University of Huddersfield Repository

Anchor, J.R and Fišerová, Jana

Student Perceptions of the Financial Returns to Higher Education in the Czech Republic, Poland and England: Evidence from Business Schools

Original Citation

Anchor, J.R and Fišerová, Jana (2010) Student Perceptions of the Financial Returns to Higher Education in the Czech Republic, Poland and England: Evidence from Business Schools. Working Paper. Emerging Markets Research Group University of Huddersfield, Huddersfield, UK. (Unpublished)

This version is available at http://eprints.hud.ac.uk/id/eprint/7503/

Student Perceptions of the Financial Returns to Higher Education in the Czech Republic, Poland and England: Evidence from Business Schools

John R Anchor
University of Huddersfield
Business School

Jana Fišerová
University of Huddersfield
Business School

Abstract

In this paper, the short-cut method is used to estimate perceived rates of financial returns to higher education in the Czech Republic and Poland and a modified version of the method is used to fit the current English system of deferred tuition fees. First year university students were asked to estimate their earnings with and without a university degree at two points in time. The findings show that students perceive higher education to be a profitable investment and that rates of return vary by gender as well as by country and a place of study. It is concluded that perceptions are a useful proxy indicator for the demand for higher education at any particular point in time, at least in vocationally oriented subjects such as economics or business studies. Therefore policy makers would be well advised to track changes in such perceptions of not only university students, but also of high school leavers.

1. Introduction

According to the theory of human capital, the choice of level of education, its length and field of study depends on returns to this investment (Becker, 1964). People will decide to invest money in education if their investment is profitable i.e. if they expect to gain at least the same amount of money as they invest/spend. Thus it is their expectations of returns to such investment that lead to the decision to undertake extra schooling. Irrespective of whether or not there are actually positive private returns to higher education, if the perceived returns decrease, participation in higher education may decline too.

During the last fifteen years, there has been a growth of interest in the returns to higher education by policy makers. This has been due to increasing difficulty in funding higher education as student numbers have expanded. The fact that there are often substantial private returns to higher education has been used as a reason to shift the burden of funding higher education away from the tax payer and to the student – or sometimes to the graduate (Barr and Crawford, 2005).

In countries where there is a consensus for a welfare state financed by high levels of general taxation (e.g. in Scandinavia), university studies have tended to remain free at the point of entry. This has also been the case in countries in which the age participation rate has remained below the OECD average (e.g. in the former COMECON countries of Central and Eastern Europe). In such countries, the costs associated with university funding have remained 'affordable' for the taxpayer. In the Czech Republic and Poland, for instance, public universities have remained free at the point of entry with student numbers capped and excess demand has been mopped up by encouraging the growth of a vigorous private sector. By contrast in the UK the private sector remains very small and the 'marketisation' of higher education has taken place in the public universities via the introduction of tuition fees, which cover part of the costs associated with study.

This paper reports on data on students' perceptions concerning financial returns to their higher education studies in three Czech and four Polish faculties of economics and two English business schools. The study is unusual in focusing on the question of *perceptions* as most studies in this area have attempted to measure *actual* returns (see for example Psacharopoulos, 1973; 1981; 1985; Dolton and Makepeace, 1990; Maani, 1991; Nonneman and Cortens, 1997; Barr and Crawford, 1998; Blundell et al, 1999; Wolter and Weber, 1999; Psacharopoulos and Magoula, 1999; Kruger and Lindahl, 2001; Arrozola et al, 2003; Sakellariou, 2003; Psacharopoulos and Patrinos, 2004).

Only a few studies have examined the comparability of earnings expectations to reality within the educational context. This may be because, as Manski (1993) commented, '[economists have] traditionally been sceptical of subjective data; so much that [they] have generally been unwilling to collect data on expectations'(p43). Moreover, the known studies differ considerably in terms of methodology and their underlying research questions and thus their results are difficult to compare (see for example Williams and Gordon, 1981; Smith and Powell, 1990; Blau and Ferber, 1991; Betts, 1996; Oosteerbeek and van Ophem, 2000;

Nicholson and Souleles, 2001; Caravajal et al., 2000; Botelho and Pinto, 2004; Webbink and Hartog; 2004). Nevertheless they generally conclude that students are aware of the financial benefits of higher education; that students are able to make realistic estimates; and that there are no systematic differences between expectations and outcomes.

Betts (1996) examined earnings expectations of undergraduates at the University of California and found that differences in expectations were dependent on field of study and the year of study i.e. the closer the students were to graduation the more accurate was the information regarding their future earnings. Dominitz and Manski (1996) surveyed high school students and university undergraduates and their expectations of the income they would earn if they completed different levels of education. They concluded that students were 'able to respond meaningfully to questions eliciting their earnings expectations' (p.25).

Menon (1997; 2008) estimated perceived rates of return to education of high school students in Cyprus and found they 'acted according to human capital theory' (Menon, 1997; p4) i.e. unlike those who were to continue their studies at university, labour market entrants did not perceive higher education to be a profitable investment since their perceived rates of return to higher education were lower. Therefore she concluded that perceived rates of return are important when deciding whether to enter higher education or not (Menon, 2008).

Webbink and Hartog (2004) surveyed Dutch students for five consecutive years using panel data. All years, levels and types of higher education were included and participants were asked every year about their positions in or outside higher education, motivations for their decisions and about their future plans. They found that there were no systematic differences between expectations and outcomes, and that students are able to make realistic estimates at both a group and an individual level, although students from high-income families tended to overestimate their returns.

Botelho and Pinto (2004) surveyed first and final year university students in Portugal and examined their expectations of the economic returns to higher education. They found that students can estimate their future earnings 'and that, as a consequence, economists' reluctance to gather subjective data on expectations does not seem warranted' (p.7). Their findings are in line with previous studies which found that students are aware of the financial benefits of higher education.

Botelho and Pinto (2004) also found that female students expect lower returns than their male counterparts, and that female students' estimates are more accurate when compared to the actual returns. Another conclusion of their study is that final year students expect lower returns to higher education than those in their first year and that they have, irrespective of gender, 'a relatively accurate understanding of the national average market returns to education' (p7). Finally their findings revealed a tendency to 'self-enhance' since students tend to overestimate their future returns when compared with their perceptions of average returns to schooling.

2. Measuring Returns to Higher Education

The estimation of private rates of return to education must take into account both the benefits and the costs of investment. Quantifiable benefits from the investment are the higher earnings usually experienced by more qualified workers and 'the costs incurred by the individual are his/her foregone earnings while studying and any education fees or incidental expenses the individual incurs during schooling' (Psacharopoulos and Patrinos, 2004; p4).

In this study costs will consist of foregone earnings and tuition fees (where applicable) but will not include living expenses. It is quite common that students undertake part-time work during their studies but the monetary benefits tend to be small and thus would not decrease the foregone earnings very much. Living expenses are usually covered partly by employment or by parents or by government via maintenance grants for those from disadvantaged backgrounds. Since parents will usually not require to be paid back and grants are non-returnable the living expenses should not influence the perceived rate of return.

2.1. Methods used to measure returns to education

There are two main methods which are used to measure rates of returns to higher education. Both the elaborate (also known as the direct or full method) and indirect (also known as Mincerian function or human capital earnings function) methods have their advantages and disadvantages.

The elaborate method is probably the most accurate one since it uses information on earnings and costs to estimate rates of return and it discounts net age-earnings profiles. However, it is hard to implement as it requires comprehensive data (Psacharopoulos, 1973).

The Mincerian method, on the other hand, is easier to implement. However, the method assumes that the cost of education is only foregone earnings and that individuals have an infinite time horizon (Mincer, 1974). Therefore a cross-sectional regression of income against years of schooling is not as reliable as the direct method (Lleras, 2004). In addition the Mincerian equation measures wage effects rather than returns to education (Psacharopoulos and Patrinos, 2004).

The elaborate method was developed from the definition of rate of return to education i.e. a discounted rate balancing the sum of discounted costs related to the investment and discounted earnings produced by the investment. In other words when looking for the rate of return one must find the rate of discount that equalises the stream of discounted benefits to the stream of costs at a given point in time (Psacharopoulos, 1995).

In the case of higher education, direct costs and foregone earnings during university studies are considered as the investment. The benefits from the investment are considered to be the difference between the income of a university graduate and a secondary school graduate.

The human capital earnings function relates the natural logarithm of earnings to investments in human capital measured over time, such as years of schooling and years of post-school work experience (Mincer, 1974; Chiswick, 1997).
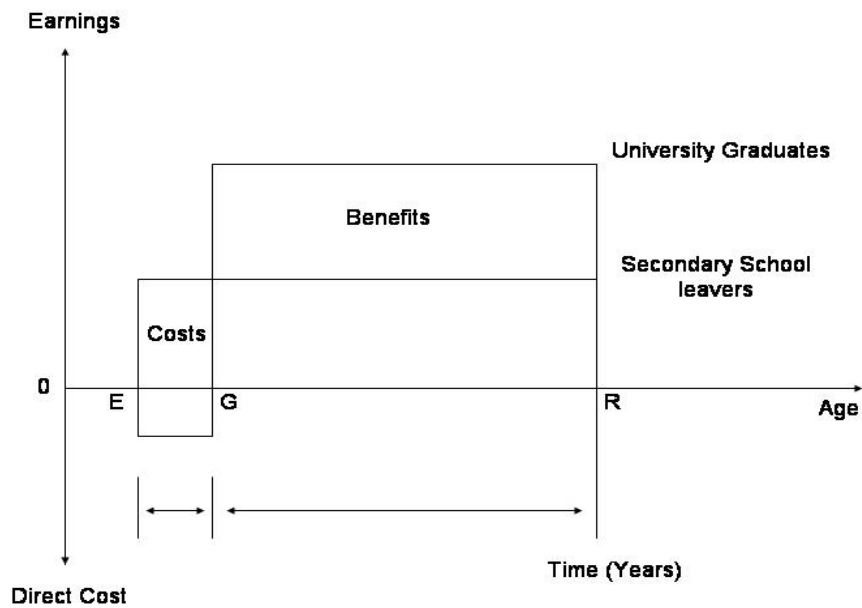
In estimating the rate of return from schooling, the coefficient of the schooling variable is often interpreted as the percentage increase in the hourly wage associated with one additional year of schooling and, according to Psacharopoulos and Patrinos (2004), is inaccurately referred to as the rate of return to schooling, regardless of what educational level this year refers to (Psacharopoulos, 1995; Barrow and Rouse, 2005).

2.1.1. Short-cut Method

A 'short-cut method' was developed by Psacharopoulos (1981) by combining the two methods described above. The short-cut method does explicitly what the Mincerian function does implicitly and uses the same assumption regarding age-earnings profiles i.e. that they are flat rather than concave[1] (used in the elaborate method). The differences between university and secondary school graduates are illustrated in Figure 1.

---

[1] For concave age-earnings profiles see appendix A

Figure 1 <u>Flat Age-Earnings Profiles</u>

Adapted from Psacharopoulos (1995)

Recent research by Menon (2008) shows that the results produced by the elaborate and the short-cut method are highly correlated (r = 0.73) and therefore using the short-cut method, which is less demanding in terms of data than the direct method, seems to be appropriate for research and comparative purposes.

Thus the following formula (Eq. 1) can be used for calculating rates of return to education.

$$r = \frac{E_j - E_i}{S \cdot E_i}$$

(Eq. 1)

where

1. *E* is average earnings of an individual who has a *j* level and an *i* level of education respectively

2. *S* is years of schooling

3. *r* is the rate of return to education

6

2.1.1.1. Adjustments of the Short-cut Method to Different Conditions

Since the basic short-cut method formula (Eq. 1) assumes foregone earnings as a cost of education it is designed to measure rates of return to higher education in countries where the higher education is provided to students without charge, such as in the case of public universities in the Czech Republic and Poland. However, in England tuition fees have been in place since 1998. Therefore some adjustments must be made in order to compute as accurately as possible the rate of return in England.

Tuition fees for full time undergraduate students were first introduced in England and Wales in 1998 (the so called 'old' system) and were set at £1,000 per student per annum for all Bachelor degree courses and rose in line with inflation (by 2005/06 the fee had risen to £1,175). In January 2005 however the UK parliament voted to permit universities in England and Northern Ireland to charge a fee of up to £3,000[2] per annum for all courses (the so called 'new' system).

Contrary to the 'old' tuition fee system, the 'new' fee regime, which came into force in England and Northern Ireland in September 2006, does not require the payment of an upfront fee – rather it asks students to take out a loan to cover the fee. The loan is then repayable after graduation and instalments are collected alongside income tax and national insurance contributions and are deducted automatically from wages. This has some similarities to a graduate tax, such as that which was introduced in Australia in 1989 (Barr, 1993).

Given that students do not pay upfront tuition fees in England and that the fees will be collected from graduates in instalments, which are set at 9% of the threshold above earnings of £15,000 in the UK, for up to 25 years, the tuition fees should not count as costs. Rather they should be seen as a reduction of the benefits from an investment in higher education. Therefore the formula (Eq. 2), which will be used in this paper to calculate rates of return in England, is as follows:

$$r = \frac{E_u - [0.09(E_u - 15,000)] - E_s}{S \cdot E_s}$$

(Eq. 2)

---

[2] The fees increase yearly by no more than the rate of inflation and are set at a maximum of £3,225 per annum in 2009/2010. Almost all universities have chosen to charge the maximum fee for all Bachelor study programmes.

where

4. E_u are earnings of an individual with a university education

5. E_s are earnings of an individual with a secondary education

6. S are years of higher education

7. r is the private rate of return to education

8. 15,000 is the threshold of £15,000

9. 0.09 is the size of instalment (9%)

3. Survey of Expected Earnings at Polish, Czech and English Universities

3.1. Background

The institutions surveyed in this study, in the Czech Republic, Poland and England, are equivalent in status and form, although they are not identical in terms of curriculum. Czech and Polish students have a greater amount of economics, accounting, mathematics and information systems in their curriculum than their British counterparts, while the latter tend to study a larger amount of the newer and 'softer' management subjects.

Faculties of economics in the Czech Republic and Poland correspond to UK business schools. Despite the Bologna process, which introduced the 3+2 system (three years study towards a Bachelor's degree and two years study towards a Master's degree) in the Czech Republic and Poland, most students still graduate with a Master award after 5 years study. In England, most students who enter higher education aged 18/19 graduate with a Bachelor award after 3 years study, at least initially. Many English students return to higher education at a later date to pursue a Master's degree by part time study.

3.2. Methodology

Between the academic years 2004/2005 and 2009/2010 a survey of earnings expectations was undertaken of first year students at three Czech faculties of economics: at the Technical University of Liberec, the University of Economics, Prague and the University of Pardubice; and at the University of Huddersfield Business School (UK)[3]. Students completed the

---

[3] The survey was undertaken with the financial support of GA ČR 402/04/0039 from the Grants Agency of the Ministry of Education of the Czech Republic and of the University of Huddersfield.

questionnaire in Czech (Prague, Pardubice and Liberec) or English (Huddersfield) and altogether there were 3,139 respondents.

In the academic year 2009/2010 the research was expanded in England (the University of Staffordshire [Staffordshire]) and to Poland (faculties of economics at the Catholic University of Lublin [KUL], the University of Marie Curie-Sklodowska [UMCS], Politechnika Lubelska [PL] and the University of Rzeszow [Rzeszow]). This paper reports on the data for the academic year 2009/2010.

A large lecture for first year students, with a high attendance rate, was identified and all those who were present were asked to complete the questionnaire. Students from foreign countries were excluded from the sample since their perceptions of earnings in the country of study are likely to be different to those of 'home' students. First year students were surveyed, during their first term, because their decision to enter higher education had been a recent one.

The questionnaire began with general questions relating to gender and age. In the second part the students were asked about their expectations of income (in current prices i.e. without taking into account price inflation), in their first job immediately after graduation and then after 10 years of work experience. They were also asked about the level of earnings they would have expected if they had not entered higher education; both immediately after leaving school and after 10 years of employment. In all four cases, the expectations were obtained at three levels: minimum, most likely and maximum. For simplicity only the most likely earnings estimates[4] are presented and used for calculations of the rates of return in this paper.

3.3. Survey Sample

The location and the gender structure of the sample are presented in Table 1. Since the gender distribution of the sample is not even, gender differences in expectations could bias the results. Given that existing literature has shown that females tend to expect lower wages but higher returns to university education than males, the perceived private rates of return in this paper are calculated separately for men and women.
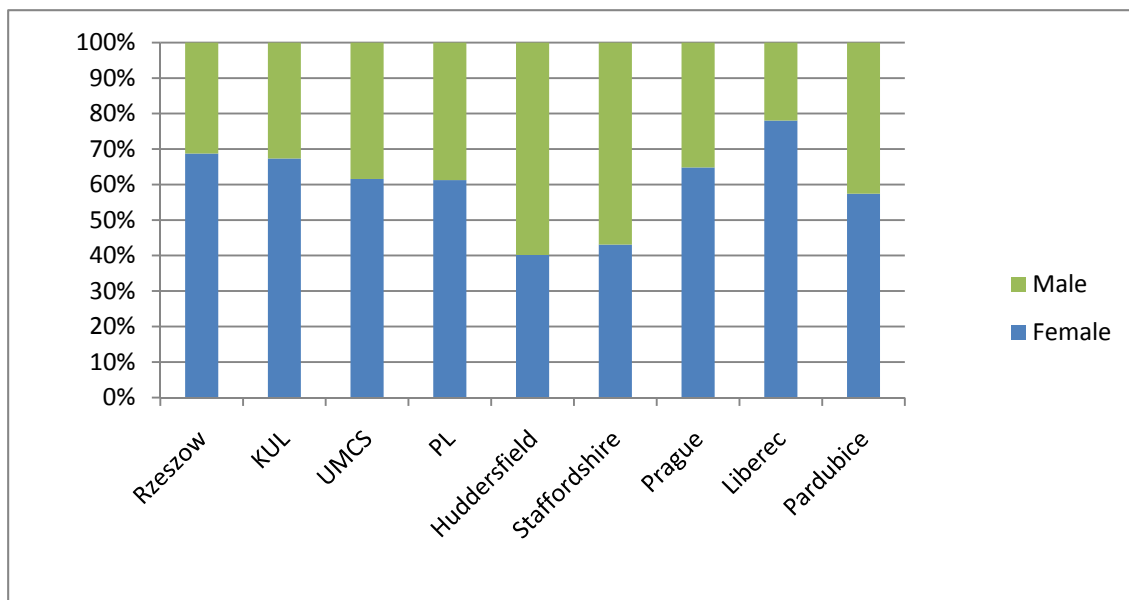
---

4 To avoid extremities skewing the results the 5% trimmed mean is used for calculations.

Table 1 <u>Sample structure</u>

	Female	%	Male	%	Total
Rzeszow	77	69	35	31	112
KUL	33	67	16	33	49
UMCS	125	62	78	38	203
PL	68	61	43	39	111
Huddersfield	94	40	140	60	234
Staffordshire	56	43	74	57	130
Prague	83	65	45	35	128
Liberec	220	78	62	22	282
Pardubice	93	57	69	43	162
TOTAL	849	60	562	40	**1411**

The gender structure of the samples tends to reflect the actual gender distribution of the student body in all three countries and thus the samples can be considered as representative. At Polish public universities ca 63% of full time students of Business and Administration studies are women (GUS, 2009). On average females represent 65% of our sample. In the Czech Republic, 65% of full time students of Economic studies are women (CSU, 2008). On average 67% of our sample is represented by women. In England ca 50% of Business studies full time undergraduates are women (HESA, 2008); 41.5% of our sample are women.

Figure 2 <u>Gender structure</u>

3.3.1. Earnings Expectations and Rates of Returns to Higher Education

Earnings expectations of students from all three countries surveyed are presented in this section and are differentiated by gender and place of study. Earnings expectations are expressed in the ways that are traditional for the respective countries. It is usual to express British salaries in pounds sterling per year (or per week). In the Czech Republic and Poland, however, the convention is to express earnings on a monthly basis. Thus Polish and Czech results will be presented in Zloty (PLN[5])/month and Czech Koruna (CZK[6])/month, respectively, and English results are expressed in Pounds (GBP)/ year.

At all surveyed universities both male and female students expect a significant increase in salary as a result of an increased level of education as well as the amount of work experience. Thus the earnings are expected to be lowest without a university degree and no (or very little) work experience and highest for university degree holders with 10 years of work experience. However, the extent to which the increase in wages is associated with a university education or with work experience varies by country and also by institution.

3.3.1.1. Poland

In this section earnings are presented as estimated by Polish students at faculties of economics at the Catholic University of Lublin (KUL), the University of Marie Curie – Sklodowska (UMCS), Politechnika Lubelska (Politechnika) and the University of Rzeszow.

Table 2 Expectations of Polish students by gender in PLN/month

	PLN/month							
	KUL		UMCS		Politechnika		University of Rzeszow	
	male	female	male	female	male	female	male	female
UNI[7]	2,551	1,624	2,230	1,936	2,419	1,801	2,379	1,666
UNI 10[8]	4,125	2,955	4,066	3,592	4,817	3,200	3,979	2,868
SS [9]	1,483	1,091	1,384	1,151	1,435	1,066	1,278	1,105
SS 10[10]	2,114	1,779	2,248	1,819	2,343	1,533	2,104	1,640

[5] Exchange rate PLN/GBP: 4.61 (monthly average in January 2010, Bank of England)
[6] Exchange rate CZK/GBP: 29.60 (monthly average in January 2010, Bank of England)
[7] Fresh university graduates
[8] 10 years after graduation from university
[9] Without a university degree i.e. after obtaining A-levels (or equivalent)
[10] 10 years after obtaining A-levels without a university degree

Students at all universities expect a significant increase in future earnings thanks to a university degree at both points in their lives i.e. after graduation and 10 years later (Table 2 and Figure 3). It is also noteworthy that students expect similar earnings[11] as fresh university graduates to that which they would expect 10 years after finishing 'matura' (Polish equivalent of A-levels). This suggests that students value a university degree as much as they value 10 years of labour market experience.

As fresh university graduates (UNI), females studying at UMCS expect higher earnings than female students from any other Polish surveyed university but there is no statistical difference in expectations when it comes to the point immediately after completing matura (SS)[12]. Males at the University of Rzeszow expect lower earnings than their peers studying at other surveyed institutions after matura but expect earnings not significantly different from earnings of males studying at other institutions with other scenarios.

Polish males expect higher salaries than their female counterparts at points of graduation from both high school and university, at all surveyed institutions[13].

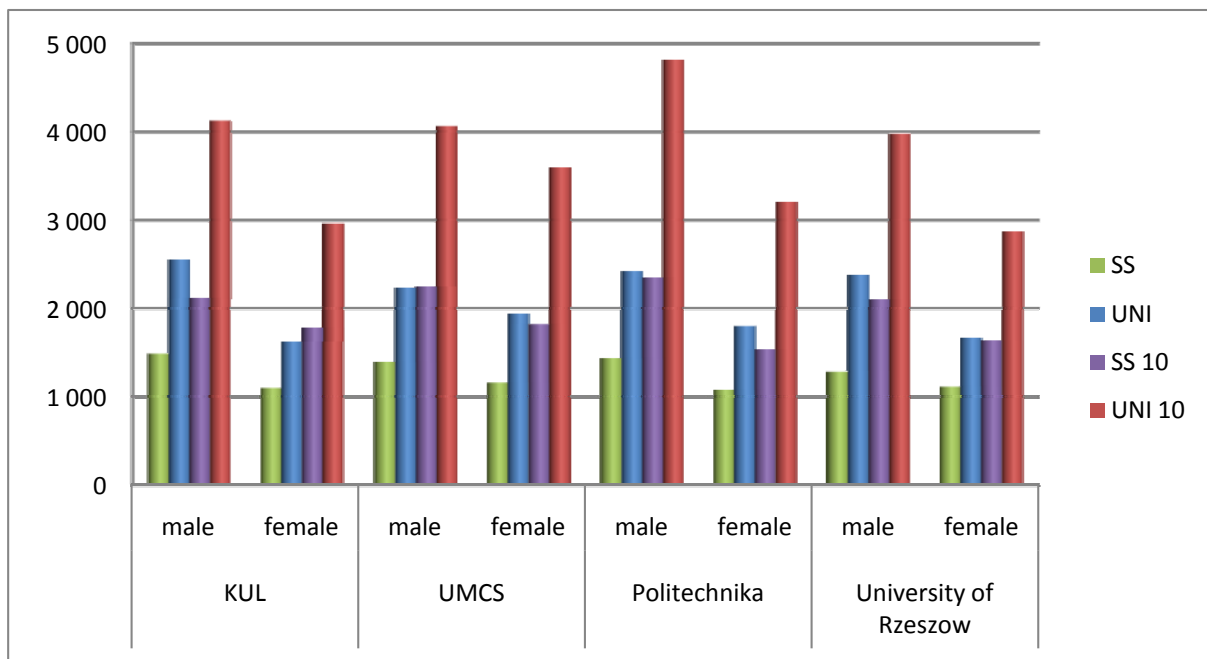Figure 3 <u>Expectations of Polish students by gender and place of study in PLN/month</u>

Figure 2 shows that students tend to expect their wages to grow further and faster thanks to a university degree than they do with matura only.

---

[11] 5% level of significance
[12] 5% level of significance
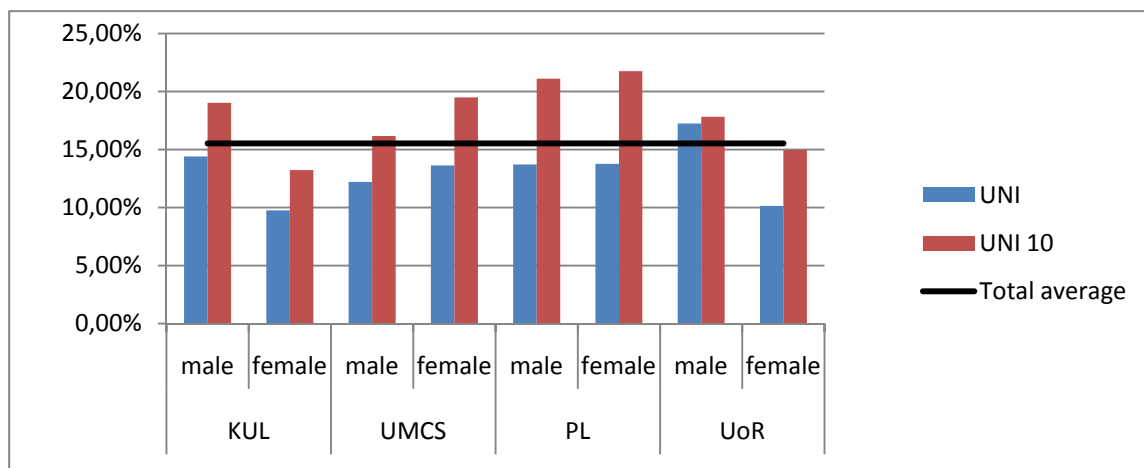[13] 5% level of significance

The rates of return to higher education in Poland are presented in Table 3. In all cases there is an increase in rates of return 10 years after graduation[14]. Thus the benefits of a university degree are perceived to be higher in the medium term. There is no statistical difference in the rates of return of males and females at Politechnika Lubelska and at UMCS at both points in time[15]. At the Catholic University of Lublin and the University of Rzeszow on the other hand, females expect lower rates of return than males at both points in time.

Table 3 Rates of Return to Higher Education in Poland by Gender

	KUL		UMCS		Politechnika Lubelska		University of Rzeszow	
	male	female	male	female	male	female	male	female
UNI	14.40%	9.76%	12.21%	13.64%	13.71%	13.78%	17.24%	10.15%
UNI 10	19.03%	13.23%	16.17%	19.50%	21.11%	21.76%	17.83%	14.97%

The Figure 4 shows the average rate of return to higher education in Poland across all surveyed institutions. The rates vary from 9.76% to 21.76% and the average expected rate of return is 15.53%. Female students at the Catholic University of Lublin and the University of Rzeszow expect lower[16] rates of return than their male peers but at UMCS and Politechnika rates of return of females are not statistically different from those of males[17].

Figure 4 Average Rate of Return to Higher Education in Poland by Gender

---

[14] Exception is males at the University of Rzeszow, where the difference is not significant at 5% level of significance

[15] 5% level of significance

[16] 5% level of significance

[17] 5% level of significance

3.3.1.2. Czech Republic

In this section earnings expectations and rates of return to higher education of Czech students at faculties of economics of three Czech universities – University of Economics in Prague, Technical University of Liberec and the University of Pardubice - are presented.

In the Czech Republic students expect a significant increase in salary as a result of their university education as well as after 10 years of post graduation work experience. They also stated that they would have expected a significant increase after 10 years work experience if they had completed secondary education only. Thus, as was the case in Poland, the higher the level of education and the greater the experience, the greater the salary expectations

Table 4 Expectations of Czech students by gender in CZK/month

	CZK/month					
	Prague		Liberec		Pardubice	
	male	female	male	female	male	female
UNI	37,870	27,847	25,726	21,647	27,102	24,637
UNI 10	82,698	48,900	43,342	31,836	42,243	37,815
SS	21,574	17,520	15,654	14,088	17,295	15,617
SS 10	31,793	24,900	23,011	19,646	24,590	22,311

Table 4 shows that male students from Prague expect the highest salaries of all surveyed Czech students in all categories[18]. At the other end of the spectrum are female respondents from Liberec. It is interesting to see that both genders seem to expect higher earnings as fresh graduates than they would expect without a university degree and with 10 years of labour market experience. However, the results are statistically significant for women, but not for men, at all institutions[19]. Thus for women a university degree seems to be more valuable than 10 years of labour market experience.
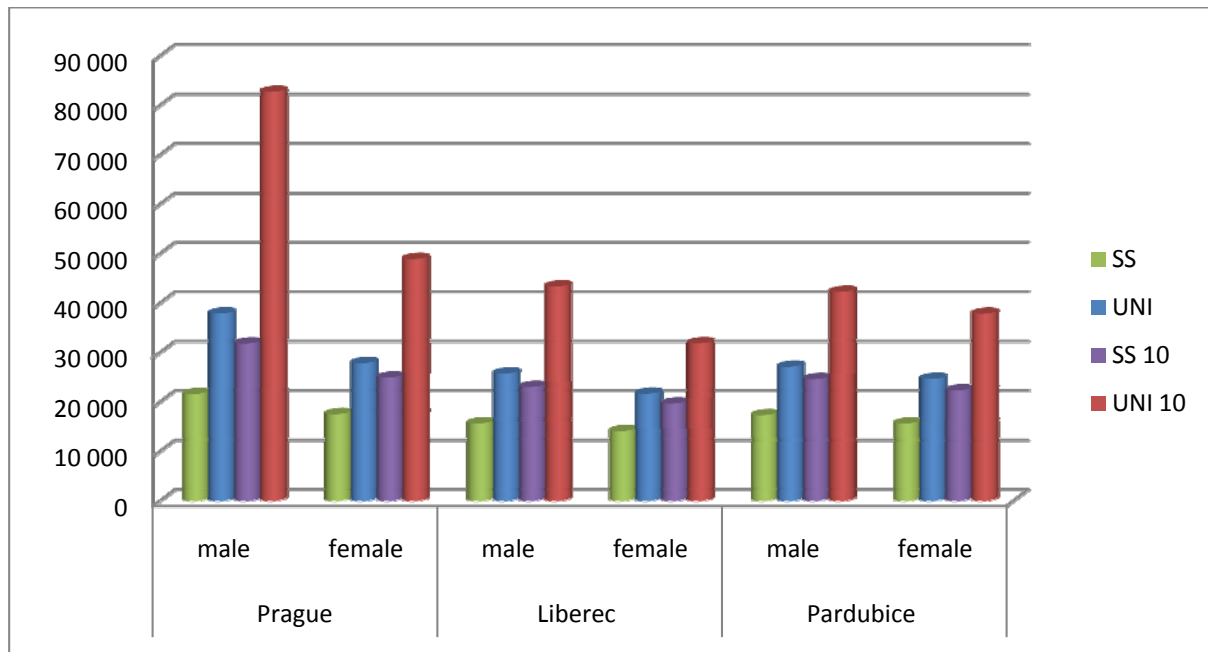
Female students in the Czech Republic expect lower salaries than Czech males in all scenarios[20]. Nevertheless, both genders in the Czech Republic expect a further and faster growth of their earnings thanks to a university degree (Figure 5).

---

[18] 5% level of significance
[19] 5% level of significance
[20] 5% level of significance

Figure 5 Expectations of Czech students by gender and place of study in CZK/month

The expected rates of return to higher education in the Czech Republic are presented in Table 5. At the University of Economics in Prague and the Technical University of Liberec females expect lower rates of return than males at both points in time but there is no statistical difference between males and females at the University of Pardubice[21]. All cases show an increase in rates of return in the medium term[22].

Table 5 Rates of Return to Higher Education in the Czech Republic by Gender

	Prague		Liberec		Pardubice	
	male	female	male	female	male	female
UNI	15.03%	12.06%	12.75%	10.84%	11.33%	12.09%
UNI 10	24.26%	20.32%	17.25%	12.41%	13.14%	14.46%

Figure 6 shows the average rate of return to higher education in the Czech Republic across all surveyed institutions. The rates vary from 10.84% to 24.26% and the average expected rate of return is 14.66%. Although earnings of females in Pardubice are expected to be lower than those of males, their rates of return are equal[23]. In Prague and Liberec the rates of return for women are expected to be lower than those of men[24].
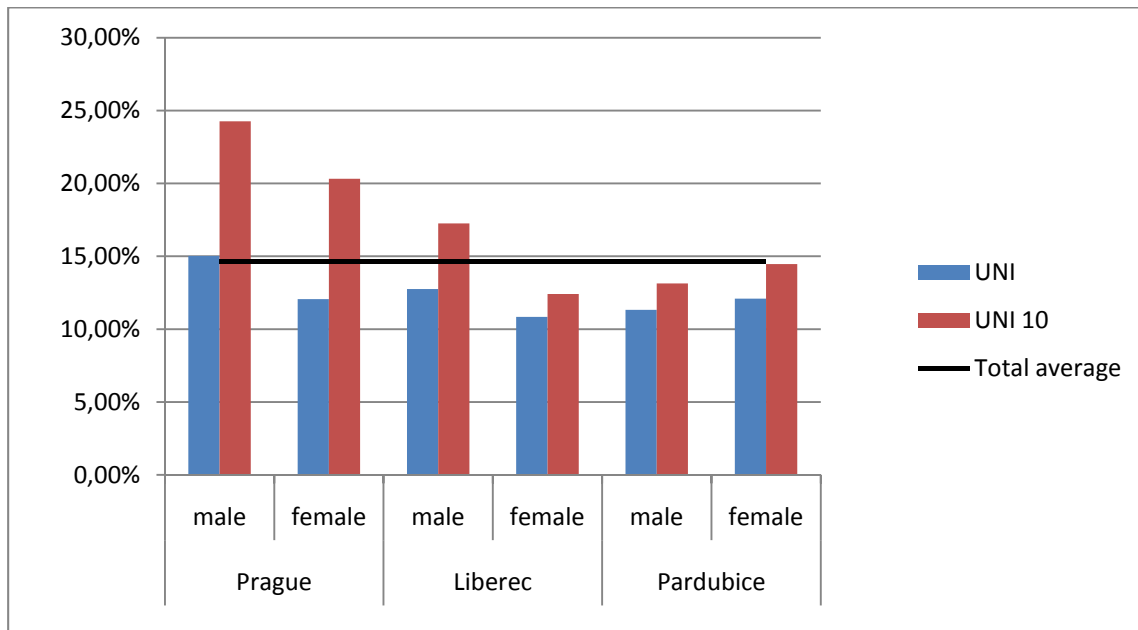
---

[21] 5% level of significance
[22] 5% level of significance
[23] 5% level of significance
[24] 5% level of significance

Figure 6 Average Rate of Return to Higher Education in the Czech Republic by Gender

3.3.1.3.   England

In this section future earnings estimates of English students of two business schools at the University of Huddersfield and the University of Staffordshire are presented (Table 6).

English students, like their Czech and Polish peers, expect a significant increase in salary as a result of their university education as well as after 10 years of post graduation work experience. They also stated that they would have expected a significant increase after 10 years work experience if they had completed secondary education only. Thus, as was the case in the Czech Republic and Poland, the higher the level of education and the greater the work experience, the greater are the salary expectations.

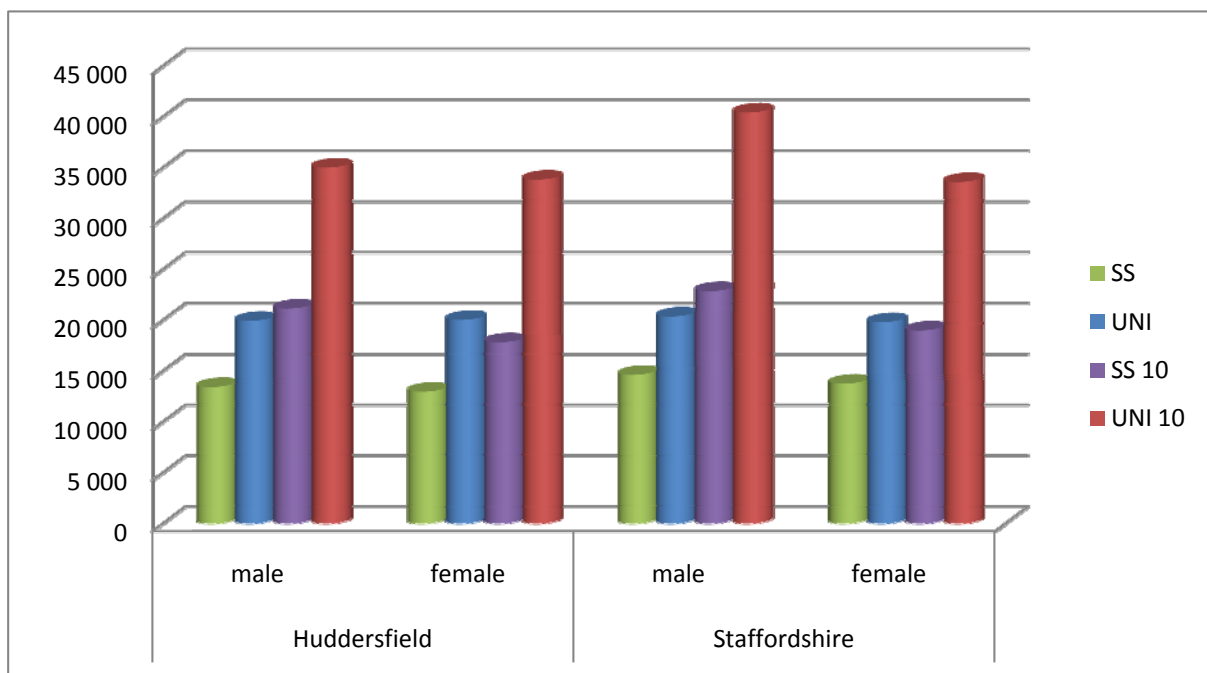Table 6 Expectations of British students by gender in GBP/year

	GBP/year			
	Huddersfield		**Staffordshire**	
	male	female	male	female
UNI	19,924	20,021	20,354	19,791
UNI 10	35,000	33,812	40,417	33,574
SS	13,418	12,958	14,613	13,749
SS 10	21,134	17,813	22,849	18,977

Unlike in Poland and in the Czech Republic, English students, at both surveyed institutions, do not expect any gender differences at points of graduation whether from high school or from university[25]. It is later in English males' working lives that they expect higher and faster growth of their earnings when compared to their female counterparts[26].

The analysis of differences between institutions within the same gender shows that we cannot reject the fact that males from Huddersfield expect the same earnings as males from Staffordshire or that women studying in Huddersfield expect the same future salaries as women studying in Staffordshire in all scenarios[27].

Like students in Poland and male students in the Czech Republic, students from Staffordshire value a university degree as much as 10 years of labour market experience[28]. In Huddersfield this tends to be the case only for men[29]. Their female counterparts, like women in the Czech Republic, tend to value their degree more than 10 years of experience without a degree[30].

Figure 7 Expectations of British students by gender and place of study in GBP/year

---

[25] 5% level of significance
[26] 5% level of significance
[27] 5% level of significance
[28] 5% level of significance
[29] 5% level of significance
[30] 5% level of significance

Table 7 <u>Rates of Return to Higher Education in England by Gender</u>

	Huddersfield		Staffordshire	
	male	**female**	**male**	**female**
UNI	15.95%	18.66%	13.72%	15.12%
UNI 10	24.49%	27.53%	23.44%	25.30%

Although the results seem to suggest that females at both English institutions expect to enjoy higher rates of return than males, statistically this is the case only in Huddersfield at the point of graduation[31]. At both institutions students (male and female) expect an increase in rates of return in the medium term[32] which again suggests that earnings are expected to grow further and faster with a university degree than without it.

Figure 8 shows the average rate of return in England across both surveyed institutions. The rates vary between 13.72% and 27.53% and the average rate of return to higher education is expected to be 20.53% i.e. higher than in Poland and in the Czech Republic. The main reason for this seems to be the traditional length of university studies, which is two years longer in Poland and the Czech Republic than it is in England. Thus the foregone earnings, which are a major part of the costs of higher education, are higher in Poland and the Czech Republic, consequently lowering the rate of return.

One might expect the tuition fees that are required to be paid at English universities to reduce the rate of return significantly. However there is a government secured tuition fee loan available at zero real interest rate which is collected back at very small and income contingent instalments that offsets the likely a priori expected reduction in rates of return.

Figure 8 <u>Average Rate of Return to Higher Education in England by Gender</u>

---

[31] 5% level of significance
[32] 5% level of significance

4. Main findings and discussion

In this paper, perceived rates of return were estimated using the short-cut method, which was adjusted to reflect different higher education funding systems. The findings indicate that there is a significant pay off to higher education. Moreover, the returns increase with work experience suggesting that the benefits from higher education are larger in the medium term than immediately after graduation. Thus, the higher the level of education and the greater the experience, the greater the salary expectations.

The rates of returns were found to vary by country. The results from England (20.53%) clearly show that the perceived returns to higher education are larger than those expected by Czech (14.66%) and Polish (15.53%) students, despite Czech and Polish public university education being free of charge. Although tuition fees are charged at English higher education institutions, they are deferred until after graduation and there is a government secured tuition fee loan available to British/EU students at a real interest rate of zero which is collected back at very small and income contingent instalments. This causes the tuition fees to not be direct costs of higher education but rather a reduction of future benefits and as such they offset the reduction in rates of return which would take place if the tuition fees were required to be paid up front. Thus the main reason for the difference in rates of returns between England and Central Europe seems to be the difference in time spent in higher education since in England university studies typically last three years whereas in the Czech Republic and Poland they last five years.

Our results suggest that students value a university degree at least as much as 10 years of post secondary school labour market experience, which is noteworthy and not necessarily to be expected a priori. All students from Poland and Staffordshire expect to earn as university graduates as much as they would do ten years after completing high school without a university degree whereas students from Huddersfield and females from the Czech Republic expect to earn more immediately after graduation from a university than they would expect without a university degree but with 10 years of labour market experience.

Earnings expectations as well as rates of return were found to vary by gender within surveyed countries. In the Czech Republic, women expect lower earnings as well as lower rates of return, except for female students from Pardubice, whose rates of return are equal to those of men studying at the same institution. In Poland at both points of graduation (from high school and university) women expect to earn less than men at all institutions but their rates of return are equal at UMCS and Politechnika and lower at the Catholic University of Lublin and at the

University of Rzeszow. In England women expect equal salaries to those of men at all points in time. The same is true for rates of return except for women studying at the University of Huddersfield, who expect higher rates of return than men at the point of graduation.

5. Conclusions

We found that earnings expectations and rates of return vary by gender as well as by country. Nevertheless the findings show that overall students expect positive returns to their higher education studies and thus perceive higher education to be a profitable investment. Policy makers would be well advised to track changes in the perceptions of not only university students but also of high school leavers. Once the perceived costs outweigh the perceived benefits, regardless of whether or not there are actual returns to higher education, the demand for higher education may decline. Therefore students' perceptions of returns to higher education is a useful proxy indicator of the demand for higher education at any particular point in time, at least in vocationally oriented subjects such as economics or business studies.
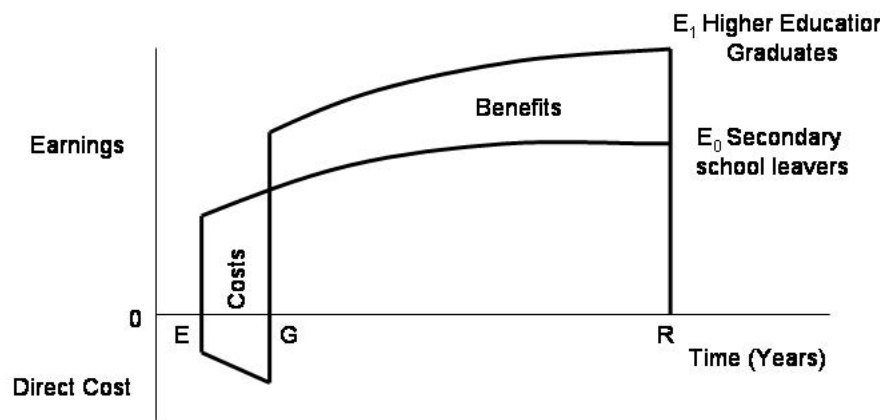
Reference list

Arrozola, M., De Hevia, J., Risveňo, M. & Sanz, J. F. (2003). Returns to education in Spain: some evidence on the endogeneity of schooling. *Education Economics*, *11*(4), 293-304.

Becker, G.S. (1964). *Human Capital, a Theoretical and Empirical Analysis with Special Reference to Education.* Chicago, Chicago University Press.

Barr, N. & Crawford, I. (1998). Funding Higher Education in an Age of Expansion. *Education Economics, 6*(1), 45-70.

Barr, N. & Crawford, I. (2005). *Financing Higher Education: Answers from the UK*. London, Routledge.

Barrow, L., & Rouse, C.E. (2005). Do returns to schooling differ by race and ethnicity?. Chicago, Federal Reserve Bank of Chicago.

Betts, J.R. (1996). What do students know about wages? Evidence from a survey of undergraduates. *Journal of Human Resources*, *31*(1), 27-56.

Blau, F. & Ferber, M. (1991), "Career plans and expectations of young women and men", *Journal of Human Resources*, *26*(4), 581-607.

Blundell, R., Dearden, L., Meghir, C. & Sianesi, B. (1999). Human capital investment: the returns from education and training to the individual, the firm and the economy. *Fiscal Studies, 20*(1), 1–23.

Botelho, A. & Pinto, L.C. (2004). Students' expectations of the economic returns to college education: results of a controlled experiment. *Economics of Education Review, 23*(6), 645–653.

Caravajal, M.J., Bendana, D., Bozorgmanesh, M.A., Castillo, K., Pourmasiha, Rao, P. & Torres, J.A. (2000). Inter-gender differentials between college student's earnings expectations and the experience of recent graduates. *Economics of Education Review*, *19*(3), 229-243.

Chiswick, B.R. (1997). *Interpreting the coefficient of schooling in the human capital earnings function*. Policy Research Working Paper, No. 1790. Washington DC, World Bank.

CSU (2008). 'Školy a školská zařízení za školní rok 2007-2008: Tab. 26 Vysoké školy - souhrn' [online] Available at <http://www.czso.cz/csu/edicniplan.nsf/publ/33n01-el-2007_2008>

Dolton, P.J. & Makepeace, G.H. (1990). The earnings of economics graduates. *Economic Journal*, *100*(399), 237-250.

Dominitz, J. & Manski, C.F. (1996). Eliciting student expectations of the return to schooling. *Journal of Human Resources*, *31*(1), 1-26.

GUS (2009). *Higher Education Institutions and their Finances in 2008.* Warsaw: GUS.

HESA (2008). 'View Statistics Online - Subject of Study' [online] available at < http://www.hesa.ac.uk/index.php?option=com_datatables&Itemid=121&task=show_category &catdex=3>

Kruger, A. B. & Lindahl, M. (2001). Education for Growth: Why and for Whom? *Journal of Economic Literature*, *39*(4), 1101-1136.

Lleras, M.P. (2004). *Investing in Human Capital: A Capital Markets Approach to Student Funding.* Cambridge, University Press.

Maani, S. A. (1996). Private and social rates of return to secondary and higher education in New Zealand: evidence from the 1991 census. *Australian Economic Review, 1st Quarter* (113), 82-100.

Manski, C. (1993). Adolescent econometricians: How do youths infer the returns to schooling? In C. T. Clotfelter, & M. Rothschild (Eds.), *Studies of Supply and Demand in Higher Education*. Chicago: University of Chicago Press.

Menon, E. M. (1997). Perceived rates of return to higher education in Cyprus. *Economics of Education Review, 16*(4)*,* 425–430.

Menon, E.M. (2008). Perceived rates of return to higher education: further evidence from Cyprus. *Economics of Education Review*, *27*(1), 39–47.

Mincer, J. (1974). *Schooling, Experience and Earnings.* New York, Columbia University Press.

Nonneman, W. & Cortens, I. (1997). A note on the rate of return to investment in education in Belgium. *Applied Economics Letters, 4*(3), 167–171.

Nicholson, S. & Souleles, N.S. (2001). Physician income expectations and specialty choice. NBER Working Paper, No. 8536. Standford, NBER.

Oosterbeek, H. & van Ophem, H. (2000). Schooling choices: preferences, discount rates, and rates of return. *Empirical Economics*, *25*(1), 15-34.

Psacharopoulos, G. (1973). *Returns to Education: An International Comparison.* Amsterdam, Elsevier.

Psacharopoulos, G. (1981). Returns to education: an updated international comparison. *Comparative Education*, *17*(2), 321–341.

Psacharopoulos, G. (1985). Returns to education: a further international update and implications. *Journal of Human Resources, 20*(4), 583-604.

Psacharopoulos, G. (1995). The Profitability of Investment in Education: Concepts and Methods. *The World Bank, Human Capital Development and Operations Policy*, Working Paper No. 63.

Psacharopoulos, G. & Magoula, T. (1999). Schooling and monetary rewards in Greece: an overeducation false alarm. *Applied Economics*, *31*(12), 1589–1597.

Psacharapoulos, G. & Patrinos, H. A. (2004). Returns to investment in education: a further update. *Education Economics*, *12*(2), 111-134.

Sakellariou, C. (2003). Rates of return to investments in form and technical/vocational education in Singapore', *Education Economics*, *11*(1), 73-87.

Smith, H. & Powell, B. (1990). Great expectation: variations in income expectations among college seniors. *Sociology of Education*, *63*(3), 194-207.

Webbink, D. & Hartog, J. (2004). Can students predict starting salaries? Yes!. *Economics of Education Review, 23*(2), 103–113.

Williams, G. & Gordon, A. (1981). Perceived earnings functions and ex ante rates of return to post compulsory education in England. *Higher Education, 10*(2), 199-227.

Wolter, S. C. & Weber, B.A. (1999). A new look at private rates of return to education in Switzerland. *Education and Training*, *41*(8), 366-372.

Appendix A

Stylised Age-Earnings Profiles

Adapted from Psacharopoulos (1995)