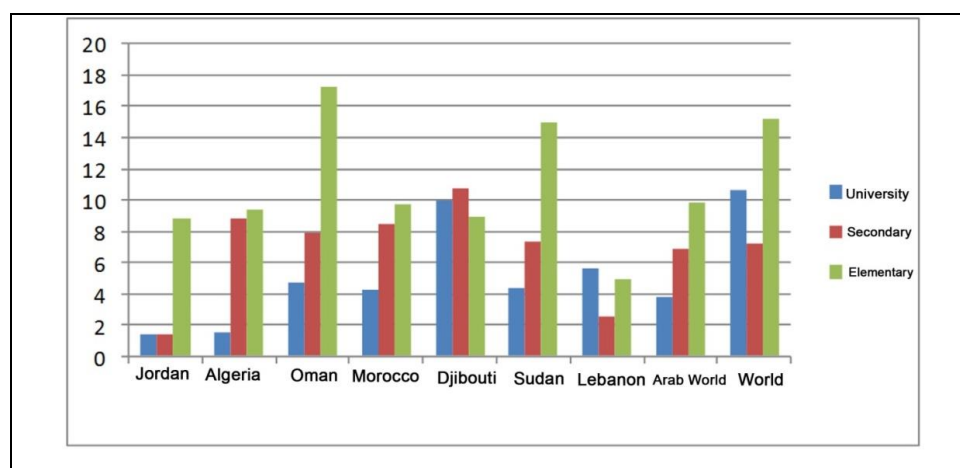
Source: Based on the table (2)

Figure (6): Rate of Return on the Various Stages of Education



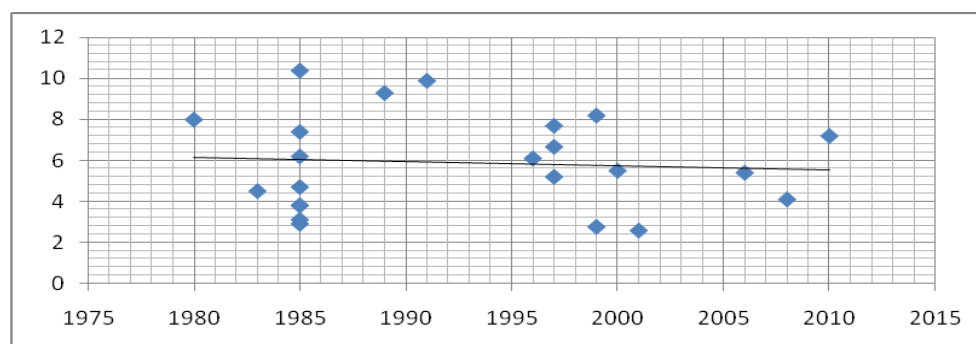
Source: Based on the table (4)

Figure (7): Rate of Return on Education According to the Level of Education



Source: Based on the table (5)

Figure (8): The evolution of the Rate of Return to Education Over Time



Source: Based on the table (6)

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