

# **HIGHER EDUCATION AS A DIRECT CONTRIBUTOR TO LIFETIME PERIODIC EARNINGS: THE CASE OF ALBANIAN WORKFORCE PARTICIPANTS**

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## **Abstract**

*The purpose of this article is to quantify, via statistical measurement means, the periodical earnings gap between an Albanian workforce participant holding a Bachelor's degree - as his/her highest formal education credential – and one holding only a high school diploma, over a lifetime participation in the labor market. The observations are gathered in Albania, among Albanian workforce participants, and the experiment's goal is achieved by spotting the difference between the periodic earnings of those who hold a at least a university degree and those who hold the highest educational credentials prior to university. A measuring econometric instrument is then applied to the collected data, which is a variation of the well-known Mincer's earnings equation. After considering both financial and opportunity costs for university degree holders, the findings show a 17.22% earnings premium that university degree holders enjoy over high school diploma holders in Albania, over a typical lifetime working career. Another attention-grabbing finding is that the typical monthly wage of an Albanian employee holding a university degree is 40.13% higher compared to that of an Albanian employee holding only a high school diploma. Detailed results can be found in the article's findings section.*

*Keywords: Earnings, Function, Education, Human Capital, Screening Hypothesis, Albania*

## INTRODUCTION

We often hear in Albania as well as the whole Balkans region, about youth unemployment skyrocketing to unusually high rates, and much too often the topic is about university graduates who have a hard time securing a job. We also hear about the low salary levels university graduates retain during their first professional career years, once they are fortunate enough to secure a job. Most of the time, however, national figures are unofficial, unclear, and subject to speculation and inequitable interpretation. This study's intent is straightforward; through its completion the author plans to find out to what degree the years, the energy and the effort an Albanian student invests in higher education impact his/her personal periodic returns over a lifetime working career. In this case, the study's main question may be framed as follows:

Main question: To what percentage the successful attainment of a higher education degree contributes to an increase of the personal periodic earnings of an Albanian workforce participant, over the average period of a lifetime participation in the labor market, following his/her education completion?

It certainly is a well-known fact, generally speaking, that those in possession of a higher education (HE) degree make more – over the course of their professional careers – than those who haven't undertaken any higher education studies. It however remains indefinite to what specific extent higher education impacts an eventual increase in periodic earnings, especially in the case of a small developing country that has been trapped for a quarter of a century in a prolonged transition towards market economy, such as Albania. The economic microclimate created in Albania as a result of a wide array of economic and production factors – namely, the absolute absence of financial markets, the utter chaos overshadowing land and domicile ownership, the FDI scarcity because of poor performance expectations in terms of investment returns, and the insubstantiality of a pool of manual labor necessary to attract investment in labor-intensive industries, just to name a few – makes this country an 'outlier' in terms of labor market demand. Albanian families, mostly because of an inherited tradition originating from the country's previous political system, invest heavily in education; however, they grow increasingly uncertain about its future returns. The commercialization of the higher education service during the last decade, coupled with a persisting empirical evidence derived from observing unemployment trends among the country's educated emerging adulthood, as well as a variety of other socio-economic factors (youth emigration, brain drain, easy financial gains through illegal practices such as exporting cannabis, selling hard drugs or mediating illegal transit of human beings) have made Albanians grow skeptical of the real worth of higher education.

Official figures coming from the United States show that successful completion of undergraduate education very much remains a worthwhile lifetime investment. Analyzed U.S.

Census Bureau and U.S. Bureau of Labor Statistics data shows that, on average, a bachelor's degree recipient – excluding from the analysis those who have obtained a graduate degree or higher – received an approximate annual salary of \$66`000 in 2013. That is \$28`000 (or 73.7%) above the average annual wage received by a high school diploma recipient during that same year. Taking into account the fact that high school diploma recipients usually enter the workforce at age 18, while bachelor's degree recipients do so at age 22-23, and that the average retirement age in the U.S. typically is 65 years, the analysis shows that “workers with a bachelor's degree on average earn well over \$1 million more than high school graduates during their working lives...” (Abel & Deitz, 2014, p. 4)

Another equally important comparison to be considered and studied thoroughly in this work will be the return to university education, which is done by utilizing the basic economics internal rate of return test. This essentially is the process of calculating the total costs the average student incurs by undertaking and completing successfully a 4-year university program, and comparing those to the benefits enjoyed by holding a 4-year university degree, after adjusting values for time passed. The benefits in this case should be understood as wage premiums enjoyed by those in possession of a bachelor's degree, when wage averages of those holding a bachelor's degree and those holding only a high school diploma are compared. Again, analyzed government survey data in the United States estimated that in 2012, on average, American university graduates enjoyed a 15% return (Abel & Deitz, 2014, pp. 6-7) on their university education investment.

How do these estimates compare to those of university graduates elsewhere? A study held on data extracted from government-held surveys, from 1995 to 2010 in Germany, and from 2003 to 2011 in Poland, showed that, in 2010, “Germans with higher education could earn about 25% more in comparison to similar (in terms of gender, work experience, work type, size of the company etc.) persons” (Król, 2014, p. 71) without a HE degree. On the other hand, Poles with HE degrees, in 2011 enjoyed an average of about 36% premium on their monthly earnings (Król, 2014, p. 69) compared to their counterparts with no HE degrees.

If the above question could be considered the study's main purpose, it certainly entails several other inquiries that are not of lesser importance:

1. How long does it take to find a job once an individual has obtained a HE degree?
2. At what point in time (in terms of months) is higher education expenses' break-even point averagely reached by university graduates who currently are workforce participants?
3. On average, what are the monthly financial expenditures a typical Albanian household has to bear in order to allow to one family member the obtainment of a HE degree (be it a Bachelor's or a Master's?)

This study is an attempt to contribute to the literature by collecting fresh data and adding new estimates for a small developing country such as Albania, in a time when the European economy is in the struggling stage of recovery from one of the worst financial crises ever experienced since the Great Depression. It is unclear, at least in Albania's case, whether at such a stage, the returns to education in general, and to higher education in particular, have declined, augmented, or remained the same.

## **THEORETICAL FRAMING AND RESEARCH FOCUS**

There exist two main conflicting theories about the effect that formal education has on the periodic (monthly, weekly, etc.) earnings of a workforce participant, provided by the labor market. One theory, the human capital theory pioneered by Shultz and Becker (Spring, 2015, pp. 2-4), postulates that education (among various other variables such as basic intelligence, experience, energy level, trustworthiness, etc.), whether formal or on the workplace, should be considered a direct investment on the individual's abilities to produce. Thus, by acquiring education, individuals enhance their productivity, thereby increasing their periodic earnings. The alternative theory, known as the screening hypothesis advocated by Spence, Sabot and others, maintains that an increase in an individual's periodic earnings may occur not as a direct result of the individual's productivity enhanced by his/her level of education per se, rather than the individual's level of education signaling his/her specific level of productivity. This means that years spent in furthering education (as the case may be in a bachelor's degree, a master's, or a doctorate) are merely an indication of productivity potential, not productivity improvement. If research results show a significant distinction in the private returns of a bachelor's degree holder and a high school degree holder, they basically substantiate human capital theory. Otherwise, if the private returns of these two categories of Albanian workforce participants would result insubstantial, the data would back the screening hypothesis

The benefits of higher education must be appraised from a multitude of dimensions, which eventually end up divided into two main categories: monetary and non-monetary. It is important to emphasize from the start that this study will be taken to explore the benefits of higher education from a strictly monetary dimension, and it is not intended to venture the non-monetary surroundings of these benefits. Nevertheless, what needs to be understood by leaders, public administrators and policymakers in Albania (and beyond, in the whole Balkans region) is that public non-monetary benefits of higher education far exceed private monetary benefits of individuals who reap the financial gains from their graduate status.

## RESEARCH METHODOLOGY

### Targeted Population

The topic of concern for this work will be estimating periodic earning premiums that higher education generates, and this can evidently be achieved by observing the difference between the periodic earnings of those who hold at least a university degree and those who do not. Those who hold at least a university degree are intended to be narrowed down to only the individuals holding:

1. a university degree,
2. a master's degree, and
3. a post-university qualification that can be considered similar or equivalent to a master's degree.

Any qualification considered above and beyond the academic levels of a master's degree, such as a doctorate, a post-doctorate or any other qualification equivalent to the aforementioned is not anticipated as a subject to this study, since the author maintains that in that case the study would lose its intended focus of revealing the economic benefits young adults in Albania acquire through higher education completion. Also, in order to better assess the difference in periodic earnings between those in possession of a HE degree and those who lack it, the study intends to omit all the cases of individuals who have not acquired at least a high school diploma. It is maintained that in the absence of such a basic education credential as the high school diploma, periodic earning averages among employees drop notably, and the figures obtained by such cases could be detrimental to the quality of the study. The study, however, intends to include all the cases of individuals who in addition to having completed high school, have also furthered their studies into the university level, albeit not able to successfully complete them.

### Sample Collection

All of the above serves as the research's methodological context. The data used in the study is drawn through a questionnaire distributed to randomly chosen individuals, beforehand identified as either:

- high school graduates with no higher education,
- high school graduates with some higher education, or
- university graduates

As to how the process of randomly choosing individuals was arranged, the main approach was that of asking the assistance of students in a class setting, identifying those students who have family members or relatives falling in the study's targeted pool of individuals, and handing them several (usually five to six) copies of the questionnaire to be delivered to and filled by the family

members or relatives who qualified for the study. Students are an excellent lead to valuable information because they can easily enable exchange with random individuals, and in the case of a university instructor (as the case is with the author of this research work) contact with students is direct, and data gathering results relatively inexpensive. The downside of this approach is that it involves a relatively relaxed questionnaire completion procedure, whereby questionnaires are not filled scrupulously, typically contain a significant number of mistakes, and the rate of questionnaire return to the author is rather low.

The second approach was that of distributing questionnaires to relatives, friends and colleagues. The advantage of this approach is that the above groups of individuals tend to show high responsibility towards filling the questionnaires properly and provide a high rate of questionnaire return to the author. The disadvantage is that relatives, friends and colleagues usually relate to the author's level of education, and – as in the case of this research study – it can be rather difficult to find enough workforce participants with a high school education to balance the number of those with university education.

Halfway through the process of collecting the necessary number of questionnaires for the planned sample of his DSc dissertation study, the author of this study conducted a pilot experiment, the results of which are published in the following sections of this article. As the questionnaires were being collected, 271 of them were set aside and their data were entered and organized in MS Excel. In an effort to best represent the periodic earnings of each age year group, the author made sure that the pilot sample comprised questionnaires from 45 groups of 6 individuals of same age year, from age 20 to age 64. Extra effort was put into ensuring that roughly half the individuals on each group had a completed education level no higher than high school, while the remaining half a higher education level.

### **The Measuring Instrument**

The most common approach to appraise the effectiveness of an investment is through the internal rate of return (IRR). IRR is a tool regularly used by financial and investment managers to find out the precise rate of return needed to achieve the break-even point of any type of investment at a specific end of period (be it a week, a month, a quarter, a year, a decade, etc.) Even though as a concept IRR is fairly simple to grasp, its formula at times can be very complex depending on the timings of inflows and outflows as well as the variances of cash flow amounts. Economists in the 60s and 70s explored various other – more straight-forward – methods of performing formal education investment appraisals, one of which emerged as the most comprehensive and quantitatively feasible methods. It is that which economists discern as the “Mincer’s earnings function.” This function, which essentially is a linear regression equation, has

become one of the most accepted and widely used approaches in education and labor economics for the last fifty years – specifically in the subfield of human capital – regarding the quantifiable assessment of an individual’s periodic earnings. It expresses the natural logarithm of earnings as a function of: [1] the years an individual spends in formal education, and [2] the years of his/her labor market experience. It is necessary to acknowledge in this case that the subject matter is not the definite labor market experience of an individual, but merely its likelihood, thus the term to be used is “potential labor market experience.” This can be determined by subtracting from a person’s age, the years of schooling and the years prior to schooling, which normally are six, so:

$$[\text{age}] - [\text{years of schooling}] - 6 = [\text{potential labor market experience}]$$

The initial regression form originally proposed by Mincer is:

$$\text{Ln } Y = \text{Ln } Y_0 + \alpha S + \beta_1 X + \beta_2 X^2 + \varepsilon \quad (1)$$

After some experimentation with the data and trying various independent variables that could better explain the variability of our variable of interest, the author decided to employ the basic model altered according a variation which best reflects the information retrieved from the answers in the questionnaires. Its algebraic form is as follows:

$$\text{Ln } Y = \text{Ln } Y_0 + \alpha S + \beta_1 X + \beta_2 X^2 + \gamma \text{Hrs/wk} + \varepsilon \quad (2)$$

Model (2) better represents this study’s questionnaire because it takes into account the subject’s work hours per week (*Hrs/wk*). It needs to be highlighted that the statistical software fits the model using the hourly wages for each observation, meaning  $\hat{y}$  represents the observed hourly wage. This  $\hat{y}$  is in fact a calculated variable for each observation. It is computed using the information retrieved from two questions in the questionnaire: the subject’s monthly wage, and his/her average work hours a week completed.

The variables of model (2) are specified as follows:

- $\text{Ln } Y$  → periodic earnings of the employee with the respective education level (either 10, 11, or 12 years of secondary education, or 15, 16, 17 or 18 years of higher education)
- $\text{Ln } Y_0$  → periodic earnings of the employee with 0 years of formal education and 0 years of work experience (*equation’s intercept value*)
- $S$  → employee’s respective education period, in years
- $X$  → employee’s work experience period, in years
- $\text{Hrs/wk}$  → employee’s work hours per week
- $\varepsilon$  → error term



Parameters  $\alpha$ ,  $\beta_1$ ,  $\beta^2$ , and  $\gamma$ , are the respective coefficients of variables  $S$ ,  $X$ ,  $X^2$  and  $Hrs/wk$ ; they are duly generated by the statistical software when model (2) for the collected data is fitted. After fitting our model, its coefficient values appear to be the following:

$$\text{Ln}Y = 7.1626 + 0.0882S + 0.0187X - 0.0003X^2 - 0.0244Hrs/wk \quad (3)$$

## ANALYSIS

### Testing Model's Validity

The traditional approach of analyzing the validity of an econometric model starts off with the coefficient of determination  $R^2$ , which, in turn, is nothing more than an indicator of the dependent variable variation percentage explained by the attained model. The statistical software outputs an  $R^2$  figure of 44.22%, meaning that 44.22% of the variance of our variable of interest  $\text{Ln}Y$  is explained by the interaction of independent variables in the model.  $R^2$  adjusted displays roughly the same figure; 43.42%.

Is 44% an acceptable  $R^2$  percentage for the purposes of this research? In the areas of science that attempt to predict human interactions and behavior – among which education and labor economics belongs – it is perfectly conventional that prediction models  $R^2$  percentages be not high. Human behavior is certainly much more difficult to predict than, say, physical or chemical processes (Frost, 2013). So an  $R^2$  nearing the 50% figure, taking into account the area of research, offers a substantial explanation of the dependent variable variance resulting from the independent variables' interaction in our model.

The next step in testing the validity of an econometric model usually is checking the parameter estimates' p-values. From statistics, it is known that any p-value  $> 0.05$  rejects the null hypothesis. The null hypothesis for each of the explanatory variables is the presumption that the considered variable does not add anything to the model. The cases in which an explanatory variable's p-value is small ( $< 0.05$ ) would be considered convincing evidence against the null hypothesis, so in these cases the alternative hypothesis, maintaining that the considered explanatory variable is necessary for the model, is considered valid. All of the p-values for each of the model's explanatory variables are  $< 0.05$ , meaning that all the pertaining variables are necessary to provide the best possible explanation for the variance of  $\text{Ln}Y$ . It is to be highlighted that to achieve the current selection of the explanatory variables, an extensive experimental procedure was conducted, essentially eliminating one by one all those variables displaying p-values  $> 0.05$ . Needless to mention, the model's calculatory structure is at a status in which a further elimination of any of the current explanatory variables would substantially diminish its explanatory power.



Another indicator of the soundness of an econometric model is the F-statistic – a statistical test used to determine whether the model is, or is not, better than just using basic summary statistics. So, we have an actual null hypothesis and an alternative hypothesis about this whole multiple regression analysis used to construct our model. The null hypothesis ( $H_0$ ) is the assumption that the model is no better than just using another method of statistical testing, say, simple summary statistics. Differently stated, according to  $H_0$ , the model has no effect, or is not the correct tool to apply for our study's intended measurements. On the other hand, the alternative hypothesis ( $H_1$ ) is the assumption that the model is useful, valid, and a necessary tool for what we are trying to achieve through this study. Assuming a preselected level of significance,  $\alpha = 0.05$ , the statistical package outputs the following F-value: "*Prob > F / <.0001\**." This denotes that the F-value is much smaller than our preselected level of significance of 0.05, so we reject the null hypothesis that the model is no better than just using some other method of statistical testing, and accept this model as a good instrument of correctly conducting the measurements needed for our research.

### **Pilot Experiment Findings**

After running the model several times and experimenting with the independent variables to get the best possible fit, a conclusive set of coefficient figures was achieved, as in equation (3). The calculations based on these figures produced the following conclusions:

- After *estimating and subtracting* the averages of opportunity, financial, and unemployment period costs for those undertaking and successfully completing higher education studies, which amount respectively to:
  - 1,118,405 ALL (Albanian Lek) of total opportunity cost (for an average period of 3.74 years necessary to complete a Bachelor's degree)
  - 991,490 ALL of total financial cost (for an average period of 3.74 years necessary to complete a Bachelor's degree)
  - 772,861 ALL of total cost resulting form an average unemployment period of 1 year and 7.75 months

...it was determined that the average total earnings from wages, acquired during a whole working career of an Albanian workforce participant working in Albania, who:

- a. has successfully acquired – minimally – a university Bachelor's degree, amounts to 18,934,139 ALL
- b. has successfully acquired – at most – a high school diploma, amounts to 16,153,279 ALL

It is to be clarified, at this point, that the costs resulting from an average unemployment period of high school graduates have been also estimated and included in these calculations. For the

record, the average unemployment period for this category of employees stood at 1 year and 9.35 months, and the cost of this unemployment period amounts to 589,321 ALL.

The above figures show that, on average, the overall periodic earnings of an Albanian employee in possession of a Bachelor's degree result 17.22% higher compared to the overall periodic earnings of an Albanian employee in possession of solely a high school diploma.

- Accounting for *all work ages* in our sample, the average hourly wage, and subsequently monthly wage, earned by an Albanian employee who working in Albania who has successfully acquired – minimally – a university Bachelor's degree, results *40.13% higher* compared to the average hourly wage earned by an Albanian employee working in Albania who has successfully acquired – at most – a high school diploma. In actual figures, the average monthly earnings for the employee with a Bachelor's degree are estimated to be ALL 42,199, while for the employee with a high school diploma they are only ALL 29,628.
- If we consider the successful completion of a university Bachelor's degree (accordingly attested by the reception of a recognized higher education diploma) just like any other economic investment, with its typical initial financial bearings and its gradual over-time returns, its break-even point is estimated to be reached after *21 years and 4 months* from the day the average Albanian employee working in Albania and holding – minimally – a university Bachelor's degree, secures his employment. Put differently, an Albanian employee working in Albania and holding – minimally – a university bachelor's degree would be able to match (and eventually surpass) the total amount of periodic earnings accumulated by an Albanian employee working in Albania and holding – at most – a high school diploma, after roughly 21 years and 4 months from the first day of his employment.

## INTERPRETATION OF RESULTS

Having a thoroughgoing look at all the above figures, the first thing to construe is the 17.22% overall rate of return on the investment of higher education. The aforementioned value answers the main question posed at the beginning of this research article, which is to say that successful completion of a higher education degree contributes to an average increase in personal periodic earnings of 17.22% for an Albanian workforce participant, over the average period of a lifetime participation in the labor market. It indicates an excellent rate of return. This is because, since investments with higher rates of return are generally more profitable than those with lower rates of return, it is always considered worthy of undertaking an investment if its rate of return exceeds a predetermined threshold – typically one, equal to the cost of capital (Abel & Deitz, 2014). As it is well understood, the cost of capital is the expense an entrepreneurial activity should bear in order to be able to fully and periodically repay interest on loans and/or expected

return on investment for the financial capital it has initially obtained in order to establish and maintain its operations. Since the cost of capital typically fluctuates at a level of 6-7% (Damodaran, 2013), any investment providing a rate of return above this level would be considered a very good investment. Since our return is at a rate of 17.22%, any financial manager would be amply satisfied with it, and (at least from a monetary point of view) would consider higher education in Albania an excellent investment.

As far as the theoretical aspect of the study is concerned, experiment findings, while do not reject or provide evidence against the screening hypothesis, give definite support to the human capital theory, adding to the stream of reasoning that education (along with training) contributes to human capital fostering. It does not simply identify people who possess it.

When carrying out a comparison between the rate of return of higher education investment in Albania, and those of other countries in Europe a few interesting facts emerge. (It is to be emphasized that the comparison figures below are based on the extensive research work of education economist George Psacharopoulos, and are published in several research papers that he has written on account of the World Bank, during the 2000-2013 period of years.)

- Firstly, (based on this research study alone) Albania's rate of return appears to be about 7.4% higher than the rest of all European countries; the rate of return for higher education investment in Europe is about 9.84% (Psacharopoulos, 2009). This means that, viewed from a long run perspective, it is economically more convenient to invest in higher education in Albania, compared to all the rest of Europe.
- Secondly, if Europe is further divided into regions it is noticed that the rates of return to higher education in Central Europe and Northern and Baltic Europe swing at even lower percentages; 8.77% and 8% respectively. So, compared to these regions, it appears that Albania's rate of return to higher education is a bit higher than double.
- Thirdly, if we consider European regions that are closer to Albania, both geographically and culturally, the respective rates of return appear to be much more congruent. If we perform an average of the rates of return of the Balkan countries alone (where Croatia, Slovenia, Bulgaria, Romania, Greece are included) it still results at an 8.72%, which is almost identical to that of Central Europe. But if Greece is left out of the calculations, Balkan's rate of return rises to 9.15%. It is to be noticed that if Greece is not considered, the remaining countries were once all part of the ex-Socialist Bloc, just as Albania.
- Fourthly, we compare Albania to the rest of Eastern Europe (excluding the territories of the ex-Soviet Union). This region comprises the countries of Poland, Hungary, Czech Republic and Slovakia. The average rate of return for these countries appears to be 17.05%, almost identical to that of Albania. This particular comparison speaks volumes, because it compels

the researcher to attribute this strong similarity in higher education returns to the cultural and societal construct bonds that all Eastern European nations have inherited from the - not too distant - time of their socialist past.

## LIMITATIONS AND FURTHER RESEARCH

There are some limitations worth mentioning, regarding the methodology used to achieve the research objective. First, the conducted analysis is cross-sectional. As such, its main drawback is that the data sample is drawn from a given time period, that is, the first half of 2015. This kind of analyses is usually conducted using time series. Such method, however, requires rigorous data collection efforts, exercised on a fixed sample of observations over a significant number time snapshots, and is usually drawn from censuses conducted by governmental institutions. Regrettably, censuses with the data profiles required for this research are absent in Albania, so the author was obliged to conduct a personal data survey and use a cross-sectional analysis for his research findings. Second, the accuracy of this research's findings will be subject to revision. This is because a pilot sample containing only 271 observations is used for the statistical analysis presented in this article, while the rest of the observations (amounting to approximately 900) are yet to be collected and processed. Subsequent widening of the data sample may provide a more fine-tuned, slightly alternate set of results. Third, the observations comprised in this pilot experiment are provided by family members and relatives of university students. The majority of these students live in urban areas, thus rural Albania is not adequately represented in this research. More comprehensive research works need to be conducted in the future in order to provide a more accurate depiction of the earnings gaps among workforce participants with varying formal education credentials.

## CONCLUSION

In conclusion, the two key highlights of this experiment's findings are:

1. a 17.22% rate of return suggests that higher education investment in Albania still remains a sound investment alternative for all Albanian youth, and that the collective economical intuition of most Albanian families appears to be very accurate in investing considerable amounts of private assets in higher education.
2. Albania falls in that region of Europe that, because of its past cultural and social inheritance, enjoys almost double the returns of the rest of Europe from higher education investment.

Economical circumstances in the near future may swiftly change, and investment in higher education may soon become much less lucrative, however, for the time being, numbers suggest

that, with a rate of roughly 10% higher than the typical cost of capital, higher education very much remains a wise and worthy endeavor for the young and unestablished in Albania.

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