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### **Low Socioeconomic Status Students in Higher Education: Entry, Academic Attainment and Earnings Expectations**

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# **Low Socioeconomic Status Students in Higher Education: Entry, Academic Attainment and Earnings Expectations**

**Maria Eliophotou<sup>\*</sup> and Nicoletta Pashourtidou**

## **ABSTRACT**

The paper reports the findings of a study of low socioeconomic status students in higher education in relation to their participation, academic attainment, and earnings expectations after graduation. Data were collected from a sample of mainly third and fourth year students at the University of Cyprus. The findings point to significant differences between high and low socioeconomic status students in terms of preparation for higher education, academic attainment at university, and earnings expectations after graduation. In comparison to their high socioeconomic status peers, low socioeconomic status students were less likely to spend a large number of hours on preparatory private lessons and less likely to achieve a high grade at university. Moreover, students of lower socioeconomic status were found to expect lower employment earnings, although employment expectations (duration of unemployment and type of first job) were not significantly affected by parental socioeconomic status. The paper discusses the implications of the findings for educational policy and research.

**Keywords:** Socioeconomic status; Higher education; Access; Academic attainment; Expected earnings; Cyprus.

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# Η Συμμετοχή Μαθητών Χαμηλού Κοινωνικού/Οικονομικού Επιπέδου στην Ανώτατη Εκπαίδευση: Είσοδος, Ακαδημαϊκή Επίδοση και Οικονομικές Προσδοκίες

Μαρία Ηλιοφώτου και Νικολέττα Πασιουρτίδου

## ΠΕΡΙΛΗΨΗ

Η έρευνα σε θέματα συμμετοχής και πρόσβασης στην ανώτερη εκπαίδευση καταδεικνύει το μεγάλο πλεονέκτημα των μαθητών μέσου και ανώτερου Κοινωνικού Οικονομικού Επιπέδου (ΚΟΕ). Παιδιά που προέρχονται από χαμηλά κοινωνικοοικονομικά στρώματα είναι λιγότερο πιθανό τόσο να συνεχίσουν στην τριτοβάθμια εκπαίδευση όσο και να αποφοιτήσουν από το πανεπιστήμιο σε σχέση με τους πιο «προνομιούχους» συμμαθητές τους. Η επίτευξη προόδου σε θέματα ισότητας στην ανώτερη εκπαίδευση αποτελεί πρωταρχικό στόχο εκπαιδευτικής πολιτικής για τις ανεπτυγμένες χώρες. Παρά τη σημασία του θέματος, στην Κύπρο δεν έχουν γίνει πολλές προσπάθειες συστηματικής διερεύνησης της συμμετοχής μαθητών χαμηλού ΚΟΕ στην ανώτερη εκπαίδευση.

Στα πλαίσια διερεύνησης της συμμετοχής μαθητών χαμηλού ΚΟΕ στο φοιτητικό πληθυσμό του Πανεπιστημίου Κύπρου, μελετήθηκαν τα ακόλουθα:

- Το ποσοστό μαθητών χαμηλού ΚΟΕ ανάμεσα στους φοιτητές του Πανεπιστημίου Κύπρου.
- Η σχέση ΚΟΕ με επιτυχία στις εξετάσεις του Πανεπιστημίου Κύπρου και η σχέση ΚΟΕ και παρακολούθησης φροντιστηριακών μαθημάτων πριν την είσοδο στο πανεπιστήμιο.
- Οι επιδόσεις φοιτητών διαφορετικού ΚΟΕ και η εξέλιξη των επιδόσεων των φοιτητών διαφορετικού ΚΟΕ μετά την είσοδο τους στο πανεπιστήμιο.
- Οι οικονομικές προσδοκίες των φοιτητών μετά την αποφοίτησή τους σε σχέση το ΚΟΕ τους (αναμενόμενα εισοδήματα και ο βαθμός στον οποίο οι φοιτητές αναμένουν ότι θα αντιμετωπίσουν ανεργία μετά το τέλος των σπουδών τους).

Για τη συλλογή στοιχείων, έγινε έρευνα επισκόπησης με δείγμα 551 φοιτητών του Πανεπιστημίου Κύπρου. Έγινε χρήση οικονομετρικής ανάλυσης για τη μελέτη της σχέσης του ΚΟΕ με τις υπό εξέταση μεταβλητές. Τα αποτελέσματα έδειξαν ότι υπήρχαν στατιστικά σημαντικές διαφορές μεταξύ φοιτητών χαμηλού και υψηλού ΚΟΕ σε σχέση με την προετοιμασία για την ανώτερη εκπαίδευση, το βαθμό εισδοχής στο πανεπιστήμιο, την ακαδημαϊκή επίδοση κατά τη διάρκεια της φοίτησης και τις οικονομικές προσδοκίες μετά την αποφοίτηση. Σε σχέση με τους φοιτητές υψηλού ΚΟΕ, οι φοιτητές χαμηλού ΚΟΕ ήταν λιγότερο πιθανό να είχαν παρακολουθήσει φροντιστηριακά μαθήματα για περισσότερο από 8 ώρες την εβδομάδα. Επίσης, οι φοιτητές χαμηλού ΚΟΕ ήταν λιγότερο πιθανό να έχουν υψηλή ακαδημαϊκή επίδοση στο πανεπιστήμιο ενώ είχαν πιο χαμηλές προσδοκίες ως προς τα αναμενόμενα εισοδήματά τους μετά την είσοδο στην αγορά εργασίας. Η εξέλιξη της ακαδημαϊκής επίδοσης δεν διέφερε μεταξύ των φοιτητών χαμηλού και υψηλού ΚΟΕ. Επίσης,

δεν παρατηρήθηκαν διαφορές μεταξύ των φοιτητών χαμηλού και υψηλού ΚΟΕ ως προς την εκτίμησή τους για την πιθανότητα ανεργίας και τον τύπο απασχόλησης (πλήρης ή μερική) μετά την αποφοίτησή τους.

Στο σύνολο τους, τα αποτελέσματα της έρευνας δείχνουν ότι οι φοιτητές χαμηλού ΚΟΕ μειονεκτούν σε θέματα πρόσβασης και επίδοσης στην ανώτερη εκπαίδευση. Ένα σοβαρό μειονέκτημα για τους μαθητές χαμηλού ΚΟΕ είναι η σύνδεση της εισδοχής στα δημόσια πανεπιστήμια με την παραπαιδεία, μέσω της οποίας οι μαθητές ανώτερου ΚΟΕ αποκτούν σημαντικό πλεονέκτημα έναντι των λιγότερο προνομιούχων συμμαθητών τους. Έτσι, είναι αναγκαία η λήψη μέτρων από την πολιτεία και τα ανώτερα ιδρύματα της Κύπρου που να δρουν υποστηρικτικά για μαθητές χαμηλού ΚΟΕ.

# 1. Introduction

The under-representation of low socioeconomic status (SES) students within universities is a key concern across the higher education sector. Research has shown that low SES students are less likely to enter higher education and more likely to attend less selective institutions when they do enter (Bolliver, 2011; Hearn, 1990; Paulsen & St. John, 2002; Weiss & Steininger, 2013). Moreover, they are less likely to graduate due to a higher drop-out rate or to attend graduate school (Argentin & Triventi, 2011; Walpole, 2003). Given the importance of equity issues on the educational policy agenda, the investigation of the experience and decision making of low SES students is increasingly attracting the attention of researchers and government officials.

In Cyprus, the participation and performance of different SES groups in higher education has not been extensively investigated. The high participation rate in tertiary education among secondary school graduates (Statistical Service of the Republic of Cyprus, 2014) may be interpreted as an indication that the access and equity issues observed in other countries may not be equally applicable to Cyprus. However, research on the choices and expectations of low SES students is necessary in order to shed light on the characteristics of students associated with entry and performance in higher education and on possible sources of disadvantage for specific groups of students.

The paper aims at the investigation of the participation of low SES students in higher education in relation to the student population of the University of Cyprus. Specifically, it examines the following:

- The representation of low SES students in the student population of the University of Cyprus.
- The link between success in the entrance examinations of the University of Cyprus and SES. In this context, we will investigate possible links between SES and the attendance of private lessons prior to university entrance.
- The performance of low and high SES students and their progress after university entrance.
- The economic expectations of low and high SES students after their graduation from university. Specifically, an attempt is made to estimate expected earnings and the degree to which students expect to face unemployment as university graduates. The expectations of students are examined in relation to their SES in order to determine differences in expectations among different socioeconomic groups.

The University of Cyprus is the largest public university and the first higher education institution to receive university status in the country. However, no systematic studies of its student population have been conducted in relation to SES. Data on the composition of the student body can inform education policy measures linked to the promotion of equity and access in higher education. Recent proposals to reform the university admission system such as the institution of an open enrollment plan have met with resistance from teacher unions and other stakeholders. The collection of data on the student population can facilitate the implementation of such measures through the identification of weaknesses in the present system. Evidence on differences in the representation and performance of socioeconomic groups can point to specific ways of addressing obstacles faced by disadvantaged students.

Research conducted in Cyprus has pointed to the importance of grades as an influence on the intention of secondary school graduates to pursue higher education (Menon 1997, 2008a). As expected, secondary school students with higher grades were found to be more likely to select university education over direct employment. While SES was found to have a significant effect on the intention to enter higher education in a 1994 study, this was not the case in 2004 (Menon 1997, 2008a), where the variable was not significant. However, in a recent measurement, the variable emerged again as significant (Menon et al., 2016). Moreover, secondary school specialization was a significant variable in all measurements (Menon, 1997, 2008a, 2016). It is possible that secondary school specialization reflected some of the effects of SES, since students from low socioeconomic backgrounds are likely to select technical/vocational specializations to a much greater extent than their high SES peers. Overall, the findings of research conducted in Cyprus point to significant differences between high and low SES students in terms of the intention to enter higher education. However, there is very little evidence on the actual participation, performance and expectations of low SES students in higher education.

In this context, the present study focuses on possible differences in the performance and expectations of low and high SES students, which include the attendance of private lessons prior to university entrance, the academic attainment and progress made while at university in terms of grade performance, and the economic expectations after graduation. All three areas of investigation can be considered to be associated with a disadvantage for low SES students. High SES students are more likely to attend more private lessons and be taught by more qualified (and hence more expensive) instructors; it is also possible that they achieve higher grades and make more progress than low SES students at university due to the greater possession of cultural capital; finally, high SES can be linked to better earnings and career prospects after university graduation, which is often reflected in the expectations of both low and high SES students. The present study aims to determine the extent to which, if any, low SES students at the University of Cyprus exhibit a social class disadvantage in terms of these areas.

The paper is structured as follows: the next section provides an overview of the literature on the link between SES, and participation and performance in higher education. Section 2 also presents findings of research on the economic expectations of graduates of different socioeconomic groups. Section 3 describes the methodology of the study, while Section 4 presents the findings of the analysis as they relate to the main aims of the study. Finally, Section 5 presents the conclusions of the research and draws implications for educational policy and practice.

## **2. Socioeconomic status and higher education: access, performance and expected returns**

Studies of the link between socioeconomic status and educational outcomes commonly adopt the framework proposed by Pierre Bourdieu (1984). In Bourdieu's work, the concepts of cultural capital and habitus are used to provide an explanation for the ways in which the economic and social elites maintain their advantages through a process of social reproduction. The economic, social and cultural capital possessed by each class is transmitted from parents to their children. Parents who are highly educated are in a better position to gain access to (higher) education institutions that favor and reproduce the cultural norms, values and practices already transmitted to their children. In this framework, habitus refers to a set of norms and dispositions which is shared by people belonging to the same class and is used to formulate strategies and guide behavior in order to achieve specific goals. Educational decisions are framed by one's habitus as those of higher status attempt to acquire capital that can lead to future educational and occupational advantages. This is especially true of post-compulsory education as students make choices regarding their future education in accordance with their cultural capital and their habitus.

According to Bourdieu and his colleagues, higher education systems contribute to the reproduction of social inequalities by rewarding attitudes, behavior and knowledge that are characteristic of high SES families (Bourdieu et al., 1990). Thus, high status cultural capital receives positive reinforcement in education, while those with non-dominant cultural capital are neglected and marginalized. Parents of low SES students are not familiar with the dominant culture of the university system, resulting in their inability to transmit the cultural capital that will enable their children to excel. Studies of low SES university entrants render support to this interpretation: for instance, a study of first year university students in Australia found that low SES students were more likely to report difficulties in adjusting with the teaching style of the university and in understanding the material taught (James et al., 2010).

### **2.1 Socioeconomic status and access to higher education**

Bourdieu's critique of the university system has drawn attention to the plight of disadvantaged groups in higher education and has resulted in a number of initiatives aimed

at widening participation by increasing the social diversity of university entrants. Despite such initiatives, the link between access to higher education and the socioeconomic background of the family remains strong. A large number of research studies points to a persistent disadvantage for students of low socioeconomic backgrounds in relation to both access and performance in higher education. Based on census data from 1991 to 2006 and data from HILDA (Household Incomes and Dynamics in Australia), Coelli (2010) found that young people with a parent holding a Bachelor's degree were 25% more likely to attend university compared to those whose parents had not completed secondary school. In the same country, Edwards (2008) reported that opportunities for university entrance had diminished considerably between 1996 and 2004 for students of low SES. According to the U.S. Department of Education, students from households with earnings below \$20000 were under-represented in tertiary education, making up 8.7% of university entrants even though they stood at 13% of the final grade high school cohort (Provasnik & Planty, 2008). In a study of transitions to post-secondary and tertiary education in the Netherlands, Tieben and Wolber (2010) reported that even when children from low socioeconomic backgrounds were more eligible for the most prestigious tracks, they were likely to make less ambitious educational choices. Based on the analysis of data from more than ten countries, Thomas and Quinn (2007) drew attention to the strong links between parental education and access to higher education. It thus appears that data from different countries point to a persistent disadvantage for low SES students in relation to access to higher education. However, it is important to take into account the existence of significant cross-country differences. For instance, Scandinavian countries have made more progress in matters of access and equity than Anglophone countries, with continental and southern European countries generally placed in the middle (Andreou & Koutsampelas, 2014).

The fact that high SES students possess cultural capital appears to be linked to several decisions with an impact on success in relation to both university entrance and subsequent performance. In countries like Cyprus, it is common for high school students to resort to preparatory private lessons in an attempt to increase the likelihood of entering both local and international universities. This results in an informal dual enrollment practice as private lessons are considered necessary in the attempt to secure university places in more prestigious institutions and faculties. Even though there is very little evidence on private lessons attendance in the country, relevant decisions and choices made by students and their parents are likely to be influenced by the family's SES. Thus, high SES students can be expected to attend private lessons to a greater extent and to select better or more experienced instructors who charge higher fees. Given the importance of prior academic preparation for the student's future educational endeavors, it is reasonable to assume that low SES students are at a disadvantage in this respect.

## **2.2 Socioeconomic status and academic attainment in higher education**

As regards academic attainment, the advantage of high SES students is well-documented: The student's prior school academic attainment as reflected in his/her grades upon university entrance is a strong and persistent determinant of university attainment in that those who are better qualified at the point of entrance are also more qualified at the exit point (Hoare & Johnston, 2011). Students whose parents do not have at least a bachelor's degree (known as first-generation students) have been reported to have lower grades and to be more likely to drop out of university compared to continuing generation students (De Angelo et al., 2011; Harackiewicz et al., 2014; Stephens et al., 2014). In a large U.S. study, Walpole (2003) analyzed longitudinal data from a national study of university graduates, which provided information on students' activities, aspirations and attainment at three points in time (first year at university, four years later and nine years later). Low SES students reported lower grades than their high SES counterparts, with almost half obtaining a B average compared to a third of high SES students. In multivariate analysis, socioeconomic status was found to be a strong predictor of graduate school attendance. It is important to note that a narrowing of socioeconomic differences in academic performance during the time of study has been reported in a small number of studies (see, for example, Delaney et al., 2011).

Attempts at widening participation have been informed by research on the paths of young people prior to university entry, which has investigated, among others, the links between type of school attended, prior academic performance, and success in university entrance and graduation. In the United Kingdom, students from independent schools were found to perform better at A-level examinations compared to those from state schools (Hoare & Johnston, 2011). In the U.S., research has shown that prior academic course work is a very important predictor of success at university as students with more advanced levels of specific subjects such as mathematics were more likely to complete their degrees (Adelman, 2006). Moreover, high school students who participated in a dual enrollment program combining the International Baccalaureate (IB) and Advanced Placement (AP)<sup>1</sup> programs performed better at university, had higher graduation rates and were more likely to earn advanced degrees compared to their non-AP counterparts (Wyatt & Mattern, 2011). Low SES students were less likely to attend schools which do not offer AP courses (Handwerk et al., 2008).

## **2.3 Socioeconomic status and expected returns to higher education**

The expected returns to higher education have been investigated in a small number of studies on the basis of information collected from individual students (prospective or actual).

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<sup>1</sup> The AP program is offered within U.S. high schools by school teachers in combination with the standard school curriculum. It aims at offering university-level curricula to high school students in several subject areas.

Most relevant studies point to the ability of higher education students to provide realistic estimates of their future earnings (see, for example, Webbink & Hartog, 2004). Students with low SES and/or low parental incomes were found to provide significantly lower estimates of future earnings. In a study conducted by Betts (1996) in the U.S., survey data were collected from 1269 undergraduate students at the University of California. Respondents' estimates of starting salaries were compared with actual data reported in the Salary Survey of the College Placement Council. Parental income had a significant effect on expected earnings as low parental incomes were linked to lower earnings expectations. This was also the case in a study conducted in Cyprus with prospective higher education students (Menon, 1996).

Based on survey data from students of seven Irish universities, Delaney et al. (2011), investigated the relationship between parental education and the expected return from university education. Respondents were asked to state both their short-term and long-term earnings expectations. Parental education was significantly linked to both short-term and long-term earnings expectations. The authors pointed to a "large, significant and persistent differential" in the earnings expectations of different SES groups. An important question that emerges from this and previous studies on the topic concerns the extent to which low SES students are underestimating their future earnings or are making accurate estimates based on an awareness of discrimination patterns upon labor market entry.

Overall, the findings of research on the link between socioeconomic background and higher education outcomes point to a significant effect: students of low SES are less likely to enter higher education and when they do enter, their performance tends to lag behind that of their high SES peers. Moreover, based on the findings of a small number of studies, low SES students expect to earn significantly less than high SES students after graduation and labor market entry. Despite the importance of the topic for educational policy, the decisions and choices of low SES students with respect to higher education have not been investigated extensively in a considerable number of countries which include Cyprus.

### **3. Methodology**

Data were collected through surveys from a sample of 551 students of the University of Cyprus most of whom were enrolled in the third and fourth year of their studies. An attempt was made to include mostly students in the final (fourth) year of their studies in order to be in a position to follow their academic progress over a longer period of time. The proportion of third and fourth year students in the student population was used to determine the desired simple size. A minimum of 500 students was considered satisfactory for the purposes of the analysis. As questionnaires were distributed to respondents during or after class time, it was possible to minimize the incidence of non-response and exceed the targeted sample size. Thus, 551 students completed the questionnaire, of whom 38% were third year and 50%

fourth year students. All faculties were represented in the sample, with the exception of the Faculty of Medicine, which has recently become operational.<sup>2</sup>

Respondents were asked to provide information on three main areas of interest: their educational experience prior to university entrance, which included academic attainment and the attendance of private lessons; their academic attainment after university entrance, i.e. their grade point average (GPA) in the first, second, third and fourth year of studies (where applicable); and their expectations after graduation in relation to the possibility of unemployment and expected earnings. Expected earnings were provided for three points in time: first job after graduation, after four years of employment, and after 20 years of employment. This allowed for the estimation of expected lifetime earnings in accordance with the approach used in previous research (see, for example, Williams & Gordon, 1981). Moreover, respondents provided information on a number of individual/demographic characteristics which included questions on their SES. Specifically, students answered questions on the income, education and occupation of both parents.

In order to classify respondents into occupational categories, we used the classification of the Office for National Statistics (2013), which consists of the following categories:

8. Higher managerial, administrative and professional occupations
  - 8.1 Large employers and higher managers and administrative occupations
  - 8.2 Higher professional occupations
7. Lower managerial, administrative and professional occupations
6. Intermediate occupations
5. Small employers and own account workers
4. Lower supervisory, craft and related occupations
3. Semi-routine occupations
2. Routine occupations
1. Never worked and long-term unemployed.

Criteria regarding parental education and occupation were used to classify respondents into socioeconomic status categories. The criteria were specified so that the two groups of students (high and low SES) would differ significantly in terms of parental education and occupation, thus ensuring that only truly disadvantaged students would be classified in the low SES category. A student was assumed to belong to the “high” SES group if both of the following conditions were met:

- (a) Both his/her parents had completed at least undergraduate studies, or one parent completed postgraduate studies and the other completed secondary education,  
and

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<sup>2</sup> Unlike the faculties surveyed that offer four-year undergraduate programs, the Faculty of Medicine offers a six-year program and currently has a small number of third year students and no fourth year students.

- (b) at least one of his/her parents was classified under the highest occupation category and the other in the second highest.

A student was assumed to belong to the “low” SES group if both of the following conditions were met:

- (a) Only one parent completed secondary school at the most,  
and
- (b) only one parent belonged in the fifth highest occupation class (i.e. small employers and own account workers) at the most.

For the analysis of the data, different models were employed based on the aims of the study. Multivariate regression analysis was used to investigate the link between the grade of students at the university entrance examinations and SES. In addition, we used an ordered probit regression model to examine the effects of different characteristics on the probability that a student took private lessons for university entrance examinations for a given number of hours per week. The relation between SES and the students’ academic attainment at university was also investigated through an ordered probit model. Finally, we examined the effect of independent variables (including SES) on the students’ employment expectations as well as on their earnings expectations.

## **4. Results**

As previously mentioned, the sample consisted mainly of four year and third year students (50% and 38% respectively). The remaining were either first/second year students or students who had failed to graduate within the standard four-year period and continued their studies into the fifth/sixth year. There was a higher percentage of female students (75%) in the sample, which is in accordance with the higher representation of females in the student population. The majority of respondents resided in urban or suburban areas (70%), with only 30% living in rural areas.

### **4.1 Socioeconomic status of students, university entry grade and private lessons**

Table 1 presents the socioeconomic characteristics of the students sampled. More than half of the respondents stated that their family’s net income did not exceed 25000EUR. Students from low-income families (less than 15000EUR) accounted for 29% of the sample, while 12% of respondents classified themselves in the highest income category (over 50000EUR).

The most common reply to the question on parental educational attainment was secondary education (6 years). A substantial proportion of students (35-39%) were associated with high levels of parental education. The percentages of students whose parents completed no more than three years of secondary education were much smaller (14-18%). Regarding parental employment, about one in three students stated that their father/mother was a full-time employee in the private sector. The second and third most frequent answers concerning

father's employment were full-time public sector employee and self-employed, respectively. Regarding mother's employment, the second and third most popular responses were respectively full-time public sector employee and "other", which also includes housewives, hence the large percentage.

**Table 1: Socioeconomic status of students at the University of Cyprus**

Description	%	
<i>Family income (annual, net) EUR</i>		
	<i>(497)</i>	
Up to 15000	29	
15001-25000	27	
25001-35000	19	
35001-50000	13	
Over 50000	12	
<i>Education</i>	<i>Father (549)</i>	<i>Mother (551)</i>
Up to primary	7	6
Secondary (3 years)	11	8
Secondary (6 years)	47	48
University (undergraduate)	25	31
University (postgraduate)	10	8
<i>Employment</i>	<i>Father (547)</i>	<i>Mother (547)</i>
Public sector, full time	29	25
Private sector, full time	32	32
Part time	6	7
Pensioner	7	2
Self-employed	15	6
Unemployed	8	6
Other	3	22
<i>Occupation class</i>	<i>Father (543)</i>	<i>Mother (543)</i>
Never worked and long-term unemployed	10	29
Routine occupations	3	7
Semi-routine occupations	5	9
Lower supervisory, craft and related occupations	27	10
Small employers and own account workers	14	5
Intermediate occupations	17	16
Lower managerial, administrative and professional occupations	5	6
Higher managerial, administrative and professional occupations	20	18
<i>SES, derived variable</i>	<i>(539)</i>	
Low	7	
Medium	83	
High	9	

Note: The number of observations is given in parentheses. Percentages are rounded to the nearest integer.

The most frequent response regarding the father's occupational class was associated with the fourth lowest class (i.e. lower supervisory, craft and related occupations) followed by the top class (i.e. higher managerial, administrative and professional occupations). The responses on the mother's occupational class were rather extreme with the most frequently stated classes being the lowest (29%) and the highest (18%). Based on parents' level of education and occupation class, 9% and 7% of students were classified as originating from families with high and low socioeconomic status (SES), respectively. The remaining were considered to be middle SES students.

Table 2 shows the results of a linear regression analysis of factors that affect the grade of students at the university entrance examinations. The SES of parents is found to influence students' university entry grade positively and significantly. Students with top final year grades in secondary education attain much higher university entry grades compared to those of average or low secondary school performance in their final year. When the time spent on private lessons for university entrance examinations varies between zero and 10 hours per week, it does not appear to significantly affect the outcome. Only students who spent over 10 hours per week on preparatory private lessons are found to be associated with somewhat better performance at the university entrance examinations.

**Table 2: Relation of SES and university entry grade**

Dependent variable: university entry grade <sup>1</sup>		
Independent variable <sup>2</sup>	Coefficient	Standard error <sup>3</sup>
Constant	15.209***	0.770
SES	0.026***	0.009
Gender: male [female]	0.152	0.110
<i>Number of hours (weekly) spent on private lessons for university entrance examinations [0 to 4]<sup>3</sup></i>		
4+ to 6	0.151	0.149
6+ to 8	0.178	0.149
8+ to 10	0.191	0.158
10+	0.269*	0.151
<i>Secondary education final year grade [16 or lower; C or lower]<sup>3</sup></i>		
18+ (or mostly A)	2.732***	0.731
16+ to 18 (or mostly B)	1.036	0.747

Notes: <sup>1</sup> The estimation of the linear regression model is based on 488 observations,  $F=16.14$  ( $p$ -value=0.00),  $R^2=0.31$  and the standard error of the regression is 0.97.

<sup>2</sup> The category excluded from the regression is shown in square brackets. The symbols \*, \*\* and \*\*\* indicate that the coefficient is statistically different from zero at 10%, 5% and 1% significance level, respectively.

<sup>3</sup> Standard errors robust to heteroscedasticity.

Table 3 shows the results of an ordered probit regression; more specifically the table gives the marginal effects of different characteristics on the probability that a student took private lessons for university entrance examinations for a given number of hours per week.

**Table 3: Relation of SES and private lessons for university entry**

Dependent variable: number of hours per week spent on private lessons <sup>1</sup>	0 to 4 hours		4+ to 8 hours		8+ hours	
	Effect	Standard error <sup>3</sup>	Effect	Standard error <sup>3</sup>	Effect	Standard error <sup>3</sup>
SES: high [medium, low]	-0.081*	0.044	-0.042*	0.023	0.123*	0.066
Gender: male [female]	0.072**	0.029	0.037**	0.015	-0.109**	0.043
Area: urban [sub-urban, rural]	0.026	0.025	0.013	0.013	-0.039	0.037
Secondary education: private [public]	0.206***	0.061	0.106***	0.036	-0.313***	0.092

Notes: <sup>1</sup> The marginal effects are obtained via the estimation of an ordered probit regression based on 534 observations, Wald statistic=19.83 ( $p$ -value=0.00), pseudo  $R^2=0.02$  and the log pseudolikelihood is -537.29.

<sup>2</sup> 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.

<sup>3</sup> Standard errors are computed using the delta method.

The results show a positive relation between the family SES variable and the likelihood that a student spent a large number of hours per week (more than eight) on preparatory private lessons for university entrance examinations. Other factors that are found to negatively

affect the probability of extended private lessons time per week include gender, and the choice of private secondary education; male students and graduates of private high schools are less likely to have spent over eight hours per week on preparatory private lessons.

## 4.2 Students' performance at university and relation with SES

An ordered probit regression model was used to estimate the effects of several variables, including SES, on the probability of attaining a given performance at university. Table 4 presents the results of this estimation. Several variables, such as SES, gender, year of study and field of study, are significantly linked to the probability of attaining a specific GPA.

**Table 4: Determinants of academic attainment**

Dependent variable: student's GPA bracket <sup>1</sup>	Low (5 to 6.49)		Medium (6.50 to 8.49)		High (8.50 to 10)	
	Effect	Standard error <sup>3</sup>	Effect	Standard error <sup>3</sup>	Effect	Standard error <sup>3</sup>
Independent variable <sup>2</sup>						
SES	-0.009***	0.003	0.002**	0.001	0.006***	0.002
Gender: male [female]	-0.128***	0.035	0.037***	0.013	0.091***	0.026
Year of study: 5 or 6 [1-4]	0.257***	0.075	-0.075***	0.025	-0.182***	0.057
No. of working hours (weekly) during studies	0.002	0.002	-0.001	0.001	-0.001	0.001
Field of study same as preferred option <i>Secondary education final grade</i> <i>[16 or lower; C or lower]</i>	-0.128***	0.029	0.037***	0.011	0.091***	0.022
18+ (or mostly A)	-0.192*	0.108	0.056*	0.033	0.136*	0.077
16+ to 18 (or mostly B) <i>Department [Education]</i>	0.008	0.111	-0.002	0.032	-0.006	0.079
Social & political sciences	0.207***	0.052	-0.060***	0.021	-0.147***	0.037
Psychology	-0.014	0.057	0.004	0.016	0.010	0.040
Law	-0.015	0.060	0.004	0.018	0.011	0.042
English studies	0.015	0.083	-0.004	0.024	-0.010	0.059
French & European studies	0.236***	0.090	-0.069**	0.032	-0.167***	0.064
Turkish & Middle Eastern studies	0.196***	0.067	-0.057**	0.024	-0.139***	0.048
Biological science	0.043	0.045	-0.012	0.013	-0.030	0.032
Mathematics & statistics	0.317***	0.061	-0.092***	0.029	-0.225***	0.043
Physics	0.226**	0.093	-0.066**	0.033	-0.160**	0.064
Chemistry	0.411***	0.061	-0.120***	0.032	-0.291***	0.048
Business & public administration	0.277***	0.059	-0.081***	0.027	-0.197***	0.041
Economics	0.311***	0.071	-0.090***	0.029	-0.220***	0.052
Accounting & finance	0.053	0.059	-0.015	0.018	-0.037	0.041
Electrical & computer engineering	0.243***	0.066	-0.071***	0.025	-0.172***	0.049
Civil & environmental engineering	0.317***	0.074	-0.092***	0.033	-0.225***	0.051
Architecture	-0.180**	0.084	0.052*	0.029	0.128**	0.057
Byzantine & modern Greek studies	0.163**	0.076	-0.047*	0.025	-0.115**	0.054
History & archaeology	0.156*	0.085	-0.046	0.028	-0.111*	0.059
Classics & philosophy	0.163*	0.089	-0.048	0.029	-0.116*	0.062

Notes: <sup>1</sup> The marginal effects are obtained via the estimation of an ordered probit regression based on 497 observations, Wald statistic=212.68 (p-value=0.00), pseudo R<sup>2</sup>=0.23 and the log pseudolikelihood is -347.40.

<sup>2</sup> 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.

<sup>3</sup> Standard errors are computed using the delta method.

As regards SES, it appears that the family's socioeconomic background positively affects the students' university performance measured by GPA brackets. Students from families with higher SES are more likely to achieve a high GPA compared to those from families with lower SES. Thus, students of high SES are less likely to achieve a GPA in the range of 5-6.49, i.e. in the lowest grade bracket.

Table 5 shows the evolution of students' academic performance at university by presenting the average change in GPA across students from one year to the next.<sup>3</sup>

**Table 5: Evolution of performance: change in GPA bracket**

	Average change	Obs.
<i>All students</i>		
from year 1 to year 2	0.10	494
from year 2 to year 3	0.19	473
from year 3 to year 4	0.30	270
All years	0.16	494
<i>By SES</i>		
<i>High</i>		
from year 1 to year 2	0.29	48
from year 2 to year 3	-0.04	47
from year 3 to year 4	0.26	27
All years	0.16	48
<i>Medium</i>		
from year 1 to year 2	0.07	402
from year 2 to year 3	0.22	385
from year 3 to year 4	0.33	219
All years	0.17	402
<i>Low</i>		
from year 1 to year 2	0.19	36
from year 2 to year 3	0.29	34
from year 3 to year 4	0.16	19
All years	0.18	36

There is a tendency for improvement in the performance throughout the four years of study, with the largest increase in grades typically occurring between the third and the fourth year of study. Over the four years of study, the average improvement in performance does not appear to significantly vary with the students' SES. High SES students experience a decrease in their GPA from the second to the third year which is significantly different from the GPA changes of students in other SES groups. High SES students enjoy the largest increase in their GPA between the first and the second year of study, while low SES students experience the largest improvement in their performance between the second and the third year of study. The increase in grades from the third to the final year is, on average, the largest for medium SES students and the smallest for low SES students. It thus appears that the *change* in students' GPA from one year of study to the next might not depend on their SES; however, as previously shown, the probability of achieving a certain *level* of GPA is found to be positively linked to the family SES of students.

### 4.3 Students' SES, and employment and earnings expectations after graduation

The data provided by students in the survey instrument were used to investigate their employment and earnings expectations after their graduation from the University of Cyprus.

<sup>3</sup> Data on GPA were reported in the form of brackets of 0.5 point.

Table 6 shows the percentage of students who stated that they expect an unemployment spell of less than one year right after their graduation, as opposed to a longer unemployment period, and the proportion of students who answered that they expect to find a full-time job, as opposed to part-time employment, after they complete their studies. The percentage of students who expect to experience a short unemployment period after their graduation is similar among the different SES groups. Students of high SES appear slightly more pessimistic with respect to the type of their first job compared to students of medium and low SES; a smaller proportion of high SES students expects to find a full-time job after graduation compared to the corresponding percentages for medium and low SES students.

**Table 6: Employment expectations after graduation**

	%	Obs.
<i>All students</i>		
Unemployment spell: less than one year	51	544
Full-time job	58	540
<i>By SES</i>		
<i>High</i>		
Unemployment spell, less than one year	50	50
Full-time job	50	50
<i>Medium</i>		
Unemployment spell, less than one year	52	443
Full-time job	58	440
<i>Low</i>		
Unemployment spell, less than one year	48	40
Full-time job	56	39

To investigate whether there exist statistically significant differences in employment expectations among students of different SES levels, we estimated a bivariate probit model for the expected unemployment spell (short vs. long) and the expected type of first job (full-time vs. part-time).<sup>4</sup> The estimation results reveal that the family SES of students does not seem to significantly affect their employment expectations. Moreover, expectations about the speed of employment after graduation and the type of the first job are not found to be influenced by gender, area of residence, ability measured by the university GPA or plans for postgraduate studies. The field of study, however, plays a key role in determining employment expectations, with the students in the economics, accounting and finance, and law departments being among the most optimistic (Appendix, Table A1).

Table 7 shows the mean, standard deviation and median of expected monthly salary estimates at the three points in time supplied by the students in the sample; the table also shows the derived estimates for students' expected lifetime earnings.<sup>5</sup>

<sup>4</sup> Details about the bivariate (seemingly unrelated) probit model can be found in Greene (2003).

<sup>5</sup> Expected lifetime earnings, *ELE*, are computed as follows:

$$ELE = 0.5 \times (A_4 - A) \times (E_1 + E_2) + 10 \times E_2 + 23 \times E_3$$

**Table 7: Earnings expectations, EUR**

	Mean	Standard deviation	Median	Obs.
<i>All students</i>				
Monthly salary				
First job after graduation	808	319	800	514
After 4 years of employment	1323	679	1200	506
After 20 years of employment	2533	1795	2000	489
Lifetime earnings (derived variable)	974067	588973	808600	485
<i>By SES</i>				
<u>High</u>				
Monthly salary				
First job after graduation	841	409	800	47
After 4 years of employment	1424	677	1200	48
After 20 years of employment	2898	1553	2500	45
Lifetime earnings (derived variable)	1109362	559964	955500	45
<u>Medium</u>				
Monthly salary				
First job after graduation	803	318	800	422
After 4 years of employment	1320	704	1100	413
After 20 years of employment	2518	1865	2000	402
Lifetime earnings (derived variable)	966744	605861	807300	398
<u>Low</u>				
Monthly salary				
First job after graduation	808	217	800	37
After 4 years of employment	1204	365	1200	37
After 20 years of employment	2156	1260	2000	35
Lifetime earnings (derived variable)	854416	430500	738400	35

The earnings expectations of respondents referred to three points in time (point of first employment, after 4 years of employment and after 20 years of employment), which allowed for the estimation of expected lifetime earnings. Expected monthly salary and lifetime earnings vary with the SES group, with students of higher SES appearing more optimistic in their estimates. The differences in the expected monthly salary between the high and low SES students widen in the case in which the estimates are based on over 20 years of employment experience.

It is important to note that the estimated mean and median expected lifetime earnings of all students are lower compared to the estimates from a sample of final year secondary education students in Cyprus (Menon, 2008b), which may reflect the effect of the financial crisis on earnings expectations and/or the fact that higher education students are better informed about labor market conditions compared to their secondary education counterparts.

Table 8 presents the results of a regression analysis of factors affecting expected lifetime earnings. Two models are estimated using alternative forms of the SES variable. In Model 1, SES is measured by a continuous variable, while in Model 2 a dummy variable takes the

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where  $A$  is the assumed age of starting full-time work,  $A_4$  is the age at 4 years of work (hence  $A_4 - A$  is equal to 4), and  $E_1$ ,  $E_2$  and  $E_3$  denote the expected annual earnings when starting full-time work, at age  $A_4$  and at age 46, respectively (see, for example, Williams & Gordon, 1981).

value one if the student comes from the high SES group, and zero otherwise. In both models the SES variable has a positive and significant effect on expected lifetime earnings. In Model 1 the estimated effect shows that the higher the family SES, the more generous the lifetime earnings expected by the student are. Based on the SES variable coefficient in Model 2, we conclude that students of high SES expect to earn over their lifetime 14% more than those from families of lower SES.

**Table 8: Factors affecting expected lifetime earnings**

Dependent variable: expected lifetime earnings (logarithm) <sup>1</sup>	Model 1		Model 2	
Independent variable <sup>2</sup>	Coefficient	Standard error <sup>3</sup>	Coefficient	Standard error <sup>3</sup>
Constant	13.055***	0.121	13.168***	0.110
SES	0.009**	0.004	–	–
SES: high [medium, low]	–	–	0.142**	0.067
Gender: male [female]	0.102*	0.055	0.092*	0.054
Area: urban [sub-urban, rural]	0.018	0.044	0.026	0.044
University GPA	0.022*	0.012	0.024**	0.012
Postgraduate studies: yes [no, uncertain]	0.084*	0.047	0.092**	0.046
<i>Department [Education]</i>				
Social & political sciences	0.060	0.104	0.070	0.104
Psychology	0.288**	0.111	0.290**	0.112
Law	0.444***	0.115	0.460***	0.114
English studies	0.108	0.119	0.100	0.119
French & European studies	0.110	0.183	0.128	0.185
Turkish & Middle Eastern studies	-0.033	0.088	-0.033	0.087
Biological science	0.233*	0.140	0.245*	0.138
Mathematics & statistics	0.347***	0.107	0.356***	0.106
Physics	0.290***	0.096	0.305***	0.098
Chemistry	0.277***	0.093	0.278***	0.095
Business & public administration	0.254***	0.087	0.270***	0.085
Economics	0.446***	0.090	0.442***	0.087
Accounting & finance	0.459***	0.085	0.467***	0.083
Electrical & computer engineering	0.583***	0.135	0.596***	0.131
Civil & environmental engineering	0.304***	0.111	0.329***	0.112
Architecture	0.188*	0.110	0.208*	0.109
Byzantine & modern Greek studies	0.188	0.224	0.199	0.227
History & archaeology	0.291**	0.143	0.294**	0.138
Classics & philosophy	0.120	0.147	0.100	0.152

Notes: <sup>1</sup> The estimations are based on 469 observations, F=5.45 (p-value=0.00) and F=5.64 (p-value=0.00), for Model 1 and Model 2 respectively; R<sup>2</sup>=0.17 and the standard error of the regression is 0.45 for both models.

<sup>2</sup> The category excluded from the regression is shown in square brackets. The symbols \*, \*\* and \*\*\* indicate that the coefficient is statistically different from zero at 10%, 5% and 1% significance level, respectively.

<sup>3</sup> Standard errors robust to heteroscedasticity.

The estimated coefficients of other variables are very similar in the two models. Male students, those with higher GPA, and students who intend to undertake postgraduate studies, are associated with higher expected lifetime earnings. We also find significant differences in expected lifetime earnings among the different departments of study. The highest earnings are estimated for students in the department of electrical and computer engineering followed by those in the department of accounting and finance, economics and law. The students in the abovementioned departments expect to earn about 45% to 60% more than those in the education department. The most pessimistic regarding future earnings are students in the department of education, social and political sciences,

Byzantine and modern Greek studies, and classics and philosophy as well as students in the faculty of humanities.

Overall, the findings indicate that there are significant differences between high and low SES students of the University of Cyprus in terms of preparation for, and entry into, higher education, grade attainment, and earnings expectations after graduation. The analysis of the data points to SES differences in decision making regarding preparation for university entry which translate into better performance at the point of entry. It also shows that a student's SES is significantly linked to his/her expectations regarding future earnings in the labor market.

## **5. Conclusions and implications**

The study aimed at investigating the differences in entry, attainment and expectations among different socioeconomic groups of students at the University of Cyprus. According to the findings, 7% of the student population of the University of Cyprus can be considered to be disadvantaged in terms of SES. Students of lower SES were found to be associated with lower grades at the university entrance examinations and a lower probability of attending preparatory private lessons for these examinations for more than eight hours per week. Students from families with high SES were more likely to achieve a high GPA compared to those from families with low SES. However, the change in the students' GPA from one year of study to the next was not found to depend on their SES. Moreover, students of low SES were found to expect lower earnings after their graduation and employment, even though their expectations with respect to graduate unemployment and type of first job did not differ from those of their high SES counterparts significantly.

Overall, the findings point to a clear disadvantage for students of low SES in several aspects of the higher education experience. The fact that private lessons in Cyprus are widely used to prepare students for university entrance examinations means that high SES students have an advantage over their low SES counterparts since more affluent parents can afford more hours of private lessons and hire better instructors. Our analysis provides evidence that students of lower SES are less likely to attend private lessons for more than 8 hours per week. This translates into a lower university entrance grade for low SES students whose academic attainment at university lags behind that of their high SES peers. In this respect, the findings of our study are in agreement with the literature on SES and access to higher education which overwhelmingly points to a persistent disadvantage for low SES students resulting in their lower representation in the higher education student population (Coelli, 2010; Edwards, 2008; Thomas & Quinn, 2007).

As regards SES and academic attainment in higher education, our findings show that the disadvantage low SES students have at the point of entry is maintained throughout their

studies. Studies conducted in many countries have produced similar findings as students of low SES have been linked to lower grades and to a higher likelihood of drop-out at university (see, for example, Walpole, 2003). Even though some studies have reported a narrowing of socioeconomic differences in academic attainment in higher education (see, for example, Delaney et al., 2011), they remain the exception rather than the rule.

As regards expected earnings, the findings are also in agreement with the literature in that low SES students were found to expect lower earnings upon labor market entry as reported in studies by Betts (1996), and Delaney et al. (2011). One explanation for this finding is that low SES students are aware of a family background disadvantage and take it into account when making estimates of future earnings. This would mean that low SES students are making realistic earnings estimates in that family “connections” in small countries like Cyprus can enhance the likelihood of one’s getting a job. It is also possible that low SES students lacked the optimism and confidence possessed by their high SES counterparts even though the two groups did not differ significantly in their expectations regarding future unemployment. However, this may be due to the fact that low SES students were more willing to compromise and accept lower-paid jobs while their high SES peers could afford a “waiting period”.

The findings have implications for educational policy making in relation to access and equity in higher education. It appears that the advantage enjoyed by higher and middle SES students can take many forms, one of which is the attendance of preparatory lessons for university entrance examinations. In the case of Cyprus, it appears that policy makers must regard the widespread use of private lessons as a source of disadvantage and take measures that will facilitate the access of low SES students to university. In this context, the open-enrollment policy recently proposed by the University of Cyprus may benefit low SES students since entrance examinations (and hence private lessons) will no longer be necessary for university admission. However, under an open-enrollment policy, it is important that the University develops mechanisms to support low SES students after admittance since differences in cultural, social and economic capital may still prevent them from adjusting and performing as well as their middle and high SES peers in the university environment.

Under the present competitive entry system, low SES students who succeed in entrance examinations exhibit different characteristics compared to those of higher SES in that they tend to have lower grades and less optimistic expectations of future earnings. It is thus necessary for university officials to ensure that institutional practices provide support to low SES students by addressing specific conditions for student success among disadvantaged groups. Studies of low SES students in higher education point to specific conditions for student success which include a more collaborative pedagogy, more suitable course content, and greater involvement with other students and faculty (Engstrom & Tinto, 2008;

Tett, 1999; Tinto, 2000). It is also important to conduct research on the characteristics of the student population on a systematic basis in order to identify and address problems faced by disadvantaged groups.

The findings of the present study can inform policy making in Cyprus on issues of access and equity in higher education. Further research on the topic can shed more light on the choices and expectations of disadvantaged students. For instance, it is important to examine the reasons for which low SES students have different expectations regarding their future earnings and the extent to which these expectations are in agreement with labor market practices. Consequently, it is not sufficient to look at the outcomes as they relate to student participation and performance in higher education. It is equally important to investigate the motives and experiences of low SES students as these can provide a strong basis for the formulation of initiatives that will effectively address actual and potential sources of inequality and disadvantage.

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## Appendix

**Table A1: Factors affecting expectations about the period of unemployment after graduation and the type of first job**

Dependent variable: duration of unemployment <u>and</u> type of employment (full-time vs. part-time) after graduation <sup>1</sup>	Short unemployment spell <u>and</u> full-time job		Long unemployment spell <u>and</u> part-time job	
Independent variable <sup>2</sup>	Effect	Standard error <sup>3</sup>	Effect	Standard error <sup>3</sup>
SES	0.001	0.004	-0.001	0.003
Gender: male [female]	0.041	0.044	-0.040	0.038
Area: urban [sub-urban, rural]	0.009	0.036	-0.008	0.031
University GPA	0.010	0.010	-0.010	0.009
Postgraduate studies: yes [no, uncertain]	0.002	0.036	-0.011	0.032
<i>Department [Education]</i>				
Social & political sciences	0.215**	0.083	-0.201***	0.072
Psychology	0.200**	0.086	-0.177**	0.075
Law	0.315***	0.077	-0.305***	0.070
English studies	0.064	0.102	-0.068	0.089
French & European studies	-0.002	0.121	-0.014	0.106
Turkish & Middle Eastern studies	0.107	0.107	-0.123	0.093
Biological science	0.027	0.073	-0.056	0.063
Mathematics & statistics	0.061	0.083	-0.081	0.071
Physics	0.096	0.098	-0.111	0.085
Chemistry	0.112	0.100	-0.124	0.087
Business & public administration	0.184**	0.072	-0.186***	0.063
Economics	0.397***	0.086	-0.366***	0.078
Accounting & finance	0.360***	0.078	-0.339***	0.071
Electrical & computer engineering	0.254*	0.134	-0.245**	0.116
Civil & environmental engineering	0.175**	0.087	-0.183**	0.075
Architecture	-0.054	0.101	0.040	0.088
Byzantine & modern Greek studies	0.216	0.159	-0.230*	0.140
History & archaeology	-0.164*	0.099	0.110	0.084
Classics & philosophy	-0.058	0.120	0.033	0.105

Notes: <sup>1</sup> The marginal effects are obtained through the estimation of a seemingly unrelated bivariate probit model for the expected unemployment spell (short vs. long) and the expected type of first job (full-time vs. part-time). The number of observations is 507, Wald statistic=117.47 (p-value=0.00), and the log pseudolikelihood is -634.90. The covariance of the residuals from the two equations,  $\rho = 0.209$  (standard error = 0.072) and the Wald test statistic for  $\rho = 0$  is 7.89 (p-value=0.005).

<sup>2</sup> 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.

<sup>3</sup> Standard errors are computed using the delta method.

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