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PRIVATE RETURNS TO EDUCATION IN DEVELOPING COUNTRIES: EVIDENCE FROM KOSOVO

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MIC UKAJ, AVDULLAH HOTI, RAHMIJE TOPXHIU
University of Prishtina "Hasan Prishtina", Prishtina, Kosovo
micukaj@hotmail.com, avdullah.hoti@gmail.com, rahmije.topxhiu@uni-pr.edu

CORRESPONDING AUTHOR
micukaj@hotmail.com

Abstract This paper aims to assess the reward that employees receive from education in the Kosovo labour market in terms of a wage premium. The incentive to address this issue comes as a result of the high increase in participation in formal education in recent decades, especially in higher education. The research is mainly focused on private benefits from education, in terms of wage increases, assessed through a private return to investment in education. For this research, microdata from the Labour Force Survey has been used, conducted by the Kosovo Agency of Statistics. We used only the sample of wage employees, which includes 9,300 individuals. The econometric model used in processing the empirical results is based on Mincer's wage equation. The results presented in section 5 reveal that the rate of return on education investment has been sufficient to keep the demand for education investment alive. In comparison to the other two levels of education (primary and secondary), the results indicate a very high rate of return to tertiary education, justifying the high enrollment in this level of education. Females receive a higher rate of return than males.

Keywords
human capital,
rate of return,
education,
wages,
labour market

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1 Introduction

Education is one of the main forms of investment in human capital; hence the interest among researchers in assessing its impact on the economy, particularly in the labour market, has been quite high. The effects it produces for the individuals or society are mainly evaluated through the calculation of the rate of private or social return from education (Borjas, 2013: 267). Kosovo is ranked among countries where research is lacking in many fields. Investing in human capital, as well as the effects that it produces for the economy, is one of the least researched areas. On the other hand, the importance of research in this area is quite high, given the fact that the country has the youngest population in Europe; therefore, investment in human capital remains one of the main resources for sustainable long-term development. In recent decades, a significant increase in higher education participation has been evident in Kosovo. According to the data from the Kosovo Agency of Statistics, in the period between 2007 and 2019, the number of participants in higher education has increased from 25,840 to 104,579 people (KAS, 2020: 71-75). The increase in higher education participation has been significantly affected by the increase in opportunities because of the establishment of several new public and private universities and colleges. Therefore, given this high interest in education investment (especially in higher education), it has been considered with interest to test the economic rationality of such an investment. In this research, we test only for the rationality of investing in education, evaluated in terms of its impact on wages. Using the Labour Force Survey data from the Kosovo Agency of Statistics, this research estimates the private rate of return to investment in education based on Mincer's wage equation. The empirical analysis includes wage-earning individuals only. The results indicate that the rate of return to education was sufficient to justify the large influx of Kosovars to invest in education, especially in higher education. However, the low opportunity cost of attending higher education may affect the high demand for attending higher education.

The remainder of the paper is organized as follows. In Section 2, we discuss the theory of investing in human capital, the main methods used to estimate the rate of return from education and some of the empirical results around the world. Section 3 presents a description of the data used in this research. Section 4 discusses the estimation methodology utilized in this research, while the findings are presented in

Section 5, where a few comparisons are made with other developing countries. Our conclusions are drawn in the final section.

2 Theoretical background

According to Schultz (1961:11) and Becker (1993: 17), investing in human capital refers to the investment of current resources in exchange for higher future benefits. These investments can be in the form of monetary expenditures and time dedicated to education, training or other forms of human capital investment, such as health and migration (Schultz, 1961:1). According to Becker (1993:17), education is one of the most important forms of investment in human capital, which will be of primary interest in this research. The benefits of investing in education can be monetary and non-monetary, which can be of benefit to the individuals who make the investment as well as to society as a whole. Benefits for individuals can be in the form of direct benefits such as increased wages and employment probabilities, better job positions, *etc*., as well as in the form of indirect benefits, which can be manifested with better health care, active participation in social life, elimination of bad habits such as smoking tobacco, alcohol, *etc*. On the other hand, the education social benefits can also be numerous, ranging from the effect on economic development and increased welfare (thus resulting from the higher productivity of the more educated workforce), continuing with a range of other indirect benefits, which may be as following: crime reduction, environmental protection awareness, active participation in social life, *etc*. Furthermore, for benefits and costs of education, see Ukaj and Mustafa-Topxhiu (2020:194,195).

In the empirical evidence, the complete discounting method and Mincer's wage equation are used to estimate the rate of return on schooling (Psacharopoulos and Patrinos, 2018: 3). The first method can be used to estimate the private and social rate of return; however, in this research, our focus will be only on private return to education. This method requires rich data on education, wages, years of experience and so on. Given that few countries possess such data, researchers have preferred the second method, which calculates the rate of return based on cross-section data to estimate the average living income profile for people with different levels of education (Woodhall, Hernes and Beeby, 2004: 21). As a result, in the empirical literature, the majority of studies that look at wage disparities between workers with

different levels of education have used this method to calculate the rate of return (Psacharopoulos, 2018: 6; Hampf, Wiederhold and Woessmann, 2017: 5)

Mincer (1974) used this method to estimate the rate of return on education using data from the 1960 US census. He discovers that the rate of return on education is about 10%, while the rate of return on experience is around 8% (Harmon, Oosterbeek and Walker, 2003: 117). Since then, Mincer's wage equation has been one of the most widely used models in empirical economics._Psacharopoulos and Layard (1979: 485) conducted a similar study for Britain using a random sample of 7,000 employed males and found a similar rate of return (10 per cent). Despite the fact that various studies across the world produce different results in terms of the rate of return, the global average does not vary significantly from Mincer's (1974) study for the United States and Psacharopoulos and Layard's (1979: 485) study for the United Kingdom. There are several summaries of studies in the literature that include data on the global rate of return, with a wide range of surveys and a number of countries (with different levels of economic development). According to the findings of these summary studies, the average rate of return ranges between 8-10% (Patrinos and Psacharopoulos, 2020: 56; Psacharopoulos and Patrinos, 2018: 7; Montenegro and Patrinos, 2013: 7).

The rate of return on education varies depending on gender, the degree of economic growth of the countries, the level of education, and a variety of other social or even political factors, according to the empirical literature. The majority of studies that have looked at gender differences in the rate of return have shown that females have a higher rate of return (Psacharopoulos and Patrinos, 2004: 346, 2018: 10; Montenegro and Patrinos, 2013: 17; Peet, Fink and Fawzi, 2015: 70, Patrinos, 2016: 4; Patrinos and Psacharopoulos 2020: 57). If we focus on the rate of return according to the economic development level of the countries, the ones leading are the developing countries, especially those in Sub-Saharan Africa and Latin America (Psacharopoulos and Patrinos, 2018: 452). Whereas, in terms of education levels, primary and tertiary education offer higher rates of return (Psacharopoulos and Patrinos, 2018: 11). "Latterly, we have an increase in the rate of return to tertiary education, as a result of rising demand for this level of education in the labour market" (Montenegro and Patrinos, 2013: 10). In some countries, the economic and political background can also have a substantial impact on the rate of return. For more about the theory of human capital, the costs and benefits of investing in

education, and some of the empirical results in countries with different levels of economic development, see Ukaj and Mustafa-Topxhiu (2020).

3 Data and descriptive statistics

This research uses data from the Labour Force Survey (LFS) implemented by the Kosovo Agency of Statistics (KAS). LFS has been implemented since 2001, providing data on labour market categories in Kosovo. Since 2012, this survey has been conducted according to the Eurostat methodology, where each selected household is surveyed four times within 12 months (one survey and three re-surveys) (KAS, 2017: 2). LFS provides data on employees' wages as well as the highest amount of education achieved, acting as a valuable resource for determining the private return on investment in education. In this research, we use data for the period 2015-2017. During this period, 75,248 people were surveyed through LFS; 49,949 of them were of working age (15-64), of which 13,454 were employed, 6,542 unemployed, and the others were inactive. Out of the 13,454 employed, 9,300 are wage employees, and 9,100 of them (6,962 males and 2,138 females) have declared information on their wages, level of education and the number of working hours, the information necessary for this research. We use only the sample of wage employees (9,100 individuals), mainly for two reasons. First, the LFS results lack data on the wage variable for almost all non-wage employees (self-employed, family business employees, *etc.*), and second, as Montenegro and Patrinos (2014: 6) point out, "it is difficult for the self-employed to distinguish between the return to investment in education and the return to capital", therefore, as suggested, we excluded them from the sample. The assessment of the rate of return is done by using the hourly wage instead of the monthly or annual wage since the number of working hours differ significantly among persons with different levels of education. The hourly wage is found by comparing the monthly wage with the number of working hours declared by the employees.

In the table of descriptive statistics (Table 1), we present some of the main characteristics of the sample which is used in this research. In the first part (I) of Table 1, we have presented the characteristics of age, gender, marital status and levels of education for all individuals involved in the LFS research, whereas in the second part (II), only the characteristics of individuals belonging to working age (16-64) are presented. Following the table of descriptive statistics (Table 1), the sample will be

presented more extensively on issues like wages, working hours, thus relating education with some of the benefits in the labour market such as increasing participation in the labour force, increasing employment, reduction of overtime working hours, finding stable jobs, reduction of gender differences (in terms of labour force participation and employment), *etc.*

About 94% of employees work full time, 70% work for pay (the rest are self-employed or work for their families). Nearly half of employees (42%) work more than 40 hours a week, while overtime compensation is almost non-existent. About 99% of overtime hours are not paid (result not reported).

Table 1: Some descriptive statistics of the sample

Variables	Number of Observations	Mean	Standard Deviation	Minimum	Maximum	Total
I. Age						
0-15	75248	0.243	0.428	0	1	18290
15-24	75248	0.194	0.396	0	1	14616
25-54	75248	0.386	0.487	0	1	29026
55-64	75248	0.084	0.277	0	1	6307
65+	75248	0.093	0.290	0	1	7009
Male	75248	0.505	0.500	0	1	37993
Level of education						
No formal education	56886	0.053	0.224	0	1	3001
Primary	56886	0.415	0.493	0	1	23622
Secondary	56886	0.414	0.493	0	1	23543
Tertiary	56886	0.118	0.323	0	1	6720
II. Labour market indicators (15-64)						
Labour force participation	49949	0.400	0.490	0	1	19915
Employed	49949	0.268	0.443	0	1	13453
Full-time	13453	0.938	0.241	0	1	12623
Working hours (paid workers)						
<40	9300	0.072	0.259	0	1	670
<=40	9300	0.583	0.493	0	1	5422
>40	9300	0.417	0.493	0	1	3878
Monthly wage	9275	367.086	155.609	50	3000	3404725
Hourly wage	9100	2.231	1.210	0.260	26.041	20304.76
Wage between 175-1000	9275	0.983	0.131	0	1	9114

The average net wage of wage employees is around 367.08 € per month. Males earn a higher average wage per month, 367.95 €, compared to females, 364.21 €, with a slight difference; however, when the wage is converted to working hours, females earn 10.6% more than males (2.40 / 2.17), as they, on average, work fewer working hours (see Table 2).

Table 2: Working hours and average wages by sector

Sector	Average working hours				Average monthly wage (€)				Average hourly wage (€)		
	Males	Females	Total		Males	Females	Total		Males	Females	Total
(1)	(2)	(3)	(4)		(5)	(6)	(7)		(8)	(9)	(10)
Private	48.34	43.95	47.52		333.55	310.55	330.2		1.76	1.83	1.77
Public	41.84	36.14	40.56		421.58	410.26	418.24		2.80	2.88	2.83
Total	**44.48**	**38.89**	**43.30**		**367.95**	**364.21**	**367.08**		**2.17**	**2.40**	**2.23**

If we look at the relationship between education and labour market indicators, Table 3 shows a close relationship between them. As can be seen from column 4, labour force participation for individuals with no formal education is only 5.4%, while this percentage increases progressively as high as the level of education, reaching 70.3% for those with tertiary education. The same holds for employment; while the employment rate for employees with no formal education is only 2.5%, for those with higher education, it reaches 54.4%. Meanwhile, as expected, unemployment appears to be inversely linked to educational attainment (see Table 3, column 8).

Table 3: The link between education and labour market indicators

Level of education	Working-age (15-64)	Active population	%	Employed	%	Unemployed	%	Not active	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
No formal education	1,192	65	5.4	30	2.5	35	53.8	1,127	94.5
Primary	19,533	4,023	20.5	2,380	12.1	1,643	40.8	15,510	79.4
Secondary	22,864	11,398	49.8	7,547	33.0	3,851	33.7	11,466	50.1
Tertiary	6,297	4,429	70.3	3,425	54.4	1,004	22.6	1865	29.6
Total	**4,9883**	**19,915**	**40**	**13,382**	**26.8**	**6,533**	**32.8**	**29,968**	**60**

The level of education (especially higher education) has a greater effect on females, both in terms of participation in the labour force and in terms of employment. Figure 1 shows that labour force participation, as well as female employment, increases by a higher percentage compared to males when moving from one level of education to another, especially with a transition from primary to secondary and tertiary

education. In tertiary education, the difference with males is significantly reduced, especially in labour force participation.

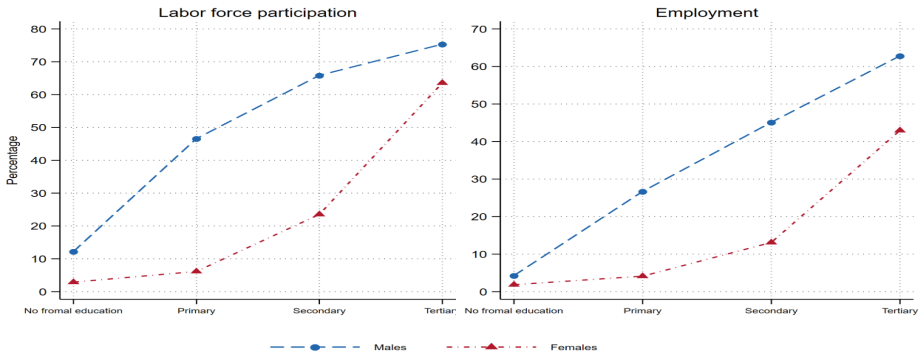

Figure 1: Gender differences in labour force participation and employment by level of education

Besides closing the gender gap in terms of labour force participation and employment opportunities, as mentioned above, education also plays a significant role in reducing gender differences in labour market compensation. While males with primary education benefit about 40.2% more than females with the same level of education, in secondary and tertiary education, the gap is reduced to only 11.1 per cent and 6.3 per cent, respectively.

Table 4: Average wage by the level of education and gender

Levels of education	Total			Males			Females		
	Employed	Average wage		Employed	Average wage	Wage per hour	Employed	Average wage	Wage per hour
(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9)
No formal education	8	234.37		7	228	1.17	1	275	1.43
Primary	1148	309.73		983	323.04	1.58	165	230.45	1.35
Secondary	5089	327.22		4182	333.154	1.84	907	299.86	1.78
Tertiary	3027	456		1942	466.28	3.17	1085	438.57	3.07

The findings also indicate that education plays an important role in reducing overtime hours. According to the findings of this research, employees with higher education in Kosovo work on average about 39 hours per week, significantly less than the average of employees with lower levels of education, where the average

working hours reach up to 50 hours per week, especially for those with no formal education.

4 Research method

In this research, we apply Mincer's wage equation to assess private returns to investment in education. The model relates to the logarithm of wages with years of education, experience and experience squared:

$$Ln\ (w_i) = \beta_0 + \beta_1 S_i + \beta_2 Xi + \beta_3 X_i^2 + \mu_i$$

When $Ln\ (w_i)$ is the natural wage logarithm, S is the number of years of schooling, X_i is the number of years of labour market experience, and μ_i is the error term that captures other unobserved variables that influence income and may also have an impact on the education decision (Montenegro and Patrinos, 2014: 4, 18). In this equation, the coefficient β_1 estimates the average rate of return from one additional year of education.

According to Montenegro and Patrions (2014: 4), in countries where the education variable is expressed in the form of the highest level of education completed, such as the case of Kosovo and many other developing countries, the model can be adapted by using dummy variables for education levels. The model takes the following form:

$$Ln(w_i) = \beta_0 \beta_p D_{pi} + \beta_s D_{si} + \beta_t D_{ti} + \beta_1 X_i + \beta_2 X_i^2 + \mu_i$$

where D, presents dummy variables for education levels.

The Ordinary Least Squares (OLS) approach is used to calculate the rate of return on investment in education. As noted by several researchers, the use of OLS may overestimate the rate of return, mainly because of innate ability impact (Blundell, Dearden and Sianesi, 2001: 6; Gunderson and Oreopoulos, 2010: 39). However, most studies that have looked into this problem have found that treating endogeneity with different natural instruments increases the rate of return as compared to the OLS, implying that the OLS does not overestimate but rather underestimates the rate of return (Walker and Zhu, 2001: 16-17; Psacharopoulos and

Patrinos, 2004: 1; Montenegro and Patrinos, 2014: 18; Bingley, Christensen and Walker, 2005: 10; Ashenfelter and Kruger, 1994: 1164; Card, 2001: 36). According to Peet *et al.* (2015: 72), finding methods to eliminate the bias resulting from using OLS is not easy; therefore, estimating the rate of return using this method (OLS) remains a useful alternative. In addition, Harmon (2011: 1) points out that the use of different strategies for treating endogeneity in education has not had any significant success empirically. Ukaj and Mustafa-Topxhiu (2019: 197) accomplished a summary of studies that have dealt with the treatment of endogeneity using different strategies. This study finds a number of drawbacks that result from the use of these strategies.

5 Empirical findings

The first part of the findings will focus on the private rate of return from education, reflected in one additional year of education, as well as gender gaps, job tenure, and rate of return by age group. The following are the rate of return evaluation results according to the levels of education, classifying them into three main categories (primary, secondary and tertiary).

5.1 Rate of return from one additional year of education

Since the data for the education variable in LFS is expressed in the form of education levels, for calculating the rate of return on a year of additional schooling, the variable of years of education is adjusted by converting education levels into several years possessed by each level. For a similar approach to defining the variable of years of education, in situations where education is declared by levels, see, for example (Pischke Wachter, 2008: 10; Peet *et al.* 2015: 71; and Montenegro and Patrinos, 2014: 5). In addition, the adjustment of the variable of years of education has been made by taking into account the implications of the reforms in education that have occurred at all levels after 2000. Thus, for example, if the respondents answered that they had completed primary education, they have been converted into 8 or 9 years of completed education, depending on the period in which they had completed a certain level of education (i.e., depending on whether they were affected by the reform when the implementation of the ninth grade had begun or not).

Table 5 shows the results of three models with different specifications for calculating the rate of return from an additional year of schooling. In Model 1 (column 2), where the rate of return is calculated by keeping only job tenure constant, the results show that an additional year of education in Kosovo, on average, brings around 8.6% of additional income. If we control for gender and sector (as in Model 2, column 3), it can be noticed that the rate of return drops to 7.3%.

Table 5: Rate of return from one additional year of education

Explanatory variables	Model 1 (coefficient)	Model 2 (coefficient)	Model 3 (coefficient)
Years of education	0.086*** (0.002)	0.073*** (0.002)	0.082*** (0.002)
Job tenure	0.033*** (0.001)	0.020*** (0.001)	0.033*** (0.001)
Tenure^2	-0.001*** (0.000)	-0.000*** (0.000)	-0.001*** (0.000)
Male	–	0.026*** (0.009)	–
Public sector	–	0.260*** (0.009)	–
Female	–	–	-0.261*** (0.048)
Female * years of education[1]	–	–	0.019*** (0.004)
Constant	-0.628*** (0.020)	-0.500*** (0.022)	-0.570*** (0.022)
Number of observations	9100	9095	9100
R^2	0.371	0.420	0.373

Standard errors in parentheses
"* p<0.05, ** p<0.01, *** p<0.001"

To find the differences in the rate of return by gender, as Wooldridge (2016: 275) points out, it is necessary to include the interaction term between gender (female) and education variables in the model. In this case, the model takes the following form:

$$Ln\ (w_i) = a + \beta_1 S_i + \beta_2 Xi + \beta_3 X_i^2 + \beta_4 femra + \beta_5\ female*education + \mu_i$$

After including the interaction term (Model 3, column 4), it can be shown that males have an 8.2 per cent rate of return, while females have a rate of return that is 1.9 percentage points higher than males; in other words, females get a return rate of 10.1% (8.2 +1.9). Approximately the same results are achieved if the assessment is done with separate samples for males and females (results are not reported).

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The higher rate of return for females is in line with the findings of a similar study conducted by Hoti (2011: 77) for Kosovo, but also with most studies in both developed and developing countries. Moreover, the difference in the rate of return between males and females is almost identical to the global gender difference presented in the studies of Montenegro and Patrinos (2013: 17) and Psacharopoulos and Patrinos (2018: 10), which provide data for more than 90% of the world countries.

It should be noted that due to the nature of the data (in the absence of data, specifically, for the last year of completion of a certain level of education), it has been impossible to find the rate of return for the final year of a certain level of education, the year in which the rate of return is expected to be higher than previous years, due to the degree effect, a phenomenon known in the literature as the `sheepskin effect` (Harmon *et al.* 2003: 127). Consequently, in this study, all years of education are assumed to bring the same rate of return.

Due to some difficulties in precisely identifying the education variable, reflected in the number of years completed, the possible effect of extremely high or low wages on the rate of return, and some other details, it was deemed appropriate to conduct some additional tests to ensure that the findings presented in table 5 were consistent. Tests were done by removing extreme wages (under 100 € and over 1500 €), professions in which determining the exact number of years was difficult, as well as estimating the rate of return expressed in euros (not through the log wage). It should be noted that even after these tests, the results do not differ almost at all from those presented in Table 5.

5.1.1 Rate of return from job tenure

Mincer (1974), in his model, in addition to education, also evaluates the role of experience on wages. Unfortunately, the Kosovo Labour Force Survey does not have data on employee experience. In such circumstances, in the absence of experience data, Mincer (1974) proposed potential experience, calculated as current age minus years of education minus age of starting schooling. On this occasion, Mincer assumed that the transition from school to work is immediate. However, in the case of Kosovo, because the transition from school to work can take years because of high unemployment, it is considered more appropriate to use the job tenure as a proxy for potential experience.

According to the results presented in Table 5 (always using tenure as a proxy for experience), one year of additional work experience in Kosovo brought about 3.3% additional return, expressed in income per working hour, keeping fixed the years of education. If we use age instead of job tenure as a proxy for work experience, as some studies do (Hoti, 2011; Gjipali and Kristo, 2011: 34; Peet *et al.*, 2015: 82), it turns out that one year of experience brings about 4% of additional income (result not reported).

5.1.2 Return to education by age group

Findings in this research show that employees of the age group 15-24 years get a lower rate of return (7.1%) compared to the other two age groups, 25-54 and 55-64, in which the rate of return is around 8.7 % and 8.6%, respectively. The lower rate of return of the age group 15-24 is quite comprehensible, as, during this age, the first attempts to enter the labour market commence, where education is not considered in its full role. Furthermore, there may be a gap in the entry period into the labour market for people with different levels of education in this age group; as a result, the wage may be influenced more by work experience, *i.e.*, passing the probationary process, than by education level. For example, employees with secondary education (who have not proceeded to higher education) potentially enter the labour market earlier; consequently, the wage difference between these employees and employees with higher education may be greatly influenced by the experience that the former already gained in the workplace (reference). The higher rate of return in the age groups 25-54 and 55-64, compared to the reference age group (15-24), seems to be

influenced by the accumulation of experience. This can be confirmed when we check for the influence of age on wage, keeping the years of education fixed. To do this, a dummy variable is used for the three age groups mentioned above. The results show that, for the same level of education, employees in the age groups 25-54 and 55-64 earn, on average, about 20% more compared to the reference group (15-24).
While the rate of return for males is positively correlated with age, surprisingly, quite the opposite happens for females. In all cases, the coefficients are statistically significant (see Figure 2).

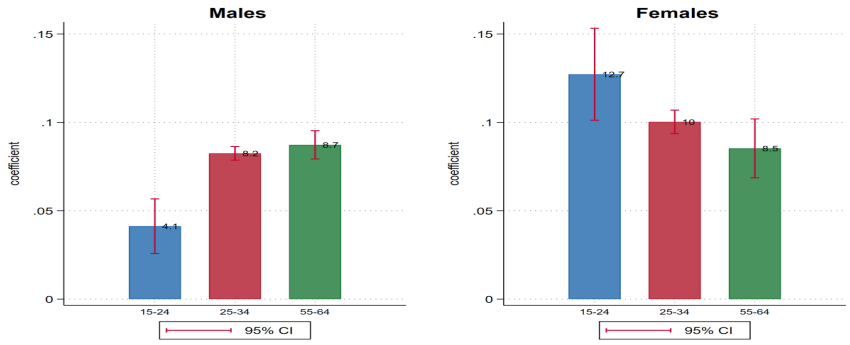

Figure 2: Rate of return by age group and gender

The high rate of return for females in the 15-24 age group may be because females with higher skills are more likely to be working in high-paying employment in this age group; consequently, when these are compared to employed females who have less education, this creates a large difference in income per working hour. However, it is possible that the smaller number of observations in the 15-24 and 55-64 age groups will influence the rate of return of females.

5.2 Rate of return according to levels of education

The results presented in Table 7 (column 2) show that employees with primary education get a rate of return that is 27.4% higher compared to employees with no formal education, while the rate increases to 41.1% and 88.6%, respectively, for employees with secondary or tertiary education. These results are achieved by keeping only job tenure fixed. Progressive increases in the rate of return as well as in the reliability of results (expressed in levels of significance) while transitioning

from one level of education to another suggest that continuing to invest in education constitutes good decision making. From column 3 of Table 7, it can be seen that the rate of return by the level of education does not differ much even after controlling for gender and sector. Whereas, in order to find the difference in the rate of return by gender, we use the interaction term between the variable of education and that of gender (female) just as we did when calculating the rate of return by one additional year of education (Table 5). The results presented in column 4 of Table 7, using the interaction term, suggest that females with secondary education get a rate of return which is 7.9 percentage points higher compared to males with the same level of education. The gender difference increases even more at the tertiary level, where females with this level of education get a rate of return that is 12.1 percentage points higher compared to males. Almost identical results are achieved even if the evaluation is done with separate samples for males and females (results are not reported).

Table 7: Rate of return according to levels of education

Explanatory variables	**Model 1**	**Model 2**	**Model 3**
	(coefficient)	(coefficient)	(coefficient)
Primary education	0.274* (0.129)	0.255* (0.124)	0.257* (0.124)
Secondary education	0.411** (0.128)	0.365** (0.124)	0.356** (0.124)
Tertiary education	0.886*** (0.129)	0.777*** (0.124)	0.754*** (0.124)
Job tenure	0.031*** (0.001)	0.019*** (0.001)	0.019*** (0.001)
Tenure^2	-0.001 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Public sector	–	0.241*** (0.009)	0.242*** (0.009)
Male	–	0.041*** (0.009)	–
Female	–	–	-0.132*** (0.03)
Female * secondary education	–	–	0.079*** (0.033)
Female* tertiary education	–	–	0.121*** (0.003)
Constant	-0.065 (0.128)	-0.057 (0.124)	0.005*** (0.124)
Number of observations	9100	9095	9095
R^2	0.398	0.439	0.441

Standard errors in parentheses

"* p<0.05, ** p<0.01, *** p<0.001"

If we compare each level of education with the previous level (by setting the previous level in the constant), we can see a U shape, where primary and tertiary education bring a higher rate of return compared to the second one (see Figure 3). The difference is significantly more pronounced when comparing tertiary education with secondary education (47.3%). The U-shaped form, where secondary education brings a lower rate of return compared to the other two levels, is well known in the empirical literature (Heckman Lochner and Todd, 2003: 10; Psacharopoulos and Patrinos, 2018: 11; Peet *et al.*, 2015:74).

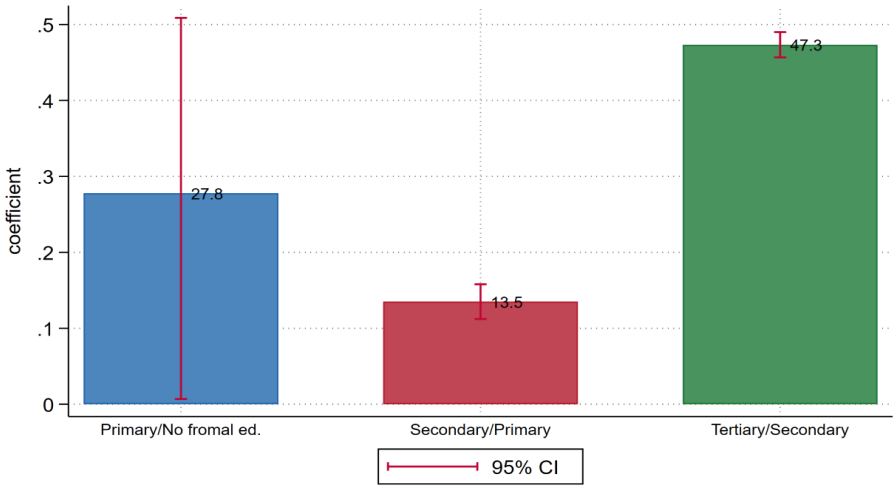

Figure 3: Rate of return from one level of education to another

6 Comparison of results with other developing countries

In comparison to other countries in the region, Kosovo's rate of return from one year of additional education is not substantially different (see Table 8). The difference in the rate of return between these countries can be affected to some degree by the period (year) of the research.

Table 8: Rate of return compared to countries of the region

Country	Year of study	Rate
Bosnia and Herzegovina	2002	8.1
Bulgaria	2012	7.8
Romania	2012	10.3
Kosovo	**2020**	**8.6**
Montenegro	–	–
Macedonia	2005	5.7
Serbia	2014	10
Albania	2012	8

Note: Data for countries of the region (excluding Kosovo) are taken from a review of studies by Psacharopoulos and Patrinos (2018) and Montenegro and Patrinos (2014). In countries where there is more than one study, the results of the last study are taken into account.

If we compare the results with other developing countries, the results show significant differences depending on the country or region. Psacharopoulos and Patrinos (2018: 20-23) and Montenegro and Patrinos (2014: 20-36) summarize the most serious studies by different authors for the majority of developed and developing countries worldwide. According to the findings of these authors' studies, the rate of return is not always inversely interrelated to the degree of economic development of the countries, as noted by Perkins *et al.* (2013: 274) and Card (2001). In some of the developed countries like Germany, Singapore, South Korea, the USA, *etc.*, the rate of return is, on average, over 12%, thus being higher than the world's average of about 10%. On the other hand, there are quite a few developing countries (even with low per capita income) with a rate of return that is slightly lower than the global average. Some of the developing countries where the return rate is between 2.2% and 7% are Armenia, Yemen, Cambodia, East Timor, Syria, Congo, Bangladesh*, etc.* However, it should be noted that the countries leading in terms of the highest rate of return globally are low-income countries, such as Ethiopia (18.5%), Uganda (16.4%), Burundi (17.3%), Rwanda (18.2%), Tanzania (16.4%), Zambia (14.9%) *etc.*

Peet *et al.* (2015: 81) estimate the rate of return for 25 developing countries, using 61 household surveys for the period 1985-2012. In most of the countries included in the study, primary and tertiary education result in higher rates of return compared to secondary education. For the countries of the region, the results of this research show a higher rate of return to primary and tertiary education in countries such as Serbia and Bosnia, while in Albania, the rate of return is the lowest in primary

education while the highest is in the tertiary one. The same pattern (where primary and tertiary education bring a higher rate of return) is also found in a review of studies conducted by Montenegro and Patrinos (2014: 12). According to the findings of this study, the highest rate of return at these two levels of education is observed in all regions of the world and both genders. This study also confirms that tertiary education brings the highest rate of return to education. Also, Psacharopoulos and Patrino (2018: 11) found that primary and tertiary education result in a higher rate of return.

7 Conclusion

The research aimed to assess the reward that employees receive from education in the Kosovo labour market in terms of a wage premium. The findings presented in this research (Section 5) indicate that investing in education in Kosovo is a reasonable investment in terms of its impact on employee income. According to the results of this research, every additional year of education in Kosovo brings an average of 8.6% additional earnings from the labour market. When we look at the rate of return by the level of education, we can see that workers with a primary education earn 27.4 per cent more than those with no formal education, while the rate rises to 41.1 per cent and 88.6 per cent, respectively, for those with secondary or tertiary education. Tertiary education brings the highest rate of return compared to the other two levels (primary and secondary), even more than both levels combined. The average rate of return from one additional year of education is not far from the world's average, as well as the countries of the region.

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