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## ON RATE OF RETURN MEASUREMENT IN EDUCATION\*

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**Abstract:** The traditional, Humboldtian type of the university faces serious criticism. The answer of the European Commission to weaknesses is the Modernization concept with a goal of transformation from Humboldtian towards Entrepreneurial University. Modernization concept is the policy promoting three main reforms. Curricular reform symbolized by the Bologna Process is accompanied by the governance reform and the funding reform designed to enable change from input-oriented towards output-oriented budgeting. The discussion of concept and some possible solutions in measurement of the efficiency and effectiveness in the education system is given. Special attention is concentrated on rate of return measurement in education, particularly in tertiary education.

**Key words:** rate of return measurement; tertiary education; modernization concept.

### 1. European Union policy

The European Union policy in the field of tertiary education system was initially summarized in the Council Resolution of 23 November 2007 on modernizing universities for Europe's competitiveness in a global knowledge economy.<sup>1</sup>

The most important part of the policy statement declares that member states need to take the necessary measures to modernize higher education institutions by granting them autonomy and greater accountability. This is a condition *sine qua non* to enable them the improvement of their management practices; to develop their innovative capacity; and to strengthen their capacity to modernize their curricula to meet labour market and learner needs more effectively; and to enhance access to higher education, thereby meeting the requirements of economic and technological competitiveness and broader societal goals.

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<sup>1</sup> Official discussion was started with the document: *Communication from the Commission to the Council and the European Parliament. Delivering on the Modernization Agenda for Universities: Education, Research and Innovation* [2006]. It was summarized in the *Council Resolution of 23 November 2007 on modernizing universities for Europe's competitiveness in a global knowledge economy* [2007].

In the direction document, the Council recognizes the need for consistency in the work towards the European Higher Education Area on the one hand, and the European Research Area on the other. The modernization should be the answer to the challenges posed by globalization which requires that the European Higher Education Area and the European Research Area is fully open to the world. To be successful on the world arena, Europe's universities need an aim to become worldwide competitive players.

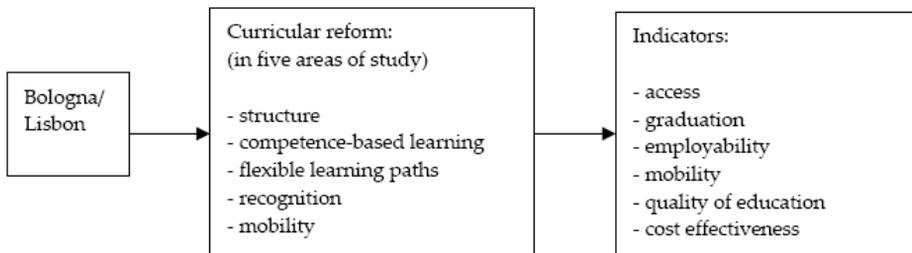
Apart from institutional aims, there is a need to concentrate on the main players of the tertiary education system. Among the most important stakeholders are students, researchers and teachers. Staff and students manifest an ever growing need to increase mobility. The goal is to improve access to higher education for all motivated and talented students and researchers, including those with disabilities, regardless of gender, income, social, or linguistic background, and broadening the social dimension of higher education by providing better support for students and researchers in the EU. The goal of promotion of the internationalization of higher education institutions by encouraging quality assurance through independent evaluation and peer review of universities needs a European policy in standard settings and accreditation of evaluation agencies. Without clearly readable European quality certificates it is not possible to enhance mobility, to promote joint and double degrees and facilitating recognition of qualifications and periods of study.

The European Council indicates the main tools of achieving the ambitious goals listed in the document. It invites the member states to promote excellence in higher education and research by developing institutions and networks able to compete internationally and to contribute to attracting to Europe the best talent, and providing these institutions with the autonomy to develop their full potential. This statement yields huge challenges for national governments. Networking requires deep changes in traditional, individualistic thinking. It is a long lasting process, which requires devotion from both authorities and the universities and their leaders. Autonomy needs deep legislative regulations giving tertiary education institutions rights which they do not have. Most of the responsible governments represent the centralistic way of thinking. This is the main obstacle in the process of democratizing the governance, quality assurance, and financial system of the universities. Without guaranteeing those requirements – universities will not be able to attract to Europe the best talents. Europe is competing in this respect with North America, and the emerging, Far East Economies. It is very probable that an age structure change is necessary. For that reason, it may be crucial for future success to develop better learning and research environments for students and young researchers, by strengthening project-based learning and early involvement of students in research, especially in the areas of science and technology. It also assumes enhancing and increasing of the promotion speed among young, ambitious and talented researchers.

## 2. Curricula reform

Curriculum reform is understood as a set of individual; national reforms of degree structures. Its key feature is the move from one-cycle to two- or three-cycle degree structures. New structure requires related curricular change. Those changes concentrate notably in the following areas: competence-based learning, flexible learning paths, mobility and recognition. The described set of tasks and goals is known in the context of curricula reforms as the Bologna and Lisbon processes.

The concept of the Curricula is understood as<sup>2</sup>: *all the learning which is planned and guided by the higher education institution, whether it is carried on in groups or individually, inside or outside the institution*. The adopted definition includes both the content; in most cases taking the form of a syllabus, and the organization of the content (Figure 1).



**Figure 1.** Schematic model of the Curricular Reform. Simplified overview of the task

Source: [Curricular Reform 2006, part II, p. 7].

The five dimensions of Curricular Reform listed in Figure 1 are closely interrelated and partly overlapping. They contain the set of sub-dimensions:

1. The two- or three-cycle structure:
  - first degrees should be created in such a way that can be completed after a minimum of three years;
  - first degrees should be designed in the manner that the acquired qualifications are relevant to the (European) labour market (provides access to jobs after first degree);
  - access to the second degree (Master) should be limited and selective;
  - curricula should be reorganized to account for the adjusted structure of the national and European society (labour market).
2. Competence-based learning:
  - curricula should be redefined in terms of competencies, possibly in line with national qualifications frameworks and the European qualification framework (e.g. in the context of modularization). Connecting with European Qualification

<sup>2</sup> [Curricular Reform 2006]; the text of this chapter is largely based on this Report.

Framework (EQF) means the introduction, apart from competencies (knowledge), the additional skills and attitudes;

- transparency of skills and knowledge acquired needs to be increased.

3. Flexible learning paths:

- the diversity of teaching modes is to be increased, as well as the number of entry and exit points of the programme(s), and the flexibility of courses chosen;
- the excellence tracks for those highly qualified and talented should be introduced and promoted;
- the mechanism guaranteeing possibilities for the validation of prior learning, increasing permeability from vocational/professional education and for mature learners with prior professional experience should be developed;
- curricula should provide for different target groups, e.g. by offering a variety of curricular options.

4. Recognition:

- diploma supplements must be introduced, the task is increasing the readability of curricula, creating transparency in curriculum content;
- modularization and ECTS are introduced as facilitators for recognition;
- improvement of consumer information and communication when studying in higher education institution should be guaranteed.

5. Mobility:

- a system enhancing efforts to increase international student mobility should be built;
- national efforts to increase graduate mobility, creating a European labour market should be part of the policy;
- mobility of teaching staff with the goal for internationalizing the teaching experience should be among the strategic goals of the system;

The impact of the reform is measured by the set of indicators. The policy statement lists six issues (for each of the five study areas):

1. Access; measurement of:

- the impact on entry rates;
- the impact on admission policies and criteria for access to the three cycles;
- widening of participation to include underrepresented groups;
- openness of the programmes: the rate of possibilities for students to enrol in the second cycle from other disciplinary backgrounds or from other institutional types.

2. Graduation; measurement of:

- the impact of the reform on graduation rates;
- the impact on time span to a degree;
- extending flexibility of graduates; has their adaptability to the needs on the (international) labour market increased?
- the impact on time to employment.

### 3. Employability; measurement of:

- whether first cycle degrees actually qualify graduates for immediate employment;
- to what extent the concept of transferable skills has been implemented and/or institutionalized.

### 4. Mobility; measurement of:

- the impact of the reform on student mobility within Europe and across continents;
- the mobility of graduates and of teaching staff.

### 5. Quality of education; measurement of:

- the impact of the reform on development of scores and performance indicators regarding quality;
- to what extent there is adjustment in institutional and national quality assurance mechanisms.

### 6. Cost-effectiveness:

- the reforms in the study areas should lead to better results (given unchanged financial inputs or lower levels of financial inputs).

To guarantee the correctness of the picture, the data on impact should be based to the highest possible extent on easily measurable data. As an additional source of the overview, the qualitative descriptions of clearly visible impacts may be used.

As an additional tool, the stakeholders' perceptions and views (comments) should be gathered through an in-depth survey. The opinions of deans and directors of study are among the most informative.

Curricula reform is most widely introduced in many countries and in numerous high education institutions is either on the way to its introduction or already introduced in a wide spectrum of issues.

## 3. Governance reform<sup>3</sup>

The moment when on 23 November 2007, the Council of the European Union adopted a new resolution on modernizing universities for Europe's competitiveness in a global economy where one can observe the stressing the role of education, research and innovation as pillars of the Lisbon Strategy, was the summit of earlier European Commission Communications:

- Investing efficiently in education and training: An imperative for Europe (2003);
- The role of universities in a Europe of knowledge (2003);
- Mobilizing the brainpower of Europe: enabling European universities to make their full contribution to the Lisbon Strategy (2005);

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<sup>3</sup> The text of this and the next chapter is heavily based on the results of the project *Higher Education Governance Reforms across Europe* [2006]. The second source is results of EURYDICE Project [*Higher Education... 2008; Two Decades... 2000*].

- Delivering on the modernization agenda for universities: Education, Research, and Innovation (2006).

The resolution emphasizes once again how modernizing higher education and research is needed to increase its role in a knowledge-based society and its mirror, a knowledge-based economy. As outlined in [DeBoer, File 2009], three types of changes in national higher education systems have been recognized:

- changes in national governance frameworks;
- changes in institutional autonomy;
- changes in internal governance and management.

Within national governance frameworks, five changes have been observed:

- the emergence of multi-level multi-actor governance;
- increased emphasis on competition;
- new funding arrangements;
- increased attention paid to quality assurance in all countries;
- institutional autonomy: strengthening the strategic capacities of higher education institutions.

**The emergence of multi-level, multi-actor governance.** Many governments were trying to find new means of system oversight and performance-based steering [DeBoer, File 2009]. Since the area is politically crucial, with no exception, governments are not withdrawing from their responsibility for higher education. It could be understood that the influence of the government is changing, not declining. Since the role of ministries of education, institutional leadership, the European Commission, industry and business, and national agencies/bodies has become more prominent, the number of stakeholders influencing higher education policies has increased.

**Increased emphasis on competition.** The demographic processes (decline of the number of potential students) accompanied by an increase of the size and number of higher education institutions lead to growing competition for the recruitment of (high performing) academic staff, for the recruitment of (talented) students, for public funding for teaching and research.

**New funding arrangements.** One may state that in general there is no visible reduction in the level of public funding. On the other hand, due to an increase in absolute numbers, the amount per student has declined, albeit the methods of allocation have changed and are now more performance-based. One may observe an increase in private (family) contributions. Among them, student fees or third party funded research have become more stressed.

**Increased attention paid to quality assurance in all countries.** Quality assurance has moved up on the agenda, which is the case both at national and institutional levels. Here, most emphasis has been placed on the evaluation of teaching. The research results are still awaiting proper attention in this respect.

**Institutional autonomy: strengthening the strategic capacities of higher education institutions.** This is the area where differences among countries are most

visible and can be grouped in two lines: freedom to determine internal structures, and the degree of (internal and external) stakeholder involvement.

Regarding the institutional autonomy, eight areas were identified to assess the levels of institutional autonomy: institutional mission/strategy development; internal governance structures; introduction of new study programmes; quality of teaching and learning; internal financial policies; conditions of employment of staff; access and admission policies; and development of public-private partnerships.

Governance reform is in an initial stage. The way from Humboldtian towards modern entrepreneurial university is still long. It needs legal, managerial and first of all mental change among all stakeholders – legislation; governmental supervising institutions; academics; regional and European institutions and society as a whole, to contribute actively to the required changes in all fields. One of the most important conditions needed is funding reform.

#### 4. Funding reform

Funding reform is part of the HEI<sup>4</sup> modernization along with Curricula and Governance reforms. Funding Reform consists of several strategic goals:

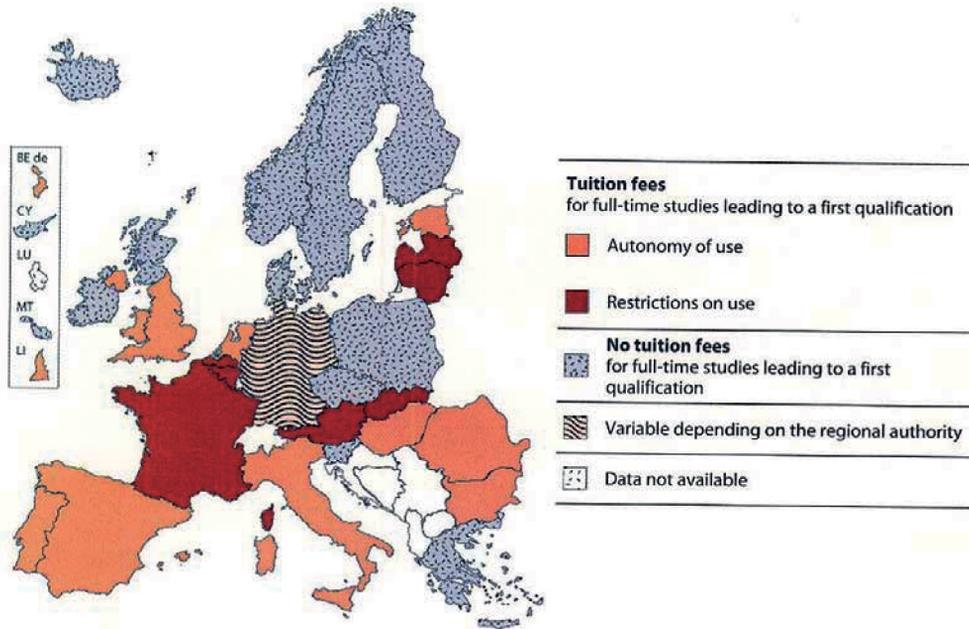
- the need for more (diversified) funding in HE even more important in this time of financial crisis;
- updated strategic framework E&T: new benchmark public – private investment of at least 2% of GDP.

Investment in HE is one of the best financial investments an individual can make. However, a wide differentiation by university/faculty may be observed. Returns on investment into education are higher in developing countries relative to advanced industrial countries. Returns to HE are rising in most dynamic economies, unfortunately these are non European OECD states. Private returns exceed social returns. This is a reflection of the public subsidization of HE, the tuition fees are an option followed by more and more countries. As a social compensation, a system of grants/loans is accompanied by the introduction (increase) of fees.

The funding of the tertiary education system in the EU is far behind some North American and Asian OECD countries. To close the spending gap with the US, the EU would have to commit at least an additional 140 billion euro per year. It seems that the only feasible expectation is securing, in particular, substantially increased investment from the private sector. There are at least three reasons for that. First, it is highly unlikely that additional public funding can alone make up the growing shortfall of European higher education. Second, it would be fairer from a social point of view for a higher private participation in higher education funding. Third, a higher private share will probably increase the effectiveness and efficiency of the whole higher education system. Private resources are much higher in Japan, Australia, Canada, the US and Korea.

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<sup>4</sup> HEI; E&T – higher education institution; education and teaching.



**Figure 2.** Legal freedom for tuition fee collection

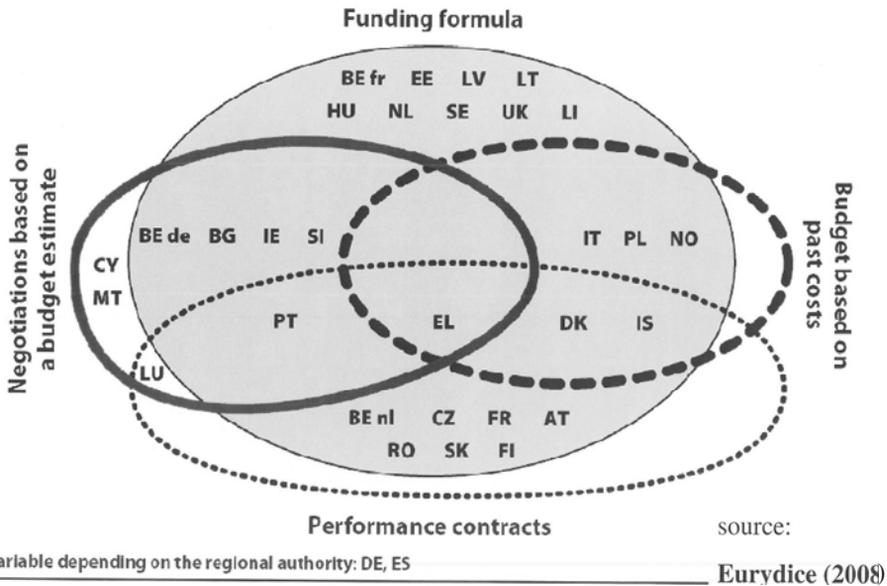
Source: based on MODERN Project results as of 2010.

*Competitive and targeted funds.* In spite of the fact that research in Europe is heavily under-financed compared with the US, indicators of research outputs show that the gap is lower in results than in funds. This indicates that the efficiency of European basic research is relatively good. One of the explanations may be the way of financing research. Generally speaking, research is financed under criteria of competition among institution, departments, research groups or individuals. In addition, most research programmes previously set targets and objectives. There is another reason explaining the relative success of European research: the European funds for research. European research programmes have remarkably increased the competence among research teams and they have opened the research systems from a national, and sometime parochial, market to a more global one. The question is, why not translate these mechanisms to the core activity of higher education institutions, the teaching and learning activities? Financing targeted teaching activities or setting up programmes for financing educational activities in a competitive way among institutions must be explored. In this case, the possibility of establishing a broad European programme, similar to the research framework programmes, for developing quality and competition among European institutions for developing excellence should be considered. Table 1 shows the classification of countries according to cost sharing and student support systems. The most unusual is the group consisting of Croatia; Estonia; Poland; Russia, where some students are obliged to pay fees while others do not.

**Table 1.** The classification of cost sharing; student support systems

		Basis for student support	
Extent of cost sharing		universal support systems	family-based funding
	important and uniform across students	Australia; Chile; the Netherlands; New Zealand; UK	China; Japan; Korea
	non-uniform across students		Croatia; Estonia; Poland; Russia
	minor and uniform across students	Finland; Iceland; Norway; Sweden	Belgium; the Czech Republic; France; Greece; Mexico; Portugal; Spain; Switzerland

Source: based on MODERN Project results (2010).



**Figure 3.** Classification of countries according to prevailing funding mechanism

Source: based on MODERN Project results as of 2010 and Eurydice 2008.

*Negotiation based on budget estimate.* Although at first glance the mechanism seems to be vulnerable to arbitrarily used criteria – in relatively small countries, the mechanism works well.

## 5. Rate of return. Concepts

Measurement is not possible without agreement on conceptual and methodological issues. In the literature there are several rates of return concepts of estimation using a variety of techniques. As a rule, the rates-of-return analysis covers only those benefits emerging from HE that are realized in monetary terms through labour market participation, thus ignoring all non-monetary effects of HE on people's wellbeing. There is general agreement that graduates not only have more employability and receive higher earnings, but also acquire higher social status, greater efficiency in consumption, better health, greater access to technological change and a broad set of cultural benefits including better opportunities for leisure. Benefits from education are also gained by enterprises. General education reduces the need for training and retraining when new technologies are incorporated. The higher productivity of more educated people, especially those having the abilities and skills that transmit higher education, is spilled out to other workers having an important effect on the whole productivity of the enterprise. A considerable part of the externalities that higher education graduates produce is captured not only by society in general (which justifies the public funding of higher education), but specifically by enterprises and graduates.

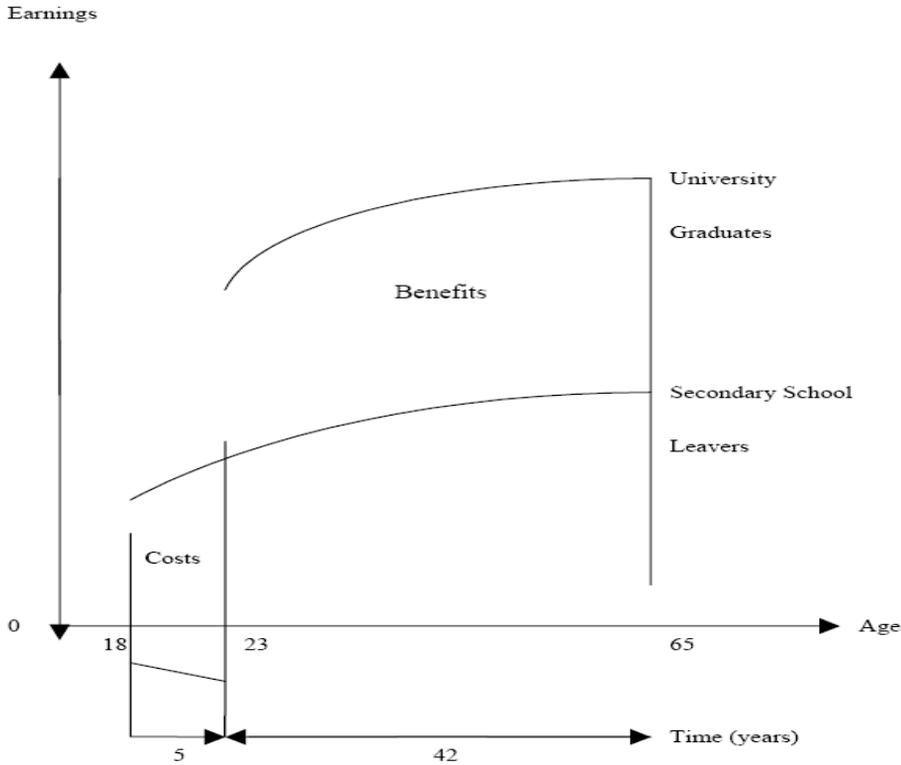
The most widely discussed is the concept of private returns, which is based on the costs and benefits of education realized by the individual student. It is measured by how much the individual (together with his family) actually pays to a higher education institution, relative to what returns are gained back after taxes. In most cases it is measured in terms of increased earnings, relative to a control group, as a rule, earnings of a secondary school graduate who did not pursue tertiary education studies. This is a private spending efficiency question. Private rates of return are used to explain the behaviour of students regarding the demand for higher education, or the equity effects of state subsidies to education.

**Table 2.** A classification of the benefits of education

Benefits type	Private	Social
Market	<ul style="list-style-type: none"> <li>– employability</li> <li>– higher earnings</li> <li>– less unemployment</li> <li>– labour market flexibility</li> <li>– greater mobility</li> </ul>	<ul style="list-style-type: none"> <li>– higher productivity</li> <li>– higher net tax revenue</li> <li>– less reliance on government financial support</li> </ul>
Non-market	<ul style="list-style-type: none"> <li>– better consumer efficiency</li> <li>– better own and family health</li> <li>– better children quality</li> </ul>	<ul style="list-style-type: none"> <li>– reduced crime</li> <li>– less spread of infectious diseases</li> <li>– lower fertility</li> <li>– better social cohesion</li> <li>– voter participation</li> </ul>

Source: [Psacharopoulos, Mattson 1998; *Rates of Return...* 2007, p. 27; Psacharopoulos 2009, p. 29].

The concept of **Social returns** is based on the costs and benefits of education, as these are realized by the state or society as a whole. The costs are measured all inclusive. They refer to what education really costs, regardless of the sources of covering them. Social rates of return should be based on productivity differentials, rather than earnings.<sup>5</sup> The social returns from education are used to assess the efficiency of public spending on education, and as a guide on whether to expand or contract a particular university faculty.<sup>6</sup>



**Figure 4.** Stylized age-earnings profiles

Source: [Psacharopoulos 2009, p. 29, *Rates of Return...* 2007, p. 27, Psacharopoulos, Mattson 1998].

<sup>5</sup> Earnings here are before tax, as taxes are a zero-sum-game regarding the social calculus.

<sup>6</sup> Here, one may distinguish narrow versus wide social returns concept. Ideally, the benefit as a part of a social rate of return estimation should include external effects, considered as benefits realized by others than the individual investor. An externalities-inclusive social rate of return, called *wide* as opposite to the above *narrow* social rate of return that includes only benefits to the individual. There are no (known) empirical estimates of wide-social returns to investment in higher education in Europe until now. Another name for *narrow* social returns is the term *public returns*. The essential difference is that here the extra taxes generated by the university graduates and social security contributions are taken into account. An interesting discussion in this respect regarding the lower levels of schooling is given by Psacharopoulos [2007].

The concept of **Fiscal returns** is based on a narrow measure of costs and benefits – those relating to public expenditures. It may be used to assess how well the Treasury is doing when spending on education. They relate to the country's public finances and are not estimated as widely as private or social rates.

The literature reports research where authors claim they estimated the returns on education, although having really only a measurement of the wage effect. In fact it is merely the earnings advantage of a particular graduate. A proper rate of return estimation should also take into account the cost incurred for achieving that advantage. Psacharopoulos [2009] introduces the term **Pseudo-returns** for such a procedure.

The majority of the reports contain estimates of private and narrow social rates of return. The OECD estimated fiscal returns, but stopped doing so in 2006. Now the OECD estimates public returns.

## 6. Rate of return. Estimation techniques

The most widespread approach towards assessment of the lifelong benefits from the investment into education has two main methods. They are referred to as *the full-discounting or elaborate method*, based on the NPV concept,<sup>7</sup> and the *Mincerian earnings function method*. Historically, the elaborate method was used in the beginning of the economics of education in the early sixties, followed by the Mincerian method in the seventies. The NPV approach consists in calculating the internal rate of return based on individual age-earnings profiles that vary over time ( $t$ ).

$$\sum_{t=m+1}^n \frac{(W_u - W_s)_t}{(1+r)^t} = \sum (W_s - C_u)(1+r)^t; \quad (1)$$

where  $r$  is the discount rate that equates the benefits from the extra education (proxied by earnings differentials in the economy), to the sum of opportunity costs (foregone earnings of the student while studying), and the direct resource costs of schooling at a given point in time. Thus,  $(W_u - W_s)_t$  shows the difference in earnings between two levels of education.<sup>8</sup>

The *Mincerian earnings function method* starts by fitting a regression in the form (2) to the data.

$$\ln W_i = \alpha + \beta_p D_p + \beta_s D_s + \beta_u D_u + \gamma_1 EX_i + \gamma_2 X_i^2 + \varepsilon_i; \quad (2)$$

where  $EX$  stands for years of labour market experience, defined as Age – School starting age, and  $D$  is a 0 – 1 dummy variable corresponding to the subscripted level of schooling [Mincer 1974]. The private rate of return to higher education can then be calculated from the earnings function given by the formula (3).

<sup>7</sup> Net Present Value.

<sup>8</sup> Symbols  $u$  and  $s$  stand, respectively, for university (tertiary) level and secondary level of education.

$$r_u = \frac{\beta_u - \beta_s}{S_u - S_s} \tag{3}$$

The discounting of actual net age-earnings profiles is the most appropriate method of estimating the returns to education because it takes into account the most important part of the early earnings history of the individual. However, this method requires comprehensive data – one must have a sufficient number of observations in a given age-educational level cell for constructing age-earnings profiles, not intersecting with each other.

The advantage of the Mincerian way of estimating the returns to education is that it can smooth out and handle incomplete cells in an age-earnings profile matrix by level of education. The disadvantage, of course, is that it requires a sample of individual observations, rather than pre-tabulated mean earnings by level of education. Out of the above methods, the Mincerian one has been prominent in the applied literature.

Crucial for calculations of social rate of return is that assumed wages are a feasible proxy for the marginal product of labour. This introduces politics into the issue. This may be true in a competitive economy with data from the private sector. Jobs paid from the taxpayer money (civil servants) have pay scales irrelevant for a social rate of return calculation. The reason is that they do not represent marginal productivity. Earnings of government paid employees might be used in calculating private returns to education where of interest is what people actually get, regardless of productivity.

A widely discussed issue is, whether it may be neglected, that besides education, there is a large list of factors that may affect earnings, such as differential ability. Calculation of the rates of return for samples of twins proved that there is a statistically significant link between education and earnings [Ashenfelter, Krueger 2004; Ashenfelter, Rouse 1998; Miller et al. 1995, 2005].

**Table 3.** Some estimates of calculation of private rate of return (from higher education) with change in time

Country	Year	Rate of return (%)	Change (% points)	Source
1	2	3	4	5
Austria	1981	2.4	4.2	[Fersterer, Winter-Ebmer 2003, Table 2]
	1997	6.6		
Bulgaria	1986	6.3	0.2	[Giddings 2002, Table 4]
	1993	6.5		
Croatia	1996	2.3	-0.2	[Vujčić, Šošić 2009, Table 3]
	2004	2.1		
Cyprus	1994	5.7	3.0	[Eliophotou 2008, Table 2]
	2004	8.7		

1	2	3	4	5
Czech Rep.	1984	0.4	2.3	[Newell, Reilly 1999, Table 3]
	1992	3.8		
Greece	1994	6.3	2.7	[Prodromidis, Prodromidis 2008, Table 5]
	1999	9.0		
Hungary	1986	6.2	5.0	[Campos, Jolliffe 2003, Table 2]
	1998	11.2		
Ireland	1994	11.9	-0.9	[McGuinness et al. 2008, Table 6]
	2001	11.0		
	1997	9.9	0.7	[Hazans 2005, Table 32]
Latvia	2002	10.6		
Poland	1998	6.8	2.0	[Strawinski 2007, Table 6]
	2004	8.8		
Romania	1952	3.1	5.4	[Andrén et al. 2005, Table 3]
	2000	8.5		
Slovakia	1984	2.3	1.9	[Newell, Reilly 1999, Table 3]
	1992	4.2		
Slovenia	1994	8.9	1.3	[Polanec, Ahcan 2007, Table 7]
	2004	10.2		
Spain	1981	7.5	6.0	[Lassibille, Gomez 1998, Table 5]
	1991	13.5		
Sweden	1992	4.6	1.7	[Gustavsson, Österholm 2006, Table 3]
	2001	6.3		
Turkey	1987	14.0	8.9	[Tansel 2008]
	2005	22.9		

Source: [Psacharopoulos 2009, p. 10].

Investigations for Belgium [Nonneman, Cortens 1997, Table 3], Greece [Mitrakos et al. 2008], Slovenia [Polanec, Ahcan 2007, Table 8], Turkey [Tansel 2008; Martin 1998, Table 7] for some other countries show that there is not much variation in returns for different tertiary education levels. This may be interpreted as the existence of some kind of equilibrium across levels. On average, the rate of return to a first degree is around one percentage point higher than the second cycle of tertiary education.

## 7. Implications

The transformation from Humboldtian towards entrepreneurial university is the core idea of the modernization concept of the European Commission. It is defined in three areas: curricula, governance, and funding reforms. Governance Reform includes

strategic goals: state involvement in HE sector; with caution against overregulation and micromanagement; institutional autonomy and full accountability; strategic priorities to be set by institution; involvement of stakeholders (employers, business); building and rewarding good management and leadership.

Although there is a fear of unemployment and over-education yield in an observed, large growth in numbers of university graduates, there is strong evidence that higher education in Europe continues to be a profitable investment opportunity, both privately and socially.

The value of the estimates of *narrow social* returns to investment in higher education means that the sector is underfunded. This statement would be (most probably) reinforced in a situation where data availability would allow estimating *wide social* rates of returns.

The value of the estimates of *private* returns to investment in higher education means that part of the increased funding could come from private sources, such as increased student fees. This statement is especially important, since one may observe a decrease of public financing of higher education systems.

Establishing (or increasing) tuition fees is a topic currently being debated in many countries. Charging tuition fees, however, has proved to be a very difficult policy from a political standpoint since it challenges many of the fundamental precepts of egalitarianism and could raise conflicts with students. Higher education public funding should not be equal across the board, e.g. tuition-free for all students, regardless of their socio-economic background. Students from low-income families should receive a subsidy while others should pay the full cost of their education. The evidence shows that such additional cost is easily recovered later in life through higher wages.

The way public funds are granted to higher education institution should promote effectiveness, efficiency and quality. In Europe and some OECD countries the most widespread funding tools that have been experimented with include: *formula based funding*, *performance based funding* and *competitive and targeted funding*. In the case of *competitive and targeted funding*, there is the obvious possibility of establishing a broad European programme, similar to the research framework programmes, for developing quality and competition among European institutions for developing excellence. One should not avoid national, public discussion towards inspiring political will for more efficient and equitable university funding policies. One has to keep in mind that knowledge progresses, also in issues which are the most effective ways to improve social welfare by tertiary education. This may lead to continuously fine-tuned policies in the direction of most effective modes for public funding.

The advance in bringing about the modernization of Europe's universities, addressing their interlinked roles in education, research and innovation, as a key element of Europe's drive to create a new, knowledge-based society and economy and improving its competitiveness is still *in statu nascendi* in the EU.

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## O POMIARZE STOPY ZWROTU Z INWESTYCJI W EDUKACJĘ

**Streszczenie:** Tradycyjny uniwersytet typu humboldtiańskiego stoi w obliczu poważnej krytyki. Odpowiedzią Komisji Europejskiej jest koncepcja modernizacji w kierunku uniwersytetów przedsiębiorczych. Koncepcja modernizacji polega na inicjacji trzech reform: radykalnej reformy programowej (proces boloński); reformy zarządzania oraz reformy finansowania. Celem jest zmiana systemu opartego na wskaźnikach wejścia na system zorientowany na wskaźniki opisujące wyniki. W artykule podjęto dyskusję na temat koncepcji i kilku możliwych rozwiązań w zakresie szacowania skuteczności i efektywności systemu edukacji. Szczególną uwagę skoncentrowano na pomiarze stopy zwrotu z inwestycji w edukację na poziomie uniwersyteckim.

**Słowa kluczowe:** miara stopy zwrotu z inwestycji, szkolnictwo wyższe, koncepcja modernizacji.