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# THE EXPECTATIONS OF PROSPECTIVE STUDENTS REGARDING THE ECONOMIC RETURNS TO HIGHER EDUCATION: EVIDENCE FROM CYPRUS

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# **THE EXPECTATIONS OF PROSPECTIVE STUDENTS REGARDING THE ECONOMIC RETURNS TO HIGHER EDUCATION: EVIDENCE FROM CYPRUS**

**Maria Eliophotou Menon, Sofia N. Andreou\* and Elias Markadjis**

## **ABSTRACT**

The paper investigates the expectations of prospective university students in Cyprus in relation to the returns to higher education. Specifically, we estimate the expected rates of return to a higher degree and compare the estimates of respondents based on the intended field of study and country of study. Moreover, we estimate expected rates of return for students of different socioeconomic backgrounds. The data used for the estimation were collected from 2051 students in their final year of secondary education in Cyprus in January and February of 2013. The findings point to rational expectations on the part of prospective students. Of the four most popular country destinations, the highest rate of return was expected by respondents intending to study in the United Kingdom. As regards field of study, Medicine and related fields were associated with the highest rate of return. Children of higher parental educational and occupational levels expected higher rates of return. In regression analysis, several variables were significantly linked to the expected rate of return. These included the respondent's socioeconomic status, the field of study, the country of study (students intending to study in Cyprus expected lower rates), student ability, and urban/semi-urban residence. The paper discusses the implications of the findings for educational planning and policy making in higher education.

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# Οι προσδοκίες των υποψήφιων φοιτητών για τις οικονομικές αποδόσεις της τριτοβάθμιας εκπαίδευσης: Η περίπτωση της Κύπρου

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## ΠΕΡΙΛΗΨΗ

Το άρθρο μελετά τις προσδοκίες των υποψήφιων φοιτητών στην Κύπρο σε σχέση με τις οικονομικές αποδόσεις της τριτοβάθμιας εκπαίδευσης. Συγκεκριμένα, στόχος της μελέτης ήταν η εκτίμηση των αναμενόμενων ποσοστών απόδοσης και η σύγκριση των εκτιμήσεων των ερωτηθέντων βάσει του επιδιωκόμενου κλάδου και της χώρας σπουδών. Επιπλέον, υπολογίστηκαν τα αναμενόμενα ποσοστά απόδοσης για υποψήφιους φοιτητές με διαφορετικό κοινωνικοοικονομικό υπόβαθρο. Τα στοιχεία που χρησιμοποιήθηκαν για την εκτίμηση συλλέχθηκαν από 2051 μαθητές που βρίσκονταν στο τελευταίο έτος της δευτεροβάθμιας εκπαίδευσης κατά την περίοδο Ιανουαρίου και Φεβρουαρίου του 2013.

Τα αποτελέσματα δείχνουν ότι οι προσδοκίες εκ μέρους των υποψήφιων φοιτητών είναι ορθολογικές. Μεταξύ των πιο δημοφιλών προορισμών για Κύπριους φοιτητές, το υψηλότερο ποσοστό απόδοσης το είχαν οι ερωτηθέντες που σκοπεύουν να σπουδάσουν στο Ηνωμένο Βασίλειο. Όσον αφορά τον κλάδο σπουδών, η Ιατρική και οι σχετικοί τομείς συνδέονται με υψηλότερα ποσοστά απόδοσης. Επίσης, οι υποψήφιοι φοιτητές με γονείς υψηλότερων εκπαιδευτικών και επαγγελματικών προσόντων αναμένουν υψηλότερα ποσοστά απόδοσης.

Η ανάλυση παλινδρόμησης δείχνει ότι πολλές μεταβλητές συνδέονται σημαντικά με το αναμενόμενο ποσοστό απόδοσης. Αυτές περιλαμβάνουν την κοινωνικοοικονομική κατάσταση του υποψήφιου φοιτητή, τον κλάδο σπουδών, τη χώρα σπουδών (οι υποψήφιοι φοιτητές που σκοπεύουν να σπουδάσουν στην Κύπρο είχαν χαμηλότερα αναμενόμενα ποσοστά απόδοσης), την ικανότητα καθώς επίσης και την περιοχή της κατοικίας τους. Τέλος, το άρθρο εξετάζει τα ευρήματα ως βάση για τη διαμόρφωση εκπαιδευτικής πολιτικής σε σχέση με την τριτοβάθμια εκπαίδευση της Κύπρου.

## **1. Introduction**

The choice of education by prospective students has been investigated in the framework of human capital theory. The human capital model considers prospective students as economic decision makers who select additional education after a comparison of anticipated benefits and costs (Becker, 1964). Thus, higher education will be selected if it is thought to constitute a better investment than direct entry into the labor market. The demand for post-compulsory education is considered to be derived from the expectations, decisions and choices of young people and their families. However, the underlying assumption that prospective students choose higher education on the basis of a comparison of expected benefits and costs has not been investigated in a large number of studies. The available evidence mostly relates to the degree to which students and/or prospective students have realistic perceptions of the returns to higher education. There is limited research on possible links between student expectations and the choice of a country and field of study. Moreover, the link between student expectations and their socioeconomic background has not been widely investigated.

Data on the expectations of prospective students regarding the economic returns to education can inform planning and policy making in higher education. Participation trends and decisions relating to higher education may be difficult to interpret without reference to expected returns on the part of individual students. For instance, expected returns may result in a decline in higher education entry rates, irrespective of trends in actual private returns to higher education (Anchor et al., 2011). The lack of information on the returns to higher education may be linked to lower participation than expected based on actual returns (Jensen, 2010). Despite the importance of evidence on the expectations of economic returns to education, the number of studies on the topic is relatively small. The limited available evidence has been attributed to two main reasons: First, the estimation of expected returns requires the collection of perceived earnings and cost data from individual students, which is a time-consuming and difficult task. Second, economists in general have a strong preference

for the use of aggregate statistical data as opposed to data on individual earnings expectations.

Moreover, data on the link between the perceived economic returns to education and the choice of a country and/or field of study can be of use to higher education institutions which can assess the degree to which country and subject offerings are attractive to prospective students. Prospective students are more likely to select courses and/or countries of study which offer higher returns, especially in countries with high rates of graduate unemployment such as Cyprus. In addition, based on available evidence, students of high socioeconomic status (SES) are more likely to expect higher returns to education compared to their low SES counterparts (see, for example, Betts, 1996; Delaney et al., 2011; Webbink & Hartog, 2004).

The present paper aims at investigating the economic expectations of prospective higher education students in Cyprus. It uses data collected from both general and technical school seniors in order to estimate the following:

- The expected rates of return to the acquisition of a higher education degree as these are based on the subjective assessments of prospective students regarding the costs and benefits of higher education. Using the data, we compare the perceived rates of return of students based on the intended field of study and country of study.
- The expected rates of return to higher education as they relate to students of different socioeconomic backgrounds. Specifically, we investigate differences in the expected rates of return based on social class in order to determine whether higher SES students expect higher rates of return than low SES students.

The paper is structured as follows: Section 2 provides an overview of the literature on the perceived economic returns to higher education. In this section, the findings of relevant research are presented. Section 3 describes the methodology of the study, while section 4 presents the findings of the analysis of the data. Finally, section 5 presents the main conclusions of the research and draws their implications for higher education policy.

## **2. Studies of the expected economic returns to higher education**

The first studies on the expected returns to higher education were conducted in the 1970s and generally found students to be realistic in their assessment of future earnings with a higher degree (Gordon & Williams, 1977; Ferber & McMahon, 1979; McMahon & Wagner, 1981). However, in the study by Ferber & McMahon (1979), women were found to overestimate the financial rewards of higher education.

Studies conducted in the 1980s provided additional evidence on student expectations of the economic returns to education. In the United Kingdom, Williams and Gordon (1981) reported that secondary school students were realistic in their assessment of labor market earnings with higher education. In the same country, a study conducted by Bosworth and Ford (1985) examined the income expectations of higher education entrants. The rate of return estimates reported by Bosworth and Ford were much higher than the estimates reported by Williams and Gordon, which can be attributed to differences in samples (actual versus potential students) and methods of estimation.

In the same decade, two studies were conducted in developing countries by Psacharopoulos and Sanyal (1981, 1982). In the first study, Psacharopoulos and Sanyal (1981) compared student perceptions of the labor market and actual labor market conditions in the Philippines. The same methodology was used in the second study of student expectations in Egypt (Psacharopoulos & Sanyal, 1982). Similar findings emerged in both studies. Student expectations were in line with labor market conditions. The popularity of different subjects was closely linked to the reported perceived returns to higher education and the structure of expected future earnings.

In Hong Kong, Wong (1989) used a methodology similar to that of the Williams and Gordon (1981) study, in order to examine influences on expected lifetime earnings and estimate perceived rates of return to higher education. Survey data were collected from Hong Kong

pupils in their final year of schooling. The author reported realistic perceptions of expected earnings associated with various educational levels.

In the 1990s, studies of student expectations of the financial returns to higher education were conducted in more countries. Their number remained small as the previously mentioned reasons for the limited interest in such research among economists continued to apply. Smith and Powell (1990) reported the findings of a study on the income expectations of college seniors in the United States. They investigated the degree to which college students had reasonable expectations of the returns to education both in relation to their own earnings and in relation to their college and high school peers. According to the findings, college seniors were found to have reasonable expectations of the earnings of other college graduates, based on a comparison between expected income data and actual data on the average income of college and high school graduates. However, male respondents were found to self-enhance earnings to a great extent in that their expectations of earnings for themselves exceeded their expectations for their college peers by as much as 40%.

In another US study, Betts (1996) examined the accuracy of students' knowledge of wages by type of education. The author collected data through a survey of undergraduate students at the University of California. Respondents were asked to provide information on estimated starting salaries, and average earnings of full-time workers aged 25-34 with a high school diploma and with a bachelor's degree. The study found differences in students' beliefs about the labor market, which were linked to personal characteristics such as year and field of study. Students with lower parental incomes provided significantly lower estimates of earnings for college graduates than students with higher parental incomes. Some students overestimated salaries, while others underestimated them, resulting in a mean raw error of only -6%. Moreover, students in the fourth year of studies were more informed about salary levels compared to first year students. Based on the findings, Betts (1996) concluded that not all students were able to accurately forecast future wages in accordance with the rational economic decision making model associated with human capital theory.

In a study by Dominitz and Manski (1996), high school students and college undergraduates provided information on expected earnings under alternative scenarios for future schooling. Respondents were able to provide meaningful responses to questions regarding earnings expectations. There was a general expectation among respondents of positive returns to a college education and an increase in earnings between ages 30 and 40. Wolter (2000) used the model proposed by Dominitz and Manski (1996) and Dominitz (1998) in order to investigate the wage expectations of Swiss students. The expected rates of return considered by students when making a choice in relation to the acquisition of additional education were found to be reasonably close to the actual rates of return to education estimated on the basis of cross-sectional data.

A study by Carvajal et al. (2000) in the United States resulted in mixed findings. The researchers asked a sample of business college students in their senior year and recent graduates of Florida International University to provide information on expected and actual starting salaries, respectively. A comparison of actual and expected earnings showed that students' expectations were generally realistic. However, graduates provided lower estimates of earnings when they worked in large firms, which was not in accordance with seniors' expectations of higher earnings. Graduates reported lower levels of earnings when they were employed in managerial jobs, while the relevant variable for seniors was not significant.

Brunello et al. (2001) examined the wage expectations of college students from 10 European countries (Austria, Denmark, France, Germany, Ireland, Italy, Portugal, Sweden, Switzerland, UK). In this study, the expected returns to education were compared to actual returns on the basis of data drawn from the European Community Household panel and in the case of Switzerland, from national surveys. Respondents tended to expect higher college wage gains than the overall estimated average actual wage gain, pointing to a case of overestimation of the returns to education on their part. This applied to both genders and was more marked in certain countries (United Kingdom, Germany and Portugal).

Students' expectations of the economic returns to college education were also investigated by Botelho and Pinto (2004) in Portugal. In this study, participants were found to be in a position to respond meaningfully to questions regarding their expected earnings. In general, students expected high returns to education, with male students more likely to overestimate actual returns in comparison to their female counterparts. Senior students had more accurate perceptions of the returns to education compared with first-year students. Moreover, students were likely to "self-enhance" in their expectations since they expected higher returns for themselves than their estimates of the average returns to education.

Webbink and Hartog (2004) provided evidence to support the use of subjective data on earnings expectations through an investigation of the accuracy of students' earnings expectations in the Netherlands. The findings of the Dutch study generally did not reveal systematic differences between realizations and expectations in that the structure of students' earnings expectations was similar to the structure of realized incomes.

In Cyprus, the perceived rates of return to higher education were examined in three studies (Menon, 1997, 2008; Menon et al., 2017). In the first study, Menon (1997) collected perceived earnings and cost data from Cypriot students in their final year of secondary education. The lifetime earnings and cost data provided by respondents were used to compute two types of perceived rates of return to higher education: elaborate method rates, and short-cut method rates. The overall rate of return to higher education was 5.7% when estimated with the full method and 6.3% with the short-cut method. New estimates of the perceived rates of return to higher education in Cyprus were provided by a second study, which was conducted 10 years after the first study using the same methodology (Menon, 2008). The perceived rate of return to higher education was 8.7% under the elaborate method and 7.6% under the short-cut method. Even though comparisons with actual rates of return could not be made due to the lack of relevant data, the relatively low values of estimated rates were in agreement with the increase in graduate unemployment in the 1990s. Moreover, the increase in the rates of return in the 10-year period separating the two

studies could be attributed to the optimism associated with Cyprus' entry into the European Union. In the third study (Menon et al., 2017), a decrease in expected rates of return was observed, which is again realistic given the effects of the financial crisis on graduate employment and career prospects.

Anchor et al. (2011) estimated the expected returns to higher education in the Czech Republic and England with data from first-year economics students at three Czech universities and the University of Huddersfield Business School in England. Expected rates of return to education were estimated using the short-cut method. Students in England expected higher rates than those in the Czech Republic. In the Czech Republic, men expected a greater increase in returns, while in England a gender gap in expectations emerged at the point of graduation. The study concluded that students in both countries had realistic perceptions and acted in accordance with human capital theory in that they entered higher education in anticipation of significant returns.

In a recent study, Abbiati and Barone (2017) investigated the expected returns to university education in Italy. They collected data from a sample of secondary school seniors on costs, economic returns and chances of success in higher education. The estimates provided were indicative of high inaccuracy, uncertainty and bias on the part of students. Thus, this study reports findings which differ from those of earlier studies in that most previous studies of the expected returns to higher education reported realistic and relatively accurate estimates. The authors attribute the difference between their findings and those of earlier studies to methodological differences which include the size and type of sample used. Evidence of inaccuracy in the perceptions of returns to education was also reported by Jensen (2010), who conducted a study in the Dominican Republic. However, Jensen's study related to perceived returns to secondary, and not higher, education.

## **2.1. Socioeconomic status and expected returns to higher education**

Very few studies have dealt with the effect of SES on the earnings expectations of prospective and/or actual higher education students. The limited available evidence points to higher earnings expectations among high SES students even though this was not the case in all studies. Betts (1996) found that parental income had a significant effect on the earnings expectations of undergraduate students in the United States. Specifically, low parental incomes were associated with lower earnings expectations. The same link was reported in Cyprus (Menon, 1997). Moreover, Delaney et al. (2011) examined the link between parental education and the expected return to higher education in Ireland. The differences in the earnings expectations of different SES groups were found to be large and significant as lower SES students expected lower earnings. In the study by Abbiati and Barone (2017) in Italy, high SES students overestimated the economic returns to higher education even after allowing for their higher objective returns.

However, Wolter (2000), and Avery and Kane (2004) found that family background variables had no effect on the earnings expectations of Swiss and US students, respectively. In the United States, Rouse (2004) reported that there was no difference between the income expectations of higher income students and lower income minority students. These findings were based on a small sample of high school seniors.

Overall, the available studies on the perceived returns to higher education point to relatively accurate assessments on the part of respondents and suggest that in most cases the human capital model is applicable to the decision making of prospective higher education students. However, there is also evidence to support a “bounded rationality” model (Abbiati & Barone, 2017), especially in cases where prospective students are not well informed on the costs and benefits of additional education (Abbiati & Barone, 2017; Jensen, 2010; McGuigan et al., 2012). Moreover, as previously mentioned, there is very little information on the returns to education as they relate to different countries and/or fields of study, and different socioeconomic groups. In the present study, we attempt to address this gap.

### **3. Methodology**

The data used in the study were collected from students in their final year of secondary education in Cyprus in January and February of 2013. Questionnaires were administered to students during school hours by a trained researcher, who provided explanations/clarifications to students when needed. The number of students who provided information that allowed for the computation of perceived rates of return to higher education was 2051.

Respondents were asked to provide information on the following: (a) demographic and socioeconomic characteristics (b) intentions with respect to the choice of higher education and employment after secondary school graduation (c) estimates of future expected earnings at three points in time (point of starting work, after four years of work, after 20 years of additional work experience), with and without a higher education degree, as well as estimates of the direct costs associated with higher education, and (d) estimates of the expected duration of higher education studies. The questions had been previously used in research on the perceived rates of return in the same country (Menon 1997, 2008).

As regards demographic and socioeconomic characteristics, data were collected on the following individual/background characteristics: Gender (Male/Female), Student Ability (Low/High), Student Socioeconomic Status (SES) (Low/High), Residence (Rural/Urban) and Secondary School Specialization (Vocational/Academic). Ability was measured on the basis of self-reported student performance based on the student's grade point average (GPA) in the previous year. High ability was defined as grades above 16 (out of 20), with grades below 16 denoting low ability. The cut-off point of 16 was based on the schools' classification system in Cyprus, according to which grades above 16 denote good or higher than average performance. Socioeconomic status was a composite variable based on the students' responses regarding the occupation and education of their father and mother. The range of this variable run from 4 to 22 and 13 was used as a cut-off point distinguishing low from high socioeconomic status. With 13 as the cut-off point, the percentage of students of low

socioeconomic status was 29.2. This cut-off choice is supported by evidence suggesting that in 2013, 27.8 per cent of the total population in Cyprus was at risk of poverty or social exclusion (Eurostat, 2013). Residence was based on whether the students lived in urban/suburban or rural areas. Sixty-two percent of students lived in urban or sub-urban areas and 38 per cent in rural areas. In addition, respondents provided information on their intended destinations which included the country and the field of study.

The earnings and cost estimates provided by students were used to compute two perceived earnings streams for each student, one with and one without higher education. For students intending to enter higher education, their reported earnings for the first four years of work under the alternative scenario (direct labor market entry) represented the earnings foregone, as perceived by the student, for the duration of his/her studies. The direct cost estimates provided by students were added to the foregone earnings for the first four years of the earnings stream. The duration of higher education studies was considered to be four years, in accordance with the most common duration of studies expected by respondents.

The perceived cost and lifetime earnings data provided by respondents were used to estimate expected rates of return to education. The most accurate method for the computation of rates of return is the elaborate or full method (Psacharopoulos, 2014). The estimate derived from this method is based on the algebraic definition of the rate of return as the discount rate which equates the stream of benefits of an investment to its stream of costs over a period of time ( $t$ ). If we apply this to higher education, the benefits of higher education ( $E_t$ ) consist in the earnings differential between university and secondary school graduates while the costs of higher education ( $C_t$ ) refer to both direct costs and earnings foregone. With perceived earnings and cost data, and assuming an earnings stream which begins at age 18 and ends at 65, the perceived internal rate of return ( $r$ ) to higher education can be computed as follows:

$$\sum_{t=18}^{65} (Et - Ct) / (1 + r)^t = 0$$

The perceived rates of return were computed for different subgroups in order to enable comparisons between students intending to study in different countries/regions and different fields of study. Comparisons were made between different socioeconomic groups of students to determine whether higher SES students expected higher earnings. Moreover, multivariate regression analysis was used to investigate the link between several variables (SES, country of study, gender, residence, secondary school specialization, student ability and field of study) and the perceived internal rate of return to higher education, which served as the dependent variable.

#### 4. Findings

The average perceived internal rate of return to higher education was found to be 8.5%, which is close to previous estimates for the same country (Menon, 2008). The expected rate of return was estimated based on the country in which the respondent intended to study. Tables 1A and 1B present the findings of this estimation for different countries/regions; the rates of return are reported for the whole sample (Table 1A), and separately for men and women (Table 1B).

TABLE 1A: IRR (Total) and Country of Study

Country of Study	IRR-% (Total)	Number of students	% of students
Cyprus	7.7	702	36.1%
Cyprus and abroad	8.9	337	17.4%
East Europe	12.4	23	1.2%
Greece	8.7	471	24.3%
UK	9.3	274	14.1%
USA	9.8	32	1.6%

Other countries	9.8	103	5.3%
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Total number of students		1942 <sup>1</sup>	100%
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Note:<sup>1</sup> The number of students who provided information that allowed for the computation of perceived rates of return was 2051. However, only 1942 students provided information regarding the country of study.

For the whole sample, the highest rate of return was reported by students intending to study in Eastern Europe (12.4%). However, their number and representation in the sample was very small. The same applies to those intending to study in the United States, who reported the next highest rate of return. There were four groups of students with large numbers in the sample: those intending to study in Cyprus (36.1%), those intending to study in Greece (24.3%), those intending to study first in Cyprus and then transfer abroad (17.4%), and those intending to study in the United Kingdom (14.1%). The highest rate of return was expected by those intending to study in the United Kingdom (9.3%). This was followed by the Cyprus-abroad group (8.9%), the Greece group (8.7%) and finally the Cyprus group (7.7%). In general, men expected higher rates of return than women with the notable exception of the Cyprus group (7.5% for men and 7.9% for women) and the other countries group (9.3% for men and 10.1% for women).

TABLE 1B: IRR (by Sex) and Country of Study

Country of Study	IRR-% (Male)	Number of students	% of students	IRR-% (Female)	Number of students	% of students
Cyprus	7.5	266	34.1%	7.9	436	37.6%
Cyprus and abroad	9.3	122	15.6%	8.7	215	18.5%
East Europe	13	12	1.5%	11.9	11	<1%
Greece	8.8	209	26.8%	8.6	262	22.6%
UK	9.7	102	13.1%	9	172	14.8%
USA	10	27	3.5%	9.2	5	<1%
Other countries	9.3	43	5.5%	10.1	60	5.2%
Total number of students		781			1161	

In Table 2, we present the perceived rates of return to education based on the intended field of study. As seen in the table, the highest rates of return were observed in categories of professions believed to be associated with greater chances of employment. The highest rate of return (11%) was expected by those intending to study Medicine and related fields (Dentistry, Pharmaceutical studies etc.). This was followed by Law (9.2%), Military studies (9.1%), Business Administration, Economics and related fields (8.9%), and Architecture, Engineering and related studies (8.5%). The lowest rates of return were associated with Journalism (6.9%), Graphic Arts (7%) and Sports fields (7.1%). However, the numbers of respondents in these categories were small, ranging from 17 to 28 students.

TABLE 2: IRR and Field of Study

Field of Study	IRR-%	Number of students	% of students
Aesthetics, Hairdressing and Cooking	6.3	33	1.8%
Architecture, Civil Engineering and Surveying	8.5	92	5.0%
Arts, Theatre and Music	8	52	2.8%
Business studies, Economics and Related Studies	8.9	327	17.8%
Dietetics and Nutrition	7.8	<15 <sup>1</sup>	<1%
Education Studies and Speech Therapy	7.3	71	3.9%
Graphic Arts	7	28	1.5%
Hotel Studies	7.2	<15 <sup>1</sup>	<1%
Information Technology and Related Studies	8.1	120	6.6%
Journalism and Media	6.9	17	<1%
Law	9.2	121	6.6%
Mathematics	7.6	51	2.8%
Mechanical Engineering and Related Studies	8.5	100	5.5%
Medicine and Related Fields	11	243	13.3%
Military Studies	9.1	99	5.4%
Philology, Foreign languages and Political sciences	8.2	65	3.5%

Physics, Chemistry, Biology	8.1	98	5.3%
Physiotherapy, Nursing and Ergotherapy	7.4	105	5.7%
Police and Fire Studies	6.3	<15 <sup>1</sup>	<1%
Psychology, Sociology and Related Studies	7.2	74	4.0%
Secretarial Studies	7.3	<15 <sup>1</sup>	<1%
Sports Studies	7.1	20	1.1%
Veterinary Medicine	7.3	<15 <sup>1</sup>	<1%
Other Artistic Studies	9.7	<15 <sup>1</sup>	<1%
Other Studies	7.9	62	3.4%

Note: <sup>1</sup>Fields with less than 15 students; <sup>2</sup>The number of students who provided information that allowed for the computation of perceived rates of return was 2051. However, only 1832 students provided information regarding the field of study.

It is interesting to note that the expected rates of return to certain fields of study varied according to the intended country of study. For instance, respondents expecting to study Medicine in Greece expected a higher rate of return (10.8%) than those who intended to study the same subject in Cyprus (8.2%). In the case of Business Administration, Economics and related fields, which was the category with the greatest number of respondents, the highest rate was reported by those who intended to study first in Cyprus and then abroad (9.6%), while those who intended to study in Cyprus and Greece expected rates close to 8% (8.1% and 8.3%, respectively).

Table 3 shows the expected rates of return in relation to the education of the respondent's mother and father. As seen in the table, the higher the education of the parent, the higher the expected returns to education. The only exception to this is the case of parents with no education whose children expect relatively high rates of return. However, the numbers of respondents in this group is extremely small and cannot be used to draw any conclusions regarding the respondents' expectations.

TABLE 3: IRR and Education Level of the Parents

Education	Father (IRR-%)	Number of students	% of students	Mother (IRR-%)	Number of Students	% of students
No education	8.4	<15 <sup>1</sup>	<1%	16.9	<15 <sup>1</sup>	<1%
Primary Education	7.1	123	6%	7.2	93	4.5%
Secondary Education (Gymnasium)	7.7	201	9.8%	7.4	152	7.4%
Secondary Education (Lyceum)	8.3	926	45.1%	8.3	899	43.8%
University (First degree)	9	541	26.4%	9	718	35%
University (Master's degree)	9.9	253	12.3%	9.4	187	9.1%

Notes: <sup>1</sup>Groups with less than 15 students.

The expected rates of return of respondents based on the occupation of their parents are presented in Table 4. In the case of parental occupation, the highest rates are expected by respondents whose father is a highly educated professional (e.g. a doctor), a specialized but lower status professional (e.g. a teacher) and a retiree (10%, 9.2% and 10.2%, respectively). It is interesting to note that the expected rates for these groups are not much higher than those expected by respondents with an unemployed father (8%) or a father with an occupation which does not require specialized skills and knowledge (7.9%). However, it must be noted that the majority of unemployed fathers are educated to at least the secondary school level.

TABLE 4: IRR and Occupation Status of the Parents

Occupation	Father (IRR-%)	Number of students	% of students	Mother (IRR-%)	Number of Students	% of students
Housewife/ Housekeeper	5.1	<15 <sup>1</sup>	<1%	8.3	423	20.6%
Unemployed	8	75	3.7%	8.4	56	2.7%
Occupations without specialized knowledge	7.9	471	23%	7.9	338	16.5%
Occupations with some specialized knowledge	8.3	792	38.6%	8.5	575	28%
Occupations with specialization without much power <sup>2</sup>	9.2	578	28.2%	9.1	607	29.6%
Occupations with specialized knowledge and power <sup>3</sup>	10	100	4.9%	10.2	48	2.3%
Retired	10.2	20	1%	4.1	<15 <sup>1</sup>	<1%
He/ She Dead	7	<15 <sup>1</sup>	<1%	7.8	<15 <sup>1</sup>	<1%

Notes: <sup>1</sup>Groups with less than 15 students; <sup>2</sup>For example educator, self-employed, etc; <sup>3</sup>For example doctors, lawyers.

As regards the occupation of the mother, the highest rates again apply to respondents whose mother is a highly educated professional (10.2%) or a specialized but lower status professional (9.1%). Much lower rates are reported by respondents whose mother is a retiree (4.1%), which was not the case with the same paternal occupation category. The expected rates for other occupational categories are generally high and close to those of the first two occupational categories. This is also the case for respondents whose mother is unemployed or a housewife in that the expected rate of return for these categories is 8.4% and 8.3%, respectively. A possible explanation for this is the fact that the educational qualifications of mothers who are housewives are strong as about 59.1% have graduated from secondary school while 16.4% are university graduates. A similar picture emerges with

unemployed mothers, with more than 70% having a secondary and/or higher education diploma.

In an examination of the link between SES and the expectations of prospective students, the estimation of the perceived rate of return points to differences between high and low SES students. Specifically, low SES students expect a rate of return of 7.8%, while high SES students are more optimistic, expecting a rate of 9.1%.

Table 5 presents the results of a regression of several independent variables ( $X_i$ ) on the log perceived rate of return to education, which serves as the dependent variable. In the first regression equation (Model I), the log perceived rate was viewed as a function of several variables such as SES, country of study, gender, residence, secondary school specialization, student ability, while in the second (Model II) the field of study was also added as an explanatory variable.

In both models, the following variables had a significant effect on the perceived rate of return: low SES, Cyprus and Eastern European countries of study, urban/semi-urban residence and high ability of the student. As expected, students with low SES tend to have lower perceived rates (by 7%) in relation to students with high SES, while high ability students tend to have higher perceived rates (by 11.9%) in relation to students with low ability.

TABLE 5: Factors Affecting Perceived Rates of Return

Dependent Variable: log (IRR)	Model I		Model II	
	Coefficient (B)	Standard error	Coefficient (B)	Standard error
Low SES	-0.070***	0.026	-0.058**	0.026
<u>Country of study [Other countries]</u>				
-Cyprus	-0.169***	0.060	-0.126**	0.059
-Cyprus and abroad	-0.047	0.064	-0.001	0.062
-Greece	-0.076	0.062	-0.062	0.060

-UK	-0.040	0.066	0.016	0.065
-USA	-0.018	0.125	0.026	0.121
-East Europe	0.283**	0.128	0.284**	0.120
Gender: male [female]	0.032	0.026	0.043	0.027
Residence: urban/semi-urban [rural]	0.050*	0.027	0.042	0.027
Specialization: vocational[academic]	-0.101*	0.059	-0.067	0.060
Student Ability: high [low]	0.119***	0.037	0.079**	0.038
<u>Fields of study [other]</u>				
-Economics, Management and other related			0.131***	0.041
-Pure and Applied Science and other related			0.025	0.040
-Social, Education, Humanities and Classic Studies			0.033	0.041
-Engineering and other related studies			0.028	0.042
-Medicine and other related studies			0.282***	0.049
Constant	1.978***	0.072	1.900***	0.073
Observations	1,949		1,949	
R-squared	0.037		0.062	

Notes: The category excluded from the regression is shown in square brackets; The symbols \*, \*\* and \*\*\* indicate that the effect is statistically different from zero at 10%, 5% and 1% significance level, respectively. Standard errors are robust to heteroscedasticity.

In Model I, vocational school specialization had a marginally negative significant effect, while students from urban and semi-urban residence appeared to have higher perceived rates in relation to students coming from rural residence. Regarding the country of study, students planning to study in Cyprus appeared to expect lower perceived rates in relation to students that choose to study in other countries (by 16.9%). Finally, the fields of study that appeared to have a statistically positive significant effect in Model II were Business/Economics Studies, and Medicine and other related fields with the latter having the largest magnitude effect (28.2%).

## **5. Conclusions and implications**

The present study aimed at investigating the expected rates of return to higher education based on the perceptions of prospective students. Perceived rates of return were estimated for the respondents' intended field of study and country of study. Moreover, we estimated the rate of return for students of different socioeconomic backgrounds. According to the findings, the average perceived rate of return to higher education was 8.5%, which is in agreement with previous estimates for Cyprus (Menon, 2008). In relation to the most popular countries of study, the highest rate of return was expected by students intending to study in the United Kingdom. This points to a rational expectation on the part of prospective students in that a degree from a British university is commonly considered to be more prestigious than other alternatives and to be associated with a wage premium. However, it is important to note that the differences in the expected rates are relatively small.

As regards the intended field of study, the findings also point to rational expectations in that the highest rate of return was expected by those intending to study Medicine and related fields. Other fields with high returns include Law; Military studies; Business Administration, Economics and related fields; and Architecture/Engineering. This finding is also consistent with the somewhat greater employment opportunities for graduates of these fields.

In general, children of higher parental educational and occupational levels expected higher rates of return, which is in agreement with the findings of most relevant studies. Students of higher SES expected higher rates compared to their low SES counterparts. This points to a link between SES and expectations of the economic returns to education, which has been reported in other countries.

The findings of the regression analysis confirm the significance of SES as a variable affecting the expected returns to education, which is the case for both models estimated in this paper. Other significant variables include the intended country of study, with students intending to study in Cyprus expecting significantly lower rates. Those intending to study in

Eastern Europe expected significantly higher rates but as previously mentioned, their representation in the sample was very small. Vocational school specialization was associated with lower rate-of-return expectations only in the first regression model. Higher ability and urban/semi-urban residence were associated with higher rates, while significantly higher expected returns were observed in the case of fields of study commonly considered to be linked to higher employability such as Medicine.

Overall, the findings of the present study provide support for human capital theory in that they point to the ability of prospective students to provide reasonable estimates of the returns to education. This suggests that relevant decisions were made after a comparison of anticipated benefits to anticipated costs based on the situation of the labor market in Cyprus. Countries and fields of study linked to higher employability were expected to have greater returns. Moreover, respondents were aware of the reported link between socioeconomic background and the returns to education as students of lower SES expected significantly lower returns. Thus, the present study adds to the existing research findings on the topic.

Beyond their theoretical significance, the findings have implications for educational planning and policy making in higher education. The fact that students intending to study only in Cyprus expect significantly lower returns to education should constitute a source of concern for both public and private institutions in Cyprus. It is important that the reasons for this phenomenon be investigated in future research: Is this an accurate perception of labor market hiring and remuneration practices? An alternative explanation is that prospective students lack information on the recognition and ranking of higher education institutions based in Cyprus, which results in a biased perception and an underestimation of the returns to higher education in the country. Thus, further research is needed to shed light on the issue. The findings of such research will be especially valuable to universities in Cyprus as they attempt to formulate their strategic and marketing plans.

Moreover, the fact that low SES students expect lower returns should also constitute a source of concern at the educational policy level. Even though this perception is probably accurate, it may be responsible for a lower participation rate in higher education among low SES students. Government officials and policy makers need to consider measures that will provide greater support to low SES students and graduates, as they compete with their higher SES peers. In relation to higher education, studies have shown that low SES students can benefit from specific initiatives which will enhance their ability to perform as well as their middle and high SES peers in the university environment. Specifically, low SES students in higher education can benefit from a more collaborative pedagogy, more appropriate course content, and greater involvement with other students and faculty (Engstrom & Tinto, 2008; Tett, 1999). In addition, it is important that government policy makers consider measures that can enhance the ability of low SES students to find employment after university graduation.

Overall, the present study points to the importance of investigating the perceptions of prospective students regarding the costs and benefits of higher education diplomas. Most studies of the topic have not addressed variations in expectations based, for instance, on intended country and field of study, and socioeconomic background. However, our findings indicate that the investigation of such variations can provide valuable data and contribute to the existing body of evidence both on a theoretical and on a policy level.

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