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Progress in higher education  
reform across Europe

## Funding Reform

Volume 1: Executive Summary and  
main report

# Executive summary

## Research questions and methodology

Higher education reforms reflect the growing recognition of the importance of higher education for economic, social and cultural prosperity and for increasing competitiveness. While it is well established that funding reforms have taken place at various levels and in various policy areas of higher education, what is less clear is how successful they have been in terms of increasing the performance of higher education systems as a whole. This study aims to answer the following questions:

- 1. What is the state of implementation of the funding reforms undertaken in the 33 European higher education systems and what do we know about the rates of return to higher education in the 33 countries?*
- 2. What is the performance of the 33 European higher education systems with respect to the eight dimensions identified, and how has this changed over the last decade?*
- 3. What has been the impact of the funding reforms on the performance of higher education systems?*
- 4. What lessons can be learned, i.e. what could be the further courses for action towards the modernisation of higher education institutions towards 2020?*

In answering these questions a mixture of research methodologies has been used to collect and analyse data. The primary data sources to study funding reforms and their effects in thirty-three countries were a comprehensive country questionnaire completed by national experts, interviews with key stakeholders in each of the countries, and two institutional case studies in fifteen countries (including interviews with key institutional decision makers). The secondary data sources included the literature on European funding reforms, rate of return studies, previous comparative studies on governance and funding reforms and EU and national policy reports. With respect to the dimensions of system performance in higher education, this study relied on readily available secondary (statistical) data from a number of international databases (OECD, EUROSTAT and UNESCO). To explore the relationships between funding reforms and system performance we used the outcomes of the questionnaires, the interviews with key stakeholders in each country, and existing literature.

## System performance

Based on the terms of reference for this study, eight performance dimensions were selected: access, educational attainment, mature learners, graduate employability, student mobility, research output, capacity to attract funds, and expenditure per student. For describing the performances of higher education systems, each dimension is represented by *indicators*. Between 2002 and 2006, system performance on the dimensions of access, mature learners, attainment, mobility, and the revenues from private households (indicating capacity to attract funds) showed particularly large improvements. Research output in terms of articles increased moderately, while for other areas (employability, the R&D revenues that higher education institutions receive from the business sector) there was no growth, or a decline. In 22 countries, expenditure per student increased over the period 2002-2006, indicating either a decrease in cost effectiveness or a higher priority placed on higher education.

## Funding reforms in Europe

There have been significant changes in funding arrangements since 1995 in almost all countries. Reforms are based on the belief that the level, composition and method of funding matter when it comes to the performance of higher education systems. The expansion of higher education systems has brought *budgetary pressures* for many countries. More and more governments have embarked on a policy of cost sharing, where students and the taxpayer share the cost of higher education.

Our study has looked at the *levels of funding* in the 33 European higher education systems and concluded that there exists a substantial funding gap between Europe and the US. Between 1995 and 2008, our data shows that the level of public funds per student increased in almost 60% of the 33 countries; funding was stable in about a quarter; it decreased in the remaining 20%. Total expenditure per student from public and private sources did not deteriorate in most countries, mostly because of a rising proportion of private expenditure on higher education institutions.

Many countries have started to rethink their tuition fee and student aid policies and have embarked on a policy of *cost-sharing*. A number of countries have expanded their *student support systems*, placing more emphasis on the proportion of loan-based student financial support among the public subsidies for students. Two thirds of the countries have a student loans system in place.

The debate on the appropriate levels of public and private spending is informed partly by an assessment of the *social and private returns to investment in higher education*. Based on desk research we conclude that the average private rate of return is 10.2%, while the average social rate of return is 7.9%, indicating that higher education is a profitable investment opportunity, both privately and socially.

Still, tuition fees for Bachelor-level students are relatively low across Europe. In 2008, eighteen countries had no fees, seven charged moderate fees and eight had fees above €500 per annum

The *mechanisms for public funding* (distinguishing four different approaches: negotiation; incremental; formula funding; contract funding) underwent many reforms. Incremental funding in many countries has been replaced by formula-based approaches, and contract approaches have been introduced - often on top of formulae. Funding mechanisms place more emphasis on performance. However, input- and cost-related factors remain very important, and no country has a 100% performance-based funding system.

In terms of *research funding*, there are 11 systems where we see a rise in the share of competitive/research council funding. On top of that, *targeted funds* (also for education) are frequently used to encourage institutions to address specific national priorities. The rise of contract/project funding has led to a diversification of funding sources for institutions. In terms of revenues, we see a higher share of tuition fees and third party funds, and a lower share of the core operational grant that institutions receive from public authorities. A third of the countries nowadays have more than a quarter of their revenues coming from third party funds. Many countries have granted more financial autonomy to their institutions – although not so much in the area of setting fees – to encourage a differentiation of institutional missions and diversification of revenues. From our study on governance reform we may add that the growing autonomy of higher education institutions on the various aspects of autonomy was coupled with greater accountability. As with designing funding mechanisms, the challenge is to balance institutional autonomy and public accountability.

### Funding reforms and Europe's Modernisation Agenda for higher education

To explore the link between funding arrangements and the various performance dimensions we have taken the European Commission's *Modernisation Agenda* as our point of departure. We see this agenda as a set of recommendations that offers countries and higher education institutions a variety of issues to consider and a range of options for reform that need to be tailored to national and institutional contexts and conditions. We have explored the extent to which the funding arrangements in Europe reflect relevant aspects of the Modernisation agenda, using indicators. The picture that emerges is the following:

- in 14 countries, universities have a high level of financial autonomy in 2008 (compared to 11 countries in 1995);
- in 14 countries we see a high share ( $\geq 25\%$ ) of revenues from third party funds (6 countries in 1995);

- in 13 countries universities we observe a high share ( $\geq 15\%$ ) of revenues from tuition fees (8 countries in 1995);
- in 18 countries the degree of performance orientation in the funding mechanism is high (5 countries in 1995);
- in 9 countries, universities have a high share of competitive research funds ( $\geq 25\%$  of combined core funds and research council funds) (8 countries in 1995);
- in 18 countries the portability of student grants is high (the same as for students studying at home) (9 countries in 1995).

If the different funding-related aspects of the Modernisation Agenda are considered as a whole for the year 2008, seventeen countries can be characterised as having a high degree of *correspondence to the Modernisation Agenda*, eight countries have addressed quite a few aspects, five countries have tackled a few aspects, and three countries have hardly addressed any aspects of the Modernisation Agenda.

### Funding and system performance in higher education

When looking at the funding arrangements and their potential link to higher education system performance one needs to control for the countries' level of public investment in higher education (public expenditure on tertiary level education as a percentage of GDP) as well as for the economic standing of the countries (assessed through a country's position on the Global Competitiveness Index). Having done so, our general conclusion is:

*For three of the performance dimensions we find that funding reforms may be linked to increased system performance (graduation, student contributions, research output), for three others there is a weak link (mature enrolment, business contributions, student mobility), while for the remaining dimensions (access, employability) there is no link.*

Our findings suggest that *funding policies matter for some areas of higher education performance*, particularly if they go along with sufficient levels of autonomy for the institutions. There appears to be a link between the output of the primary processes (numbers of graduates and articles published) on the one hand and the funding and autonomy conditions on the other. This conclusion is supported by other research. For the other performance dimensions, which are not related or less directly related to the primary processes of higher education institutions, performance is explained more by a combination of other factors, such as societal developments, economic conditions and political cultures.

Compared to reforms in the area of governance, *funding reforms seem to have more direct effects* on system performance. This holds in particular for the introduction of

performance-based funding (emphasising research quality and graduation/enrolment), tuition fees (generating revenues, providing growth incentives for higher education institutions) and competitive funding and targeted/project funds (generating revenues, stimulating quality and productivity). Some funding reforms may only work in an indirect way – such as reforms that increase the financial autonomy of institutions. On dimensions other than educational attainment and research output (and to some extent the tuition revenues from students) the links between funding, governance and performance may exist *only in specific contexts*. What works in one country may not work in another. Our study shows many interesting country-specific examples of a positive interaction between funding reforms and performance, but more detailed research on a less aggregate level is needed to draw firm conclusions on what matters most in funding.

## Policy recommendations

Based on the outcomes of our analyses we offer the following recommendations.

- *To shape the funding of higher education, **cost sharing** between the state and students should be the leading principle. Public subsidies should continue to be provided for higher education, regardless of the sector of provision (public or private). Students should be expected to pay a tuition fee, where the fee level is regulated to ensure cost containment and moderation.*
- *Countries should back up their tuition fee measures with student support systems that consist of **grants AND loans** to cover the students' fees and living costs. The grants will need to be based on assessed need to encourage participation by students from disadvantaged backgrounds. The loans system should be shaped according to the principle of income-contingent repayments (i.e. full debt collected in accordance with a graduate's ability to repay) and debts carrying an interest rate that is partly subsidised by government. Loans and grants need to be made available also for students studying in accredited private higher education institutions.*
- *For their funding mechanisms, countries should rely mostly on **formula-based approaches** (that include both inputs and outputs as funding drivers), but on top of that they may wish to consider a **contract-based approach** that includes more targeted and project-based funds – not in terms of an array of separate funding streams each with different accountability requirements<sup>1</sup>, but more in the shape of an integrated package.*
- *Introducing **more performance- and competition-based funding** should go hand in hand with more institutional **autonomy** overall for*

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<sup>1</sup> We would like to refer here to the recommendation made in our parallel study on governance reform, where we also touch on the trade-off between autonomy and accountability.

*European higher education institutions. This combination is most likely to contribute to system performance in higher education's primary processes and products.*

- *To increase mutual learning and the spreading of good practices (e.g. through the Open Method of Co-ordination) we need to take account of national **contexts and traditions**. To understand why reforms worked well in some countries, a serious analysis of the individual national contexts needs to be undertaken that goes beyond a mere benchmarking exercise and produces insights for tailored solutions for other countries, taking into account their starting positions or their comparative advantages.*
- *Reforms based on a broad agenda that encompasses many policy areas make little sense. Reform agendas should **target a more limited selection of weak areas** per country, based on a careful SWOT analysis. Overloading the reform agenda with too many goals (or even instruments) may raise the stakes too high when it comes to the assessment of what has been achieved.*
- *A **European monitoring system** should be established to address important aspects of reform and performance in higher education systems in constant flux. A European scoreboard for higher education could integrate and further develop important indicators for performance and for the characteristics of higher education systems and their reform. Such a monitoring system would also provide a valuable foundation for the analysis of national systems and the development of tailor-made recommendations for further reform.*

# Conclusions and recommendations

## Funding reforms in Europe

In this concluding chapter of the report we return to the main research questions that guided this study, we summarise the main findings of the study and outline a number of recommendations related to these findings. In summarising the main findings we highlight general trends and patterns across European higher education thus neglecting some of the diversity that reigns across these systems.

The first research question concerns funding reforms:

*What is the state of implementation of the funding reforms undertaken in the 33 European higher education systems between 1995 and 2008 and what do we know about the rates of return to higher education in the 33 countries?*

There have been significant changes in funding since 1995 in almost all countries. In fact the vast majority of European countries are in an almost permanent process of reforming their higher education systems, or at least striving to adapt their higher education institutions to global competition. In this global competition higher education systems and their outputs (competitive graduates and research results) play a key role. In the reform processes, funding reforms are only one part, interacting with other policies, such as reforms in the governance of higher education systems, and reforms in degree structures and curricula. In fact, funding policies interact with broader policies in the public sector, labour market policies and social policies. Funding policies are based on the belief that the level, composition and method of funding matter when it comes to the performance of higher education systems. A well-performing higher education system is regarded as essential in enhancing innovation, producing a high quality labour force and thus strengthening the well-being of countries in many ways.

However, it is clear that the expansion of higher education systems has brought *budgetary pressures* for many countries. The goal of securing sufficient funding levels to enable higher education institutions to meet the growing expectations of society and respond to the growing demand by students is a challenge faced by many governments. Combined with the overall budgetary pressures that many countries experience, it has led to reforms in the funding of universities and other higher education institutions and has also meant that more and more governments have embarked on a policy of cost sharing, where students and the taxpayer share the cost of higher education.

Our study has looked at the *levels of funding* in the 33 European higher education systems and concluded that public expenditure on higher education as a percentage of GDP on average is about 1.13% in 2006, while private expenditure is about 0.2%.

There is quite some variation across Europe, but it is clear that there exists a substantial funding gap between Europe and the US (that spends 2.9% of GDP on higher education). Expenditure per student (from public and private sources) also shows considerable variation across Europe. There is evidence of a positive relationship between a country's relative wealth and its expenditure per student. Between 1995 and 2008, our data shows that the level of public funds per student increased in almost 60% of the 33 countries; funding was stable in about a quarter; it decreased in the remaining 20%. Total expenditure per student from public and private sources did not deteriorate in most countries mostly because of a rising proportion of private expenditure on higher education institutions.

Turning to the composition of funding, we see that many countries have started to rethink their tuition fee and student aid policies. The Commission's Modernisation Agenda has pointed to this under the topic of *cost-sharing* and urges EU-member states to "critically examine their current mix of student fees and support schemes in the light of their actual efficiency and equity" (EC, 2006).

A number of countries have expanded their *student support systems*, placing more emphasis on the proportion of loan-based student financial support among the public subsidies for students in higher education. Two thirds of the countries have a student loans system in place, next to means-tested grants for undergraduate students or tax relief and child allowances for their parents. Some have done so only recently (Bulgaria, Hungary, Poland, Portugal, Slovenia), while some others still lack such a system. Overall, countries face the challenge of shaping cost sharing and student support arrangements which do not harm participation by the most disadvantaged groups. This is done in the light of outcomes from studies done in Europe showing that higher socioeconomic status (SES) students, as measured by the education of their parents, have a much better chance of entering higher education.

The debate on the appropriate levels of public and private spending is informed partly by an assessment of the *social and private returns to investment in higher education*. From our desk study on rates of return we identified estimates for 31 out of 33 countries. The average private rate of return is 10.2%, while the average social rate of return is 7.9%. Using slightly different (but more comparable) data, the averages turn out to be 12.3% (private) and 7.9% (social), confirming the difference between private and social rates (4.4 percentage points on average). Therefore, private returns exceed the social returns by 2.3 to 4.4 percentage points. The combined returns (private and social) exceed any reasonable opportunity cost of capital, say 5%, indicating that higher education is a profitable investment opportunity, both privately and socially.

The returns are highest in "new countries" such as the Czech Republic, Poland, Hungary and Turkey, and lowest in Scandinavian countries such as Denmark and Sweden. The difference between the private and the social return is an indication of the degree of public subsidisation of higher education. Furthermore there is evidence that the private returns to higher education have been rising, meaning that the demand for higher skills outpaces the increased supply of graduates in the market

place. The literature is not very forthcoming on the returns to higher education by socioeconomic background (SES) although we found some evidence that in several countries those coming from a superior socioeconomic background enjoy much higher returns. Looking at fiscal returns, there is evidence that public expenditure on higher education is recovered through the higher tax revenue from those who graduate and have higher incomes.

Next to the rate of return estimates, the *earnings difference* between a university graduate and a secondary school graduate could also be considered as a “return to education”. On average, our desk research shows that university graduates have a 61% earnings advantage over secondary school graduates. Again, our survey confirms that the earnings advantage of university graduates is highest in the “new countries” and lowest in the Scandinavian countries.

Because rate of return analyses and debates on cost sharing are often linked to the issue of *tuition fees*, we present some information on the levels of the fees for Bachelor students (table 6.1). The table illustrates that fees for Bachelor-level students are relatively low across Europe, even though some countries have started to introduce fees in recent years. On average, the fees for Master’s level students are higher, particularly in the UK, Ireland, Greece, Cyprus, Malta and Spain. In a few countries, differentiated fees are in place (Italy, Spain, Portugal, UK-England), sometimes with governments setting a minimum and maximum level.

**Table 6.1: Annual tuition fees for BA-level students and their order of magnitude in 33 countries in 2008**

No fees	CY, HR, CZ, DK, EE, FI, GR, HU, IE, IS, LU, MT, NO, PL, RO, SK, SI, SE
Low fees (below €500)	AT, BE, BG, FR, DE, LT, TR
Moderate to substantial fees (above €500)	IT, PT, LI, ES, CH, NL, LV, UK-Eng

The *mechanisms for public funding* contain important incentives to encourage institutions in achieving higher education’s three main goals, viz. quality, efficiency and equity. Looking at the methods used in the various countries for determining the amount of the public operational grant allocated to individual institutions, table 6.2 indicates the extent to which each of four different approaches (negotiation; incremental; formula; contract funding) is seen as important. While countries are using a mix of funding approaches, it is clear that in 2008, incremental funding (where historical allocations play a large role) is being applied less compared to 1995. In many countries it has been replaced by formula-based approaches. While negotiated funding is still in place in quite a few countries, contract approaches have been introduced on top of existing arrangements. In contract funding part of the institution’s budget is tied to a performance agreement. Contracts and multi-year agreements between the state and higher education institutions are examples of new governance instruments.

**Table 6.2: Number of countries and the importance attached to four types of funding: 1995 vs. 2008 (public universities; N=34)**

Degree of importance	Negotiated		Incremental		Formula funding		Contracts	
	1995	2008	1995	2008	1995	2008	1995	2008
High/Moderate	9	12	24	15	14	27	2	10
No/low	24	22	9	19	19	7	31	24

Historically-based allocation schemes are losing ground to funding mechanisms with more of an emphasis on outputs. Higher education institutions today are funded more for what they do than for what they are. This trend is shown in table 6.3, where we look at the funding criteria that drive the institutional budgets. We observe a shift towards drivers that capture teaching and research *performance*. Some countries have decreased the weight they give to student numbers in their funding formulas. However, input- and cost-related factors remain very important in all countries' higher education systems (research universities as well as universities of applied sciences) and no country has a 100% performance-based funding system.

**Table 6.3: Number of countries and importance of input- versus output-related funding drivers of the operational grant (for publicly funded Universities and Univ. of Applied Sciences): 1995 vs. 2008 (N=45, 34 university systems and 11 UAS systems)**

Degree of importance	Number of countries and relative importance of <b>input-related drivers</b>		Number of countries and relative importance of <b>output-related drivers</b>	
	1995	2008	1995	2008
High	38	24	3	8
Moderate	4	18	3	16
No / Minor	3	3	39	21

Looking specifically at the public funding of *research*, it is clear that most countries make use of a *dual support system*, meaning that research is funded both through a recurrent (operational) grant and through competitive public research grants. The average share of competitive research council funding in European universities has increased slightly, from 44% to 47% over the period 1995-2008. When we look more in detail at research funding, our data reveal that in 11 of the 34 higher education systems<sup>2</sup> one may observe a rise in the share of competitive/research council funding. We therefore conclude that over the period 1995-2008 countries have introduced more competition to improve research quality. In some countries more funds were made available through project funds. New research funds are often attached to specific priorities or to new schemes (e.g. centres of excellence).

Such *targeted funds* are often allocated as project funds, awarded competitively or equally across institutions with the explicit aim of encouraging institutions to address specific national priorities. Most targeted funds for teaching-related purposes are awarded competitively and concern the objectives of improving access for disadvantaged students and the enhancement of teaching quality. Targeted

<sup>2</sup> For Belgium we look both at the Flemish and the French Community.

research funds are awarded to encourage the formation of public-private partnerships and enhancing research excellence in areas of national strategic interest.

This increased competition and targeting for results has led to introduction of new policy instruments (project funding; performance contracts) to achieve particular types of results thus stressing accountability and value for money. However, the increased emphasis on contract funding also allows more room for diversification of institutional missions and, as a result, may lead to more *differentiation* in the higher education system in terms of quality, funding and pricing. From our study (and many other studies of into higher education financing) it is clear that it has led to a diversification of funding sources.

If we distinguish three main categories of revenues (operational grant; tuition fees and third party funding<sup>3</sup>), table 6.4 shows the difference between the years 1995 and 2008 (for the countries that we have data for). The move towards a higher share of tuition fees and third party funds has partly resulted from a purposeful reform policy in this direction or the relaxation of regulations that govern the entrepreneurial activities of higher education institutions. However, it may also be the outcome of the reduction of core budgets.

**Table 6.4: Average proportion of public universities' main revenue components: 1995 and 2008**

	1995 (N=26)	2008 (N=32)
Operational grant	78%	67%
Tuition fees	8%	12%
Third party funds	15%	21%

Over the period 1995-2008, the number of countries where tuition fees represent more than 5% of revenues has grown from 10 to 18. A third of the countries now have more than a quarter of their revenues coming from third party funds. Private resources have also been mobilised through the commercialisation of research and other private uses of institutional facilities and staff.

Countries are confronted with the challenge to design funding instruments that on the one hand try to achieve accountability and performance-orientation and on the other hand permit a wide scope for institutional differentiation. This has meant that many countries nowadays allow more autonomy to their institutions. As part of this, *financial autonomy* has been enlarged. Financial autonomy is one aspect of institutional autonomy where reforms have taken place. However, institutional autonomy was also enlarged other areas.<sup>4</sup> The general assumption is that higher education systems will benefit also in terms the desired differentiation of institutional missions if higher education institutions are freed from detailed state

<sup>3</sup> Third party funding includes all project and contract funding received from public, international and private sources, such as: research council funding, ministry programmes, EU funds, contract research, and contract teaching.

<sup>4</sup> For a detailed analysis of governance reforms, please see the parallel study *Progress in governance reforms across Europe*.

regulation and control and have substantial discretion to take decisions independently and strategically. This view was largely confirmed in the case studies of individual institutions that were conducted in our project. Financial autonomy is generally perceived to be a very important characteristic of autonomous organisations; it includes the ability to decide on the internal allocation of public and private funds, to diversify sources of income (for example through tuition fees and other private contributions), to build up reserves, and to borrow funds on the capital market.

Public higher education institutions in the vast majority of European countries have medium to high *levels of financial autonomy*. Many countries have implemented reforms that have significantly enhanced the autonomy of institutions in financial matters, particularly through the introduction of lump sum budgeting. From our study on governance reform we may add that the growing autonomy of higher education institutions on the various aspects of autonomy was coupled with greater accountability. As with funding mechanisms, again the challenge is to balance autonomy and accountability.

*To give an overall answer to our research question about the trends in funding reforms implemented we may conclude that we observe a move from centralised, input-oriented approaches to more decentralised and performance-oriented approaches.*

## The performance of Europe's higher education systems

Having presented an overview of funding reforms, our second research question deals with the goals of the reforms:

*What is the performance of the 33 European higher education systems with respect to the eight dimensions identified, and how has this changed over the last decade?*

With the introduction of the Lisbon Strategy, the need for system level evidence of performance to assess the contribution of the European higher education systems to the critical Lisbon areas of more research & development, innovation, and investing in people is evident. Higher education performance is a multi-dimensional issue and the terms of reference of our study therefore highlighted eight dimensions:

- access
- mature learners
- graduation
- employability
- international student mobility
- research output
- capacity to attract funding

- cost effectiveness

Performance always needs to be evaluated within the specific national context of a country. Therefore, any analysis requires taking *contextual information* into account, such as the country's demographic situation, its stage of technological advancement, and its public investment in higher education and R&D.

For describing the performances of higher education systems, each dimension is represented by at least two *indicators* (see table 6.5). We used international data sources to measure the performance of European higher education systems in 2002 and 2006 across these eight dimensions. Our selection of indicators shows a strong overlap with the higher education-related indicators used in the Commission's annual progress report to track progress made with the implementation of the education and innovation goals laid out in the renewed Lisbon Strategy.

**Table 6.5: Performance dimensions, selected indicators and change in performance**

Performance area	Indicator	Number of countries <sup>1</sup> showing increase over 2002-2006	Average <sup>2</sup> growth over 2002-2006
Access	Net enrolment rate	22 out of 24	12%
Lifelong learning	Mature (> 30 years old) enrolment rate	19 out of 28	23%
Graduation	Share of population with tertiary degree (% of 25-34 year olds)	21 out of 23	19%
Employability	Relative graduate earnings	6 out of 13	0%
	Relative graduate employment	5 out of 19	-18%
Research	Scientific articles per mln. inhabitants	12 out of 20	5%
Capacity to attract funds	Share of HE R&D income from business	12 out of 25	-4%
	Private (households') expenditure on HE	15 out of 20	30%
International mobility	Incoming EU+ students	22 out of 28	18%
	Outgoing EU+ students	23 out of 30	20%
Cost-effectiveness	Expenditure per student in €	22 out of 29	11%

<sup>1</sup> out of countries that we have data for<sup>5</sup>),

<sup>2</sup> to represent the average we have used the median

On the basis of the values for each particular performance indicator in 2002 and 2006, the countries' higher education system performance can be categorised into

<sup>5</sup> The number of countries for which data are available varies for each indicator hence the differing sample sizes per indicator.

four groups (*quadrants*) that include countries that are (1) moving further ahead, (2) losing momentum, (3) catching up, and (4) falling further behind. A country's position is determined by referring to (1) the absolute value for the indicator compared to the group average for the set of 33 countries and (2) the observed growth compared to the average growth for the set of 33. We will not present a categorisation of countries here (the reader is referred to chapter 4), but instead provide some summary information on the performance dimensions (table 6.5).

In terms of these performance dimensions, there is no doubt that in the vast majority of European countries system performance improved over this period.<sup>6</sup>

It should be kept in mind that the outcomes of this assessment of performance are a result of the selection of dimensions and indicators in our study. However, the selection was made with reference to the four main dimensions (quality, investment, graduates and mobility) in the Progress report. In the next research question we address the funding (and governance) policies that, according to the European Commission's Modernisation agenda, are assumed to lead to better contributions by higher education institutions to the general EU Innovation Strategy (the re-launched Lisbon Strategy).

### Funding and system performance in higher education

The third research question of this study concerns the relationship between the funding reforms and the performance of higher education systems:

*What has been the impact of the funding reforms on the performance of higher education systems?*

Our study explored the possible relationship between funding reforms and improvements in system performance. In doing so we controlled for the level of public investment in higher education (public expenditure on tertiary level education as a percentage of GDP) as well as for the economic standing of the countries (as reflected by the Global Competitive Index, GCI).

Funding arrangements are diverse and are very much of a qualitative nature. To explore the link between funding arrangements and the various performance dimensions we have taken the EC's *Modernisation Agenda* as our point of departure. We see the Modernisation Agenda as a set of recommendations that offers countries and higher education institutions a variety of issues to consider and a range of options for reform that need to be tailored to national and institutional contexts and conditions.

The following aspects of the Modernisation Agenda relate to issues of funding:

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<sup>6</sup> We use the term 'improved performance' in a neutral way recognising that some would contest whether all of these improvements are desirable.

- Ensure financial autonomy
- Encourage partnerships with business
- Spend 2% of GDP on higher education to reduce the funding gap
- Revise student fees and student support schemes
- Base funding more on outputs than on inputs
- Examine the balance of core, competitive and outcome-based funding
- Ensure portability of student support

These aspects in one way or another also emerged from the answer to our first research question.

We have explored the extent to which the funding arrangements in European higher education reflect these aspects of the Modernisation agenda for higher education using the following *six items*:

- Financial autonomy
- Share of third party funding
- Share of revenues from tuition fees
- Degree of performance orientation in funding mechanism
- Share of competitive research funds in university sector
- Portability of student grants

Using these indicators to capture the different funding aspects of the Modernisation Agenda we have addressed the extent to which a particular aspect is in place for a given country. For each aspect we distinguish three degrees: 1. high degree of meeting the Modernisation Agenda; 2. meeting the Modernisation Agenda to some degree; 3. not meeting the Modernisation Agenda.

Looking at the situation in thirty-three countries for the years 2008 and 1995, and focusing only on countries that exhibit a high degree of congruence, the following picture emerges:

- in 14 countries universities have a high level of financial autonomy in 2008 (compared to 11 countries in 1995);
- in 14 countries we see a high share ( $\geq 25\%$ ) of revenues from third party funds (6 countries in 1995);
- in 13 countries universities we observe a high share ( $\geq 15\%$ ) of revenues from tuition fees (8 countries in 1995);
- in 18 countries the degree of performance orientation in the funding mechanism is high (5 countries in 1995);
- in 9 countries, universities have a high share of competitive research funds ( $\geq 25\%$  of combined core funds and research council funds). (8 countries in 1995);

- in 18 countries the portability of student grants is high (the same as for students studying at home). (9 countries in 1995).

The *timing and breadth of reforms* differ across European higher education systems; there are early adopters as well as late reformers. In some parts of Europe radical political changes drastically changed the higher education landscape in a very short period of time in the early 1990s, whereas for other countries particular aspects of the modernisation agenda have been a reality for years.

If the different funding-related aspects of the Modernisation Agenda are considered as a whole for the year 2008, seventeen countries can be characterised as having a high degree of *correspondence to the Modernisation Agenda*, eight countries have addressed quite a few aspects, five countries have tackled a few aspects, and three countries have hardly addressed any aspects of the Modernisation Agenda. Once again we stress that we do not adopt a normative position here; there is not a single recipe for successfully modernising European higher education. The agenda is not a pill to be swallowed as a whole; rather its recommendations need to be administered after a diagnosis of a country's strengths and weaknesses, taking into account national priorities.

When looking at the funding arrangements and their potential link to higher education system performance we need to control for the countries' level of public investment in higher education (public expenditure on tertiary level education as a percentage of GDP) as well as for the economic standing of the countries (on the Global Competitiveness Index, GCI). Having done so, our general conclusion is:

*For three of the performance dimensions we find that funding reforms may be linked to increased system performance (graduation, student contributions, research output), for three others there is a weak link (mature enrolment, business contributions, student mobility), while for the remaining dimensions (access, employability) there is no link.*

For the top ten countries in terms of **educational attainment** levels we find that all except for one are in the group of countries that meet most of the Modernisation Agenda's funding aspects. Nearly all are in the north-western part of Europe. Most of these countries are high public investors in higher education and have a strong economic standing (a high GCI) and have public universities with high or medium-high levels of autonomy. Funding reforms have contributed to an increased number of graduates in some countries by providing incentives for institutions to grow and providing financial support to students. In higher education systems where formula funding is driven by student enrolments and their graduation, the levels of attainment are higher. One has to add that governance reforms also contributed through paving the way for private higher education providers entering the market and by extending the number of students by changing entry routes into higher education.

All countries that exhibit the highest conformity to the Modernisation Agenda are very productive in terms of **research output** (Sweden, Denmark, Finland, Netherlands, Norway, the UK, Iceland, Belgium, Austria and Germany). The only exception is Switzerland (highest research output, but in the group of countries that match less of the Modernisation Agenda's funding elements). Countries that have a medium to high share of competitive research funds mostly exhibit an above average research productivity. There is a strong link between institutional autonomy (human resource matters) and research output. This supports the finding of other research (Aghion et al., 2009) that suggests a relationship between (financial) autonomy and research performance. Financial reforms that place greater emphasis on performance-based research funding and financial reforms introducing targeted research funding seem to be part of the relationship. However, it is not just the way of funding, but also the amount that matters: the public resources made available for higher education and research have an impact as well. The top ten countries in research productivity nearly all are in north-western Europe. In some cases, funding reforms have not increased research output as some of these countries were already high performers in research.

The level of **private household financial contributions** to higher education is first of all dependent on whether higher education institutions are free to charge tuition fees. Secondly, it depends on who sets the level of tuition to be charged. If tuition fees are not permitted or the government sets tuition levels then the level of private contributions depends primarily on government policy. In the United Kingdom and the Netherlands the government allows the institutions to charge relatively high tuition fees. In some other countries, institutions are permitted to charge tuition fees to parts of the student population ('dual systems' as in Hungary and the Czech Republic). A third important determinant has been reform leading to the emergence of a substantial private higher education sector, for example in Poland and Portugal. Furthermore we find that high private contributions in a country often coincide with low public investments in higher education.

For the next three performance dimensions we find only weak links:

Our analysis concludes that there is a weak link between funding reforms and the percentage of **mature students**. Twelve of the 17 countries with high degrees of correspondence to the Modernisation Agenda's funding recommendations have relatively high shares of mature students. Underlying this link are various governance and funding reforms: financial reforms – both formula funding and/or tuition fees – that encourage institutions to admit more students, increased institutional autonomy, opening up the system to private providers, the establishment of state-university contracts, the introduction of performance-based funding systems, new student support and tuition fee schemes, and mergers. The demand side seems to be important as well. There has been increased interest from mature students to enter higher education as a result of higher demand for higher education qualifications from the labour market.

The share of **R&D investments in higher education from business and industry** cannot clearly be related to the degree to which a country has implemented the finance-related recommendations of the EC's Modernisation Agenda. Governance and funding reforms granting public universities greater financial autonomy may have contributed to stronger interaction with business and industry in some countries. Introducing targeted funding for joint research projects with industry was also seen to have stimulated growth in this area. Higher institutional autonomy on its own, however, seems an unlikely explanation for improved performance. Institutional and particularly financial autonomy is a facilitating factor for institutions in responding to increasing business and industry demand for and investment in R&D.

Intra-European student mobility has been driven by many factors (such as regional proximity, common languages, the attractiveness of a country and the reputation of higher education systems, programmes offered in English, and entrance into the EU). Funding reforms do not have obvious effects on **outgoing student mobility**. However, in some countries there are indications that the portability of student support and issues related to tuition fees have triggered students to study abroad. For **incoming student mobility** we could not detect clear links to either funding or governance reforms. The provision of targeted funding for this purpose is an important factor in some countries while in other countries there are financial incentives such as tuition fees and funding per student/graduate for public universities to use their autonomy to increase their enrolments including by operating in the European student market. However, it is mainly other factors, often country-specific, that explain the level of incoming European students. Our analysis does suggest that countries with high investments in higher education that are economically competitive and have high (or medium-high) levels of institutional autonomy tend to have high levels of incoming European students.

Finally, for **two performance dimensions we do not find systematic links between funding reforms and system performance**. There are indications that other factors and drivers play a dominant role in performance improvements on these dimensions. We do find, however, examples that highlight the facilitating potential of such reforms under specific conditions.

In terms of **net enrolments** in higher education, the primary drivers appear to be growth in the number of study places and student and labour market demand. There are links to governance reforms (the introduction of new sectors in higher education) and funding reforms (greater incentives for students to enrol and for institutions to grow). Our analysis does, however, not support the assumption that the existence of financial incentives in combination with autonomous public institutions systematically leads to high or increasing net enrolments.

Our analysis did not find any relationship between funding and governance reforms and **graduate employability**. Assessing graduate employability by means of the relative employment position of graduates or their relative earnings did not produce any indications of a link to funding or governance reforms inspired by the

Modernisation Agenda. The most important drivers of improvements on the employability dimension appear to be labour market conditions and the proportion of higher education graduates in the labour force. Our rate of return study, however, did produce support for the idea that higher education as such matters for employability. Whether higher education *policy* matters is a different issue.

Our findings suggest that *funding policies matter for some areas of higher education performance*, particularly if they go along with sufficient levels of autonomy for the institutions. This holds primarily for those areas of performance that lie closest to the primary processes of higher education institutions – the activities that are within their immediate sphere of control. There appears to be a link between the output of the primary processes (numbers of graduates and articles published) on the one hand and the funding and autonomy conditions on the other. This conclusion is supported by other research. Aghion et al. (2007, 2008 and 2009) argue that university research performance is positively correlated with university autonomy and the level of funding. For the other performance dimensions, which are not related or less directly related to the primary processes of higher education institutions, the findings of our study do not reveal clear links between governance, funding and performance. In these dimensions, performance is explained more by a combination of other factors, such as societal developments, economic conditions and political cultures.

Compared to governance reform, *funding reforms seem to have more direct effects* on system performance. This holds in particular for the introduction of performance-based funding (emphasising research quality and graduation/enrolment), tuition fees (generating revenues, providing growth incentives for higher education institutions) and competitive funding and targeted/project funds (generating revenues, stimulating quality and productivity). Like governance reforms, some funding reforms may only work in an indirect way – we have seen this to be the case for reforms that increase the financial autonomy of higher education institutions. Moreover, it may be easier to catch up than to stay ahead, meaning that some countries that are already at relatively high levels of performance may find it difficult to further increase performance – at least when performance is captured in terms of indicators primarily stressing aggregate volumes instead of qualities.

On dimensions other than educational attainment and research output (and to some extent the tuition revenues from students) the links between funding, governance and performance may exist *only in specific contexts*. What works in one country may not work in another. Our study shows many interesting country-specific examples of a positive interaction between funding reforms and performance, but more detailed research on a less aggregate level is needed to draw firm conclusions on what matters most in funding.

## Policy recommendations

The final research question of our study asks for a summative reflection on our findings as well as for recommendations for future policies.

*What lessons can be learned, i.e. what could be the further courses for action towards the modernisation of higher education institutions towards 2020?*

Our study shows that European higher education systems are 'living in interesting times'. They are experiencing substantial reform, in terms of funding, governance, autonomy, accountability, and external relations to the state and other stakeholders. Many reforms across Europe reflect aspects of the European Modernisation Agenda. In a way, this is surprising as education in general and higher education in particular have traditionally been driven by well-protected national agendas, national particularities and different developmental paths. It is also obvious and less surprising that the timing, breadth and depth of reforms differ considerably across the more than thirty European countries included in this study. The "European project" is work in progress; some countries are front-runners while others are followers. National contexts and conditions clearly influence the processes of policy formation, formulation and implementation.

What has become apparent from our study is that there are *no general recipes* that can be administered to improve the performance of higher education systems. The national context matters for three reasons: (1) whether a certain change in performance is good/important for the country and (2) whether performance changes are consistent with national priorities and (3) whether there are other variables which can explain the change. The need for contextualization leads to the following recommendation:

*To increase mutual learning and the spreading of good practices (e.g. through the Open Method of Co-ordination) we need to take account of national **contexts and traditions**. To understand why reforms worked well in some countries, a serious analysis of the individual national contexts needs to be undertaken that goes beyond a mere benchmarking exercise and produces insights for tailored solutions for other countries, taking into account their starting positions or their comparative advantages.*

And on the same note:

*Reforms based on a broad agenda that encompasses many policy areas make little sense. Reform agendas should **target a more limited selection of weak areas** per country, based on a careful SWOT analysis. Overloading the reform agenda with too many goals (or even instruments) may raise the stakes too high when it comes to the assessment of what has been achieved.*

Our rate of return study has led to the conclusion that higher education in Europe continues to be a profitable investment opportunity, both privately and socially. The size of the social returns to investment in higher education means that the sector is underfunded. The size of the private returns to education means that part of the

increased funding could come from private sources, such as increased student fees. Regarding equity concerns, 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 could receive a subsidy while others would have to pay the full cost of their education. The evidence shows that such costs would be recovered later in life through higher earnings. This leads to the following recommendation:

*To shape the funding of higher education, **cost sharing** between the state and students should be the leading principle. Public subsidies should continue to be provided for higher education, regardless of the sector of provision (public or private). Students should be expected to pay a tuition fee, where the fee level is regulated to ensure cost containment and moderation.*

Charging fees will free up public funds to be spent on providing support for disadvantaged groups. On the matter of student support we have seen many countries lagging behind in providing student support in the shape of loans. Two thirds of the countries in our study have a student loans system in place, next to means-tested grants for undergraduate students or tax relief and child allowances for their parents. However, some others still lack a loans system. This leads us to the following recommendation:

*Countries should back up their tuition fee measures with student support systems that consist of **grants AND loans** to cover the students' fees and living costs. The grants will need to be based on assessed need to encourage participation by students from disadvantaged backgrounds. The loans system should be shaped according to the principle of income-contingent repayments (i.e. full debt collected in accordance with a graduate's ability to repay) and debts carrying an interest rate that is partly subsidised by government. Loans and grants need to be made available also for students studying in accredited private higher education institutions.*

Across Europe, funding reforms have been implemented to different degrees in different countries, and this has created increased opportunities for higher education institutions to act as more integrated organisations and to determine their own profiles and strategies. Their level of financial autonomy has increased, although they remain very dependent on public funding. However, there is no doubt as well that higher education institutions need to act within frames set and controlled by public authorities.

Funding mechanisms on the one hand need to achieve accountability and performance-orientation and, on the other, permit a wide scope for institutional differentiation. Such differentiation requires autonomy. As part of their overall governance frameworks, countries are confronted with the challenge to design steering mechanisms that are consistent with national priorities and sensitive to

differentiated institutional missions. Our study has seen that more and more countries are using a mix of formula-based funding approaches and contract-based performance agreements. While the formula constitutes the largest part of the budget, the contract parts allows funding authorities to pay attention to institutional targets. This brings us to the following recommendation:

*For their funding mechanisms, countries should rely mostly on **formula-based approaches** (that include both inputs and outputs as funding drivers), but on top of that they may wish to consider a **contract-based approach** that includes more targeted and project-based funds – not in terms of an array of separate funding streams each with different accountability requirements<sup>7</sup>, but more in the shape of an integrated package.*

This requires that both governments and institutions need to articulate a long-term strategy. This a challenge, but one that needs to be faced.

Governance reforms granting greater institutional autonomy seem to have the most visible and direct effects on key performance dimensions when they are combined with funding reforms. The two often go hand in hand. More institutional autonomy combined with performance-based funding for research and a more competition-based research system are likely to have positive effects on research productivity. More institutional autonomy combined with financial incentives for higher education institutions to improve graduation rates is also likely to have a positive impact on educational attainment. This underlies the final recommendation:

*Introducing more performance- and competition-based funding should go hand in hand with more institutional autonomy overall for European higher education institutions. This combination is most likely to contribute to system performance in higher education's primary processes and products.*

Finally, reforms need time to sink into systems and to reveal their potential. The 1995 to 2008 period of reform and the 2002 to 2006 period for assessing changes in performance have limited our capacity to fully understand the implementation of reforms and their effects. Short term effects can be seen, but long term impacts, arguably those that really change systems, are more difficult to observe. In reform processes the transaction costs for higher education systems and institutions are significant; the effects of reforms on performance need to be developed over time. The progress made thus far is only an intermediate step; the Modernisation Agenda calls for further implementation and ongoing assessment.

*A **European monitoring system** should be established to address important aspects of reform and performance in higher education systems in constant flux. A European scoreboard for higher education*

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<sup>7</sup> We would like to refer here to the recommendation made in our parallel study on governance reform, where we also touch on the trade-off between autonomy and accountability.

*could integrate and further develop important indicators for performance and for the characteristics of higher education systems and their reform. Such a monitoring system would also provide a valuable foundation for the analysis of national systems and the development of tailor-made recommendations for further reform.*