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The Effect of the Level of Education on Employment: Evidence from Western Balkans

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Abstract

The aim of this piece of research is to investigate the effect of the level of education on employment in the six Western Balkan Countries (Albania, Bosnia and Herzegovina, Serbia, Kosovo, Montenegro, and North Macedonia) by analysing the data as cumulative for the six Western Balkan countries. In terms of methodology, the study uses the Probit and Logit regression as well as the marginal effects by using the data from the Balkan Public Barometer 2021 for the six Western Balkans countries. The results show that persons with higher levels of education are more likely to be employed compared to persons with a lower level of education in the six Western Balkan countries. With regard to practical implications, the study provides a special contribution both academic and practical. It implies a good understanding of the effect of level of education on employment as well as provides useful information for individuals, the academic community as well as policymakers in charge of education and employment.

In terms of value, this study is one of the few studies that have analysed the effect of level of education on employment in the six Western Balkan countries. The results of the study will be of value to the academic community as well as policymakers and other stakeholders.

Keywords: Employment, Western Balkan, Education, Skills, Training.

JEL: I20, I21, J20, J21

1. Introduction

Studies on the effects of education on employment have shown a high interest in recent years, especially in the Western Balkan (WB) countries, where employment continues to represent one of the major issues in challenging the governments and policymakers to design strategies and actions for addressing it, and better respond to the labour market demands. The influence of education and training on employment is a long-standing topic in the study of economics (Zhongchang & Yongqiu, 2007). Thus, the primary objective of the study is to examine the effect of the level of education on employment in the six Western Balkan countries (Albania, Bosnia and Herzegovina, Serbia, Kosovo,

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Montenegro, and North Macedonia) through analysing the data as cumulative for those countries.

There are a number of studies that have investigated unemployment, however, there are fewer studies that have analysed the effect of levels of education on employment in the WB. The economy today is coming as a replacement of the industrial economy to the knowledge economy (Lavrinovicha, Lavrinenko, & Teivans-Treinovskis, 2015). In the free labour market, employers tend to recruit educated and experienced candidates, no matter what skill level is actually required for the job. Previous research has shown that persons with higher education are more competitive in the labour market (Lavrinovicha, Lavrinenko, & Teivans-Treinovskis, 2015). A number of recent studies have found that WB countries face much lower employment compared to other developed countries. According to a study that investigated youth employment in the Western Balkans, "youth employment rate in all WB economies was below 27% in all WB economies, compared to 31.4% in the EU-27" (RCC, 2021, p.9). Thus, taking into account the high unemployment in the six WB countries, the majority of students who finish secondary education continue to higher education because of the lack of opportunities to get jobs. They consider better opportunities for employment by having a higher education diploma.

It is evident that the education system is failing to respond to the labour market in terms of qualifications as well as skills demanded in the labour market in the WB. A report produced by the World Bank and the Vienna Institute for International Economic Studies (2020) noted the existence of a large skill gap in the WB countries. According to this report, most businesses believe that education and training institutions do not offer graduates the skills they demand in the labour market. A study by Bartlett (2013) using data from the Labour Force Surveys and other Skills Surveys in the WB, concluded that the education and training system in the WB is failing to provide young people with the right mix of skills needed to find jobs. Other studies have evidenced that higher education levels increase the chance of individuals for employment and for having better and more well-paid jobs (Petreski, Dávalos, & Tumanoska, 2021).

Based on the above, the research question of this paper is: Are persons with a higher level of education more likely to be employed?

The contribution of this study is threefold: first, most of the studies in this field have used panel data, using the sources of countries' national statistics, while our study has used a different approach, the research data are collected from the Balkan Public Barometer for 2021, with 6,000 citizens participating in the barometer, which is conducted by the Regional Cooperation Council (RCC) through the survey method. Second, the paper contributes to understanding the effect of education on employment in the six WB countries and provides both academic and practical contributions. The academic contribution of the paper is that it provides a better understanding of and scientifically proves the effect of education level on employment in the WB. As for the practical contribution, the paper provides recommendations for the business community with regard to evaluating the importance of levels of education. Third, the paper provided good input for policymakers to better consider the importance of education and of the latter's alignment with the labour market.

As for the methodological approach applied to analyse the effect of level of education on

employment, the Probit and Logit model as well as the Marginal effects have been used to analyse the probability of variables.

The remaining part of this paper is structured as follows: Section 2 reviews the literature; Section 3 - the methodology and data; Section 4 presents the results of the study; Section 5 provides the conclusion.

2. Literature Review

Several authors have looked into the effect of schooling on employment. Lavrinovicha, Lavrinenkob, and Teivans-Treinovskisc (2015) evaluated the impact of schooling on Latvian residents' unemployment rate and income earning. According to the study, higher education levels were shown to have a more prevalent work status in Latvia's labour market.

The recent study of youth employment in the Western Balkans (RCC, 2021) found that the level of education has an impact on young people's employment prospects and that young people with a low level of education have a substantially lower activity rate than those with a higher level of education. However, the study by Arifi, Fetai, and Qirici (2019), using the data from the ILO 2014 for Armenia, Macedonia, Montenegro, Serbia, and Moldova, found that schooling had no effect on the likelihood of young people getting jobs.

Running a small business is claimed to be a less enticing option than wage jobs, especially for the highly educated, according to a study by Kangasharju & Pekkala (2002), which looked at the impact of self-employed people's education on the success of their firms in Finland. On the other hand, the study by Riddell & Song (2011) analysed the effects of education on transitions between unemployment and employment that were conducted in the US using the OLS model, and the study concluded that education has a positive significance on re-employment. However, a contradictory finding was reported in the study of Gad (2021) that analysed the level of contribution of different levels of education to remaining in unemployment as well as the transition from unemployment to employment in Egypt using the logistic regression models. Furthermore, the researcher found that unemployed people with no education are more likely to return to work, whereas those with less than an intermediate or higher education have a negative impact on returning to work.

Another piece of research has established a link between schooling and wage employment (Castel, Phiri, & Stampini, 2010). However, according to Greene and Saridakis (2008), who looked at the career growth of self-employed graduates in the UK, higher education experience may play a smaller role, and a degree or equivalent certificate just offers prestige rather than abilities. Furthermore, the study of Brown & Sessions (1999) found that the proportion of self-employed workers with lower education is significantly higher than that for either public or private sector employees. Whereas, the study of Wolbers (2000) that used the Dutch panel data from 1980 to 1994 found that individuals with any type of diploma have a greater chance of finding a job than those who left school at the level of primary education. While Zhang, Huang, and Rozelle (2002) investigated how education can be associated with increased access to off-farm jobs in China, they discovered that the role of education is continually evolving, and that the amount of education is becoming increasingly associated with more advantageous employment.

The report of the World Bank and Vienna Institute for Economic Studies (2020), reported that Western Balkans are failing to graduate students with the skills which are demanded in the labour market. According to the report, most employers believe that education and training institutions are failing to provide students with the skills they require. Uvali & Bartlett (2020) observed similar findings, concluding that the Western Balkans' education and training system does not equip graduates with the abilities needed to find jobs and that businesses routinely complain about their graduate employees' poor skills. Previous scientific and professional research in the Western Balkans has discovered a skills gap between what students learn in school and what employers want, as well as the fact that Western Balkan countries have significantly lower employment rates than industrialized economies.. Despite the fact that the number of persons completing university education has increased considerably, the quantity of jobs available to them has not kept up, resulting in a widespread over-education problem (Uvali & Bartlett, 2020).

It is obvious that all studies referenced in this paper have used the quantitative method. However, Kruss (2004) has used the qualitative method to explore the expectations of higher education responsiveness of key employer, education, and training constituencies in South Africa, he concluded that many skills, such as management and leadership or conflict resolution, were developed experientially through processes in the workplace, skills such as communication and writing were developed largely through general education in the schools.

The review of the literature on the relationship between education and employment presented above has shown that individuals with a low degree of education have a considerably lower chance of finding work than those with a higher level of education (McIntosh, 2008). Also, low education levels raise the probability of individuals to informal sector entry, and higher education levels increase the chances of individuals entering wage employment (Wambugu, 2011).

To summarise, much research has been conducted to investigate the impact of education on labour market outcomes such as jobs and wages. However, there have been very few studies on the impact of education on employment in the Western Balkans. The study will fill a gap in the academic literature concerning the impact of education on employment in the Western Balkans. Regarding the econometrics methodology, the critical literature review of this paper evidences that most of the studies in this field have employed panel data, using the sources of countries' national statistics, while our study has used a different approach, in which the research data are collected from the Balkan Public Barometer, conducted by the Regional Cooperation Council. In order to analyse the data of the research, we have employed different techniques, such as Probit and Logit model as well as the Marginal Effects of their coefficients.

3. Data and Research Methodology

3.1. Data in empirical research

The study used a quantitative research method. The primary data are collected from the Balkan Public Barometer 2021 for the six Western Balkans countries with 6,000 citizens participating in the barometer, conducted by the Regional Cooperation Council (Balkan Public Barometer, 2021). The study analyses the effect of the level of education on

employment in the six Western Balkans countries.

3.2. Research Methodology

To analyse the effect of independent variables on the dependent variable, the following econometric models were used, the Logit and Probit model as well as the Marginal effects. The Logit and Probit models are adopted because of the dichotomous nature of the dependent variable (Gad, 2021). The Logit and Probit models are used as the best model fit for the research, and both modes are suitable for estimating the functional relationship between the response variable and the predictors.

Probit model

The probit model uses the cumulative density function (cdf) of the normal distribution Φ.

$$P\ (y = 1) = \Phi\ (x\beta) \quad (1)$$

$P\ (y = 1)$ will be a number between 0 and 1 because the cdf of the normal distribution is a number between 0 and 1.

Logit model

The logit model uses the logistic function:

$$p\ (y = 1) = G\ (x\beta) \frac{\exp(x\beta)}{1+\exp(x\beta)} = \frac{e^{x\beta}}{1+e^{x\beta}} \quad (2)$$

$P\ (y = 1)$ will be a number between 0 and 1 because exp $(x\beta)$ is positive.

Logit models are used to model Logistic distribution while Probit models are used to model the cumulative standard normal distribution. Therefore, we have used the Probit and Logit models to compare the two models and to achieve accurate results in the study.

Marginal effects in the probit and logit model

In order to estimate the average influence of changes in explanatory variables on changes in the probability of outcome variable, we have analysed the Marginal Effects of the coefficients of the Logit and Probit models.

The model for the Marginal effects can be written as:

$$P\ (y = 1) = G\ (\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k) = G(x\beta) \quad (3)$$

The coefficient on x_{jj} is β_{jj}.

The marginal effect of x_{jj} on the probability of $y = 1$ is $\frac{\Delta P\ (y=1)}{\Delta x_j} = G'(x\beta) * \beta j$

In the probit and logit model, the marginal effects are the coefficients multiplied by a scale factor $G'\ x(\beta)$, which is the derivative of the G function.

The marginal effect explains the effect of the independent variable on the probability that $y = 1$ (by how much the probability of $y = 1$ increases when x_{jj} increases by 1 unit).

Estimated model

Marginal effects model is employed in the study as it is deemed more appropriate for this research than the Probit and Logit models. Hence we have employed the Marginal effects in the study. However, the Marginal effects of the coefficients of the Logit model is selected for the interpretation of the results in the study.

The specification for the estimated model of the econometric model used in the study is written as follows:

$$Ln[p/(1-p)]Employment = \beta 0+\beta 1(Age)+\beta 2(Gender)+\beta 3(Urbanization)+\beta 4(Education)+\beta 5(Skills)+\beta 6(Transition)+\beta 7(STFE)+\beta 8(STFJO)+\mathcal{E}i \quad (4)$$

The dependent variable is employment, which is given the value of 0 for the employed, including the self-employed, while 1 for unemployed and $\beta 0$ is the constant parameter which represents the regression constant. The coefficients $\beta 1$ to $\beta 8$ are the independent variables such as Age, Urbanization, Education (the highest education completed), Skills (skills learned in the education system meet the needs of the job), Transition (transition from school to work), STFE (Satisfaction from Education, including digital education), STFJO (Satisfaction from Job opportunities). Finally, we have the error term (εi) which includes all other factors which potentially affect employment but which have not been integrated as independent model variables.

Table 1 below presents the demographics of the total respondents of the research.

Table 1: Descriptive statistics of the demographic variables

Variable	Frequency	Percent
Age	N	%
18-34	2347	39.12
35+	3653	60.88
Urbanization	N	%
Rural	2631	43.85
Urban	3369	56.15
Gender	N	%
Female	3113	51.88
Male	2887	48.12
Education	N	%
Elementary and secondary education	3679	61.32
University education (Bachelor, Master, PHD)	2321	36.38

The data presented above represent the demographic data of the study variables, with 6000 observations representing the 6000 interviewed respondents. Each Western Balkan country has 1000 observations in the data.

According to the data in the table, the majority of respondents are over the age of 35, with a total of 3653 respondents or 60.88 %, and the majority of respondents are urban, with 3369 respondents or 56.15 %. In terms of gender participation in the research, women outnumber men by a small margin (3113 respondents or 51.88 %). The level of education of the participants in the research is mainly elementary and secondary education with 3679 respondents or 61.32%.

Table 2 below presents the summary statistics of the study. The definition of variables is provided in Appendix 1 of this paper.

Table 2: Summary Statistics of the variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	6000	0.608833	0.488052	0	1
Gender	6000	0.481167	0.499687	0	1
Urbanization	6000	0.5615	0.496245	0	1
Education	6000	0.386833	0.487066	0	1
Skills	6000	0.2435	0.42923	0	1
Transition	6000	0.299833	0.458223	0	1
STFE	6000	0.676	0.468039	0	1
STFJO	6000	0.8415	0.36524	0	1
Employment	6000	0.582167	0.493244	0	1

4. Empirical results

In Table 3 we have presented the two econometric models (Probit and Logit) in order to see the impact of the independent variables on the employment. The findings generated from the Probit and Logit models show that all variables have a positive effect on employment, except the variable of STFJO (satisfaction from job opportunities), which is statistically significant but has a negative effect on employment. Yet the results presented in Table 3 will not be taken as a basis for interpretation in this study, the interpretation of the results will be taken from the marginal effects that are presented in Table 4.

Table 3: Results of Probit and Logit econometric models

VARIABLES	(PROBIT) b/se	(LOGIT) b/se
Age	0.10** (0.03)	0.17*** (0.05)
Gender	0.37*** (0.03)	0.63*** (0.05)
Urbanization	0.07* (0.03)	0.12** (0.05)
Education	0.81*** (0.03)	1.33*** (0.06)
Skills	0.13*** (0.04)	0.23*** (0.06)
Transition	0.42*** (0.03)	0.70*** (0.06)
STFE	0.13*** (0.03) ***	0.20*** (0.06)
STFJO	-0.06 (0.04)	-0.10 (0.08)

VARIABLES	(PROBIT) b/se	(LOGIT) b/se
_cons	-0.55*** (0.06)	-0.91*** (0.10)
R2	0.0998	0.648
Observations	6000	6000

Note: *** Significant at level 1%, ** Significant at level 5%, * Significant at level 10%.

The marginal effects coefficients for Logit and Probit models are presented in Table 4. The coefficients of the two models are almost the same, with minor differences between them. However, the marginal effects of the coefficients of the Logit model are used for the interpretation of the results.

The variable of education has a positive impact on employment, as the result shows that persons with a university education (Bachelor, Master or PhD) are more likely to be employed by 30% compared to persons with lower levels of education (elementary and secondary education) in the six Western Balkan countries. This means that if persons increase their level of education from elementary or secondary education to university education, they will increase the probability of employment by 30%. The result is consistent with most of the previous studies (Wolbers, 2000 and Riddell & Song, 2011, Herman, 2012), but runs counter to the study of Arifi A. , Fetai, Qirici, & Abduli (2021), which concluded that education does not have any significance on the probability of being employed.

The age variable has a positive impact on employment, as persons of an older age (35+) are more likely to be employed compared to persons of a younger age. This result is in line with the findings of (Habibov, Auchynnikova, & Luo, 2019; Arifi, Fetai, Qirici, & Abduli, 2021; Arifi, Fetai, & Qirici, 2019). The gender variable is also positive and statistically significant, the marginal effects for the gender variable show that males are more likely to be employed by 15% compared to females. This result is in line with the conclusion drawn by Audas, Berde, & Dolton (200), Arifi, Fetai, Qirici, & Abduli (202), Arifi, Fetai, and Qirici (2019), while it runs counter to the results of Wambugu (2011), Mitri (2019) and Habibov, Auchynnikova, & Luo, (2019) who found that educated females are more likely to be employed compared to males.

The variable of urbanization is positive and statistically significant, and persons living in urban areas are more likely to be employed by 2% compared to persons living in rural areas. Therefore, a person moving from a rural area to an urban area would increase the probability to be employed by 2%. The finding is consistent with the result of Gad (2021). A positive and statistically significant coefficient is the Skills (skills learned in the education system meet the needs of the job), and persons who disagree that skills gained at school meet the needs of the jobs are more likely to be employed compared to those who agree by 5%. The variable of satisfaction with job opportunities (FFJO) is statistically significant but it has a negative impact on the probability of employment, and persons who are unsatisfied with job opportunities are less likely to be employed by 2% compared to those who are satisfied. This means that the higher dissatisfaction with job opportunities, the lower probability to

be employed. The opposite is presented with persons who are unsatisfied with education (including digital education): persons who are unsatisfied with the education are more likely to be employed in comparison with persons who are satisfied. This suggests that the increase of dissatisfaction from the education for one unit would increase the probability of employment by 4%.

Table 4: Marginal effects of coefficients for Probit and Logit models

VARIABLES	(PROBIT) b/se	(LOGIT) b/se
Age	0.03*** (0.01)	0.04*** (0.01)
Gender	0.14*** (0.01)	0.15*** (0.01)
Urbanization	0.02** (0.01)	0.02** (0.01)
Education	0.29*** (0.01)	0.30*** (0.01)
Skills	0.05*** (0.01)	0.05*** (0.01)
Transition	0.16*** (0.01)	0.16*** (0.01)
STFE	0.04*** (0.01)	0.04*** (0.01)
STFJO	-0.02 (0.01)	-0.02 (0.01)
R2	0.0998	0.1002
Observations	6000	6000

Note: *** Significant at level 1%, ** Significant at level 5%, * Significant at level 10%.

5. Conclusions

The objective of the study was to analyse the effect of levels of education on employment in the six Western Balkan countries (Albania, Bosnia and Herzegovina, Serbia, Kosovo, Montenegro, and North Macedonia) by analysing the data as cumulative for the these countries. To estimate the probability of a person being employed, we employed the Probit and Logit models as well as the Marginal Effects of their coefficients. The data was collected from the Balkan Public Barometer 2021 for the six Western Balkans countries with a sample of 6,000 citizens. The research question of the study was: Are persons with a higher level of education more likely to be employed?

The results from the binary logistic regression model show that education has a positive impact on employment. The results from the marginal effects show that persons with a university education (Bachelor, Master or PhD) are more likely to be employed by 30% compared to persons with lower levels of education (elementary and secondary education). Furthermore, the

results support the hypothesis that persons with higher education levels are more likely to be employed. Thus, we may conclude that the higher the education level, the higher the likelihood of employment in the six WB countries.

The variable of age is also positive as persons of an older age (35+) are more likely to be employed compared to persons of a younger age. Furthermore individuals from urban areas are more likely to be employed compared to those coming from rural areas. The findings also suggest that males are more likely to be employed than females.

The result of the study provides a contribution to the academic community, policymakers and business community for recognizing the importance of levels of education on employment. The six WB countries should attach higher importance to the quality of education and to equipping the graduates with the knowledge and skills demanded by contemporary jobs so that the skills mismatch in the labour market is narrowed.

There are some limitations to this study as it does not investigate other factors that lead to employment such as field of study, work experience, type of job employed and sector, considering that all those factors may impact the relationship between the level of education and employment. Another limitation of the study is that the data are not analysed per country, nor are comparisons made between the six WB countries.

Future research in this area should be focused on analysing the importance of Vocational Education and Training (VET) on employment, the field of education from university studies, as well as employment in different sectors of industry.

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Appendix 1: Definition of variables

Description of Variable	Acronym	Cod.
Depended variable		
What is your current working status?	Employment	Employed & Self Employed=0 Unemployed = 1
Explanatory variables		
Age group	Age	18-34 =0, 35+ =1
Urbanization	Urbanization	Rural = 0, Urban = 1
Gender	Gender	Female = 0, Male = 1
Satisfaction from Education, including digital Education.	STFE	Satisfied = 0, Unsatisfied = 1
Satisfaction from Job opportunities	STFJO	Satisfied = 0, Unsatisfied = 1
How long it took you between finishing education and getting the first job?	Transition	More than 1 year = 0 Less than 1 year = 1
Would you agree that the skills you learned in the education system meet the needs of your job?	Skills	Agree = 0, Disagree = 1
What is the highest education you have completed?	Education	Elementary & secondary education = 0 University education (Bachelor, Master, PHD) = 1

Source: Authors' calculation