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# The State of University Policy for Progress in Europe

Policy Report - December 2012

**The State of University Policy for Progress in Europe**  
**Policy Report**  
**December 2012<sup>1</sup>**

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## **Abstract**

Higher education contributes to economic innovation. This study measures and compares the extent to which national governments' policies foster this contribution across Europe. The study stresses the relevance of policies which are 'empowering' for higher education institutions, or in other words provide them with appropriate resources and regulatory environments.

The assessment relies on quantitative scores, based on the contribution of policies regarding funding and autonomy to higher education performance in education, research and economic innovation, using non-arbitrary weights and eighteen policy indicators across 32 European countries. A large number of countries belong to a 'middle group' in our overall assessment, indicating a relative cohesion in Europe. Yet, substantial variations exist in terms of higher education policy in Europe, each European country having room for policy improvement.

**JEL Categories: I23, I28, J24, L338, O31, O38, O43, O52.**

**Keywords:** Higher education, research, innovation, Europe, public policy, institutions.

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## Summary

This study measures the contribution of higher education to economic innovation, and assesses to which extent national governments' policies foster this contribution in Europe. The study stresses the relevance of higher education, and more particularly of 'empowering' higher education policies, for economic innovation.

We use eighteen indicators covering 32 European countries in order to measure the relationship between higher education policies, university performance and economic innovation in a lagged epistemological model. The relative importance of the various indicators relies on non-arbitrary weights, derived from the relationship between higher education policy, performance and economic innovation. Higher education policy includes generic aspects such as public funding per student as a percentage of GDP per capita and autonomy. Higher education performance refers to research productivity and attractiveness, as well as graduation and employment rates and the percentage of international students. Economic innovation includes labour productivity and employment in knowledge intensive industries.

We also conducted a qualitative assessment of national policies in higher education and their estimated impact on the broader socio-economic environment. Both were corroborated by a network of correspondents across Europe.

National systems with the most favourable policies to leverage the socio-economic value of higher education appear to be:

- Norway, the UK, the Netherlands, Sweden and Cyprus.
- These countries are followed by a middle group constituted by Denmark, Germany, Croatia, Belgium, Austria, Iceland, Italy, Ireland, Slovenia, Finland, Spain, Portugal, Estonia and Hungary.
- France, Switzerland, Malta, Lithuania, Bulgaria, Poland, Latvia, Romania, Turkey, Slovakia, the Czech Republic, Luxembourg and Greece obtain a more modest assessment.

The analysis shows that:

- The countries with highly performing university systems and the highest level of economic innovation are generally also the ones with the highest efforts in terms of public funding per student relative to GDP per capita and a comparatively high level of autonomy on average, namely Norway, Sweden, the UK, the

Netherlands - and Cyprus which had a high estimated level of funding per capita until 2008.

- The majority of countries with high research performance also have comparatively high graduate employment rates, as is the case for Austria, Belgium, Norway, Sweden and Switzerland.
- The research and education performance of universities in a country relates positively to that country's level of economic innovation.
- But a country's level of GDP per capita is not relevant to the development of a knowledge economy centered around highly performing higher education institutions. Some countries belong to the top group even if they have a more modest economic profile than their counterparts in the same group, as is the case for Cyprus for example. Conversely, some countries with comparatively high GDP per capita achieve a more modest overall assessment. Finally, some governments have used European cohesion and structural funds to upgrade higher education.

The EEU network of correspondents also gave an assessment of the direction of higher education policies between 2008 and 2012. This assessment shows some diversity in trends. Twelve Governments have increased the public budgets of higher education, nine have adopted reforms to increase autonomy and five have attempted (at least in principle) to increase equitable access to higher education in principle. But seventeen European Governments have reduced their public budgets for higher education, thirteen restricted financial aid programs for students, and five have restricted autonomy since 2008. These changes could, if not accompanied by compensatory measures, have long-term negative consequences for the European economies because it could limit one of the drivers of innovation. The report finishes by issuing recommendations to maximize the relevance of higher education for the socio-economic environment.

NOTE:

The background analysis for this report is at:

‘The State of University Policy for Progress in Europe: Technical report’,  
at: <http://www.empowereu.org> and

‘The State of University Policy for Progress in Europe: Country reports’,  
at: <http://www.empowereu.org>

## **1. Many countries could make faster socio-economic progress by improving Government higher education policy.**

Highly performing universities are a boost Europe's competitiveness in a global knowledge economy. The EU expressed its dedication to strengthen European innovation in its Europe 2020 strategy. Europe's declining demographics make this all the more necessary. And the current economic downturn presents even more of a challenge to Government policy towards universities. Universities may have considerable potential to help countries to grow out of the crisis.

In this report we focus on the impact of Government university policy for innovation. The success of universities in contributing to the knowledge economy is likely to be highly dependent on the Government policies which provide the setting in which universities operate.

How can we measure the contribution of universities to their economies and what is the extent of this contribution? How do European governments compare with each other in providing a suitable policy environment for the universities to perform as well as they can? Which policies best promote the performance of universities?

This report covers these questions, for which the answers are too often assumed, rather than critically assessed.

We have measured the impact of higher education policies in Europe using an output-based approach. We related university policies to the performance of universities and subsequently to the economy of the country. The latter was estimated using labour productivity and employment in knowledge intensive activities as proxy variables for innovation. We realize that economic output is only one of several contributions that universities make to society. However it is unclear whether these other outputs stand in a trade-off or are complementary to the economic output. Countries were then assessed using a score reflecting the quality of their university policies. We define the best policies as those which contribute the most to labour productivity and employment in knowledge intensive industries through university performance in education and research.

The weights have been derived from a detailed and careful analysis of the statistical relations between different indicators, using factor analysis and the relations between the factors in the three domains of policy,

university performance and innovation in a regression analysis. By scaling our indicators to the number of inhabitants when relevant, we obtain a 'fair' reflection of the performance of national systems of different size.

The report aims to draw on learning the lessons of 'social experiments' in university policy in Europe. In the past years the awareness has grown that, despite great variance across Europe, some policies are better than others in achieving universally acclaimed goals with respect to the promotion of socio-economic progress.

The report shows that many countries can do seriously better in terms of funding and autonomy. This sounds like the usual exhortation of university presidents and research leaders: more money and more autonomy. Yet these policy features seem to essentially make the difference for higher education systems to improve their performance and contribution to economic innovation. Under recommendations (section 6) we qualify funding as "funding effort" (i.e. related to GDP per capita) and autonomy in relation to incentives in funding which express societal concerns for the outputs of universities.

We qualitatively track policy changes from 2008 to 2012. These changes exhibit some similarities. A certain duality has arisen in Europe between countries that invest in higher education and those which have chosen not to, as well as those who choose to develop university autonomy and those who impose restrictions to such autonomy. University autonomy appears increasingly tied to performance incentives.

This assessment would not have been possible without the help of correspondents from around Europe.

Europe in this report includes 32 countries comprising all EU member states, a small sample of countries which participate in the European Research Area (Iceland, Norway, Switzerland and Turkey), as well as Croatia which will soon access the EU. This includes around 4,000 higher education institutions.

In a separate technical report we provide the details of our analysis, including all the data and further references to related studies.

## 2. The relationship between university policy and economic output.

The report establishes a relationship between university policies and economic output. Our framework assesses this relationship using two steps:

University Policy (2008) → University performance (2007-2011) →  
Economic output (2010-2011).

In other words we have looked at the impact of the policies from 2008 on university performance and economic outputs between 2007 and 2011 assuming a time delay between policy and university performance while university performance translates directly in economic positions. We only seek to establish a relationship between university policies and their economic contexts and do not engage in an analysis of causality, except by using lagged policy variables. We use the existing literature as a basis without attempting to specify the model in detail using for example the structure of production functions or models of economic innovation.

Universities will increase their performance if they are 'empowered'. Empowerment expresses the room provided by national policies (in the form of sufficient resources and an appropriate regulatory environment) to tailor their contribution to the need of the economy. We concentrate on public policies for universities, bearing in mind that in Europe many systems of higher education still rely by and large on publicly funded universities with on average a more minor role for private, non-Government funded universities. At the same time the few private universities which exist are also subject to public policy. Some of our indicators refer to higher education at large, including amongst others polytechnics, universities of applied sciences, Hochschulen and private higher education. We group eighteen indicators into eight factors using factor analysis, as will be shown in section 3, and summarized in Table 2-1 below.

**Table 2-1: List of indicators by factors and dimension**

Dimension	Factor	Indicator
	<b>Funding</b>	Tertiary Education Expenditure per student relative to GDP per capita Expenditure on financial aid Role of formulas and contracts in funding mechanism
<b>Policy</b>	<b>Policy autonomy</b> <b>Managerial autonomy</b>	Policy Autonomy Organizational Autonomy Financial autonomy
<b>Performance</b>	<b>Research attractiveness and productivity</b>	Scientific publications within the 10% most cited scientific publications worldwide as a percentage of total scientific publications per country
		Universities in the top 500 ARWU ranking per million inhabitants
		Number of incoming yearly Marie Curie fellows per million inhabitants
		Number of yearly European Research Council Starting grant wins per million inhabitants
	<b>Size</b>	Public-private scientific co-publications per million inhabitants
	<b>Graduation and employment</b>	Transition: students with non-tertiary education background transitioning into higher education (%) Enrollment /population aged 20 years old
		Employment rates of 18-34 years old, 3 years after leaving formal education (ISCED 5 and 6) Graduates in ISCED 5 and 6 / enrollment
		Foreign students: Inward mobile students as percentage of student population in the host country (%)
<b>Econ. output</b>	<b>Innovation</b>	Employment in Knowledge Intensive Industries as a percentage of total employment GDP per hour worked in PPSE

### 3. Measurements.

#### 3.1 Policy indicators.

We aim to measure policy by a set of six indicators which relate to funding and autonomy.

- **Funding.**

The first set of indicators measures funding.

Resources available to universities and students are measured in the form of public funding per student as a percentage of GDP per capita.

Despite pressures to diversify funding, around 75% of the financing of universities comes from the public purse in Europe.

Reducing the financial burden for students from low and middle income families is presumably an important indicator of the opportunities for those youngsters to participate in higher education. We measure this by means of the percentage of public funding spent on financial aid, namely grants, loans and scholarships. This measure of support to students does not cover the full extent of cost-sharing between Governments and other parties, as tuition and fees influence the costs for students. But investment in financial aid to students nevertheless provides an indicator of intent to promote equity.

The third measure of funding is an indicator of incentives inherent in funding in the country. Funding incentives can steer performance. The indicator was based on perceptions of experts on the degree of incentives in funding in the use of formulas and contracts (as opposed to negotiations and incremental increases). This measurement was not taken into account for our final assessment because it was too imprecise to explain variance. Of course, incentive mechanisms are only useful if universities are also provided with the autonomy to live up to the expectations implied in the incentives.

- **Autonomy.**

We also measure the level of autonomy that universities were provided with through the legal structure of universities in a country. Autonomy includes three indicators.

The first indicator, called organizational autonomy, refers to the ability of universities to set their own goals and priorities in their own governance structure, the second looks at the ability of universities to decide on their finances (financial autonomy). A third indicator includes policy autonomy, namely the autonomy of universities to decide on their own staff or develop their own curricula and teaching methods. The translation of the legal description of autonomy into the university practice is complex and our measurements, derived from 'expert opinions', remain 'fuzzy'.

Legal structures for universities and their development over time appear to have a strong national tradition.

There is considerable stress between incentives and autonomy. Governmental incentive mechanisms aimed to increase performance

can be felt by universities as a restriction of university autonomy. The principle of university autonomy inherent in laws is not necessarily an advantage for the individual staff member of a university. More autonomy implies more need for strategic decisions of the university, which are binding for individual staff members reducing their freedom. More generally, increasing autonomy requires universities to be better managed.

### **3.2. University performance indicators.**

Performance is measured both in terms of education and research.

- **Size of the student body.**

Highly skilled and qualified university graduates contribute to their economies. The easiest way for Governments to think of increasing the supply of a skilled labour force is to encourage universities to increase the number of students and to set high achievement targets. We therefore look at the size of the student- body. This indicator includes the number of students as a percentage of the corresponding age group (the participation rate).

Diversity and inclusiveness, as well as the ability of systems to provide several pathways between educational routes, could foster innovation and the flourishing of talents. In this vein we look at the percentage of students who transition from an alternative route into higher education, including students with vocational training, accredited prior learning, aptitude/entrance exams and post-secondary non-tertiary education as a contributor to the size of the student body. Allowing for different pathways could be viewed as one way of dealing with 'differentiation' in higher education. The other way is establish admission procedures for the differentiated segments of higher education.

- **Graduation rates and graduate employment.**

Educational quality is a multifaceted concept interpreted differently by different parties. Societies are mostly concerned with the way graduates find employment (preferably on their level of education). We use graduation rates in comparison to enrolled students as a way to measure

the extent to which universities lead to educational ‘success’ (the throughput rate).

Graduate employment is understood as the degree to which students find employment within three years after graduation.

In addition, the percentage of incoming mobile students is used as a measure of international openness. This measure also reflects the quality of higher education, the most attractive systems to students being in theory the ones with the highest quality.

- **Research attractiveness and productivity.**

Universities that perform highly in research have their publications cited worldwide and are internationally visible. We use the most cited scientific publications and the number of universities in the top 500 ARWU ranking divided by the number of million inhabitants in a given country to measure how internationally attractive/visible a higher education system is as a whole.

Highly performing universities are also attractive to researchers. Marie Curie fellowships and starting grants from the ERC (the European Research Council) provide our measure of European attractiveness. Both are funded by the EU. Marie Curie fellows and European Research Council starting grant winners tend to be attracted to countries where they can do competitive research. These measures also indicate to which extent national higher education systems foster the development of new academic talents as opposed to the reproduction of existing elites. This is likely to be important to develop innovative ideas.

University research presumably benefits the broader economic context better if it is connected to non-university environment. This is measured by the number of public-private scientific co-publications. These indicators include a bias toward scientific disciplines with an international tradition often mostly prevalent with publications in English.

### **3.3 Economic output.**

The percentage of employees in knowledge intensive activities, and labour productivity are ways to measure the output of the higher education system and our measures of innovation.

### 3.4 Factors.

All our indicators are proportional to the national population when relevant in order to control for variations in country size.

We combined these indicators into factors, using factor analysis.

In the policy domain we find three factors which can be approximated as (between brackets the loads):

- Funding, loaded by expenditure per student (0.78) and expenditure on financial aid to students (0.87).
- Managerial autonomy, loaded by organizational autonomy (.83) and financial autonomy (.74).
- Policy autonomy, loaded by policy autonomy (.84).

In the performance domain also three factors emerge:

- Research attractiveness and productivity, loaded by top scientific publications (.90), the number of universities in the top 500 ARWU ranking compared to the population (.94), incoming Marie Curie fellows (.90), the number of ERC Starting grants (.94) and the number of public private co-publications (0.75).
- Size of the sector, loaded by enrollment rates (0.78) and the percentage of students who transition into higher education (0.79).
- Graduation rate and employability, loaded by graduation rates (0.87) and employment rates (0.71)

Innovation is factorized into one factor, loaded by: ‘the percentage of employees in knowledge intensive industries’ (0.84) and ‘labour productivity, namely GDP per hour worked in PPS (0.84).

Note that indicators on the role of contracts and formulas in funding allocation and international openness did not have a high enough factor loading.

## 4. Our Findings.

We find, using regression analyses, that university education and research are positive contributors to an innovative economy. A first regression analysis establishes the relation between policies and

university performance. A second analysis looks at the relation between university performance and national economic output. Subsequently the coefficients of these regressions are used to assess the impact of policy on innovation.

#### 4.1. Education and research performance against innovation.

- **Research is important to an innovative economy. Graduation and graduate employment as well as international openness also positively affect innovation.**

Figure 4-1 below summarizes the contribution of education and research e (size, as well as graduation, international openness and employment) to an innovative economy, established in the regression analysis. This figure relies on standardized coefficients.

**Figure 4-1: Types and extent of contribution to the economy.**

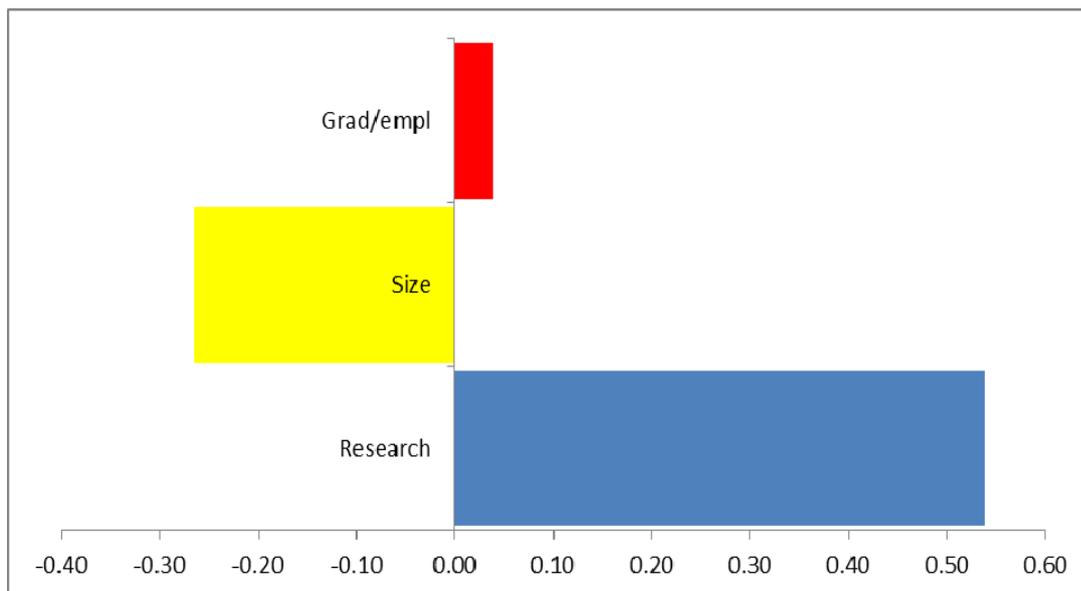


Figure 4-1 shows that research productivity and attractiveness appear to be the largest contributors to economic innovation in our approach in which the indicators for the education performance of universities were far more “fuzzy” than those of research. Graduation rates, international openness and employment levels relate positively to economic innovation (a one unit increase in graduation rates and graduate employment relates to an increase in labour productivity and

employment in knowledge intensive activities of 4%, if all other variables are statistically held constant). Highly skilled graduates generate a suitable pool of talents for research.

This signifies that policies to upgrade research performance in a country are very important for its economic development. Yet it appears that less economically developed countries find it difficult to make quantum leaps in efforts for funding research: research attractiveness and productivity are related to GDP per capita. Moreover, policies to ensure employability and a good throughput of higher education are important in every step of the economic development process.

- **The quality of education, measured by the throughput of education, graduate employment, matters more than the sheer size of enrolled students.**

Quality rather than size matters the most for an innovative and competitive economy: Figure 4.1 shows that a larger enrollment by itself even has a statistically negative impact on innovation.

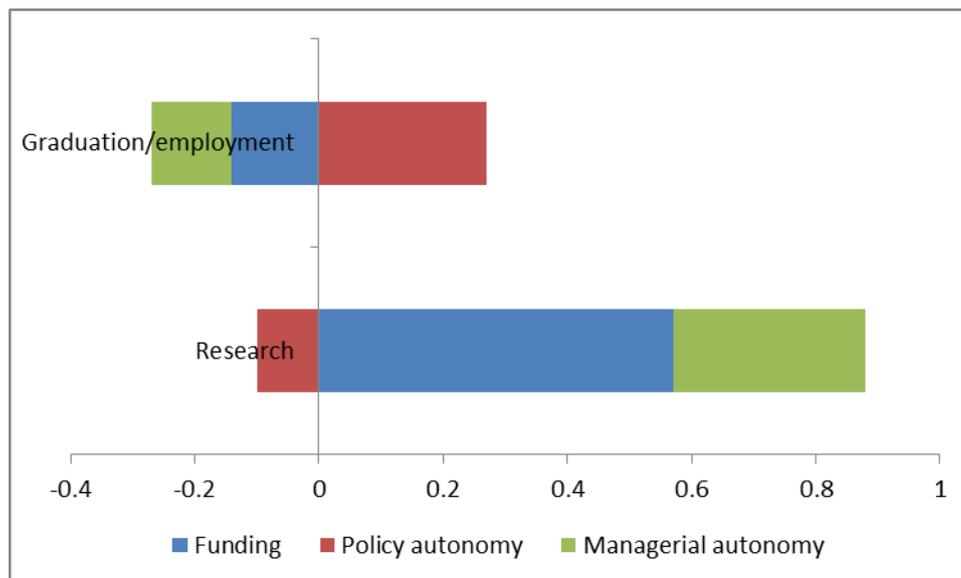
#### **4.2 The impact of policies on university performance.**

The impact of university policies is quite different for education and research, as Figure 4-2 shows. This bar chart depicts the extent to which each aspect of higher education policy matters the most for educational and` research performance (the blue bar corresponding to funding, red to managerial autonomy and green to policy autonomy).

#### **Figure 4-2: Impact of policy factors on educational quality and research<sup>3</sup>.**

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<sup>3</sup> The bars in this chart represent the extent of the contribution of three policy elements, namely funding, policy autonomy and managerial autonomy to graduation and employment and research attractiveness and productivity using regression coefficients.



- **Funding is not the only contributor to performance. Policy and managerial autonomy also matter for education and research.**

Research attractiveness and productivity largely relates to the effort of public funding, as well as managerial autonomy, as Figure 4-2 shows. Yet, the educational quality component mediates the idea that performance relies on funding as well as a concentration of power among institutional leadership because of the relevance of policy autonomy for educational quality.

Public funding for research appears more extensively related to performance than public funding for education in Figure 4-2. The impact of funding on education and research may vary according to the level of economic development of countries.

- **Autonomy, albeit a ‘fuzzy’ indicator, matters in generating research and educational performance.**

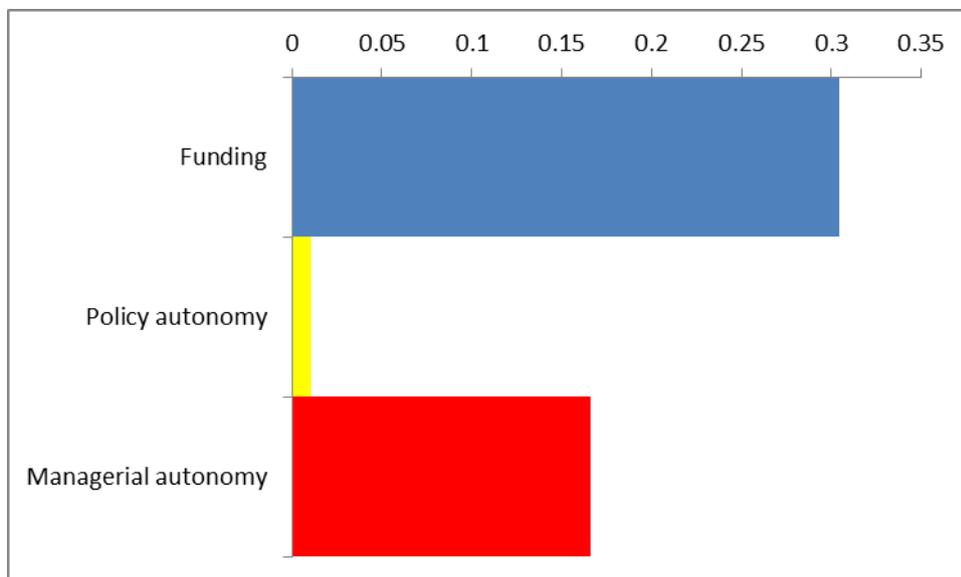
The most effective determinant of educational quality is policy autonomy. Policy autonomy allows faculty to choose their teaching methods and curricula in order to best meet the learning needs of students. Policy autonomy is a much more influential determinant of educational quality than the amount of public financing, and suggests that quality education is not only achievable by the countries which make a substantial funding effort provided that the governance structure is strong enough.

On the other hand, research performance appears to be less contingent on policy autonomy as on managerial autonomy which allows for university leadership. This leadership decides on the university strategy including the support for the departments which are the most productive and the corresponding recruitment, retention, reward and promotion criteria.

### 4.3 Policy and economic output.

Combining policy factors across research and education gives us an overview of the relative weight of policy factors, presented in Figure 4-3.

**Figure 4-3: Contribution of policy factors to economic output<sup>4</sup>.**



Achieving the same economic contribution as one unit of funding would require 1.8 units of managerial autonomy (with our imprecise measure of managerial autonomy). Policy autonomy is overall less important (given that policy autonomy mattered the most for education and we considered research more important than education in terms of achieving economic innovation).

Notice that autonomy is not correlated to GDP, which implies that less economically developed countries have used university autonomy to improve the performance of their higher education systems.

<sup>4</sup> This Figure represents the contribution of the policy factors to economic innovation using the weights computed to arrive at the country scores.

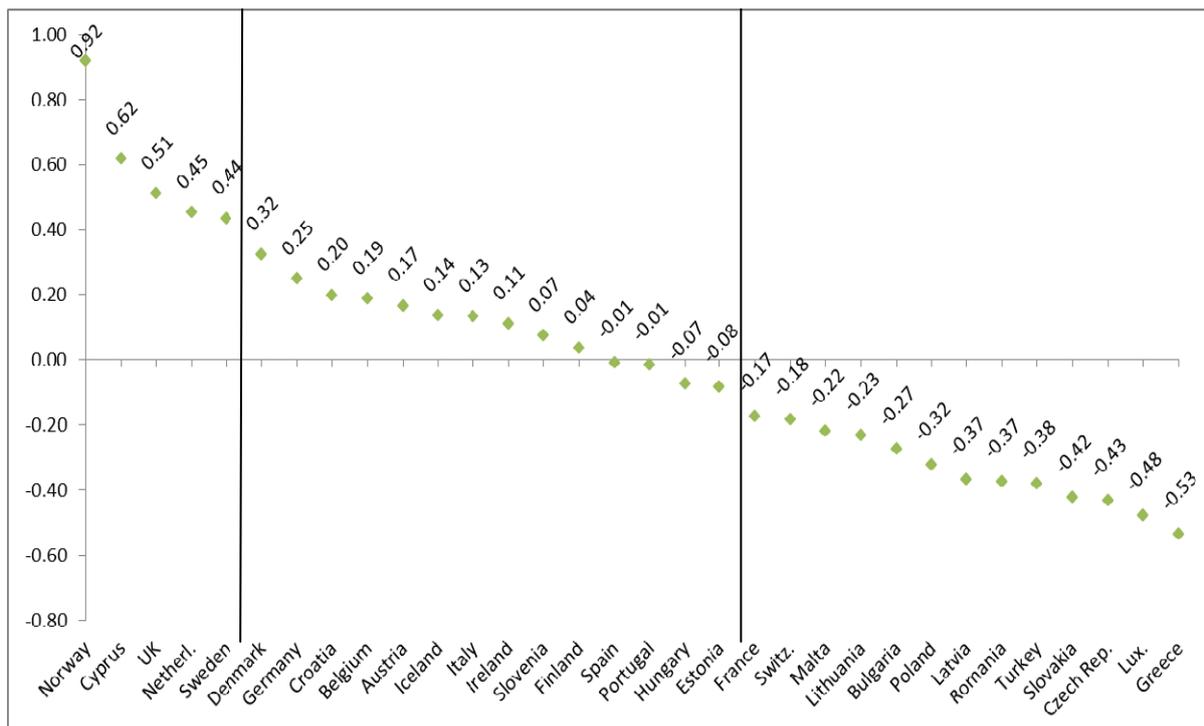
## 5. Comparing higher education systems and directions of change.

### 5.1 Country scores by group.

The national policies of each European country contribute differently to universities' economic innovation. A score is computed for each country, based on the policy of the country (as approximated by the policy variables), after these variables were summarized by means of factor analysis. The predicted values of the regression coefficients times the fitted value from the factor analysis provides us with an overall 'score' to compare countries and to group countries by the effectiveness of their policies. The comparison is thus based on non-arbitrary weights.

The proximity between scores is the sole criterion for group formation, as Figure 5-1 below shows. We present countries in groups rather than by individual scores, because the scores themselves have some "uncertainty" around them, i.e. could have been slightly higher or lower depending on the method of calculation we use and in view of the fuzziness of the measures of the qualitative variables.

**Figure 5-1. The quality of university -policy in European countries for economic innovation.**



These scores provide a basis to group countries given the proximity between scores.

- Norway, Cyprus, the UK, the Netherlands and Sweden appear as the countries with the highest impact of higher education policies on innovation potential. The UK is the only larger EU country in the top league.

Figure 5.1 shows that within European higher education there is a significant middle group, which is comprised of fourteen countries.

- The middle group includes Denmark, Germany, Croatia, Belgium, Austria, Iceland, Italy, Ireland, Slovenia, Finland, Spain, Portugal, Hungary and Estonia.
- The more modest group includes France, Switzerland, Malta, Lithuania, Bulgaria, Poland, Latvia, Romania, Turkey, Slovakia, the Czech Republic, Luxembourg and Greece.

This classification leads to a different grouping of countries than the Innovation Union Scoreboard (where Denmark, Finland, Germany, and Sweden appear as innovation leaders). This is likely to be the result of our measurement, which concentrates on policy factors, as well as of the inclusion of educational performance indicators and indicators of “research attractiveness” in our analysis. All top countries have higher than average levels of expenditure on higher education per student as a percentage of GDP per capita. Cyprus has the highest estimated funding per capita as a percentage of GDP and has one of the most generous financial aid policies for example. Countries in the top group also perform better than the European norm on all dimensions of autonomy on average, except for Cyprus (according to CHEPS, 2008).

Four of the top countries have lower graduation rates than the European average (Norway, Sweden, the Netherlands and Cyprus), but the Netherlands and Sweden have a higher than average employment rate, which suggests that graduate employment mitigates the low throughput of education.

Most of these countries also have a better research record than the European average, particularly in terms of scientific publications, ERC wins and public-private co-publications where all top countries (bar Cyprus) are above the European average. The high number of co-publications suggests a higher level of cooperation with the external environment in research in top performing countries stimulated by active

policies. For example, the Swedish Innovation agency (VINNOVA) has started a programme to foster the knowledge triangle between education research and innovation, which includes capacity development regarding collaboration between innovation and research (key players programme), and a mobility programme between industries and universities. The Swedish Government also increased the budget for research in large universities in 2008. Moreover, three of the 'top' countries also have a high level of international openness (Cyprus, the UK, and Sweden) as promoted through Bologna European Higher Education Area and the European Research Area.

Most countries in the more modest group also had a lower level of public expenditure per student as a percentage of GDP per capita in 2008 as well as a lower level of financial aid. They had variable levels of autonomy: four countries had comparatively low organizational autonomy (namely Romania, Slovakia, Turkey and Luxembourg). Some of these countries, such as Turkey also had a low graduation rates in comparison to enrollment.

The relatively low score for some countries with a small population, like Luxembourg and Malta may be due to the fact that these countries have only one (in the case of Luxemburg relatively recent) university rather than a university system, which possibly reduces their output performance comparatively to other countries, or to missing data for some of the indicators.

France is the only larger Western European country in the more modest category (mostly composed of Central and Eastern European countries). France did not have a particularly low level of funding per student in comparison to other European countries in 2008. But it had a very centralized regulatory system for universities, which limited the abilities of its higher education institutions.

These differences among groups are not contingent on national per capita income. For example, countries like Cyprus or Croatia and Slovenia do not have a GDP per capita corresponding to the group of countries they are positioned in.

The differences between Northern and Western European Countries and Southern and Eastern European countries are to some extent the expression of the different histories of higher education systems in Europe. The Napoleonic model characterized by a highly centralized and elitist approach (with different systems of different levels of selectivity)

covers countries like France and Spain, the Oxbridge model of personal development in relatively independent institutions has had a strong imprint on the Anglo-Saxon countries and the Humboldtian model with a strong tradition of independence in research and study influenced countries such as Germany, the Netherlands and Sweden, as well as the Czech Republic, Poland and Romania before 1945.

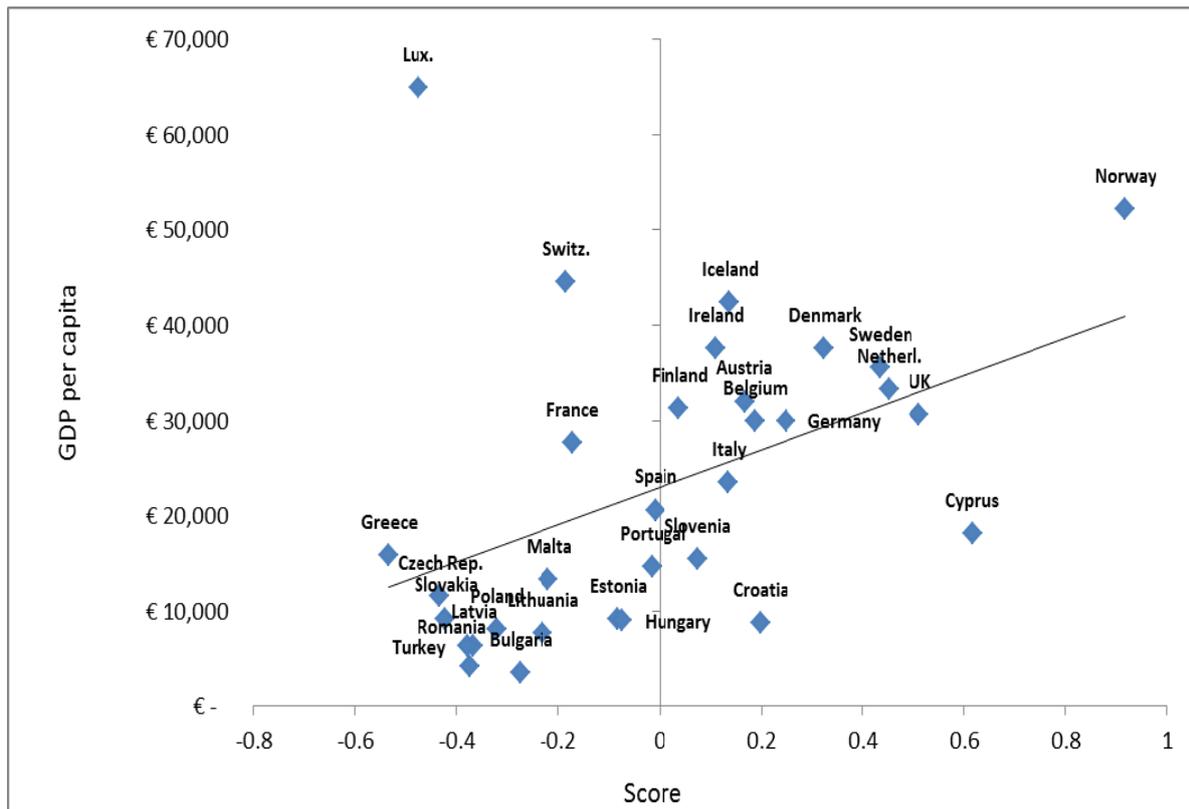
However, reforms have changed the nature of this heritage considerably in many countries. These reforms all have tended to go in the direction of less central control (on the state level) and more autonomy in accountability.

Countries' political systems may also influence the performance of their public policies. Three out of five of the highest performing countries (Sweden, Norway, and the Netherlands) are parliamentary democracies, where the executive branch is accountable to the legislative branch, as opposed to presidential systems where the executive branch exists separately from the legislature. Parliamentary democracies tend to have more stable policies (but not necessarily more cabinet stability because the Parliament can overthrow the cabinet), a broad parliamentary coalition being required for many policy changes. Policy stability may be a predictor of higher education performance, especially given that public policies are brought to fruition over time.

We see a tendency in European countries to link higher education policy with economic innovation strategies. By now Six European Governments have explicitly announced changes in this respect: Bulgaria, Denmark, Spain, France, Malta and Slovenia. For example, the Danish Ministry integrated higher education in a 2006 "Globalisation strategy" which includes linkages between universities and university partners, and are expected to provide advice on how to develop courses intended to reflect the needs of the labour market and employers.

In order to understand how countries' level of income relates to their scores, Figure 5-2 represents the relationship between country scores and GDP per capita.

**Figure 5-2: Relationship between policy impact on economic innovation and GDP per capita.**



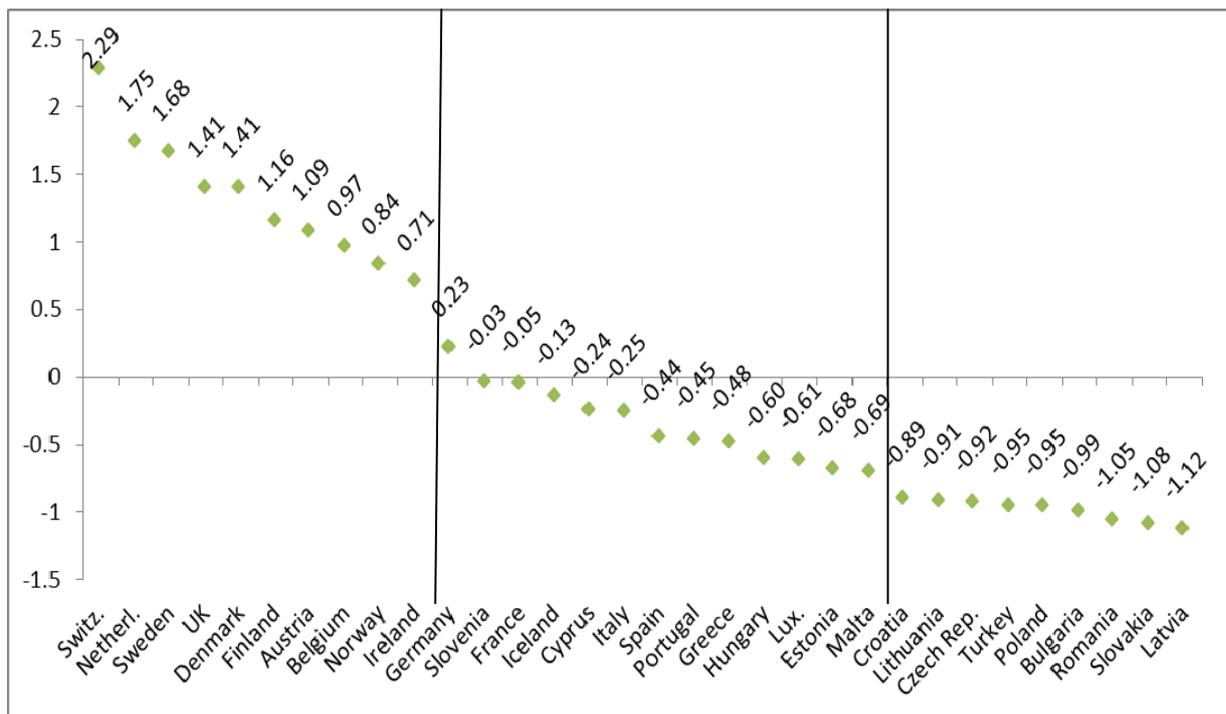
Country scores relate to some degree to national GDP per capita, as Figure 5-2 illustrates. This figure shows that the countries with the highest GDP per capita also tend to have the highest overall scores. Norway is a revealing example. This statement also applies to Sweden, Denmark, the Netherlands, and the UK.

However, some other countries with a low GDP per capita also tend to have comparatively high scores, as is the case for Cyprus and Croatia. While Croatian universities enjoy a comparatively high level of autonomy (according to CHEPS, 2008), Cypriot universities benefited from a proportionally large level of Government funding over the past decades (before the Government reversed this trend). Conversely, some other countries with a comparatively high GDP per capita, such as France, Switzerland and Luxembourg, have comparatively low scores. The French reforms in autonomy and funding of 2008 may not have been transcribed in statistically visible results yet. The higher education system in Luxembourg, as explained earlier, is relatively recent and the Swiss outcome is lowered by a comparatively low percentage of financial aid to students which yet has to be solved by an inter-cantonal agreement.

Concentrating on education or research performance without making the step towards economic innovation somewhat changes the picture.

Figures 5-3 and 5-4 respectively provide the grouping of countries broken down according to research attractiveness and productivity and graduation and employment rates. (The scores for the research attractiveness and productivity and employment and graduation rates are not computing using policy factors).

**Figure 5-3: Scores on research attractiveness and productivity.**



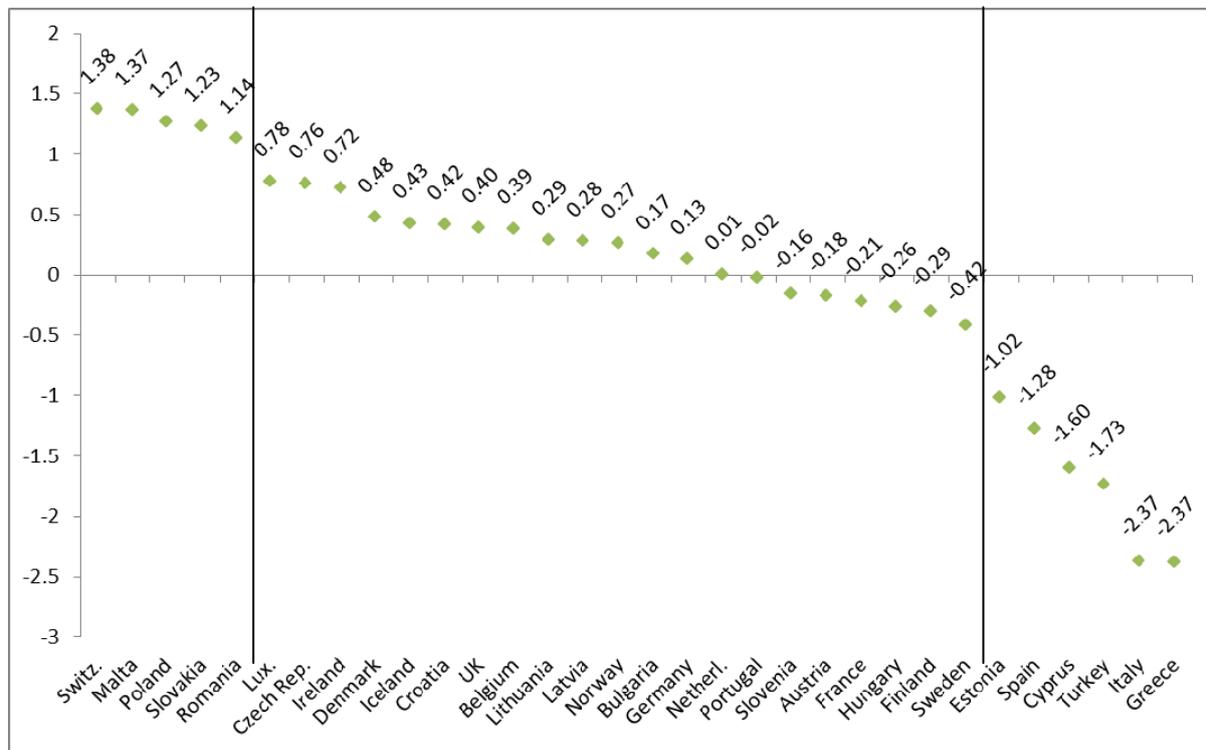
In terms of research attractiveness and productivity,

- Top performers in Europe include Switzerland, the Netherlands, Sweden, the UK, Denmark, Finland, Austria, Belgium, Norway and Ireland.
- A middle group includes Germany, Slovenia, France, Iceland, Cyprus, Italy, Spain, Portugal, Greece, Hungary, Luxembourg, Estonia and Malta.
- A more modest group includes Croatia, Lithuania, the Czech Republic, Turkey, Poland, Bulgaria, Romania, Slovakia and Latvia.

There is more variation in terms of the research performance of the top group than for the middle and more modest groups. The range between the scores of the top group is 1.57, for the middle group 0.93 and for the more modest group 0.23.

Highly productive research does not necessarily correspond to high graduation and graduate employment rates (the correlation between these two scores being close to zero), as Figure 5-4 indicates below.

**Figure 5-4: Scores on graduation and employment rates.**



In terms of graduation and employment rates as presented in Figure 5-4,

- Top performers include: Switzerland, Malta, Poland, Slovakia, and Romania.
- The middle group includes Luxembourg, the Czech Republic, Ireland, Denmark, Iceland, Croatia, the UK, Belgium, Lithuania, Latvia, Norway, Bulgaria, Germany, the Netherlands, Portugal, Slovenia, Austria, France, Hungary, Finland and Sweden.
- A more modest group includes Estonia, Spain, Cyprus, Turkey, Italy and Greece.

The top group appears to be more coherent than the middle and more modest groups, given that the range between scores of 0.21 as opposed to a range above 1.19 for the middle group and 1.36 for the more modest group.

Malta obtains a very positive educational assessment given that it has a high percentage of graduates in employment three years after graduation (92%) as well as a higher than average proportion of graduates to enrolment (throughput). Education in Malta benefits from a strong support from the Government in its 'Vision 2015 and beyond' strategy, which sees investment as human capital essential given that Malta has no natural resources.

Germany and the Netherlands end up in the middle group even if their employment rates are in fact (comparatively) much higher because they have substantially longer than average study durations compared to the nominal duration.

Norway, one of the European countries with the highest GDP per capita, is in the medium group. According to the OECD (2009:2), the Norwegian government does not provide enough incentives for students to graduate and youth employment may be impinged by 'welfare traps' resulting from social protection mechanisms.

Some countries fare relatively high up given the relatively favorable economic environment they had before the crisis (which helped to smooth the impact of the downturn), as is the case in Poland where youth unemployment was decreasing before the economic crisis.

National policies have also influenced high graduation and enrollment rates. In Poland, the Higher Education Act of 2011 encouraged institutions to monitor the employment situation three to five years after graduation. In the Netherlands, municipalities, in cooperation with the Center for Work and Income (CWI) provide support for graduates to find employment and not to rely on unemployment benefits (the value of these benefits being tied to the number of years of experience).

Comparing the performance of higher education systems across these dimensions shows that the Switzerland is the most consistent country in terms of achieving top performances in research, graduation rate and employment as Tables 5-1 shows.

**Table 5-1: Relationship between graduation rates, graduate employment and research performance.**

		Research		
		Top	Middle	Modest
Graduation /employment	Top	Switzerland,	Malta,	Poland, Romania, Slovakia
	Middle	Austria, Belgium, Denmark, Finland, Ireland, Netherlands, Norway, Sweden, UK	France, Germany, Hungary, Iceland, Luxembourg, Portugal, Slovenia	Bulgaria, Czech Republic, Croatia, Lithuania, Latvia,
	Modest		Cyprus, Estonia, Greece, Italy, Spain,	Turkey

In Table 5-1 we show that only the Switzerland has top performances in graduation rates and employment as well as research.

Countries like Austria, Norway, and the Netherlands have high research performance as well as a high graduate employment rate (but not necessarily a high graduation rate).

These comparisons also show that some of the countries with high scores overall scores do not necessarily have a similarly high performance across research or graduation and employment rates. This applies, for example to Croatia or Cyprus. Our assessment is based on an analysis in which countries with comparatively high public funding per student as a percentage of GDP per capita, high levels of financial aid and levels of autonomy come out well in the grading. Croatia enjoys comparatively high levels of autonomy and Cyprus high per student expenditure, as explained earlier. The lack of translation of these policies into performance outcomes may come from the fact that resource utilization may be not fully efficient or may be the result of time delays, so that the effects of reforms have not yet been brought to fruition.

## 5.2 Directions of improvement or deterioration in policy.

Many changes have been introduced since 2008, the year for which our policy data are taken.

Table 5-4 below illustrates the direction of these changes by group of countries, in terms of public funding, university autonomy and public expenditure on financial aid<sup>5</sup>.

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<sup>5</sup> The trends are reflected by broad category (increase, decrease or stable for funding and autonomy; and easier – for students – more difficult and no change) and remain very general. For example, funding trends do not necessarily reflect per student equivalent. The evolution of autonomy is based on introduced regulations or legislation (rather than de facto autonomy), and financial aid trends take into account government announcement announcements on the number of affected students and/or value of aid as well as whether or not new schemes have been introduced.

**Table 5-4. The potential direction in the performance of university policy.**

<b>Funding</b>		<b>Top</b>	<b>Middle</b>	<b>Modest</b>
	<b>Increase</b>	Norway, Sweden	Austria, Belgium(FI), Croatia, Denmark, Germany,	France, Poland, Slovakia, Switzerland, Malta,
	<b>Stable</b>		Finland	
	<b>Decrease</b>	Cyprus, Netherlands, UK	Estonia, Hungary, Iceland, Ireland, Italy, Portugal, Slovenia, Spain	Bulgaria, Czech rep., Greece, Latvia, Lithuania, Turkey
Note: missing for Luxembourg, and Romania				
<b>Autonomy</b>		<b>Top</b>	<b>Middle</b>	<b>Modest</b>
	<b>Increase</b>	Sweden	Denmark, Estonia, Italy	France, Greece, Latvia, Poland, Turkey
	<b>Stable</b>	UK, Netherlands, Norway,	Austria, Belgium, Croatia, Finland, Germany, Iceland, Portugal, Slovenia, Spain	Czech Rep. Bulgaria, Luxembourg, Malta, Slovakia, Switzerland
	<b>Decrease</b>	Cyprus	Hungary, Ireland	Lithuania, Romania
<b>Financial aid</b>		<b>Top</b>	<b>Middle</b>	<b>Modest</b>
	<b>Easier</b>	UK	Austria, Croatia,	France, Turkey
	<b>Stable</b>	Norway, Sweden	Belgium, Denmark, Finland, Germany, Iceland,	Bulgaria, Latvia, Luxembourg, Slovakia, Switzerland, Malta, Poland
	<b>More difficult</b>	Cyprus, Netherlands	Estonia, Hungary, Ireland, Italy, Portugal, Slovenia, Spain	Czech Republic, Lithuania, Romania, Greece

Table 5-4 illustrates a significant diversity of trends and performance levels. Yet some broad patterns are discernible.

A general trend in a majority of countries is the reduction of public funding in higher education, with some uncertainty on compensation through a commensurate increase in private finance. Seventeen European Governments have reduced their public budgets for higher education, thirteen restricted financial aid programs for students, and five have restricted autonomy since 2008.

This recent reduction is however not entirely crisis related. It may have intensified, but is not disconnected from longer-term trends of reduction of public funding in higher education. These reductions are likely to have lasting consequences on the higher education sector in Europe as well as on innovation and on national competitiveness, unless matched by private sources of funding.

Reductions in public funding may not lead to as drastic a change in the position of universities if accompanied by other sources of financing. For example, the budget reductions to universities in England are accompanied by an increase in Government-subsidised student contributions (to compensate for the increase in fees), expected according to Government predictions to lead to an overall 5% reduction in funding of universities rather than the announced 43% in 2010.

At the same time, the Governments of twelve countries have recognised that proper funding of higher education is a must for economic growth. The Swedish Government is continuing a policy of generous funding to higher education and had minor increases in autonomy in 2009, while sustaining generous financial aid policies. The Danish Government also maintains its commitment for higher education in a long-term strategy. Around nine governments have or are adopting measures to increase the autonomy of universities. In Italy, Turkey, Greece and Latvia, these measures go together with funding cuts, while in Sweden, Denmark, France and Poland, the increase in autonomy has been accompanied by increases in public funding.

Only five Governments have adopted measures to increase accessibility to higher education, namely Austria, France and Turkey, while reduction in financial aid schemes are taking place in thirteen other countries. For example, Hungary has had a reduction of the number of state funded places of 40%. The introduction of a student loan scheme with interest

subsidies (student loan II), may not be sufficient to compensate for the drastic impact of these reductions. The jury is still out on the UK which increased tuition fees substantially while at the same time expanding financial aid in a student loan scheme. Whether equity will change as a result, remains to be seen.

In Boxes 5.1 and 5-2, we illustrate two national cases in order to understand system-wide policy differences and their implications in more depth. These boxes illustrate differences of policy trends among top performers.

**Box 5-1 Case example 1 – Trends in Swedish higher education policies.**

The Swedish higher education system comes out as a top performer in our overall assessment, with comparatively high research performance and graduation rates (but a lower employment rate than the EU average).

Swedish universities had a comparatively high level of policy autonomy in 2008. For example, Swedish universities decide on their curricula. Autonomy was the subject of a proposal for reform in 2009, but the Government only introduced a fraction of this proposal, even if it was positively received by the sector. This reform allowed among others universities to choose members of the University board. Swedish universities had various changes, adapting their status to autonomous organizations with public law regulation. Swedish universities also have one of the highest levels of public financing per student as a percentage of GDP per capita (50.9%), as well as financial aid to students (25.4%) in 2008. The public budget has increased since then. Public financing is allocated through a multi-annual contract.

Financing is allocated by subject area, depending on the number of registered students and the graduation rate of students. The Swedish Government spent 2.6 billion euros for 900,000 students in financial aid in 2012. The budget allocation for education in humanities and social sciences was increased in Autumn 2011.

The adoption of tuition fees for non-Swedish students in 2011 is likely to affect the international attractiveness of Sweden.

Research funds increased in 2008 but this increase was only available to large research universities. At the same time, smaller more applied universities got the possibility to apply for more focus subject areas for PhD education and research from a limited amount of funds dedicated.

The Swedish Innovation agency (VINNOVA) has started a programme to foster the knowledge triangle between education research and innovation, which includes capacity development for collaboration between industry and university in research (the key players programme).

**Box 5-2 Case example 2 – Trends in Cypriot higher education policies.**

Cyprus is also among the top performers in our overall assessment, particularly due to high estimated public expenditure in 2008, a generous financial aid system and high levels of incoming international students. The Government seeks to diversify the international student population by offering courses in English (the official languages of instruction traditionally have been Greek and Turkish). Several universities were created, such as the University of Cyprus and the Technical University, in order to stimulate a skilled labour force for the knowledge economy. This implied substantial funding.

However, this trend in public spending has been decreasing since 2007 (Ministry of Cyprus, 2011).

Levels of autonomy vary according to the education level of the studies in Cyprus. The higher education system is free for undergraduates in public institutions, which implies more governmental control over bachelor programs compared to both master and doctoral levels, which benefit from higher levels of autonomy, as they do not receive funds from the Government. Private institutions, to the contrary, enjoy higher levels of autonomy as they are being privately rather than publicly funded.

The funding is shifting. The moratorium on staffing across the state-funded sector has been implemented in 2011 by the Ministry of Finance in response to the economic crisis. It restricts the room for universities to grow. All public universities have committed to this moratorium, which entails a ban on staff recruitment until 2013, a percentage reduction in salaries for both newly appointed personnel and existing personnel and no wage increase for 2 years.

All in all, the reforms recently carried out are likely to result in a decrease in the material conditions of public universities. As a result the reforms are expected to negatively affect the quality of education.

Governments in countries which do not belong to the top group in our overall assessment have also adopted major reforms. The French Government has adopted a major law on university autonomy in 2008, after efforts to adopt similar reforms had failed twice in the past. It also restructured the higher education landscape in many aspects from staff recruitment to regional cooperation. It boosted funding, which could lead to an improvement of the performance of France in the near future, provided that the current Government upholds its commitment to autonomy and funding. In Poland, the Government has devised an investment program of 4.15 billion euros, 3.53 billion coming from structural and cohesion funds, to improve the infrastructure of Polish Universities. The Slovak Government also aims to make further use of structural and cohesion funds.

In Greece and Lithuania, Governments have had to face difficult financial reforms. These countries both made efforts to increase the autonomy of institutions coupled with a reduction in public funding. Both countries targeted the reform of autonomy around an increase of the powers of an independent Governing board for universities. These two laws were however perceived differently. The Greek reform was interpreted by a large majority of the public as an effort to open up an inbred system and fight corruption, while the constitutional court of Lithuania judged the Lithuanian reforms to be unconstitutional (because it was deemed to contradict the principle of academic freedom guaranteed by the Constitution). These changes follow the general line of increase in autonomy which took place in most of the Nordic countries as well as in the Netherlands in the 1990s and the early years of the 21<sup>st</sup> century.

These general trends are confirmed by the predictions of correspondents regarding the impact of current national policies in their countries, as illustrated by Table 5-5 below. A green cell with an upward pointing arrow represents a positive prediction; a yellow cell with a straight arrow predicts no change, while a red cell with a downward pointing arrow represents a negative prediction.

**Table 5-5: Correspondents' perceptions of the impact of current university policies.**

	Policy					Performance			Output
	Governance	Funding				Education	Research		
Country	Autonomy	Research	Education	Access	Fund. Alloc.	Output	Productivity	Attactiveness	Innov.
Austria	↑	↑	↓	→	→	↓	↓	↑	↑
Belgium(FI)		↑	↓		↑				
Bulgaria		↓	↓		→		→	→	
Croatia	→	↓	→	↑	→	↑	→	→	→
Cyprus	↓	↓	↓	↓	↑	↓	→	→	→
C. Republic	→	↑	↓	↓	→	→	↑	→	→
Denmark	↑	↑	↑	↑	↑	↑	↑	↑	↑
Estonia	↑	↑	→	→	→	→	↑	↑	↑
Finland	→	↑	↓	↓	↑	↑	↑	→	↑
France	↑	↑	→	→	→	↓	↓	→	→
Germany	→	↑	↑	→					
Greece	↑		↓	↓	↑	→	→		
Hungary	↓	→	↓	↓	→	→	↑	↑	↓
Iceland		↓	↓		→				
Ireland	↓	↓	↓	↓	→		↑		↑
Italy	→	→	→	→	→				↓
Latvia	↑		↓				↓		
Lithuania	↓	→	↓		→	↑	→		
Luxembourg		↓	↓		→				
Malta		↑	↑	↑		↑	↑	↑	↑
Netherlands	↓	↓	↓	↓	↑		↓		
Norway		↓	↓	→					
Poland	↑	↑	→	↑	→	→	↑	↑	↑
Portugal	↓	↓	↓	↓	↓				
Romania		↑		↓					
Slovakia									
Slovenia		↓	↓	↓	↓				
Spain	→	↓	↓	↓	↑	↑	→	↑	→
Sweden	↑	→	→	↑			↑		
Switzerland									
Turkey	↓	↑	↑	↑	↓	→	→	↓	↓
UK	↓	↓	→	↓	↓		↓		

The correspondents of several countries are particularly positive, including Sweden, Denmark, France, and Poland, which have had increases in funding and increases in university autonomy, as well as Belgium, Finland and Malta which have been marked by stable or increasing funding. The Estonian correspondent is also relatively positive given the increase in autonomy and funding related to the law of 2009, despite a recent reversal of these trends.

Others, notably the correspondents from Bulgaria, Croatia, Cyprus, Hungary, Iceland, Ireland, Lithuania, the Netherlands, Portugal, Slovenia, Spain and the UK, are more pessimistic regarding the potential impact of current policies.

## 6. Recommendations.

University policy matters a great deal when it comes to the impact of university education and research on innovation. This became apparent in the preceding, however fuzzy many of our indicators and how simplified our framework were. The analysis leads to the following policy recommendations.

### 6.1. Innovation.

Governments are increasingly including higher education in their innovation strategies. This inclusion does not only take the form of funding, but is also represented by changes in governance structures. Eight Governments have integrated higher education with innovation in a single ministry to facilitate common policies. For example, Denmark has now a Ministry of Science, Innovation and Higher Education, the UK has established a Department for Business, Innovation and Skills while Slovenia had a Ministry of Higher Education, Science and Technology (until March 2012).

We have recorded five Governments who actively encourage inter-ministerial cooperation between education ministers and other ministries on innovation matters, where the responsibility for innovation is split. For example in Norway the Ministry for Trade and Industry and the Ministry for Education and Research have established closer relations to stimulate innovation.

***More Governments could adopt integrated or coordinated governance structures to promote a coherent strategy between higher education and innovation, if they want higher education to work for innovation.***

### 6.2. Autonomy.

On the autonomy side we see that Governments seem to have two spirits in one body (*zwei Seelen in einem Brust*). They know how important autonomy is, but are not so sure whether universities are always able to use the autonomy with which universities are entrusted well (i.e. for societal purposes). There are cases in countries with a high

degree of autonomy, where this autonomy is not always used well (in the perception of the Government). This is not surprising as universities are run by professionals who constantly make trade-offs between their contribution to society and their own self-interests, if the two are conflicting.

The ideal world would be one in which the contribution of universities to the learning of students would be well measured and visible, so that student demand could focus universities on the societal track. Yet in the absence of such measures, funding based on performance indicators could provide incentives for institutions to serve the social purposes. “Incentives” take various forms across countries, like contracts, funding per student, funding a minimum level of student places, or funding based on the number of graduates. We could not find a significant impact of funding incentives on innovation which is not surprising given our rather fuzzy indicator for incentives in funding.

Policy autonomy translates into relatively high levels of graduation and employment.

Managerial autonomy is important for the research attractiveness and research productivity, but less important for graduation and employment.

***There is no reason for any country not to engage in achieving the autonomy of universities (which includes academic and staffing autonomy), provided sufficient quality incentives in funding exist.***

One could very well imagine that the degree of managerial autonomy be differentiated in differentiated systems of higher education. It is clear that research universities perform better with managerial autonomy, but it is less clear whether this also applies for non-research universities.

There is special case to be made for more policy autonomy with respect to accreditation and quality control. Most European countries require that national criteria apply. “Only in four countries (Austria, Switzerland, the Cyprus and Iceland) are universities able to select their quality assurance mechanisms freely and according to their needs” (Estermann et al, 2010)<sup>6</sup>. The great advantage of more policy autonomy is in this case –besides the competition which arises in the quality of accreditation organizations- that the administrative burden for institutions decreases,

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<sup>6</sup> Icelandic universities recently had a change in quality assurance mechanisms and are subject to institution-wide reviews as part of the Icelandic Quality Enhancement Framework (QEF) established by the Icelandic Government in 2011.

and that it becomes so much easier to have joint degrees across European countries. The same should be applied to accreditation on a programme basis: there is no reason to limit university policy autonomy to national accreditation for degree programs. Institutional accreditation or institutional auditing for quality assurance is a different matter. This has to be national (as is the case in Estonia, Finland, Ireland, Norway and the UK).

### **6.3 Funding.**

Universities largely rely on public funding in Europe (even if funding is being diversified). It is clear from our research that governmental effort in funding is related to a higher university performance. Funding was not considered in absolute amounts, but rather in terms of effort so as to control for the country's GDP.

***Countries with a more modest economic performance can invest in a competitive way in higher education.***

The less economically developed EU countries can use structural and cohesion funds to develop their human capital, as has been, for example, the case in Poland.

***The use of structural and cohesion funds to upgrade universities could improve the performance of higher education in less economically developed regions.***

Financial aid to students was equally important as funding effort. In this respect many countries have not yet their act together. Substantial amounts of Government support (in the form of tax credits or child allowances) support parents rather than students, and tend to benefit an already comfortable upper and middle class, reducing funds available for loans and grants for students who cannot participate in higher education because of financial constraints.

***Governments should redirect Government support for students to effectively increasing equality of opportunity.***

## 6.4 Policy continuity.

Government policy is the subject of political decisions. From the country correspondents a picture emerges of politics which do not always provide the necessary continuity and predictability. The translation of a new policy in the practice of university performance takes at least 5-10 years. If policies change with a greater frequency then they are bound to be ineffective. Several European countries have had in the recent past average durations of Government shorter than the announced length of their mandates, with every new Government often coming up with new university reforms, sometimes reinforcing each other, but sometimes also contradicting each other. This is not in the interest of students, universities and innovation.

***Politicians should look for a broad political support in enacting new Government regulations (with support beyond the ruling party or the ruling coalition). One way of doing this is by agreeing to a new social contract between universities, politicians and stakeholders.***

## 6.5 Quality in universities.

The major recommendation to universities is to be aware of the need to earn the trust of society for the autonomy and funding they receive and to create the organizational conditions to do so. Part of the conditions is also to focus on the quality of staff recruitment, staff promotion and staff support. Yet,

***Trust is primarily earned by universities by showing dedication and responsibility with respect to the throughput and employability of the graduates.***

## 6.6 Inter-country dialogue.

An urban legend tells us that when Jean Monnet led the first meeting on Europe he said that he would like to see education and culture to be the main pillar of the then European Community for Coal and Steel. However, history took its turn and excluded education and culture from the EU responsibility. This exclusion of education from the different treaties has led to insufficient attention for country comparisons of educational policy with the aim to draw lessons from them. The Maastricht Treaty of 1992 brought the necessary correction and gave

education a distinct but still modest position in the Treaty, providing in retrospect a more suitable legal basis for the Erasmus programme founded in 1987. The European Commission has embarked upon a series of studies and comparisons, applying soft 'naming and shaming', through what is called the 'open method of coordination'.

The Bologna process subsequently led to an unprecedented inter-country dialogue across Europe.

***The Bologna process with EU support should go further to enrich the effectiveness of university policies in each of the EU countries, by tackling key issues of relevance to higher education, even if politically difficult.***

## **6.7 Incentives at the European level.**

Incentives in funding universities for higher performance are a surrogate for competitive mechanisms. Universities which do well, according to the incentivized goals and parameters, will receive financial rewards for this. Most European Governments have implemented some form of incentive structure in funding universities. However, on the European level such surrogate competition is absent. This defect should be mended in view of the increasing flow of EU students between countries which contributes to the productivity of graduates on the labour market.

In this respect one could think of a new sub-program of the Erasmus exchange for full time studies abroad (within the EU). In this subprogram students are free to choose where they want to study, while the financial conditions (tuition fee and financial aid) are the same as if they would study in their home country. Subsequently, universities which are good at attracting students are rewarded by funding the receiving university from EU funds on a per student basis. Like national incentives, this international incentive would upgrade the quality of university education. As the same time it would greatly increase student mobility, a possible motor of European growth.

**At the European level an incentive should be created for universities to attract full-time students from other EU countries.**

There are serious problems with joint degrees across European countries centering round the legal status of a national degree. So long as degrees are embedded in national legal systems, the problem will not go away. However far reaching: it would be a great advantage for the quality of higher education in Europe if degrees could be embedded in European legislation.

## 6.8 Public university research.

***For public research the case is simpler: it should be overseen at a European level.***

There are clear disadvantages of small scale in many public research areas. The current existence of a European Research Council (ERC), next to 27 individual national research councils, each limited in their research calling, in selection of submitted proposals and in the granting of research funds to their respective national geographical boundaries, is very inefficient.

Research excellence is heavily dependent on scale: the European scale seems to be the most logical scale for most publicly funded research activities, for reducing the costs in selecting and evaluating research proposals and for enabling high quality research specialization (Ritzen and Soete, 2011).

At the same time, research excellence is contingent on the creation of networks through the mobility of university staff, which is at present impaired by practical difficulties. Mobility would benefit from the organization of a European-wide social security and pension provision for university staff.

Pan-European higher education and public research has the substantial promise to contribute to an increase in economic growth through the universities. It is a matter of conceiving the transition from knowledge strategies which are mostly country specific with the idiosyncrasies of overlap and insufficient adjustment to the globalization of knowledge towards a common policy which ensures cohesion and convergence in a sustainable growth strategy. It is also a matter of gaining the political support for this direction, because it means a different interpretation of subsidiarity. Subsidiarity has been interpreted as: this is no business for

Europe, because we have not included it in the treaty as a European concern. Yet, the original concept of subsidiarity implied that whatever can be better done at the national scale should be done there. University education and research can better be implemented by member states. In research this national implementation would allow a monitoring of peculiarities regarding the possibility of internationalisation across member states and disciplines, and the different stages of development and consolidation of national research systems. But member states need a European framework in order to achieve a vibrant Europe.

The bureaucracy of European research is at present stifling, because every European project and program has to be handled as one size fits all. A Europe with more innovation and increased competitiveness relies on the procedures in the home country for the allocation and accounting of research funds. The political support for more Europe is heavily dependent on the ability of Europe to act decentralized in the implementation of the European framework.

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