

The real university cost in a “free” higher education country

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Abstract

Using a sample of over 3000 first year university entrants in Greece, we investigate the time and expense incurred in preparation for the highly competitive higher education entry examinations, as well as what students spend privately while attending university. It is shown that in a constitutionally “free for all” higher education country, families spend privately more than the state in order to prepare for the entrance examinations and while studying at the university. In addition, poorer families spend a higher share of their income on the education of their children. Private education expenditure seems to be a necessity for all, the income elasticity being of the order of 0.2–0.3.

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1. Introduction

According to article 16 of the Greek Constitution, higher education is free and the responsibility of the state. Evidently, the excess demand generated by the zero price has created a number of problems, such as the need for rationing of university places, the tacit lowering of higher education quality by the expansion of short-cycle non-university institutions, and a world record number of Greek students studying in foreign countries (see Psacharopoulos, 2003).

Another issue is that, although students who manage to enroll in Greek universities pay no tuition, there are private and other social costs associated with attendance. The direct social cost of a university place is of the order of €4000 per year, one of the lowest in the

European Union (OECD, 2003). This is funded by the general taxpayer, which of course includes the parents of students. Another social and private cost, is the foregone earnings of the student while studying, conservatively estimated at €6000 per year.

Families and students bear two additional private costs. First, in preparation for succeeding in the highly competitive university entry examinations, and second, while enrolled at the university. This paper presents an analysis of these costs based on a sample survey of first year entrants in Greek universities.

A 10 percent random sample was selected of all first year entrants to the eight major Greek universities (see Table A-1 in the Appendix). Each student was administered a questionnaire raising information on his/her socioeconomic characteristics, preparation for university entry and expenditures incurred during study. The questionnaires were completed between January and March 2000 covering a total of 3441 students who

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had enrolled for the first time in the Fall of 1999. Table A-2 presents descriptive statistics of selected variables used in the analysis to follow.

Nearly six out of every ten students entering university are females, showing a continuing trend of increasing female over male enrollment in higher education. Parental schooling corresponds roughly to the completion of secondary education (12 years).

Only 6 percent of the student body had attended a private lyceum. The grade of the last year of lyceum that was taken into account for admission to university, was nearly 18 (out of a maximum of 20).

2. The competitiveness and inequity of university entrance

The students in the sample took the higher education entry examination in the Summer of 1999. As shown in Fig. 1, in that year, there were nearly 180 000 candidates applying for 35 000 university places. Only one out of five candidates entered a proper university in 1999. Another one in five entered the short-cycle technological institutes that are in low demand. Among those who entered university in our sample, only one in out of three entered the department or university of their first choice.

In the Greek context, university entry is very important. The public sector is a dominant employer of university graduates. Perhaps the main reason is that a university degree is a requirement for landing a job in the public sector. Civil servants are hired for life, making dismissal impossible, other perhaps than committing a criminal offence. Civil service pay is not great, but there are dozens of perks. Taking all these into account, it is no surprise that the demand for university entry is so high.

Taking the wider economy in perspective (i.e. the public and private sector), prospective students behave by observing what adults with different degrees earn, compared to the cost of obtaining the degree.

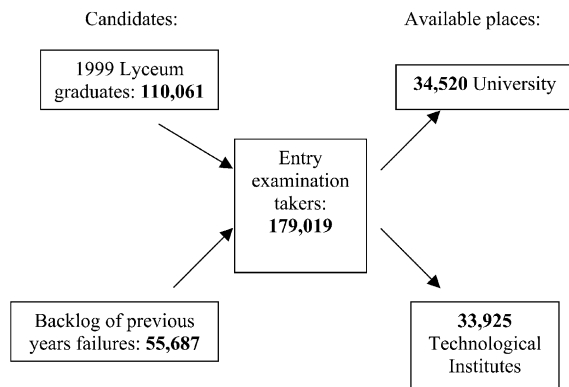


Fig. 1. The 1999 university entrance story.

Table 1
Mean father's income by father's education

Educational level	Income(€/year)	Years of schooling	Percent of sample
Primary	11 830	6	16.2
Gymnasium	12 613	9	8.6
Lyceum	15 155	12	17.8
Higher technical	14 241	14	16.1
University	19 660	16	38.2

The relationship between father's education and family income of those in the sample is very revealing. (Table 1).

Based on the income averages by years of schooling in Table 1, one can estimate approximate returns to education for the two cycles of higher education, over lyceum graduation, using the short-cut method (see Psacharopoulos & Ng, 1994). The returns to university graduation are of the order of 7.4%, i.e. a rate exceeding that of Bank deposits. The returns to non-university higher education are in fact negative, hence explaining the aversion for entry to that type of education.¹

One of the reasons university attendance is free in Greece, is to provide equal chances to rich and poor for gaining a university place. The last column in Table 1 allows us to have a glimpse at social mobility via education. By construction, all students in our sample had the same level of schooling—12 years as they are all Lyceum graduates. By 2004 or so, nearly all will be higher education graduates. Comparing this to their fathers' education, we see that a little more than one third of the students had a father with university education. The parental education of nearly 60 percent of the students was below university education. This is prima facie evidence of a high degree of social mobility via education.²

Yet, when we use parental occupation to construct an index of the student body, we get a completely different picture. As shown in Table 2, a simple comparison of the students' father profession to the distribution of professions in the labor force as a whole reveals that farmers are grossly underrepresented in the student body, while

¹Using data more appropriate for this purpose, Magoula and Psacharopoulos (1999) found that in 1993 that the returns to non-university technical education were of the order of 6%. Psacharopoulos and Tsamadias (2001) and Tsamadias (2002) report returns to this level of education for 1997 of the order of 5%, a year when the interest on Bank deposits was nearly double.

²In Greece, there is no differentiation whatsoever between men and women regarding educational attainment or university access.

Table 2
The inequity of university access (%)

Father's occupation	Labor force share	Student entrants share	Representation index
(1)	(2)	(3)	(4)
Executive and managerial	21.8	26.0	119
White collar worker	31.4	48.0	153
Manual worker	29.4	14.0	48
Farmer	16.5	5.0	30

Note: Col. (4)=[Col. (3)/Col. (2)] × 100.

the offspring of executives are overrepresented. Could this be due to differential preparation for entry?

3. Entry preparation

In anticipation of the competitive university entry examinations, secondary school students start preparing years ahead. They prepare in two ways. First, by attending group (cram) preparatory schools (called “frontistirio”), and having individual private tutoring. More than 8 out of ten students in our sample attended frontistirio, 50 percent had private tutoring, while one out of three had both private and group tutoring. Such supplementary education added about 20 h per week to the 30 h spent by the student in school (see Table 3).

Students attended *frontistirio* on average during 2.4 years, and individual tutoring 1.8 years. Students in the sample made on average 1.7 attempts to enter university, as a result of which the average year of graduation from secondary school was 1998.

Did preparation differ according to student background? Not much, as shown in Table 4.

Table 5 shows what families spend privately per student while the latter is in secondary school. The amounts are substantial, as they match what the state spends per student at that level of education. Families in small towns spend more than the rest, perhaps as a way of compensating for adverse learning conditions in public school.³

4. University attendance expenditure

Once a student enters the supposedly free higher education system, the family's private expenditure for

³For evidence on private tutoring expenditures in other countries, see Bray and Kwok (2003).

Table 3
Student time spent for entry preparation

Time unit	Prep. school	Individual tutoring
Years	2.4	1.8
Hours/week	12.0	8.0

Table 4
Probability of attending preparatory schools and having individual tutoring by selected sample characteristics

Characteristic	Prep. school	Indiv. tutoring
Male	0.84	0.47
Family residence < 10 000 pop	0.81	0.52
Father manual worker	0.90	0.39
Father farmer	0.85	0.47
Father executive	0.80	0.62
Private lyceum	0.76	0.67
Bottom 20% family income	0.87	0.43
Top 20% family income	0.80	0.64
Overall	0.84	0.50

Note: Mean family income of bottom quintile € 13 131, top quintile € 42 779.

sustaining the student escalates (Table 6). Even bearing in mind the possible underreporting of family income in the survey, the share of private expenditure in family income exceeds 20 percent for farmers and manual workers. This is in contrast to the nearly 10 percent share of such expenditure among families in the top quintile.⁴

The amount of private expenditure while at university roughly corresponds again to what the state spends per student. A major component of the private student expenditure while at the university is rent. The private per student cost does not differ much between universities, with the exception of Patras and Crete reflecting the higher rents prevailing in the two cities.

5. An income inelastic commodity

Table 7 reports the results of a simple private education expenditure “consumption function”,

$$\begin{aligned} \text{Ln (household education expenditure)} \\ = a + b \text{ Ln (household income).} \end{aligned}$$

⁴For a documentation of the perverse effects of public education finance in Greece, see Patrinos (1992); Patrinos (1995) and Kanellopoulos and Psacharopoulos (1997).

Table 5
Private preparatory expenditure per student by selected sample characteristics (€/year)

Characteristic	Prep. School	Individual tutoring	Private lyceum	Total expenditure for entry
Family residence < 10 000 pop	1723	2132	2311	2456
Father manual worker	1865	1901	1692	2301
Father farmer	1583	1917	2494	2228
Father executive	2162	2664	2929	3503
Bottom 20% family income	1864	2044	2609	2492
Top 20% family income	2170	3044	2949	3842

Table 6
Private expenditure per university student by selected sample characteristics

Characteristic (1)	Expenditure (€/year) (2)	Family income (€/year) (3)	Exp./income (%) (4)
Family residence < 10 000 pop	3836	17 535	21.8
Father farmer	3617	12 609	28.6
Father manual worker	3452	15 786	21.8
Father executive	4029	29 865	13.4
Bottom 20% family income	3467	13 131	26.4
Top 20% family income	4215	42 779	9.6
University			
Ioannina	3806		
Athens National	3457		
Patras	4297		
Thessaloniki	3699		
Aristotelian			
Panteion	3698		
Ionian	3660		
National Polytechnic	3367		
Crete	4311		
Overall	3754		

Note: Col. (4)=[Col. (2)/Col. (3)] × 100.

Table 7
Education expenditure functions

Independent variable	Log-expenditure	
	Preparing for entry	While in university
Constant	4.860	6.351
Log-family income	0.299 (14.2)	0.177 (8.6)
R ²	0.09	0.04
N	2021	1958

Note: Numbers in parenthesis are *t*-ratios.

Since expenditure and income enter in log form, the estimated *b* coefficient on income can be interpreted as the income elasticity of demand. The function has been fitted for two types of expenditures by the household—

for entry preparation while in secondary school, and while as a student at the university.

The values of 0.3 and 0.2 for entry preparation and while-studying expenditures, indicate that private tutoring and incidental expenses while at the university are not luxury items. On the contrary, they seem to be a necessity.

6. Conclusion

So we end up with a paradox. Families spend in preparation for university entry, and while at the university, more than what the state spends per student. And those who fail the Greek entrance examination spend even higher amounts in universities abroad (Psacharopoulos, 2003). Yet the country is proud that it has a system of free higher education!

Of course the solution is obvious. The limited state university budget could be allocated in a different way, supporting students of lower socioeconomic background who now spend a higher share of their family income on education than richer families. However, it is very difficult for such simple statement to surpass the political slogan of “free” higher education.

Another issue refers to the quality of education. Greece, along with Portugal, comes last in the league of secondary school achievement surveys (see Organisation for Economic Cooperation and Development (OECD), 2001). One of the reasons is that, given the competitiveness of the entry examinations, the lyceum has been transformed into a “frontistirio” itself. That is, it is geared to prepare students on how to answer the entry examination questions.

One would imagine that the substantial resources used for examination preparation could be channeled to improve the quality of secondary schools. However, such change would require a radical education reform to make the system more competitive and responsive to incentives. Alas, given the political climate in Greece, such reform is not anywhere near in the horizon.

Acknowledgements

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Appendix

Tables A-1 and A-2.

Table A-1
Sample distribution

University	Number of students in the sample
National University of Athens	794
University of Thessaloniki	846
National Technical University of Athens	306
University of Patras	514
University of Ioannina	500
University of Crete	49
Panteion University	30
Ionian University	18
Total	3057

Note: 10 percent random sample of all 1999 entrants, based on Greek Government (1999).

Table A-2
Descriptive statistics

Variable	Mean	N
<i>Background</i>		
Male ^a	0.38	3057
Family residence under 10000 pop ^a	0.21	3057
Father's years of study	12.64	3032
Mother's years of study	11.91	3033
Father farmer ^a	0.05	3057
Father manual worker ^a	0.14	3057
Father white color worker ^a	0.48	3057
Father executive ^a	0.26	3057
Family income (€/year)	22 020	2198
<i>Lyceum</i>		
Private lyceum ^a	0.06	3057
Priv lyc. fees (€/year)	2823	163
Lyceum grad grade	17.97	2905
<i>Entry exams preparation</i>		
A. Preparatory school		
Attended prep school ^a	0.84	3057
Years prep school	2.40	2618
Prep school exp (€/year)	1966	2163
B. Individual tutoring		
Had private tutoring ^a	0.50	3057
Years priv tutoring	1.81	1576
Priv prep exp (€/year)	2446	1230
Total entry exp (€/year)	2903	2644
<i>Transition</i>		
Year graduated lyceum	1998.1	3055
Entry attempts	1.71	3056
Preference order	2.68	3046
<i>University</i>		
Rent expenditure (€/year)	2261	1749
Total univ study cost (€/year)	3754	2596

^aIndicates 0–1 dummy variable, 1 corresponding to the event.

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