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European university funding and financial autonomy

A study on the degree of diversification of university budget and the share of competitive funding

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Foreword

This report has been prepared by the Institute for Prospective Technology Studies (IPTS) of the EU's Joint Research Centre (JRC) as a formal deliverable under Work Package 3 (Monitoring and analysis of the reforms of research universities in the ERA) of the FP7 ERAWATCH2 contract.

ERAWATCH is a cooperative undertaking between DG RTD and DG JRC. It is a strategic intelligence service designed to support evidence-based policy making in the research field in Europe and to contribute to the realisation of the European Research Area (ERA). It aims to provide a better understanding of national and regional research systems and the environment in which they operate.

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Executive Summary

European higher education systems have experienced important changes over recent decades, leading to higher autonomy in most cases. The more autonomous a university is, then it should, in principle, be able to better compete in obtaining funds from different sources, such as competitive funds, contracts with private companies, and donations from the non-profit sector. This could make institutions less dependent on one single stream of income and more able to adapt to a changing environment.

The main objective of this report is to investigate the structure of the budget in a sample of research-active European universities and to analyse to what extent the level of financial autonomy effects the diversification of their budget and the amount of competitive funding they receive.

The study covers 200 research-active universities from 33 European Research Area (ERA) countries (27 Member States and Croatia, Iceland, Israel, Norway, Switzerland and Turkey) within the framework of the 'European Observatory of Research-Active Universities and National Public Research Funding Agencies' (UniObs). The criteria followed to select the list of universities in the sample are based on research performance and country representativeness.

The main findings of the study are as follows:

- Looking at the general budget, 70 % of the total university income comes from government allocations. Sources from private companies represent about 6 %, around 3 % comes from non-profit sectors and approximately 2 % is from abroad. The remaining 19 % belongs to a residual category 'Other'.

- Considering only public funding coming from government (national and regional) we observe that, on average, about 20 % is assigned on a competitive basis, with UK institutions and, in general, technological universities having the highest shares of competitive funds.

- We observe large within-country variability in the shares of government competitive funds, which could be attributed to the strategic behaviour of single institutions in acquiring funds or to their ability to compete successfully against other institutions. Examples of these are the University of Cambridge in the UK, the University of Karlsruhe in Germany, the University of Florence in Italy, and the universities of Leiden and Wageningen in the Netherlands.

- Most institutions with highly diversified budgets are located in the UK.

- University research budgets vary considerably between institutions. Research funds coming from regional authorities are considered important for institutions operating in countries with a more decentralised government structure such as Belgium, Germany or Spain.

- Institutions that declare to be completely autonomous are the ones that have the most diversified budget.

- The share of competitive-based government funds increases with increasing levels of institutional financial autonomy.

- National or institutional settings which do not allow universities to act in a fully financially autonomous way appear to be less likely to produce a real change.

1. Introduction

During the last decade universities have become a central issue in the policy agenda at EU and national level. The 'Europe 2020' strategy has explicitly recognised their central role in allowing Europe to exit from the crisis and to enter into a smarter, greener and more inclusive economy.

The not fully satisfactory performance of European universities in international rankings as well as their central role as research performers has also stirred the debate on the necessity to modernise Higher Education Institutions (HEIs), placing special emphasis on the need for better governance and adequate funding systems to produce world-class research.

The Communication 'Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation' (European Commission, 2006) underlined that universities will not become innovative and responsive to change unless they are given real autonomy. It further identified the issue of making funding work more efficient in teaching and research as a key challenge for the sustainability of HEIs. The recent 'Innovation Union' flagship initiative has once more recognised the need to reform the Higher Education sector in Europe.

In November 2008, DG RTD set up an independent expert group in order to report on the impact of external research funding on financial management in universities. The expert group suggested a set of recommendations calling for consistent funding conditions for research institutions within the European Research Area (ERA) as well as financial modernisation of European Universities (European Commission, 2009).

European higher educational systems have undergone important changes over recent decades (Geuna, 2001; OECD, 2005, Kyvik, 2004). These include changes in overall funding, the increasing importance of project funding and other funding sources, such as private contracts and non-profit donations. Despite national differences in the funding systems and instruments used, one of the most important changes lies in the way government allocate funds, moving from input criteria towards more output-oriented systems. There is a perceptible trend toward reducing core funding, formula funding, while increasing competitive funding, contractual funding (Geuna, 2001; Braun, 2003).

As a result, government funding is distributed across universities following a dominant dual system of funding allocation that distinguishes between core and competitive funding.[1] Core funding is often assigned to universities that perform both teaching and research. This public funding is generally allocated via funding formulas, typically calculated using a set of institution size-related criteria (e.g. number of enrolled students or number of staff), and increasingly via output-based indicators (e.g. number of degrees awarded or number of graduates).

Universities are free to allocate this budget, although some public funds are allocated on a targeted basis, i.e. money for a particular purpose[2]. By contrast, competitive funding (contractual funding) is mainly based on assessing project proposals and is mainly designated to research.

[1] Incremental funding, instead of formula and contractual funding, allocated on the basis of past expenditure was the most common formula funding until early 1980s (Geuna, 2001).

[2] The European University Association (2009) indicated that there are some countries (such as Bulgaria, Cyprus, Greece or Latvia) where funding is distributed using line-item budgets. This implies that universities receive their funding for already allocated cost items and/or activities.

In this context, funding mechanisms are considered relevant instruments in shaping quantity and quality of higher education outcomes and promoting competition, particularly for research. Changes to the rationale and funding allocation mechanisms assume and require greater institutional autonomy. Universities need autonomy to compete for research funding, excellent researchers and students, and to be able to respond faster to a more competitive environment.[3] More autonomy would, in principle, enable universities to better compete for research funds and diversify their funding portfolio, and to improve their research performance (Aghion et al., 2007, Volkwein et al., 1997, European University Association, 2008). Although an excessive dependence from short-term projects and funds obtained on a competitive basis might preclude universities from developing long-term strategies,[4] financial autonomy appears to be essential for European universities in order to act quickly and effectively in a constantly changing environment (European University Association, 2009).

In this context, this report presents the results of the 2009 European Observatory of Research-Active Universities and National Public Research Funding Agencies (UniObs), based on a sample of 200 research-active universities[5] throughout the ERA, regarding the funding dimension. As argued before, the effective management of research and its budget has become a key issue for university sustainability. This exercise involved a large scale data collection exercise on European research-active universities. Previous studies on university funding systems focused on smaller samples of universities and countries. This broad institutional and country coverage has given us the opportunity to examine the funding structure of the selected universities across the ERA.

The main analytical questions are:

- What is the general budget structure of European research-active universities today? How diversified are universities' funding portfolios?

- What share of their budget is assigned to research? What are the main sources of income for performing research?

- Do universities with higher level of financial autonomy have a more diversified and competitive-based funding portfolio?

The remainder of the report is structured as follows: Section 2 describes data collection and the sample; Section 3 examines the general budget structure of the selected universities, the weight of the different funding sources (government, industry, non-profit and abroad) and the extent to which universities have a diversified funding portfolio. We also focus on university funds devoted to research and their geographical origin. Section 4 provides an analysis of the level of financial autonomy and tries to shed some light on the relationship between financial autonomy and how the university budget is composed. Our aim is to check if universities with greater autonomy have a more diversified funding portfolio and are more able to acquire a higher share of competitive funds. If confirmed, this could indicate that more autonomous universities are more financially sustainable and have a more competitive-based funding

[3] Other assumptions of the contractual-oriented funding allocation approach are that it is possible to evaluate the quality of the research output precisely and identify promising research avenues that indicate that cost reduction is achievable without decreasing the quality of the output and that assessment and evaluation is cost saving (Geuna, 2001).

[4] Other possible consequences of this change could be that applied and short-time research are prioritised and resources are concentrated in certain ‘elite’ universities (Geuna, 2001).

[5] Throughout the text, the term ‘research-active university’ will be replaced by the general term ‘university’, unless otherwise specified.

portfolio. Section 5 summarises the main results of the report and provides some policy conclusions.

2. Data collection and sample

The data collection process was conducted under the UniObs framework.[6] Data was collected between May 2009 and January 2010 by national experts in Europe, using the ERAWATCH network.[7] The use of national experts is almost a necessity for studies which need original data to be collected for a large number of countries. National experts have better access to institutions in their countries and are able to interpret the data collected in light of the national context, institutions and practices. The use of this consolidated and experienced network was crucial to ensure very high coverage and for overall project success.

A *university template* focusing on the university research was specifically designed by JRC-IPTS to gather original quantitative and qualitative data and to allow comparative analysis across European institutions. It included a total of 43 items organised into five dimensions: governance and management; funding; human resources; academic outcome and visibility; and 'third mission' activities.

The template was tested through a 'Feasibility Study' carried out by JRC-IPTS. The final template has benefited from the insights of previous studies on European universities and the feedback obtained in the feasibility study has been integrated.

Previous IPTS studies include the report on 'Changes in University Incomes and their impact of University- based research and Innovation' (CHINC, 2006)[8]. Prior characterisations of universities include CEIHE,[9] Observatory of the European University (OEU),[10] Aquameth[11] and other relevant studies.[12]

This report focuses mainly on the funding dimension of universities although some questions included in other dimensions have been also analysed when relevant (e.g. the level of financial autonomy included in the dimension 'governance and management'). The funding dimension covered questions related to the composition of the total budget of universities, distinguishing by sources of income, as well as to the funds exclusively devoted to the research activity.

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[6] Project being developed by the JRC-IPTS under the ERAWATCH project framework, undertaken in collaboration with DG RTD.

[7] The ERAWATCH Network was created in March 2005 to support the European Commission and in particular, the Institute for Prospective Technological Studies (IPTS), in monitoring policy developments and trends related to the European Research Area. In particular, this involves assistance for creating and developing the ERAWATCH Research Inventory and Intelligence Service. For more information, see http://www.erawatch-network.com/.

[8] Other IPTS studies related to this topic are the NetReAct (The role of Networking in Research Activities) and IISER (The Integrated Information System on European Researchers).

[9] *Mapping Diversity: Developing a European Classification of Higher Education Institutions*. European Commission, 2006.

[10] *Observatory of the European University. Methodological guide*. Prime, 2006.

[11] Aquameth project. Strategic Report, Prime, 2007.

[12] PRIME projects taken into account are: SUN-Steering of Universities; CAKE - Changing Academic Knowledge Production Through Evaluation; The Thematic Network on Policies for Research and Innovation in the Move Towards the ERA; and Rebaspinoff. Also we considered the Esko Aho report and Eurydice.

The accounting systems employed across European universities are very diverse, making it difficult to obtain data on research funding. Therefore, when figures were not available, we used a ranking system to assess the importance of different research funding sources.

The study covers 200 universities from 33 ERA countries (27 Member States and Croatia, Iceland, Israel, Norway, Switzerland and Turkey). The number of universities per country has been calculated using an H-Index[13] that measures the scientific production and the impact of publications. The number of universities per country was calculated according to country's position in the scientific production index. Other alternative criteria were also checked (e.g. total public expenditure on education at tertiary level of education (ISCED 5-6) ([millEuroPPS, 2005], relative levels ([% GDP], GERD [2006], or productivity per R&D investments) but they showed more skewed results.

Within each country, universities were selected using their Institute for Scientific Information (ISI) academic output in 2008. Only articles linked to a university address from the selected country in 2008 were exported. The selection included the three ISI databases: SCI-EXPANDED, SSCI, A&HCI.

Being aware that the use of one-year total production as the criterion to select universities could be considered limited, we assured that top European Universities were included in the sample (according the to Shanghai,[14] Leiden[15] and Times[16] rankings); i.e. if a university appeared simultaneously in the three mentioned rankings but not in our initial selection, it was included in the study. As a result, the final number of universities assigned by country increased for France, Germany, Sweden and the UK. To ensure institutional diversity and national representativeness of all ERA countries, a minimum of one university per country was guaranteed.

In addition, we accepted suggestions made by the national experts on changes to the list of universities, after having verified that the relative production of the institutions proposed did not substantially deviating from the relative production of the selected universities in the same country.

To our knowledge, this is the first time that original data on universities has been collected for a large sample of institutions with a comprehensive coverage of the ERA. A further strength is on the way the sample was created and treated. After we had selected the list of universities, using stringent criteria based on scientific production and national expert feedback, we tried to obtain sufficient information for all institutions in the UniObs.

We recognise that this type of data collection exercise is not without limitations. First, when collecting data for a large number of countries, with different sets of institutions, data availability, quality and comparability are likely to change across data sources.[17] Information was retrieved from different sources, in some cases national statistical offices, in other cases

[13] The H-index is an index that attempts to measure both the productivity and impact of the published work of a scientist or scholar. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other people's publications. The index can also be applied to the productivity and impact of a group of scientists, such as a department, university or country.

[14] The Academic Ranking of World Universities (ARWU) is produced by the Center for World-Class Universities and the Institute of Higher Education of Shanghai Jiao Tong University, China.

[15] The Leiden ranking is produced by the Centre for Science and Technology Studies (CWTS), Leiden University, The Netherlands.

[16] The Times Higher Education World University Ranking.

[17] For a more exhaustive discussion on the problems connected to the cross-country data collection on universities, see Bonaccorsi and Daraio (Eds.), 2007.

data was provided by national university associations, ministries, funding agencies, or the institutions themselves, among others. This explains the high degree of heterogeneity in the data collected through the different sources. Funding data obtained from the universities was especially highly heterogeneous across institutions, due to differences in accounting systems. Missing data was also an issue, due to the difficulties to retrieve the information requested, or due to the resistance of some institutions to disclose funding information, often considered a sensitive subject.

3. Main features of the funding system of European research-active universities

Funding sources of universities in Europe differ to a large extent and have an impact on the accounting system and, as such, on the financial management of the institution. For the purpose of this study we have considered the total annual budget of the university (including all activities: teaching, research and third mission) and a budget composition as illustrated in Box 1.

Box 1. University budget: definitions used in the UniObs

Government funding. It refers to public funds coming from government (national/regional). Government funding to universities includes *core funding* and *competitive funding*:

- Core funding includes the general block grant coming from governmental authorities (national/regional) to support the university as a whole (including all activities: teaching, research and third mission).
- Competitive funding includes contracts and grants coming from governmental authorities (national/regional) distributed on a competitive basis. It also includes research funds distributed through Research Councils or similar funding bodies on a competitive basis.

- Industry. It refers to the income coming from contracts with private companies.
- Non-profit. This category includes the funding that comes from non-profit organisations, foundations, philanthropic sources, or donations.
- Abroad: EU. It includes funds received from various programmes in Europe. Often it has been very difficult for universities to specify the origin of foreign funds, and thus, this category in some cases includes international funds coming from foreign governments or funding agencies outside Europe.

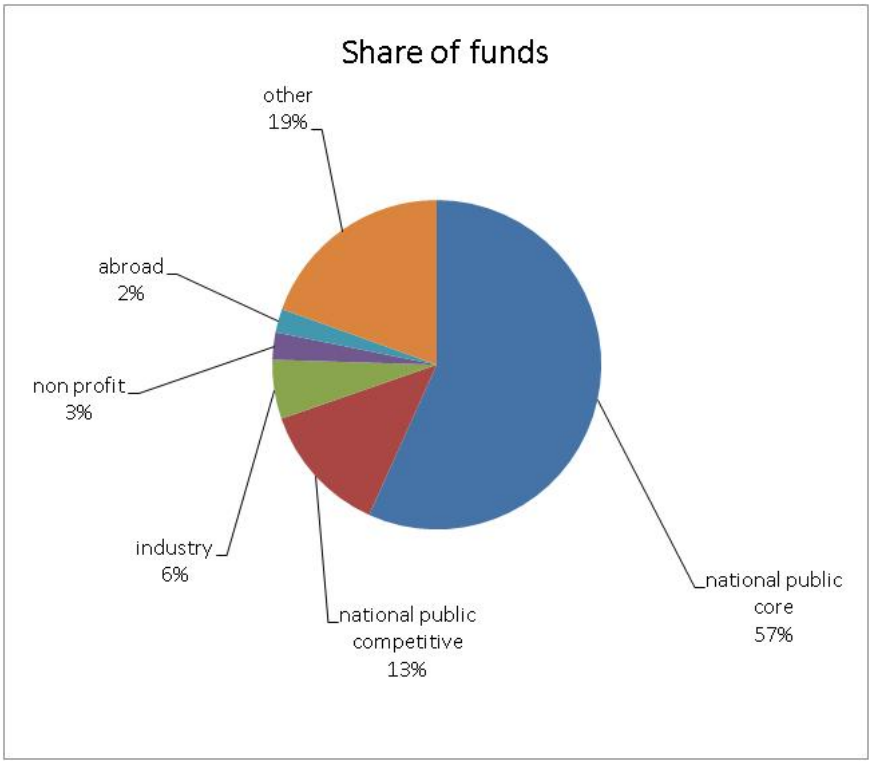
The main aim of this section is to examine the general budget structure of the selected universities, and the extent to which these organisations have a diversified funding portfolio. University funds that are exclusively assigned to research are also analysed.

3.1 Universities' general budget: structure and degree of diversification

Results from the analysis of the general budget of the selected universities show that about 70 % of the total university income comes from government allocations, of which 57 %

represents core funding and the remaining 13 % is assigned on a competitive basis.[18] As Figure 1 shows, around 6 % of income is from private companies, around 3 % from the non-profit sector, and approximately 2 % is from abroad. The category 'Other' represents about 19 %. Note that this category is residual. It does not only capture other types of sources not included in the template (i.e. tuition fees), but also some of the funding sources in the template for which information was not provided.[19]

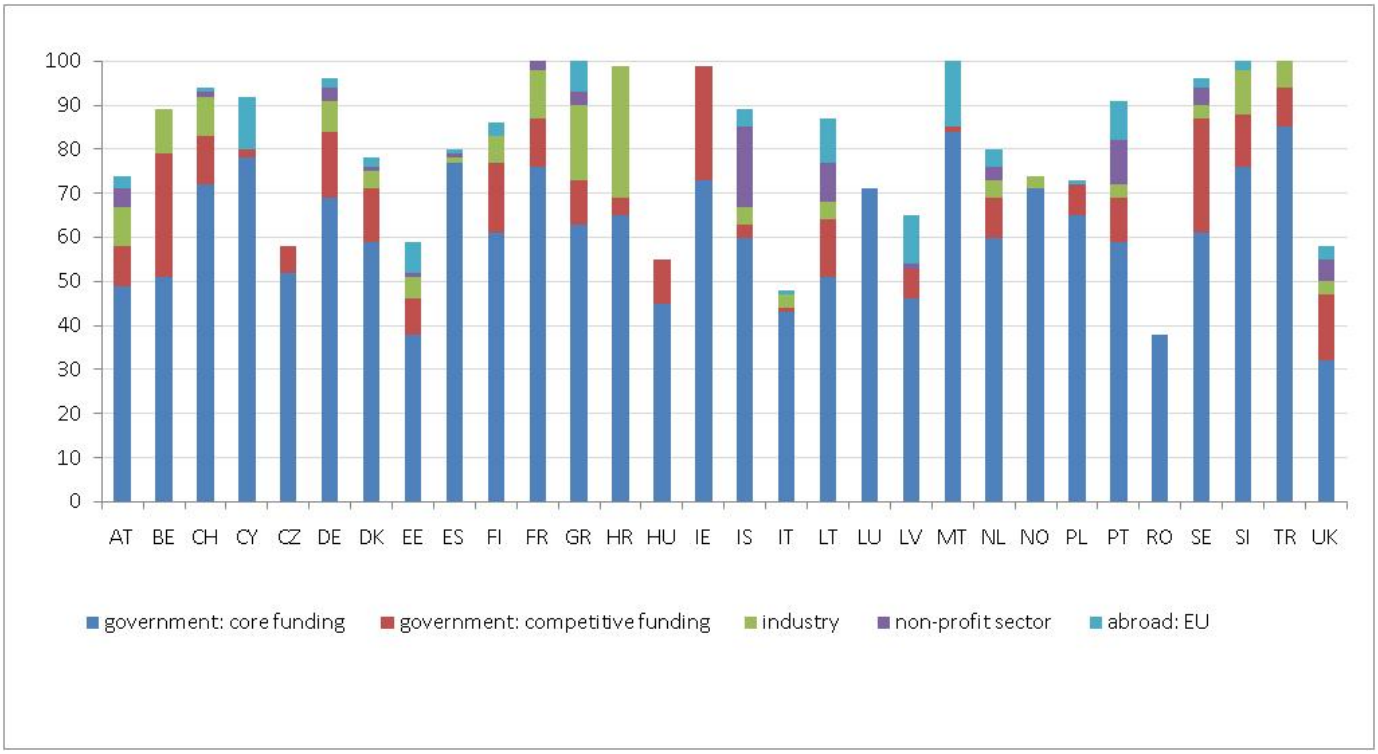
Figure 1. Shares of total funds by source of income[20]



Looking at the budget composition of the selected universities at national level we observe a high degree of heterogeneity across countries (Figure 2).[21]

[18] We omitted Israel from the analysis because of the lack of reliable data on funding.
[19] We have for instance cases where data was only available for the total budget, broken down in 'core', 'competitive', 'industry', but no data available for 'abroad' and 'non-profit'. We should then keep in mind that the figures for 'Other' can be overestimated, while the results for 'industry', 'non-profit' and 'abroad' might be underestimated. This category cannot be further disaggregated.
[20] Average of all institutions.
[21] For detailed figures, see Annex II.

Figure 2. Shares of total funds by source of income, averages by country



The analysis of the different sources of income reveals several interesting facts:[22] [23]

- Government is still today the main funding source for European universities. For the majority of universities in the ERA countries, government core funds account for around 60 % or more of the total university income. The share of government competitive funds varies considerably, ranging from an average of 1 % for Italian universities to an average of 28 % for Belgian institutions.[24]

- Funding data show that universities, generally, have less than 10 % of their budget coming from industry.[25] Only in the case of institutions in France, Greece and Croatia, more than 10 % of the total budget comes from the private sector.

- Philanthropic sources could potentially be an important source of income for universities, particularly for research. However, it is not nearly as well developed in Europe as elsewhere, particularly in the US (European Commission, 2008). Actually, the data collection exercise within the UniObs has showed that only half of the universities in the sample was able to provide reliable data on this stream of income. This could give us an indication that this particular stream of income is of lesser importance, resulting in poor accountability. Data indicate that less than 5 % of universities' total budget comes from the non-profit sector in approximately three quarters of the countries.[26] The non-profit sector could be an important source of income, as proved by universities in Iceland and in

[22] Note that not all universities provided information on all the different sources of income. This is reflected in figure 2, where some sources are missing in a number of countries.
[23] Only in Bulgaria competitive funding is higher than core funding. Results are not shown in Figure 2 and Figure 3 as they refer to only one university: University of Chemical Technology and Metallurgy (UCTM) in Sofia.
[24] We have not commented on figures for Malta and Bulgaria as they are only based on one observation.
[25] No data available for CZ, RO, HU, PL, LU, IE, CY, MT.
[26] Only 15 countries with available data. No data for IT, NO, FI, TK, SL, BE, BG, HR, MT, CY, CH, PL, HU, IE, RO, LU.

Portugal, where, on average, it represents 18 % and 10 % of the total university budget, respectively.

- Finally, income coming from 'abroad' represents less than 10 per cent of the total budget for the great majority of universities in the sample, from which 83 per cent is below five per cent.

With particular regard to government allocations of public funds, it has been a clear policy priority to decrease the core funding while increasing the funds allocated on a competitive basis. Data on public funds were mostly available[27] at institutional level and confirm that core funding is the major source of income for the selected European universities.

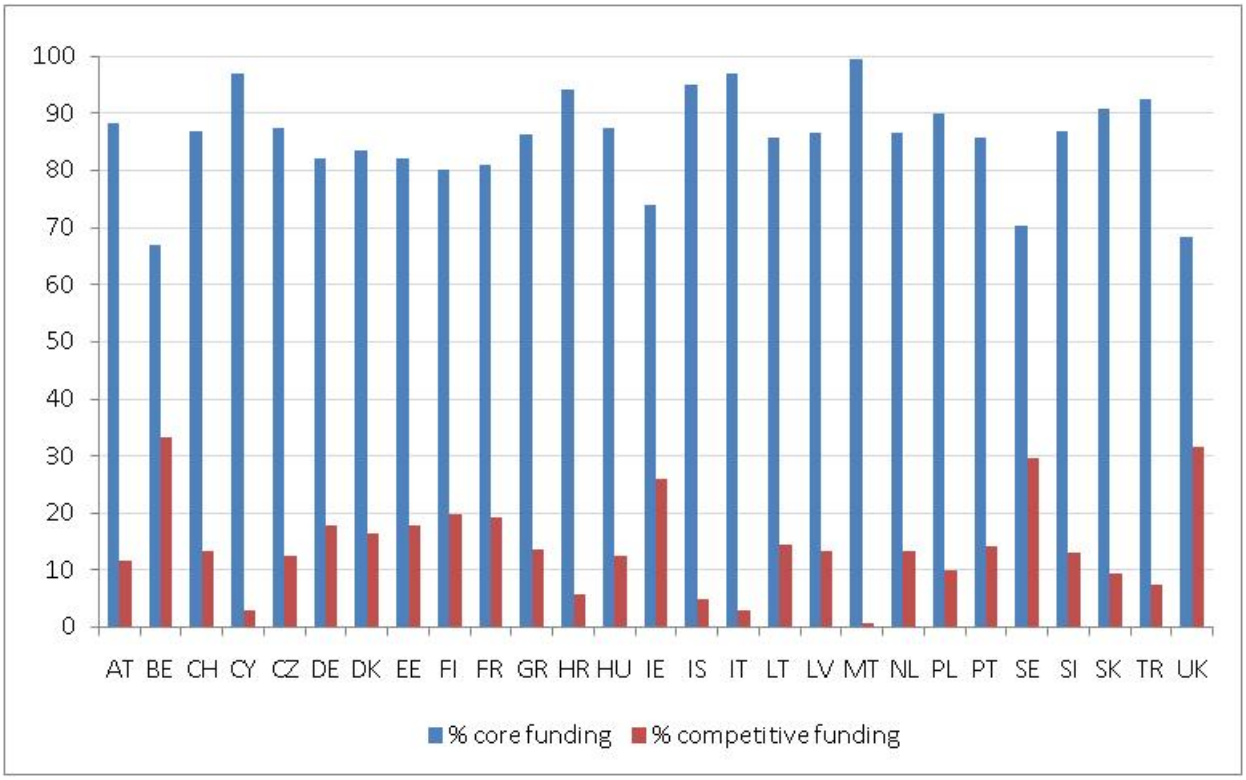
What still appears to be an open issue is what would be the 'right' balance between core and competitive funding. While it is clear that there are benefits from the increased move towards competitive funding, university research cannot fully depend on only one source of income. A university's ability to develop its strategic research activities with respect to its profile and objectives could be restricted by over-relying on competitive funding sources. While competitive funding for research might be important for ensuring quality, it is also clear that core funding is essential to support universities' long-term strategic planning.

Although it is not our aim to conclude on which is the 'ideal' budget composition, data show that in some countries universities seem to have a more balanced budget composition of public funds than in others.

As shown in Figure 3, core funding represents around 80 % over the total government allocations for most of the selected universities across Europe while competitive funds represent around 20 %. Universities in Italy, Malta, Cyprus, Croatia or Turkey have budgets with a clear dependency on core funding, while universities in Belgium, Sweden, the UK and Ireland have a more compensated allocation of public funds: approximately 70 % core funding and 30 % competitive funding.

[27] Competitive funds data non-available data for ES, NO, RO.

Figure 3. Share of core and competitive funding (over the total government allocations), by country



Government competitive funding also shows some country-level variability, as observed in Figure 4.[28] The box plot shows that there are clear within-country differences across institutions with respect to the share of their competitive funds. The highest average values are for universities in Belgium, Germany, Sweden and the UK, with shares of competitive funds between 25 % and 32 %. This could indicate that, within the same national framework in which all universities operate, some institutions are more able to compete successfully in obtaining government competitive funds. This is the case for universities in countries such as Finland, Portugal, Sweden or the UK. In other cases, such as universities in Italy, Switzerland or Germany, the share of competitive funds appears to be less diverse across institutions.

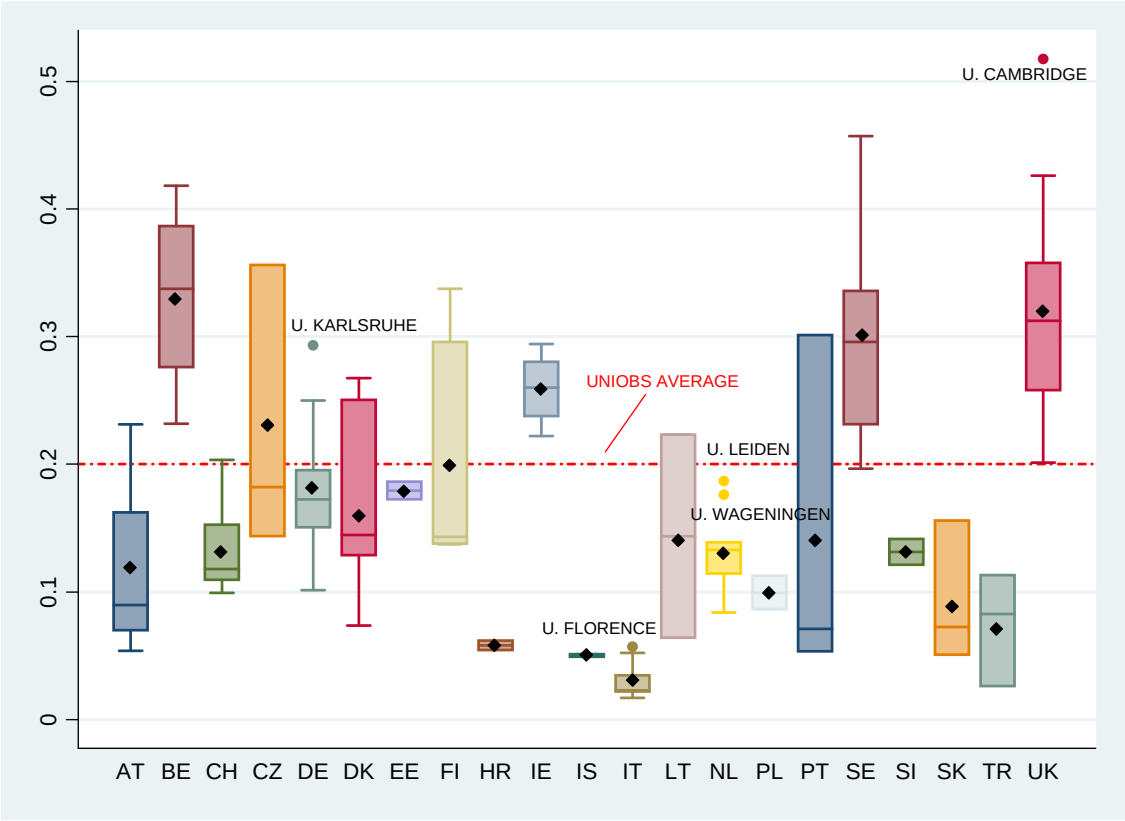
Box 2. Box-and-whisker plot

A Box-and-whisker plot (also known as box plot) is a way of summarising a set of data, providing a visual summary of many important aspects of a distribution. The box itself includes the middle 50 % of the data. The upper edge (hinge) of the box indicates the 75th percentile of the data set, and the lower hinge indicates the 25th percentile. The diamond in the box indicates the average value of the data. The line in the box indicates the median value of the data. If the median line within the box is not equidistant from the hinges, then the data is skewed. The ends of the vertical lines or 'whiskers' indicate the minimum and maximum data values, unless outliers are present in which case the whiskers extend to a maximum of 1.5 times the inter-quartile range. The points outside the ends of the whiskers are outliers or suspected outliers.

[28] On the vertical axis is the share of national public competitive funding over total national public funding. The red-dotted line indicates the average value of the share of competitive funding in the whole sample. Only countries for which we have data for more than one university are included in the graph.

Within countries, several outliers are also visible: the University of Cambridge in the UK, the University of Karlsruhe in Germany, the University of Florence in Italy, and the universities of Leiden and Wageningen in The Netherlands are much more successful at obtaining government competitive funds than the average university in their countries. The strategic behaviour of particular institutions might play an important role and deserves further examination, which goes beyond the scope of this report.

Figure 4: Box-plot of the distribution of the shares of national public competitive funding over total national public funding



Going one step further, the budget composition at institutional level has been also analysed. Table 1 provides a list of the universities where the share of competitive funds over the total public funding is above 30 %.[29]

[29] A total of 34 universities, which represents 17 % of the sample.

Table 1. List of institutions with share of competitive funds over the total government allocation above 30 %

Institution	Country	Competitive funds as share of total national government funding
UNIV MONTPELLIER 2	FR	0.55
UNIV CAMBRIDGE	UK	0.52
KAROLINSKA INST	SE	0.46
UNIV LANCASTER	UK	0.43
KATHOLIEKE UNIV LEUVEN	BE	0.42
IMPERIAL COLL LONDON	UK	0.41
CARDIFF UNIV	UK	0.41
UNIV OXFORD	UK	0.39
ROYAL INST TECHNOL	SE	0.38
UNIV EDINBURGH	UK	0.37
UNIV WARWICK	UK	0.37
UNIV MANCHESTER	UK	0.36
UNIV ST ANDREWS	UK	0.36
MASARYK UNIV	CZ	0.36
VRIJE UNIV BRUSSELS	BE	0.36
UNIV YORK	UK	0.35
UCL	UK	0.34
HELSINKI UNIV TECHNOL	FI	0.34
LUND UNIV	SE	0.34
UNIV SHEFFIELD	UK	0.33
UNIV DURHAM	UK	0.33
UNIV NOTTINGHAM	UK	0.32
UNIV ANTWERP	BE	0.32
SWEDISH UNIV AGR SCI	SE	0.32
UNIV BIRMINGHAM	UK	0.32
UNIV SOUTHAMPTON	UK	0.31
KINGS COLL LONDON	UK	0.31
UNIV AVEIRO	PT	0.30
UNIV LIVERPOOL	UK	0.30
UNIV BRISTOL	UK	0.30
UNIV LEEDS	UK	0.30
UPPSALA UNIV	SE	0.30
UNIV HELSINKI	FI	0.30

The analysis reveals that natural science and engineering or technological universities have the highest shares of competitive funds. This could be partially explained by the nature of the research performed by these types of institutions, since they are more project-oriented.

Interestingly, 60 % of the universities with a share of competitive funds above 30 % are UK institutions. This indicates that, regardless of the disciplinary profile of the institution, UK universities are clearly oriented towards competitive funds.
As argued in this section, university budget composition for all countries is rather unbalanced, with government core funding clearly being the main source of income. This suggests that university funding sources need to be diversified in most European countries. By diversifying funds we do not imply that institutions must rely equally on each of them, but to have a more balanced budget, and not be too dependent on one stream, i.e. government allocations. In times of public budget constraints and financial crisis when it is not likely that public funds for

universities increase significantly, it is crucial to make universities aware of the untapped potential of other sources of incomes. Industry and philanthropy funding should be integrated in universities' strategic planning.

Below, the distribution of the total budget across different sources of income is analysed using a measure of diversity. The following sources are considered: governmental core funding, governmental competitive funding, industry funding, non-profit sector funding, funding from abroad (EU), and other income (again a residual value). Although we are aware that the universities' objective is not to rely equally on all of these sources, it is important to recognise that the advantage behind diversifying sources is to depend less on one single stream of income.

Diversity is measured using the Simpson's index of diversity defined as:

$$\tilde{D} = 1 - D = 1 - \sum_{i=1}^{S} p_i^2,$$

where p_i is the share of each source of income over the total budget of the *i-th* university. Values near to 1 indicate high diversification, while values near to 0 indicate high homogeneity. The table below provides a list of 25 universities with the highest values of the index. Note that the diversity measure has only been computed for a sub-sample of universities (120) for which data on all funding sources were available.[30] The results seem to suggest that UK universities are more successful in diversifying their source of funds.

[30] The number of institutions per country in the sub-sample in the parenthesis: AT(3), BE(3), BG(2), CH(8), CY(1), DK(7), EE(2), FI(6), FR(3), DE(13), GR(1), HR(2), IS(2), IT(10), LT(1), LV(1), NL(9), PT(3), SI(2), SE(6), TR(2), UK(33).

Table 2. Diversity of funding sources: most diversified budgets at institutional level

Institution	Country	Simpson's Diversity index
IMPERIAL COLL LONDON	UK	0.773
UNIV EDINBURGH	UK	0.767
UNIV OXFORD	UK	0.738
UCL	UK	0.728
UNIV DUNDEE	UK	0.725
UNIV GLASGOW	UK	0.724
UNIV SOFIA	BG	0.722
UNIV CHEM TECHNOL & MET	BG	0.716
KINGS COLL LONDON	UK	0.705
UNIV ABERDEEN	UK	0.702
UNIV LIVERPOOL	UK	0.701
CARDIFF UNIV	UK	0.698
UNIV BRISTOL	UK	0.695
QUEEN MARY UNIV LONDON	UK	0.693
UNIV SHEFFIELD	UK	0.685
UNIV NEWCASTLE UPON TYNE	UK	0.685
UNIV BIRMINGHAM	UK	0.683
UNIV SOUTHAMPTON	UK	0.680
UNIV MANCHESTER	UK	0.676
UNIV TARTU	EE	0.674
UNIV ST ANDREWS	UK	0.673
KAUNAS UNIV TECHNOL	LT	0.672
KATHOLIEKE UNIV LEUVEN	BE	0.672
UNIV LEEDS	UK	0.671
QUEENS UNIV BELFAST	UK	0.667
ERASMUS UNIV ROTTERDAM	NL	0.667
UNIV NOTTINGHAM	UK	0.666
UNIV LANCASTER	UK	0.665
UNIV CAMBRIDGE	UK	0.664
UNIV YORK	UK	0.657

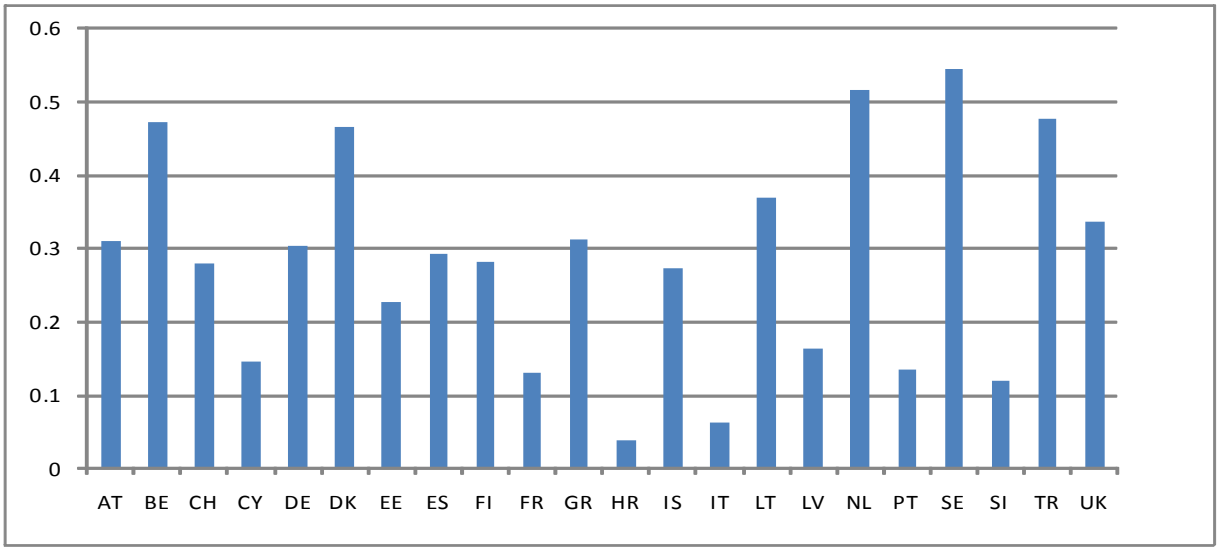
3.2 Main features of the funding devoted to research of European research-active universities

This section analyses research funds exclusively assigned to research. Previous studies have mentioned the difficulty in obtaining data for research, as some HEIs do not separately account for the funding flows for research (OECD, 2000; Godin, 2005; Lepori et al., 2007). We aim at providing some tentative figures on the research expenditure of European universities. Previous studies also mention the increasing role of regions in the ERA (Lepori et al., 2007; Laredo, 2003). We also aim at evaluating the degree of importance of the different type of sources and their geographical origin.

We present figures on university research funds as shares of the total university budget, grouped by country for illustrative purposes (Figure 5). We also show the analysis of the degree of importance of research funds across different types of research funding sources and geographical origin (Figure 6 and Figure 7, respectively). Universities were asked to provide figures of total research funds and its breakdown across type of sources and geographical origin. Due to difficulties in obtaining these breakdowns, universities were asked to rank the importance of different types of sources and geographical origin, respectively, if figures were not available.

Figure 5 shows the shares of university research funds over the total university budget (grouped by country for illustrative purposes).[31] The country averages of the share of university research funds range from 0.04 to 0.52. A high number of universities have a share of research funds between 0.20 and 0.35. Institutions in the Netherlands, Switzerland, Belgium and Denmark are the ones getting a share of research funds higher than 0.45. Universities in Croatia and Italy are getting a lower share of research funds over the total budget, lower than 0.10.

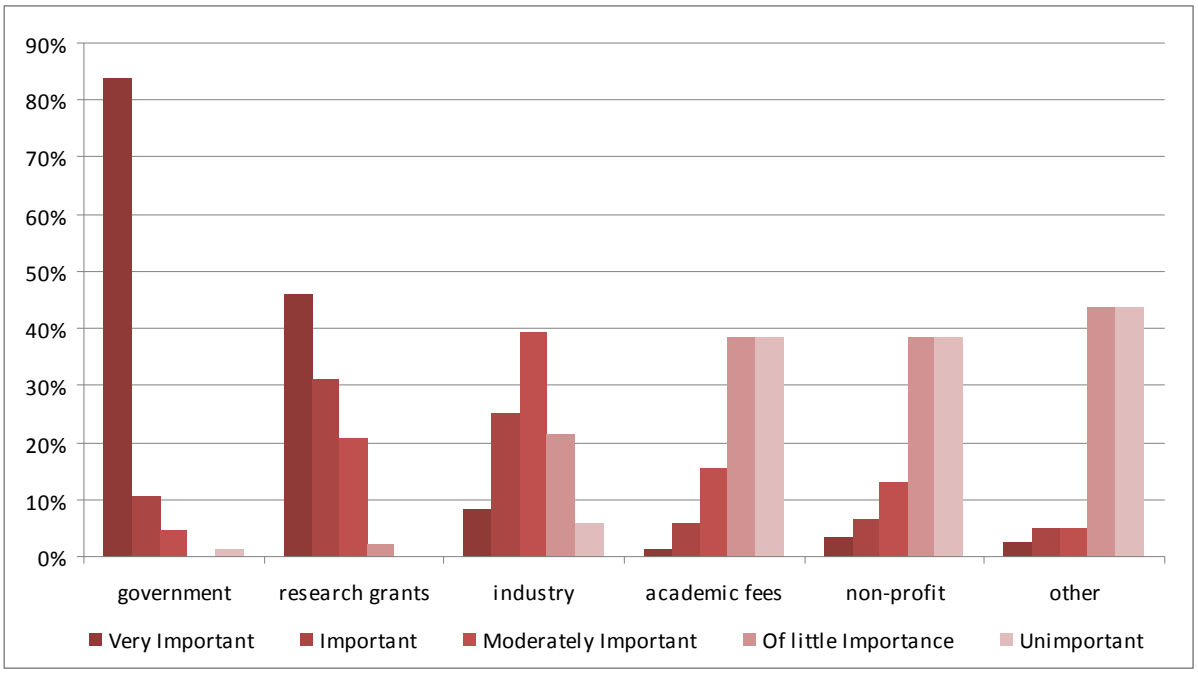
Figure 5: Shares of research funds over total budget, by country



The distribution of importance of the different types of sources of research funding (Figure 6) indicates that 'institutional funding by government' is considered as 'very important' by the majority of universities.[32] A total of 84 % of universities indicated government funding as the most important source of research funding. Research grants are also ranked as a major source of research funding. A total of 77 % of the universities indicated that research grants are 'very important' or 'important' (46 % and 31 %, respectively). The distribution of the degree of importance for industry is more uneven. Nearly 40 % of universities ranked industry research funding as 'moderately important'. More than one third of the universities considered industry as a 'very important' or 'important' source of research funds (8 % and 25 %, respectively). These percentages are higher than the ones obtained for the two lowers categories of importance: 'unimportant' and 'of little importance' (6 % and 21 %, respectively). The distribution of the level of importance across the remaining research funding sources (academic fees, non-profit and other) is concentrated in the lowest levels of importance 'unimportant' and 'of little importance'. These two levels of importance concentrate more than the 75 % of the rates for each of the research funding sources. The distribution of importance across research grants indicates that 'institutional government funding' and 'research grants' are considered the most important research funding sources.

[31] BG, CZ, HU, IE, LU, MT, PL, RO, SK and NO were excluded as data was not available. Provisional data for the UK. Figures do not aim at representing country average behaviour but they illustrate the behaviour of groups of universities from each country.
[32] CH, CZ, IS, LT, NO and UK not included.

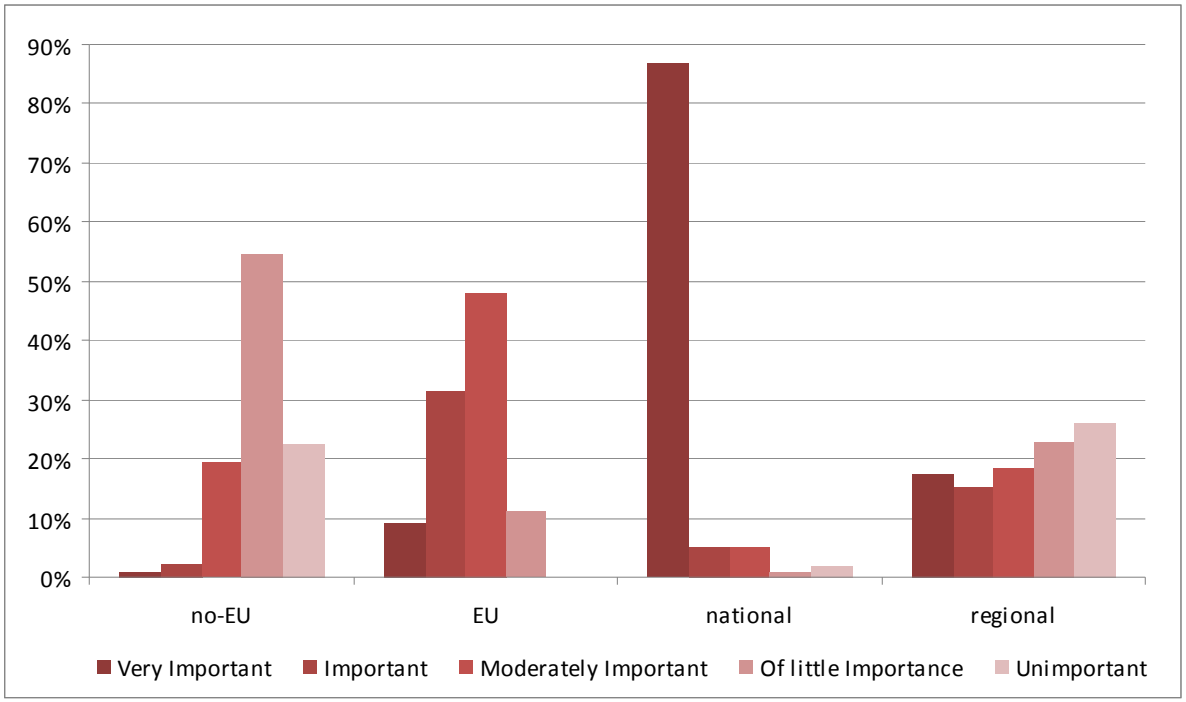
Figure 6: Distribution of degree of importance by different type of sources of research funding



The distribution of the degree of importance of different geographic origins of sources of research funding (Figure 7) indicates that the national source of research funds prevails in importance.[33] A total of 88 % of the universities considered national sources of research funding as 'very important'. Universities also place high levels of importance on European and regional research funds. These geographical categories are considered as 'very important' or 'important' by a 41 % and 32 % of the universities that rated European and regional source of research funds, respectively. The distribution of the degree of importance across categories for regional geographic origin of research funds is more homogeneous. All the different degrees of importance are between 15 % and 26 %. These results indicate that national research funds are very important for most universities.

[33] CH, CZ, IS, LT, NO and UK not included.

Figure 7: Distribution of degree of importance of different geographic origins of research funding



Considering institutions that attributed an extreme importance to regional research funds (Table 3), we can see that the institutions that considered regional research funding sources as 'important' are mainly located in countries with strong regional autonomy, such as Belgium, Germany or Spain. In addition, these institutions do not tend to be located in the country's most populous cities. This could indicate that universities in countries with high degree of decentralisation and which are located outside the main city centres place more importance on regional research funds. Universities located in more centralised countries tend to attribute less importance to regional research funds. This might suggest that the role of regional research funds is influenced by the country's administrative structure and the location of universities.

Table 3: List of institutions that consider regional research funds as 'very important' and 'unimportant'

Institution	Country	Regional funds scored as 'Very important'
UNIV GHENT	BE	'very Important'
KATHOLIEKE UNIV LEUVEN	BE	'very Important'
UNIV CATHOLIQUE LOUVAIN	BE	'very Important'
UNIV ANTWERP	BE	'very Important'
UNIV LIEGE	BE	'very Important'
UNIV LIBRE BRUXELLES	BE	'very Important'
VRIJE UNIV BRUSSELS	BE	'very Important'
UNIV BONN	DE	'very Important'
UNIV GOTTINGEN	DE	'very Important'
JOHANNES GUTENBERG UNIV MAINZ	DE	'very Important'
TECH UNIV DRESDEN	DE	'very Important'
UNIV FREIBURG	DE	'very Important'
UNIV KARLSRUHE	DE	'very Important'
UNIV VALENCIA	ES	'very Important'
UNIV GRANADA	ES	'very Important'
UNIV POLITECN VALENCIA	ES	'very Important'
UNIV CHEM TECHNOL & MET	BG	'unimportant'
UNIV ATHENS	GR	'unimportant'
NATL TECH UNIV ATHENS	GR	'unimportant'
UNIV AMSTERDAM	NL	'unimportant'
LEIDEN UNIV	NL	'unimportant'
UNIV UTRECHT	NL	'unimportant'
UNIV GRONINGEN	NL	'unimportant'
RADBOUD UNIV NIJMEGEN	NL	'unimportant'
VRIJE UNIV AMSTERDAM	NL	'unimportant'
DELFT UNIV TECHNOL	NL	'unimportant'
ERASMUS	NL	'unimportant'
WAGENINGEN UNIV	NL	'unimportant'
JAGIELLONIAN UNIV	PL	'unimportant'
ADAM MICKIEWICZ UNIV POZNAN	PL	'unimportant'
WROCLAW UNIV TECHNOL	PL	'unimportant'
UNIV WARSAW	PL	'unimportant'
WARSAW UNIV TECHNOL	PL	'unimportant'
UNIV PORTO	PT	'unimportant'
COMENIUS UNIV	SK	'unimportant'
SLOVAK TECH UNIV BRATISLAVA	SK	'unimportant'
SAFARIK UNIV	SK	'unimportant'
UNIV LJUBLJANA	SI	'unimportant'
HACETTEPE UNIV	TR	'unimportant'
ANKARA UNIV	TR	'unimportant'

4. Budget structure and university financial autonomy

This section provides an analysis of the level of financial autonomy in a sub-sample of the selected European universities and tries to shed some light on the impact that autonomy might have on the structure of their budget. More specifically, we would like to verify whether it is correct to assume that when an institution has more financial autonomy it also has a more diversified funding structure, and, more particularly, whether its share of competitive-based funds increases with increasing levels of autonomy. It would also be interesting to understand if those universities which currently have more diversified and competitive-based budgets behaved in a similar way before they were granted autonomy. It would also be interesting to find out to what extent the changes in the behaviour were induced by the reforms. However, UniObs data does not allow us to perform this type of policy impact assessment on the university reforms.

Only two institutions, the University College of Cork (Ireland) and the Kaunas University of Technology (Lithuania), define themselves as being 'completely centralised'. About 16 % of the institutions are 'mostly centralised', and around 54 % experience a certain degree of autonomy. Around 29 % define themselves as being 'completely autonomous'. Most of the universities that have full autonomy are located in the UK, but we find also a number of universities in The Netherlands, Spain and Bulgaria.

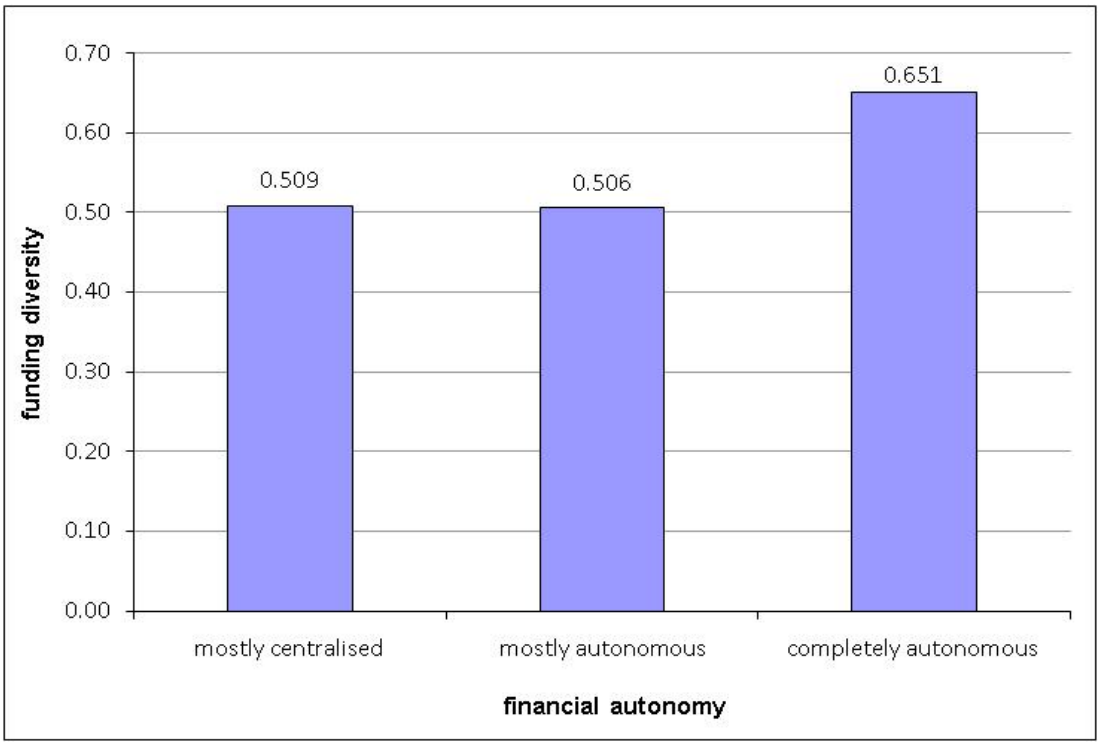
Box 3. Financial autonomy in the UniObs

A question on the level of financial autonomy was included in the questionnaire. Universities were asked to self-assess their degree of financial autonomy using a Likert scale from 1 to 4, where 1 stands for 'completely centralised' (allocation of funds is 100 % pre-defined by national or regional authorities); 2 'mostly centralised'; 3 'mostly autonomous'; 4 'completely autonomous'.

Below, we compare the level of financial autonomy with the degree of diversification of the university budget (see Figure 8). The degree of diversity of the budget composition is measured using the Simpson's diversity index introduced in Section 3. Results in Figure 8 show that only those universities that have complete financial autonomy have a substantially diversified budget

As a robustness check, a statistical test was performed to assess whether institutions in the two groups ('mostly autonomous' and 'completely autonomous') are significantly different from each other. In particular, by using an unpaired t-test we checked whether the mean value of the diversity index in the sub-sample 'completely autonomous' universities was significantly different and greater than the mean value of the index in the sub-sample 'mostly autonomous'. Results confirm that there are statistically significant differences between the two groups and that budgets of 'completely autonomous' institutions are more diversified than those of institutions with a limited degree of autonomy.

Figure 8. Financial autonomy and diversity of funding sources

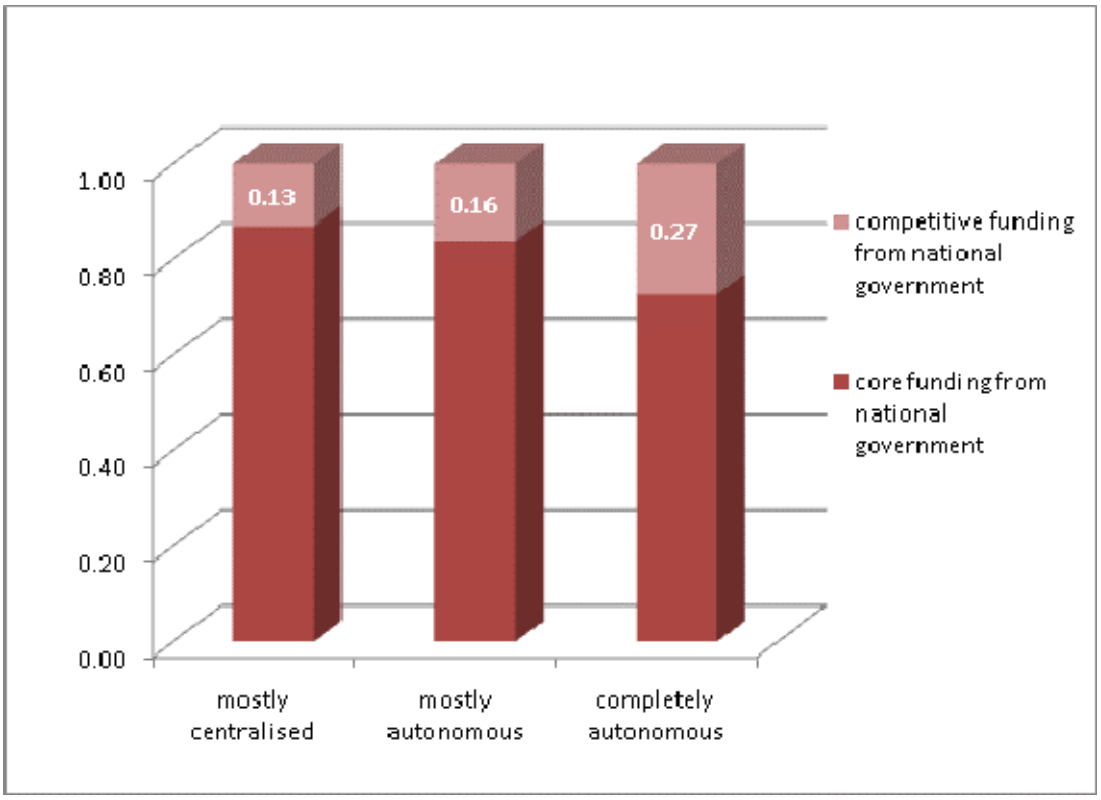


This report also analyses whether higher financial autonomy is reflected in higher shares of national public competitive-based funds (Figure 9). Comparing the composition of the budget in terms of government core and competitive funding with the level of financial autonomy of each institution, we observe that the share of competitive-based public funds from the government (national/regional) increases with increasing levels of financial autonomy.

In addition, as Figure 9 illustrates, there is only a significant difference between shares when universities are completely autonomous. This could indicate that national or institutional settings which do not allow universities to act in a fully financially autonomous way are less likely to produce a real change.

The results of a *t*-test on the difference between the mean values of the distribution again confirms that there are significant differences between the two samples, and that indeed the average value of competitive funding in 'completely autonomous' universities is significantly different and higher than the average value in the sub-sample of 'mostly autonomous' universities, as illustrated in Figure 9.

Figure 9. National public funding and financial autonomy



In order to further verify the robustness of our last result, we performed a regression analysis to control for other variables that might have an impact on the budget composition of the institution. The share of competitive-based government funds (in log) is regressed over a set of explanatory variables: the number of students (in log), to account for the size of the university; the year the institution was founded; and two variables of financial autonomy: [i] a first variable that assumes the value of 1 when the institution defines itself as being 'mostly autonomous' or 'completely autonomous', and 0 otherwise; and [ii] a second variable that assumes the value of 1 when the university defines itself as being 'completely autonomous', and 0 otherwise. Results show that there is a positive relationship between autonomy and the share of competitive funds only when universities have full financial autonomy.

Box 4. Financial autonomy and competitive funds: regression results

Dependent variable: share of government competitive funds over total government allocation	OLS
Constant	-1.404
	(1.825)
Number of students	-0.459***
	(0.126)
Autonomy	0.072
	(0.264)
Full autonomy	0.313**
	(0.137)
Year of foundation	0.000
	(0.001)
Obs: 140	
R-squared: 0.18	

Robust standard errors in parenthesis. The statistical significance of the parameters is indicated by ***, **, *, referring respectively to the 1%, 5% and 10% level.

This result confirms the assumption that when a university is more autonomous it is better able to rely on competitive funding, but only when is able to fully act independently. This is, however, only an indication, and only suggests the need to further analyse the impact of university autonomy on budget structure and university excellence, perhaps also going beyond financial autonomy.

5. Key findings and policy-relevant conclusions

European higher education systems have experienced important changes over recent decades, leading to higher autonomy in most cases. The more autonomous a university is, then it should, in principle, be able to better compete in obtaining funds from different sources, such as competitive funds, contracts with private companies, and donations from the non-profit sector. This could make institutions less dependent on one single stream of income, and more able to adapt to a changing environment.

National governments are still the main source of funding of the selected universities. On average, 70 % of the total university income comes from government allocations, of which 57 % represents core funding and the remaining 13 % is assigned on a competitive basis. Funding from private companies represents around 6 %, around 3 % comes from non-profit sectors and approximately 2 % is from abroad. The remaining 19 % belongs to a residual category 'Other', which cannot be further disaggregated.

Looking exclusively at the income coming from the government, data indicates that competitive funds represent around 20 % of the total university public income. The highest shares are found in universities located in Belgium, Germany, Sweden and the UK, with shares of competitive funds from the government ranging between 25 % and 32 %.

The share of budget coming from competitive sources also shows some country-level variability. In certain countries, some institutions seem to be able to collect a larger share of competitive funds. This is the case of universities in Finland, Portugal, Sweden or the UK. In other cases, for instance, for institutions in Italy, Switzerland or Germany, the shares of competitive funds appear to be less diverse. This could suggest that the national framework is a necessary but not sufficient condition leading to higher levels of competitive funding. Strategic behaviour at institutional level also appears to be very important. Furthermore, the analysis at the institutional level reveals that institutions in the UK and, in general, natural science and engineering or technological universities have the highest shares of competitive funds. Moreover, some institutions appear to have a more diversified budget than others. The results seem to suggest that UK universities are more successful in diversifying their funding sources.

In relation to the budget exclusively devoted to research, the country percentage (based on the selected universities) of universities' research funding over the total budget varies considerably (between 4 % and 52 %). In particular, universities in The Netherlands, Switzerland, Belgium and Denmark are receiving a percentage of research funds over 45 %. However, figures on funds assigned to research have to be considered with caution, due to the difficulties encountered in identifying this stream of income.

Research funds coming from regional authorities are considered important for institutions operating in countries with a more decentralised government structure, such as Belgium, Germany or Spain. Interestingly, these institutions do not tend to be placed in the most populous cities of the country.

This report has aimed at checking whether greater financial autonomy is associated with a more diversified funding structure and particularly to an increase in the share of funds obtained on a competitive basis. Financial autonomy seems to have a positive effect on the level of budget diversification, but interestingly only for those institutions that declare themselves as being completely autonomous.

Finally, findings show that the share of competitive-based government funding increases with increasing levels of financial autonomy. As before, a significant difference only occurs when universities are completely autonomous. This could indicate that national or institutional settings which do not allow universities to act in a fully financially autonomous way are less likely to produce a real change.

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7. Technical Annexes

Annex I. List of institutions included in the UniObs

C_ID	CA	COUNTRY	U_ID	UNIVERSITY
1	AT	AUSTRIA	1	UNIV VIENNA
1	AT	AUSTRIA	2	MED UNIV VIENNA
1	AT	AUSTRIA	3	VIENNA UNIV TECHNOL
1	AT	AUSTRIA	4	INNSBRUCK UNIV
1	AT	AUSTRIA	5	GRAZ UNIV TECHNOL
1	AT	AUSTRIA	6	INNSBRUCK MED UNIV
2	BE	BELGIUM	7	UNIV GHENT
2	BE	BELGIUM	8	KATHOLIEKE UNIV LEUVEN
2	BE	BELGIUM	9	UNIV CATHOLIQUE LOUVAIN
2	BE	BELGIUM	10	UNIV ANTWERP
2	BE	BELGIUM	11	UNIV LIEGE
2	BE	BELGIUM	12	UNIV LIBRE BRUXELLES
2	BE	BELGIUM	13	VRIJE UNIV BRUSSELS
3	BG	BULGARIA	14	UNIV SOFIA
3	BG	BULGARIA	15	UNIV CHEM TECHNOL & MET
4	CY	CYPRUS	16	UNIV CYPRUS
5	CZ	CZECH REPUBLIC	17	CHARLES UNIV PRAGUE
5	CZ	CZECH REPUBLIC	18	MASARYK UNIV
5	CZ	CZECH REPUBLIC	19	PALACKY UNIV
6	DK	DENMARK	20	UNIV COPENHAGEN
6	DK	DENMARK	21	UNIV AARHUS
6	DK	DENMARK	22	TECH UNIV DENMARK
6	DK	DENMARK	23	UNIV SO DENMARK
6	DK	DENMARK	24	UNIV AALBORG
6	DK	DENMARK	25	COPENHAGEN SCH ECON & BUSINESS ADM
6	DK	DENMARK	26	ROSKILDE UNIV CTR
7	EE	ESTONIA	27	UNIV TARTU
7	EE	ESTONIA	28	TALLINN UNIV TECHNOL
8	FI	FINLAND	29	UNIV HELSINKI
8	FI	FINLAND	30	UNIV TURKU
8	FI	FINLAND	31	UNIV OULU
8	FI	FINLAND	32	HELSINKI UNIV TECHNOL
8	FI	FINLAND	33	UNIV KUOPIO
8	FI	FINLAND	34	UNIV TAMPERE
9	FR	FRANCE	35	UNIV PARIS 06
9	FR	FRANCE	36	UNIV PARIS 11
9	FR	FRANCE	37	UNIV LYON 1
9	FR	FRANCE	38	UNIV PARIS 07
9	FR	FRANCE	39	UNIV PARIS 05
9	FR	FRANCE	40	UNIV GRENOBLE 1
9	FR	FRANCE	41	UNIV MONTPELLIER 2
9	FR	FRANCE	42	UNIV TOULOUSE 3
9	FR	FRANCE	43	UNIV STRASBOURG 1
9	FR	FRANCE	44	UNIV BORDEAUX 1
9	FR	FRANCE	45	ECOLE POLYTECHNIQUE
9	FR	FRANCE	46	UNIV AIX MARSEILLE 2

C_ID	CA	COUNTRY	U_ID	UNIVERSITY
9	FR	FRANCE	47	ECOLE NORMALE SUPER
9	FR	FRANCE	48	UNIV RENNES 1
10	DE	GERMANY	49	UNIV MUNICH
10	DE	GERMANY	50	UNIV HEIDELBERG
10	DE	GERMANY	51	TECH UNIV MUNICH
10	DE	GERMANY	52	UNIV BONN
10	DE	GERMANY	53	UNIV TUBINGEN
10	DE	GERMANY	54	UNIV GOTTINGEN
10	DE	GERMANY	55	RUHR UNIV BOCHUM
10	DE	GERMANY	56	JOHANNES GUTENBERG UNIV MAINZ
10	DE	GERMANY	57	UNIV WURZBURG
10	DE	GERMANY	58	UNIV FRANKFURT
10	DE	GERMANY	59	UNIV COLOGNE
10	DE	GERMANY	60	UNIV MUNSTER
10	DE	GERMANY	61	TECH UNIV DRESDEN
10	DE	GERMANY	62	UNIV LEIPZIG
10	DE	GERMANY	63	UNIV FREIBURG
10	DE	GERMANY	64	UNIV KIEL
10	DE	GERMANY	65	UNIV HAMBURG
10	DE	GERMANY	66	UNIV ERLANGEN NURNBERG
10	DE	GERMANY	67	UNIV KARLSRUHE
10	DE	GERMANY	68	HUMBOLDT UNIV
10	DE	GERMANY	69	UNIV JENA
10	DE	GERMANY	70	TECH UNIV AACHEN
10	DE	GERMANY	71	FREE UNIV BERLIN
10	DE	GERMANY	72	TECH UNIV BERLIN
11	GR	GREECE	73	UNIV ATHENS
11	GR	GREECE	74	ARISTOTLE UNIV THESSALONIKI
11	GR	GREECE	75	UNIV PATRAS
11	GR	GREECE	76	NATL TECH UNIV ATHENS
12	HU	HUNGARY	77	UNIV SZEGED
12	HU	HUNGARY	78	LORAND EOTVOS UNIV
12	HU	HUNGARY	79	BUDAPEST UNIV TECHNOL & ECON
12	HU	HUNGARY	80	UNIV PECS
13	IE	IRELAND	81	UNIV COLL DUBLIN
13	IE	IRELAND	82	DUBLIN CITY UNIV
13	IE	IRELAND	83	NATL UNIV IRELAND UNIV COLL CORK
13	IE	IRELAND	84	TRINITY COLL DUBLIN
14	IT	ITALY	85	UNIV ROMA LA SAPIENZA
14	IT	ITALY	86	UNIV MILAN
14	IT	ITALY	87	UNIV BOLOGNA
14	IT	ITALY	88	UNIV PADUA
14	IT	ITALY	89	UNIV NAPLES FEDERICO 2
14	IT	ITALY	90	UNIV FLORENCE
14	IT	ITALY	91	UNIV TURIN
14	IT	ITALY	92	UNIV PISA
14	IT	ITALY	93	UNIV ROMA TOR VERGATA
14	IT	ITALY	94	UNIV GENOA
15	LV	LATVIA	95	UNIV LATVIA
16	LT	LITHUANIA	96	KAUNAS UNIV TECHNOL
16	LT	LITHUANIA	97	VILNIUS UNIV
17	LU	LUXEMBOURG	98	UNIV LUXEMBOURG
18	MT	MALTA	99	UNIV MALTA

C_ID	CA	COUNTRY	U_ID	UNIVERSITY
19	NL	NETHERLANDS	100	UNIV AMSTERDAM
19	NL	NETHERLANDS	101	LEIDEN UNIV
19	NL	NETHERLANDS	102	UNIV UTRECHT
19	NL	NETHERLANDS	103	UNIV GRONINGEN
19	NL	NETHERLANDS	104	RADBOUD UNIV NIJMEGEN
19	NL	NETHERLANDS	105	VRIJE UNIV AMSTERDAM
19	NL	NETHERLANDS	106	DELFT UNIV TECHNOL
19	NL	NETHERLANDS	107	ERASMUS
19	NL	NETHERLANDS	108	WAGENINGEN UNIV
20	PL	POLAND	109	JAGIELLONIAN UNIV
20	PL	POLAND	110	ADAM MICKIEWICZ UNIV POZNAN
20	PL	POLAND	111	WROCLAW UNIV TECHNOL
20	PL	POLAND	112	UNIV WARSAW
20	PL	POLAND	113	WARSAW UNIV TECHNOL
21	PT	PORTUGAL	114	UNIV PORTO
21	PT	PORTUGAL	115	UNIV AVEIRO
21	PT	PORTUGAL	116	UNIV LISBON
22	RO	ROMANIA	117	UNIV BUCHAREST
22	RO	ROMANIA	118	UNIV BABES BOLYAI
23	SK	SLOVAKIA	119	COMENIUS UNIV
23	SK	SLOVAKIA	120	SLOVAK TECH UNIV BRATISLAVA
23	SK	SLOVAKIA	121	SAFARIK UNIV
24	SI	SLOVENIA	122	UNIV LJUBLJANA
24	SI	SLOVENIA	123	UNIV MARIBOR
25	ES	SPAIN	124	UNIV BARCELONA
25	ES	SPAIN	125	UNIV VALENCIA
25	ES	SPAIN	126	UNIV AUTONOMA BARCELONA
25	ES	SPAIN	127	UNIV AUTONOMA MADRID
25	ES	SPAIN	128	UNIV COMPLUTENSE MADRID
25	ES	SPAIN	129	UNIV GRANADA
25	ES	SPAIN	130	UNIV POLITECN VALENCIA
26	SE	SWEDEN	131	KAROLINSKA INST
26	SE	SWEDEN	132	LUND UNIV
26	SE	SWEDEN	133	UPPSALA UNIV
26	SE	SWEDEN	134	UNIV GOTHENBURG
26	SE	SWEDEN	135	STOCKHOLM UNIV
26	SE	SWEDEN	136	UMEA UNIV
26	SE	SWEDEN	137	ROYAL INST TECHNOL
26	SE	SWEDEN	138	SWEDISH UNIV AGR SCI
26	SE	SWEDEN	139	LINKOPING UNIV
27	UK	UNITED KINGDOM	140	UNIV OXFORD
27	UK	UNITED KINGDOM	141	UNIV CAMBRIDGE
27	UK	UNITED KINGDOM	142	IMPERIAL COLL LONDON
27	UK	UNITED KINGDOM	143	UCL
27	UK	UNITED KINGDOM	144	UNIV MANCHESTER
27	UK	UNITED KINGDOM	145	UNIV EDINBURGH
27	UK	UNITED KINGDOM	146	UNIV BRISTOL
27	UK	UNITED KINGDOM	147	KINGS COLL LONDON
27	UK	UNITED KINGDOM	148	UNIV NOTTINGHAM
27	UK	UNITED KINGDOM	149	UNIV BIRMINGHAM
27	UK	UNITED KINGDOM	150	UNIV SHEFFIELD
27	UK	UNITED KINGDOM	151	UNIV GLASGOW
27	UK	UNITED KINGDOM	152	UNIV LEEDS

C_ID	CA	COUNTRY	U_ID	UNIVERSITY
27	UK	UNITED KINGDOM	153	UNIV SOUTHAMPTON
27	UK	UNITED KINGDOM	154	UNIV LIVERPOOL
27	UK	UNITED KINGDOM	155	QUEEN MARY UNIV LONDON
27	UK	UNITED KINGDOM	156	CARDIFF UNIV
27	UK	UNITED KINGDOM	157	UNIV WARWICK
27	UK	UNITED KINGDOM	158	UNIV ABERDEEN
27	UK	UNITED KINGDOM	159	UNIV DURHAM
27	UK	UNITED KINGDOM	160	UNIV LEICESTER
27	UK	UNITED KINGDOM	161	QUEENS UNIV BELFAST
27	UK	UNITED KINGDOM	162	UNIV YORK
27	UK	UNITED KINGDOM	163	UNIV ST ANDREWS
27	UK	UNITED KINGDOM	164	UNIV READING
27	UK	UNITED KINGDOM	165	UNIV BATH
27	UK	UNITED KINGDOM	166	UNIV DUNDEE
27	UK	UNITED KINGDOM	167	UNIV E ANGLIA
27	UK	UNITED KINGDOM	168	UNIV LANCASTER
27	UK	UNITED KINGDOM	169	UNIV NEWCASTLE UPON TYNE
27	UK	UNITED KINGDOM	170	UNIV SUSSEX
27	UK	UNITED KINGDOM	171	UNIV STRATHCLYDE
27	UK	UNITED KINGDOM	172	UNIV SURREY
28	HR	CROATIA	173	UNIV ZAGREB
28	HR	CROATIA	174	UNIV SPLIT
29	IS	ICELAND	175	UNIV ICELAND
29	IS	ICELAND	176	REYKJAVIK UNIV
30	IL	ISRAEL	177	TEL AVIV UNIV
30	IL	ISRAEL	178	HEBREW UNIV JERUSALEM
30	IL	ISRAEL	179	TECHNION ISRAEL INST TECHNOL
30	IL	ISRAEL	180	BEN GURION UNIV NEGEV
30	IL	ISRAEL	181	WEIZMANN INST SCI
30	IL	ISRAEL	182	BAR ILAN UNIV
30	IL	ISRAEL	183	UNIV HAIFA
31	NO	NORWAY	184	UNIV OSLO
31	NO	NORWAY	185	UNIV BERGEN
31	NO	NORWAY	186	NORWEGIAN UNIV SCI & TECHNOL
31	NO	NORWAY	187	UNIV TROMSO
31	NO	NORWAY	188	UNIV STAVANGER
32	CH	SWITZERLAND	189	ETH
32	CH	SWITZERLAND	190	UNIV ZURICH
32	CH	SWITZERLAND	191	UNIV BERN
32	CH	SWITZERLAND	192	UNIV GENEVA
32	CH	SWITZERLAND	193	UNIV BASEL
32	CH	SWITZERLAND	194	UNIV LAUSANNE
32	CH	SWITZERLAND	195	SWISS FED INST TECHNOL-LAUSANNE
32	CH	SWITZERLAND	196	UNIV FRIBOURG
32	CH	SWITZERLAND	197	UNIV NEUCHATEL
33	TR	TURKEY	198	HACETTEPE UNIV
33	TR	TURKEY	199	ANKARA UNIV
33	TR	TURKEY	200	MIDDLE E TECH UNIV

Annex II. Size and composition of the general budget of the selected universities (average by country)

COUNTRY	Number of students (000)	Budget per student (000)	% budget coming from core funding	% of budget coming from competitive funding	% of budget coming from industry	% of budget coming from non profit sector	% of budget coming from abroad-EU
AUSTRIA	21	20	49	9	9	4	3
BELGIUM	18	19	51	28	10	na	na
BULGARIA	5	0.3	23	31	35	na	na
CYPRUS	5	22	78	2	na	na	12
CZECH REPUBLIC	35	4	52	6	na	na	na
DENMARK	17	96	59	12	4	1	2
ESTONIA	14	8	38	8	5	1	7
FINLAND	15	17	61	16	6	na	3
FRANCE	22	12	76	11	11	2	1
GERMANY	29	14	69	15	7	3	2
GREECE	57	2	63	10	17	3	8
HUNGARY	23	10	45	10	na	na	na
IRELAND	15	17	73	26	na	na	na
ITALY	67	12	43	1	3	na	1
LATVIA	21	3	46	7	0	1	11
LITHUANIA	29	3	51	13	4	9	10
LUXEMBOURG	3	26	71	na	na	na	na
MALTA	10	7	84	1	na	na	16
NETHERLANDS	20	26	60	9	4	3	4
POLAND	43	4	65	7	na	na	1
PORTUGAL	21	7	59	10	3	10	9
ROMANIA	42	2	38	na	na	na	na
SLOVAKIA	16	na	na	na	na	na	na
SLOVENIA	28	7	76	12	10	na	2
SPAIN	40	10	77	na	1	1	1
SWEDEN	20	32	61	26	3	4	2
UNITED KINGDOM	14	32	32	15	3	5	3
CROATIA	50	4	65	4	30	na	na
ICELAND	8	7	60	3	4	18	4
NORWAY	15	25	71	na	3	na	na
SWITZERLAND	10	38	72	11	9	1	1
TURKEY	27	5	85	9	9	na	2

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Abstract

The main objective of this report is to investigate the structure of the budget in a sample of research-active European universities and to analyse to what extent the level of financial autonomy effects the diversification of their budget and the amount of competitive funding they receive.

The study covers 200 research-active universities from 33 European Research Area (ERA) countries (27 Member States and Croatia, Iceland, Israel, Norway, Switzerland and Turkey) within the framework of the 'European Observatory of Research-Active Universities and National Public Research Funding Agencies' (UniObs). The criteria followed to select the list of universities in the sample are based on research performance and country representativeness.

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