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Funding social science in international comparison

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Executive Summary

The paper contributes to the debates around funding scientific research by analyzing recent international trends, and show funding patterns from the perspective of funds devoted to social sciences. It is mostly a groundwork summarizing the key issues around the definition of scientific fields, the various statistics and the considerations behind policy decisions to fund research.

Accordingly, the first part of the paper looks into the problems of categorizations, showing how interdisciplinarity and convergence might blur the seemingly well-established boundaries. Keeping in mind that clear divisions are never possible, but practical categories are nevertheless important to have internationally comparable data, the second part looks into datasets available on funding, and inquires about the possible connections. The data shows that simple geographical, regional patterns are not apparent, either in the natural/social sciences funding ratio or in funding intensity (social sciences funding in percentage of the GDP). Continuing the inquiry, the paper presents data on sector-based variations. As funding from business enterprises disproportionately favor certain (non-social sciences) fields, the share of the business sector might have a direct impact on social sciences spending. From the somewhat sporadic data that is available at this level of specificity, this connection can be confirmed. However, it would be a mistake to conclude that more business funding is, in absolute numbers, bad for social sciences funding. While social sciences might be on the losing side if compared to natural sciences, in competition for business funding, the boost that more business funding gives to research funding in general also shows in social sciences funding, if measured in percentage of the GDP.

The pre-crisis trends show the growing share of foreign business sources as well as a general decline of the share of government funding. While the crisis reversed this, if the earlier trends continue with the recovery, it will become more and more important for governments to take into account business preferences and focus on funding research, e.g., further away from applied sciences, that cannot compete for business funding. This has been confirmed in connection with public research institutions.

The paper continues with assessing recent datasets on specific (public) funding bodies. This seems to show the predefined preference of these entities rather than general trends. Looking into the arguments behind such policy choices, the final chapter deals with the question of the 'use', 'output' or 'impact' of scientific research, and social sciences in particular. The relevant debates based on experiences in the UK show some of the challenges in this field.

Without providing final answers, the paper concludes by noting that decisions about allocation are inherently linked to policy choices about funding preferences. This in turn highlights the importance of informed decisions. A further line of inquiry should assess the decisions of public funding bodies, how they allocate funds on this higher level and what are the relevant factors informing these decisions. The final section of the paper presents the UK experience as a model that combines various forms of assessment and that could inform policy decisions elsewhere.

Introduction

Measuring scientific output and comparing it to the inputs and to the outputs of other scientific fields has long been of high interest for those engaged in doing and financing scientific research – potentially all taxpayers. Participants of the debate were quick to point out differences along an oft-used dichotomy with natural sciences on the one hand and social sciences and humanities on the other. These debates, rather than remaining within the boundaries of academic discussions, have become common in political discussions around financing,[1] which can go as far as the idea of state-mandated closure of certain programs, even those supported from tuitions, that were deemed to be too far from economic performance like 'real' sciences or desired vocational trainings.[2]

Note that many of the arguments cut across the natural vs. social sciences (/humanities) divide, and differentiate instead on the very direct, perceived economic impact and usefulness of certain studies and research, most importantly in engineering and business. Criticisms, rather than following a simple logic of economic impact, often argue more broadly, e.g., hinting on a general disregard for real-world problems, majority culture, from the part of people from social sciences and humanities.[3]

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[1] Scott Jaschik summarizes some of the most prominent criticisms of social sciences and humanities (liberal arts) in the US, starting with Barack Obama, US president: "I promise you, folks can make a lot more, potentially, with skilled manufacturing or the trades than they might with an art history degree."; Mitt Romney, former governor and Republican nominee for president: "I wonder whether you get information coming into college that says you know, this course of study will lead to this kind of jobs and there's a lot of opening here as opposed to – as you said, English – and as an English major I can say this.... as an English major your options are uh, you better go to graduate school, all right? And find a job from there."; Governor Rick Scott, Republican of Florida: "If I'm going to take money from a citizen to put into education then I'm going to take that money to create jobs. So I want that money to go to degrees where people can get jobs in this state. Is it a vital interest of the state to have more anthropologists? I don't think so."; Governor Patrick McCrory, Republican of North Carolina: "If you want to take gender studies that's fine, go to a private school and take it. But I don't want to subsidize that if that's not going to get someone a job." Scott Jaschik, "Obama vs. Art History," *Inside Higher Ed,* January 31, 2014, https://www.insidehighered.com/news/2014/01/31/obama-becomes-latest-politician-criticize-liberal-arts-discipline.

[2] See the recent plans of the Government of Hungary, cutting back on the number of higher education programs that mostly concern social sciences. "Vége a kommunikáció szaknak? Több képzést is megszüntethet a kormány" ["The end of communications studies? Several programs can be cut by the government"], *Eduline,* March 11, 2015, http://eduline.hu/felsooktatas/2015/3/11/szakok_megszunese_felsooktatas_kommunikacio_MIQ1K6.

[3] For one such critique, see Fendrich, Laurie, "The Humanities Have No Purpose," *The Chronicle of Higher Education,* March 20, 2009, http://chronicle.com/blogs/brainstorm/the-humanities-have-no-purpose/6738. For a critical overview of various responses to the question of 'what's the use of humanities?' see Stanley Fish, "Will the Humanities Save Us?," *The New York Times,* January 6, 2008, http://opinionator.blogs.nytimes.com/2008/01/06/will-the-humanities-save-us/. For a possible response, see Laurie Fendrich's argument: "The only way to justify studying the humanities is to abandon modern utilitarian arguments in favor of much older arguments about the end, or purpose of man." Laurie Fendrich, "The Humanities Have No Purpose," *The Chronicle of Higher Education,* March 20, 2009, http://chronicle.com/blogs/brainstorm/the-humanities-have-no-purpose/6738. For a nice, if not too recent, overview of the US debate, see Stéfan Sinclair, "Confronting the Criticisms: A Survey of Attacks on the Humanities," *4Humanities – Advocating for the Humanities,* October 9, 2012, http://4humanities.org/2012/10/confronting-the-criticisms/.

As can be expected, these types of criticism attract responses, primarily[4] from the academic community.[5] Rather than replaying that debate, this paper will focus on one aspect of the exchanges, the numbers showing *international trends in funding research in social sciences and humanities*. Far from resolving disputes, it should get us, those interested in making informed choices, closer to having a meaningful and debate and help us being more precise in what we are debating.

To see what proportion of funding goes to social sciences, we will first need to see what fields constitute social sciences in the first place (Chapter 1). After that, the paper will present comparative data on research spending, from different aspects, primarily to see what can impact the relative and absolute numbers, as compared to other fields and to the situation, over time, in various countries (Chapter 2). The paper concludes by highlighting some important considerations about the 'other side of the equation': how we should assess the role (benefit, value, impact, output etc.) of social science research (Chapter 3).

[4] …but not exclusively, see the report commissioned by Ernst & Young, presenting data on the economic output of creative and cultural industries: *Creating growth. Measuring cultural and creative markets in the EU,* December 2014, http://www.creatingeurope.eu/en/wp-content/uploads/2014/11/study-full-en.pdf.

[5] Responses to some of the critiques quoted in note 1 above: Matthew T. Hora and Ross J. Benbow and Amanda K. Oleson, "Obama and Walker: Both Wrong," *Inside Higher Ed,* March 16, 2015, https://www.insidehighered.com/views/2015/03/16/essay-criticizes-focus-vocational-training-higher-education-policies-president. A more elaborated response: Anthony T. Kronman, *Education's End. Why Our Colleges and Universities Have Given Up on the Meaning of Life,* Yale University Press, 2007. From the Hungarian debate, see a reply, based on labor market statistics: János Köllő, "Nincs is túltermelés bölcsészekből" ["There is actually no overproduction of humanities majors"], *Index,* February 16, 2015, http://index.hu/gazdasag/defacto/2015/02/16/nincs_is_tultermeles_bolcseszekbol/.

1 What sciences?

The first question that arises concerns the boundaries of 'social sciences', as often contrasted to 'natural sciences' or 'sciences'. The short conclusion is that this is an endless endeavor. Without trying to give an ultimate definition of the field, it seems useful to look at available, lower-level classifications that fit the research question of how the funding of social science research compares to overall funding. First, mechanisms for funding institutions directly can apply categories of academic fields that might or might not be used as a basis of distributing funds. Second, the assessment of the impact or output of research, above all, bibliometric data is often sliced up according to a classification that takes, among others, (natural) sciences and social sciences separately. While many rightly challenge the straightforward dichotomy, and urge the adoption of more flexible categories based on the human impact on what is studied (e.g., 'natural systems', 'human-influenced systems' and 'human-dominated systems'[6]), the need to rely on statistics both on the funding and the assessment side requires us to consider how the various fields of sciences are categorized.

There are exemplary fields of sciences on both sides, and few would doubt that physics is a field of (natural) science while sociology belongs to social sciences. Yet, there are less clear fields, like areas of architecture, geography, health studies or psychology, where the decision could require slicing up what has been traditionally seen as one field of study. In addition, classifications differ in how they treat higher level categories like humanities, arts and design, medical sciences, engineering or agricultural sciences. Interdisciplinarity is yet another phenomenon that challenges the view of clear-cut categories. Bastow, Dunleavy and Tinkler conclude that it is "surprisingly difficult" to go beyond the top-level categories (in their case four discipline groups) "because of an absence of any well-developed official or government categorizations".[7] Finally, certain subfields of seemingly "clear cases" might slip into the other higher level category, like some more theoretical areas of physics, falling closer to philosophy (and humanities), or certain clinical and experimental fields in social psychology.

There are, however, widely used international classifications, most importantly the ISCED ("International Standard Classification of Education") prepared by the UNESCO and FOS ("Revised Field of Science and Technology" Classification) by OECD, also known as the "Frascati Manual". The fact that these are themselves constantly being reworked shows both the flexibility and the constant change in how we view the relationship between the two major academic fields. Both can be read on three levels, with the top level categories used as follows. (Table 1) These top-level categories are then broken down into narrower fields and a detailed list of fields like optics or religious studies.

[6] Simon Bastow, Patrick Dunleavy, Jane Tinkler, *The Impact of Social Sciences, How academics and their research make a difference,* Sage, 2014, http://www.uk.sagepub.com/upm-data/59598_Bastow__Impact_of_the_social_sciences.pdf, p. 20–21.

[7] Simon Bastow, Patrick Dunleavy, Jane Tinkler, *The Impact of Social Sciences, How academics and their research make a difference,* Sage, 2014, http://www.uk.sagepub.com/upm-data/59598_Bastow__Impact_of_the_social_sciences.pdf, p. 5.

ISCED (UNESCO)	FOS – 'Frascato Manual' (OECD)
01 Education	1 Natural sciences
02 Arts and humanities	2 Engineering and technology
03 Social sciences, journalism and information	3 Medical and health sciences
04 Business, administration and law	4 Agricultural sciences
05 Natural sciences, mathematics and statistics	5 Social sciences
06 Information and communication technologies	6 Humanities
07 Engineering, manufacturing and construction	
08 Agriculture, forestry, fisheries and veterinary	
09 Health and welfare	

Source: UNESCO Institute for Statistics, ISCED Fields of Education and Training 2013 (ISCED-F 2013), Manual to accompany the International Standard Classification of Education 2011, http://www.uis.unesco.org/Education/Documents/isced-fields-of-education-training-2013.pdf, leaving out categories '00 Generic programmes and qualifications' and '10 Services'.

Source: Working Party of National Experts on Science and Technology Indicators Revised Field of Science and Technology (FOS) Classification in the Frascati Manual, February 26, 2007, http://www.oecd.org/science/inno/38235147.pdf.

Table 1. Classification of scientific fields. (Color codes are my own addition.)

While these categorizations might seem quite straightforward, the figure does not indicate the contentious areas that might fall in one category under one classification and in another under the second one. The UNESCO material states that the two classifications 'have different purposes and it is not feasible to ensure a direct correspondence between' them.[8] In many cases it is not easy to tell where a field should go (e.g., computer science at the edge of hardware engineering and software and network development), not to talk about individual research projects that inherently rely on various areas.

[8] UNESCO Institute for Statistics, ISCED Fields of Education and Training 2013 (ISCED-F 2013), Manual to accompany the International Standard Classification of Education 2011, http://www.uis.unesco.org/Education/Documents/isced-fields-of-education-training-2013.pdf, p. 17, para. 54.

The connections and overlaps among scientific fields are hard to be captured by clear-cut sets of fields and sub-fields. One can grasp the complexity of defining the boundaries by a look at the figure prepared by the LSE Public Policy Group. (Figure 2) Note that this is only indicative of the complexity, as it places its focus on social sciences and humanities instead of sciences in general, and does not consider interdisciplinary and cross-disciplinary research.

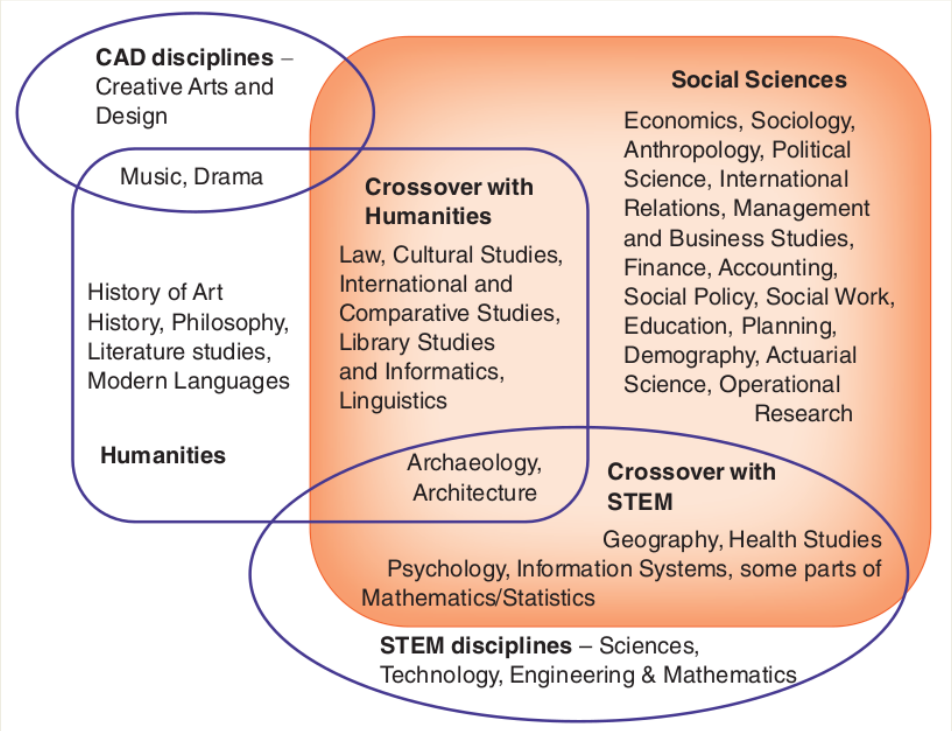


Figure 1. Relations and overlaps between scientific fields, with focus on social sciences.
Source: Simon Bastow, Patrick Dunleavy, Jane Tinkler, The Impact of Social Sciences, How academics and their research make a difference, Visualising the Data, http://studysites.uk.sagepub.com/visualisation/, p. 3, Figure 1.1 The social sciences and how they relate to other disciplines.

A more sophisticated approach is to take account of the overlaps and divide the relevant fields and then give a weight to how much a field belongs to this or that 'top level' field. The LSE Public Policy Group assessing the impact of social sciences adopted this solution. It starts with a set of criteria that unites social sciences[9] and then applies a method of weighing. The numbers in their report on law, journalism and linguistics are equally divided between social science and humanities; statistics on architecture is accounted for in Social Sciences, STEM (Science, Technology, Engineering and Mathematics) and CAD (Creative Arts and Design); archeology, environmental sciences and social psychology are ¾ STEM and ¼ social science; while statistics itself is half social science and half STEM.[10] This means that 75% of funding

[9] Simon Bastow, Patrick Dunleavy, Jane Tinkler, The Impact of Social Sciences, How academics and their research make a difference, Visualising the Data, http://studysites.uk.sagepub.com/visualisation/, p. 4.
[10] Simon Bastow, Patrick Dunleavy, Jane Tinkler, The Impact of Social Sciences, How academics and their research make a difference, Visualising the Data, http://studysites.uk.sagepub.com/visualisation/, p. 6.

going towards social psychology should be counted as (natural) sciences funding, while the rest as social sciences resource.

These classifications are thus useful to assess the ratio of where funds go in terms of scientific areas. Yet, when it comes to measuring impact, often more practical considerations step in. As the study of the European Commission notes: "For its bibliometric assessement – in particular when it comes to specific fields, one is more or less bound to the fields as defined by the Social Science Citation Index and its producer, Thomson Reuters."[11] The Social Science Citation Index includes fields like 'area studies', 'environmental studies', 'ergonomics', 'planning and development', 'biological psychology', and 'transportation'. Both the Social Science Citation Index and the Arts & Humanities Citation Index includes 'linguistics', although indicating different sub-areas.[12] (Both indexes are put together by Thomson Reuters. For a full list and comparison of the classifications, see Annex.)

It should be apparent that there is no one best and ultimate classification. What we are left with is the imperative to indicate throughout this overview what disciplinary classification is applied in the sources relied upon. The results will be extremely sensitive to how we group the various fields, e.g., whether we treat natural sciences and engineering, or arts and humanities and social sciences together. In all cases, the basis of classification or the major choices of classification will be pointed out.

[11] Viola Peter, Lorena Rivera Leon, Yann Cadiou, Mathieu Doussineau, Evaluation of the Impact of Framework Programme supported Social Sciences and Humanities Research. A bibliometric approach, Luxembourg, Publications Office of the European Union, 2010, https://ec.europa.eu/research/social-sciences/pdf/ssh-evaluation-bibliometric_en.pdf, p. 5.

[12] 'Social science' type linguistics includes "resources relating to all theoretical and applied aspects of linguistics, including phonetics, phonology, morphology, syntax, and semantics. The category also includes resources dealing with language as a social phenomenon such as sociolinguistics, language acquisition and education, psycholinguistics, computational linguistics, corpus linguistics, semiotics and the relationship between memory and language" while the 'humanities' linguistics ('language & linguistics') refers to "resources relating to theoretical, literary and historical linguistics as well as stylistics and philology". See Thomson Reuters, Social Science Citation Index 2012, Scope Notes, http://ip-science.thomsonreuters.com/mjl/scope/scope_ssci/, and Thomson Reuters, Arts & Humanities Citation Index 2012, Scope Notes, http://ip-science.thomsonreuters.com/mjl/scope/scope_ahci/, respectively.

2 Research funding ratios

2.1 Ratio of spending that goes to social sciences

The first number that allows us to compare the ratio of social science research expenditures quickly is the share of such expenditures in overall research and development spending in the respective country. Table 2 summarizes the ratio of social science research funding from total R&D expenditures, with an approximate geographic grouping of countries where comparative data from 2011 is available in the OECD/Eurostat database, while countries with data from other years are listed in the third table, on the right. Note that these numbers include spending from all sources, including business, government etc. As for the classification, the OECD data relies on the Frascati Manual classification (the list used by the OECD, see earlier, right column of Table 1), combining social sciences and humanities.

Country (2011)	Ratio
Ireland	5.68%
Denmark	8.04%
Netherlands	14.95%
Norway	14.46%
Portugal	17.68%
Greece	18.55%
Turkey	16.39%
Czech Rep.	7.28%
Hungary	9.27%
Poland	9.04%
Slovak Rep.	16.07%
Slovenia	8.30%

Country (2011)	Ratio
Russia	4.19%
Canada	8.45%
Argentina	18.44%
Chile	19.12%
South Africa	14.79%
Chinese Taipei	3.92%
Korea	3.94%

Country (year)	Ratio
Australia (2008)	7.53%
Austria (1998)	9.38%
Germany (1999)	5.05%
Japan (2001)	5.34%
Mexico (2003)	18.05%
Spain (2002)	7.66%
United Kingdom (2012)	12.90%
People's Rep. of China (2007)	1.37%
Romania (2012)	9.63%

Table 2. Data on the share of social sciences and humanities in overall research and development spending, 2011 where not indicated (first two tables), and other years in the last table (as indicated). Own calculation based on OECD-Eurostat data. Countries grouped by year and geographic location.

Source: OECD, Joint OECD-Eurostat international data collection on resources devoted to RD, dataset on gross domestic expenditure on R-D by sector of performance and field of science, last updated April 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#.

The data from 2011 is somewhat sporadic, especially from outside Europe, and the fact that many countries do not have data from 2011 and not even a year close to 2011 makes the comparison even harder. (Note further that I cannot deal here with how the data is collected, what it shows exactly, and what other limitations apply, other than those that are apparent from the data set. This would require a separate study.) Even this inconclusive data set allows from some preliminary generalizations. Central and Eastern Europe, with the exception of Slovakia, seems to make up one block with 7-9% going for social sciences and humanities (Visegrad countries, 2011, Romania, 2012, and Slovenia, 2011). Numbers from elsewhere Europe are very diverse, from around 5% in Ireland and Germany (1999) through 12.9% in the UK (2012) to 15-18.5% in Norway, the Netherlands, Portugal and Greece. Where numbers are available, numbers from South America (Argentina and Chile), together with South Africa, are above the European

average, at 18-19% and 14.79%, whereas the ratio in Asia seems to be considerably lower than anywhere else, with 5.34% in Japan (2001), just below 4% in Korea and Chinese Taipei, and 1.37% in China.

A separate dataset is available from the US National Science Foundation, that it also partly based on OECD data, and only looks at *academic spending* – a huge difference, to the benefit of social sciences and humanities, as we will see (Table 3). There is an approximate overlap with how the category 'social sciences and humanities' is used in this case, as for the NSF, „Social sciences is concerned with an understanding of the behavior of social institutions and groups and of individuals as members of a group. Detailed fields: anthropology, economics, political science, sociology, and other social sciences."[13] In addition to the percentage of research and development spending, the last row of the table shows the ratio of spending going to natural sciences and engineering vs. social sciences and humanities. E.g., 4.0 means that there is exactly a four-fold difference, with four times more funding going to natural sciences and engineering.

Country / Field	U.S. (2007)	Japan (2006)	Germany (2002)	Russia (2007)	Canada (2005)	Taiwan (2006)	Spain (2006)	Australia (2006)	Sweden (2005)
Natural sciences and engineering	91.2%	67.4%	78.8%	81.4%	80.3%	86.3%	63.1%	74.0%	78.9%
Social sciences and humanities	6.7%	32.6%	20.7%	18.6%	19.7%	13.7%	36.9%	26.0%	19.5%
Not classified	2.1%	NA	0.4%	NA	NA	NA	NA	NA	1.6%
NSE:SCH ratio	**13.6**	**2.0**	**3.8**	**4.4**	**4.1**	**6.3**	**1.7**	**2.8**	**4.0**

Table 3. Share of academic research and development expenditures, by country and field, percent distribution.
Source: National Science Board, "Chapter 4: Research and Development: National Trends and International Linkages," in Science and Engineering Indicators 2010, http://nsf.gov/statistics/seind10/pdf/c04.pdf. See full table in the Annex of this paper or Table 4-16 on p. 4-44 of the original report.

With a focus exclusively on the academic sector, there remains great variation. Yet, there seems to be a 'strong center field', as four out of the nine country indicators fall between 4.4 and 3.8. This means that in half of the countries there is a four-fold between funds going to natural sciences and engineering and those spent on social sciences and humanities. Natural sciences and engineering can outspend social sciences and humanities from 1:1.7-2.0 (Spain and Japan, both data from 2006) to 1:13.6 (US, 2007). We should inquire further as to what can explain this great variance.

The share of social science spending in overall spending only gives a precursory insight into how social sciences do in terms of funding. The numbers comparing the various fields against each other might give

[13] National Science Foundation, National Center for Science and Engineering Statistics, Federal Funds for Research and Development, "Appendix A. Technical Notes, Definitions" in Fiscal Years 2013-15, http://www.nsf.gov/statistics/2015/nsf15324/pdf/nsf15324.pdf, 314-15.

the false impression that funds allocation is a zero-sum game, with an increase in one field meaning a decrease in another. This view would be mistaken also because the role of private sources cannot be adequately captured by a mere distributional logic. A more accurate comparison is, accordingly, to take the percentage relative to GDP, rather than to overall research and development spending.

2.2 Spending intensity: funding as measured against GDP

Spending intensity will show more clearly the national priorities in R&D spending. In addition, the absolute numbers should give us an idea about the comparative capabilities of the various areas. Table 4 shows, based on data from the OECD.Stat database, the absolute numbers (first data column, last year where data is available, in "PPP dollar, current prices" for comparison[14]) as well as this spending in percentage of the country's GDP ("spending intensity", second data column, by dividing the absolute number with the relevant GDP data). By way of comparison, data on the share of social science funding in all research and development spending, from 2011, as well as research and development spending as a percentage of GDP, from 2013, are also provided. (The dataset includes "total intramural" spending. Intramural means "all expenditures for R&D performed within […] a sector of the economy", here including business, government, higher education and private non-profit funds.[15])

[14] As the report of the National Science Foundation (US) notes on comparing R&D expenditures: „Comparisons of international R&D statistics are hampered by the lack of R&D-specific exchange rates. Two approaches are commonly used: (1) express national R&D expenditures as a percentage of gross domestic product (GDP), or (2) convert all expenditures to a single currency. The first method is straightforward but permits only gross comparisons of R&D intensity. The second method permits absolute level-of-effort comparisons and finer-grain analyses but entails selecting an appropriate method of currency conversion. The choice is between market exchange rates (MERs) and purchasing power parities (PPPs), both of which are available for a large number of countries over an extended period." National Science Board, "Chapter 4: Research and Development: National Trends and International Comparisons," in Science and Engineering Indicators 2014, http://nsf.gov/statistics/seind14/content/chapter-4/chapter-4.pdf, p. 4-17. I will use the purchasing power parities (PPP) approach as it gives a more accurate picture if we compare countries with largely varying price levels.

[15] For the full definition, see the Frascati Manual. Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, 2002, 108, 6.2.1, para. 358.

Country (with the year of latest available data, for the first two data columns)	Soc. Sci. research **funding**, $M (PPP dollars, current prices)	Soc. Sci. research funding **intensity** (Soc. Sci. spending / GDP that year, current prices, current PPPs)	Soc. Sci. **share** from all R&D spending, 2011	Gross Domestic Expenditures on **R&D** as a percentage of GDP, 2013
Australia (2008)	1 440,362	**0.17%**	NA	NA
Austria (1998)	347,347	**0.16%**	NA	2.99%
Canada (2013)	2 217,817	**0.15%**	8.45%	1.62%
Chile (2012)	256,049	**0.07%**	19.12%	0.39%
Czech Republic (2012)	360,656	**0.12%**	7.28%	1.92%
Denmark (2011)	575,550	**0.24%**	8.04%	3.06%
Germany (1999)	2 493,895	**0.12%**	NA	2.85%
Greece (2011)	368,490	**0.12%**	18.55%	0.80%
Hungary (2012)	194,230	**0.09%**	9.27%	1.41%
Iceland (2009)	78,170	**0.62%**	NA	1.99%
Ireland (2011)	178,946	**0.09%**	5.68%	NA
Japan (2001)	5 543,944	**0.16%**	NA	3.47%
Korea (2013)	2 631,239	**0.16%**	3.94%	4.15%
Mexico (2003)	794,470	**0.07%**	NA	0.50%
Netherlands (2011)	2 186,750	**0.28%**	14.95%	1.98%
Norway (2012)	731,527	**0.22%**	14.46%	1.65%
Poland (2012)	816,015	**0.09%**	9.04%	0.87%
Portugal (2012)	655,685	**0.23%**	17.68%	1.37%
Slovak Republic (2013)	227,996	**0.16%**	16.07%	0.83%
Slovenia (2012)	123,345	**0.21%**	8.30%	2.59%
Spain (2002)	751,297	**0.07%**	NA	1.24%
Turkey (2013)	2 153,288	**0.15%**	16.39%	0.94%
United Kingdom (2012)	5 010,771	**0.21%**	NA	1.63%
Argentina (2012)	982,714	**NA**	18.44%	0.58%
People's Rep. of China (2007)	1 680,305	**0.02%**	NA	2.08%
Romania (2012)	167,475	**NA**	NA	0.39%
Russia (2013)	1 677,120	**0.05%**	4.19%	1.12%
South Africa (2011)	688,050	**0.11%**	14.79%	NA
Chinese Taipei (2013)	1 091,783	**NA**	3.92%	2.99%

Table 4. Social sciences research funding in absolute numbers and GDP ratios along with the share of social science research funding in all R&D expenditures (see also Table 1) and gross domestic R&D expenditures per GDP.

Source: OECD.Stat, Dataset: Gross domestic expenditure on R-D by sector of performance and field of science, total intramural, 2011, PPP dollar, current prices (first two data columns); on Gross domestic product (GDP), PPP dollar, current prices (third data column); on Main Science and Technology Indicators (last data column). Data extracted on July 22, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

This table does justice to countries that, for whatever reason, largely outspend non-social science research and end up with a relatively lower social science vs. non-social science research spending ratio (Table 2), but still spend a relatively higher amount of money (in absolute numbers or in percentage of their GDP).

It is apparent that the share of social science spending in all R&D spending (the aspect that we earlier looked at, here you see these numbers in the third data column) does not need to be high to allow a high social science research spending in percentage of the GDP (second data column, in bold). As the example of Canada, Denmark, Korea or Slovenia shows, a relatively lower share of social sciences from overall research spending can go hand-in-hand with a high percentage of social science research spending against the GDP. This of course implies a higher overall research and development budget (last column). No clear geographic trend can be identified (note, again, the limited amount of countries covered), although it is easy to see that all of the countries with social science research spending intensity over 0.2% (of their GDP) are European countries. In other cases, like in China (0.02%), Russia (0.05%), Chile, Mexico, Spain (0.07%), the ratio remains below 0.1%. Some European countries, including Ireland, Poland and Hungary also fall in this category with 0.09%.

These numbers reflect more accurately the scale of social science funding in the respective countries, but it is still hard to see what can explain the huge differences, if any. I can only indicate here that at least some of the differences between spending across scientific fields might be a result of the difference in wages in the various regions. The ratio of wage-related spending, which can greatly vary across countries, is high in social sciences and humanities. On the other hand, the price of equipment is more constant – often truly global, in the case of the most precious machinery, e.g., in cutting-edge research in physics or medicine. All this will result in varying ratios of funding, without accurately reflecting priorities and research opportunities. Further research should take account of this difference.

One explanation at hand that this paper can look into is the different weight and priorities of the business sector in R&D spending. We can assess the role of various types of funders, from business to governmental and non-governmental sources.

2.3 Funding by sector

Let's first look at the ratio among the different sectors in various countries. Figure 2 takes OECD.Stat data by funding sectors: government, business, higher education and non-profit. These categories are available for funding from abroad in some countries, but considering the lower share of funding from abroad taken together, these numbers are merged into one "Funds from abroad" category. In EU member states, this usually translates into EU funds, e.g., in the UK, Austria, Belgium, Greece, Poland and Slovakia. (For details, see Annex.) In the case of non-EU countries with high level of funds from abroad, like Chile or Israel, detailed data is not available.

The list contains OECD countries first and non-OECD countries, where data is available, second (following alphabetical order in both cases).

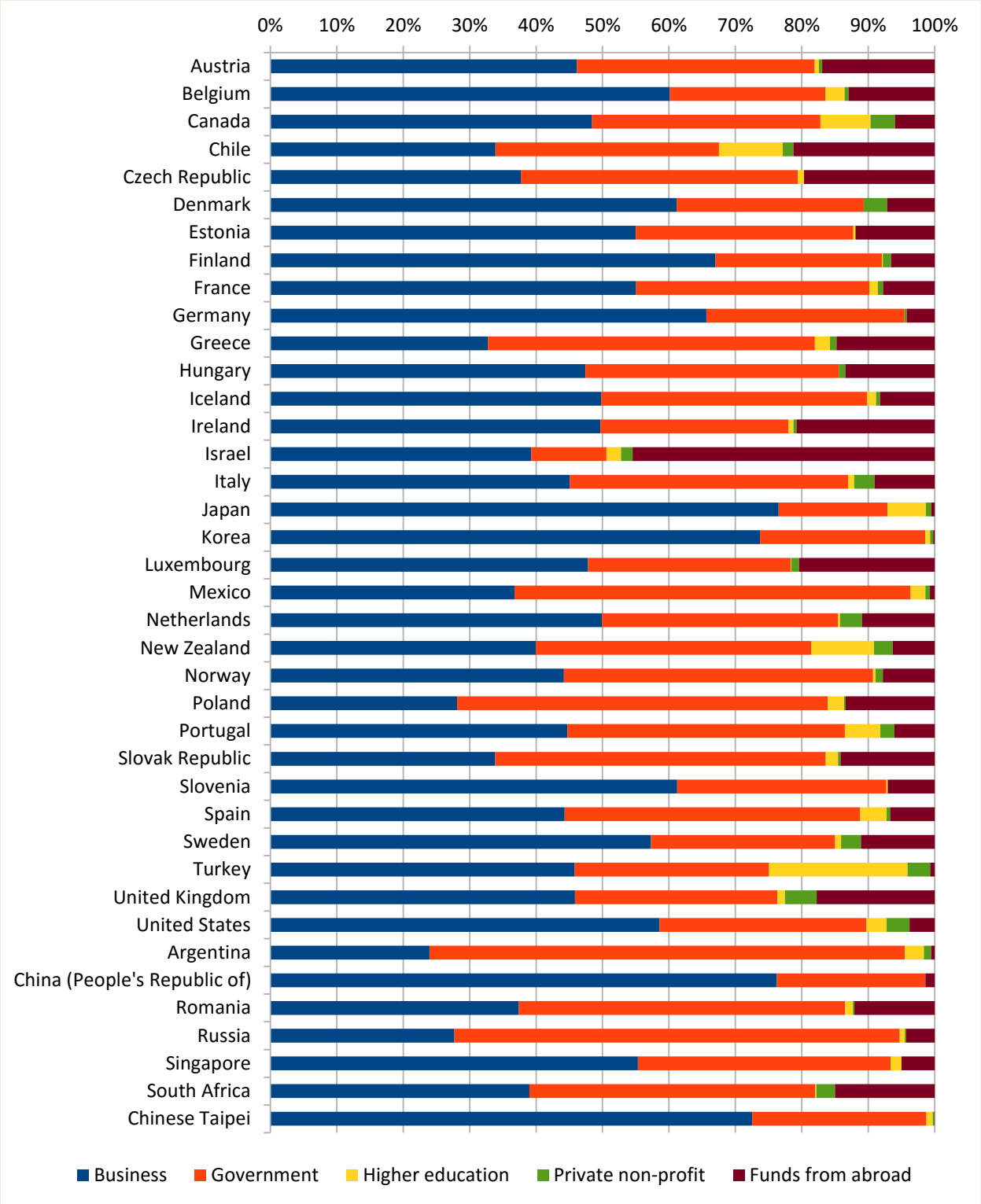


Figure 2. Research and development spending by type of source.

Source: OECD.Stat, Dataset: Gross domestic expenditure on R-D by sector of performance and source of funds, PPP dollars – current prices, total intramural, 2011, Data extracted on August 1, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

The almost generally decisive share of business and government spending is not surprising. There is great variation, however, in the share of these two sectors. Trying to answer our original question, concerning a possible relationship between the share of funding sectors and social science spending, we need to delve further into the data.

Table 5 takes data on the share of social sciences from all R&D spending, presented earlier in Table 2, and data that we now saw on the share of funding from the business sector, from countries where both figures are available, from 2011.

Country	Share of Social Sciences from all R&D spending	Business / Total intramural R&D funding source ratio
Canada	8.45%	48.42%
Chile	19.12%	33.89%
Czech Republic	7.28%	37.68%
Denmark	8.04%	61.16%
Greece	18.55%	32.74%
Hungary	9.27%	47.46%
Ireland	5.68%	49.67%
Korea	3.94%	73.71%
Netherlands	14.95%	49.92%
New Zealand	14.46%	39.96%
Norway	9.04%	44.20%
Poland	17.68%	28.12%
Portugal	16.07%	44.72%
Slovak Republic	8.30%	33.85%
Sweden	16.39%	57.31%
Argentina	18.44%	23.93%
Russia	4.19%	27.68%
South Africa	14.79%	39.01%
Chinese Taipei	3.92%	72.53%

Table 5. Share of social sciences from all R&D spending and share of funding from the business sector, compared, 2011.
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds and Gross domestic expenditure on R-D by sector of performance and field of science, both in PPP dollars – current prices, total intramural, 2011, Data extracted on July 22 and August 1, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

The greater share of business funding seems to account for some of the variation. Most of the top 'business funding' countries are mostly the ones with a lower share of social sciences spending. The two Asian countries on the list (Chinese Taipei and Korea) as well as Ireland are all with close or well above 50% in the share of business funding and a 4-5% share of social sciences spending. While countries like Poland, Greece, Argentina and Chile are the countries with the lowest business funding, proportionately (around or below 30%) and they are also the countries with the highest share of social sciences spending (close or above 18%).

This either means that business funding drives away money from social sciences (the 'zero sum scenario') or, more plausibly, that business funding results in social sciences being outspent, without being decreased in absolute numbers or in proportion of the GDP. It seems that blaming the business sector for a lower share of money going for social sciences research would be a mistake. To see why, we should again take the GDP-percentage data and combine that with the share of business funding.

Country	Social Sciences spending / GDP ratio ('intensity')	Business / Total intramural R&D funding source ratio (2011)
Canada	(2013) 0.15%	48.42%
Chile	(2012) 0.07%	33.89%
Czech Rep.	(2012) 0.12%	37.68%
Denmark	(2011) 0.24%	61.16%
Greece	(2011) 0.12%	32.74%
Hungary	(2012) 0.09%	47.46%
Ireland	(2011) 0.09%	49.67%
Korea	(2013) 0.16%	73.71%
Netherlands	(2011) 0.28%	49.92%
Norway	(2012) 0.22%	44.20%
Poland	(2012) 0.09%	28.12%
Portugal	(2012) 0.23%	44.72%
Slovak Rep.	(2013) 0.16%	33.85%
Russia	(2013) 0.05%	27.68%
South Africa	(2011) 0.11%	39.01%

Table 6. Social sciences spending in the percentage of GDP (year indicated) and share of funding from the business sector, compared (2011).

Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, Gross domestic expenditure on R-D by sector of performance and field of science, and Gross domestic product (GDP), all in PPP dollars – current prices, total intramural, 2011 (where not indicated), Data extracted on July 22 and August 1, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

Table 6 shows that higher share of business does not mean a lower share of social sciences research funding in the percentage of GDP. If anything, the larger share of funding coming from business might give a boost to research funding in general, and even if this falls disproportionately on fields other than social sciences (i.e. natural sciences, engineering, health sciences), this does not mean that social sciences are altogether disadvantaged. E.g., the two countries with the highest figures for social science spending intensity, Denmark and the Netherlands also have high share of business spending, whereas the two countries with the lowest social science spending intensity, Chile and Russia, this goes together with a low share of business spending.

Analyzing this (limited amount of) data (with 15 countries where all data is available) shows a negative linear correlation between the share of research funding from the business sector and the share of social sciences from among research and development funds (Figure 3). However, if we take the 'business' share and the overall share of social sciences research funding in percentage of the GDP, we find a positive correlation (Figure 4). (Note, in all cases, the weak statistical power due to the small sample size.)

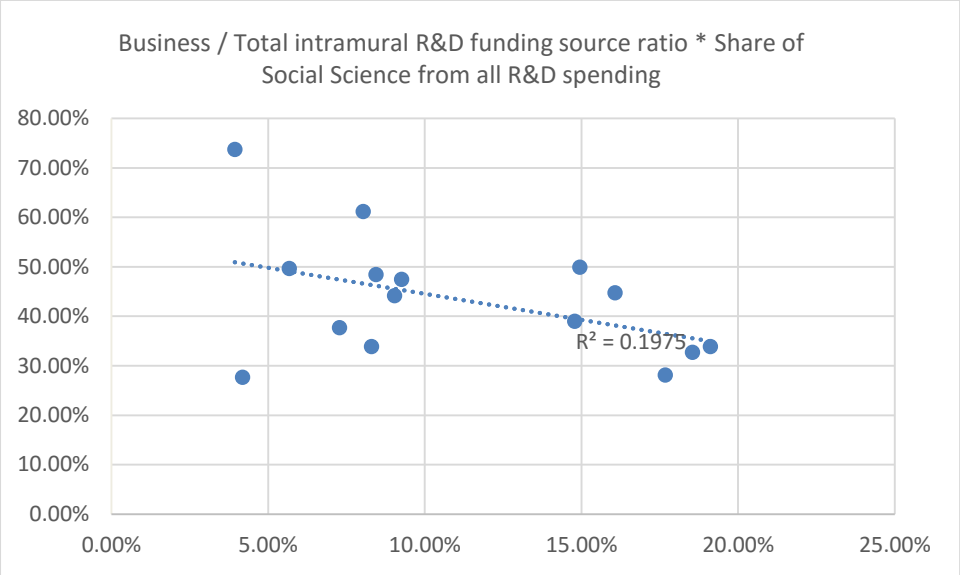


Figure 3. R&D spending correlation: share of business sector (source, in percentage of total R&D spending) and share of social sciences (discipline, in percentage of total R&D spending).
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, Gross domestic expenditure on R-D by sector of performance and field of science, and Gross domestic product (GDP), all in PPP dollars – current prices, total intramural, 2011, Data extracted on July 22 and August 1, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

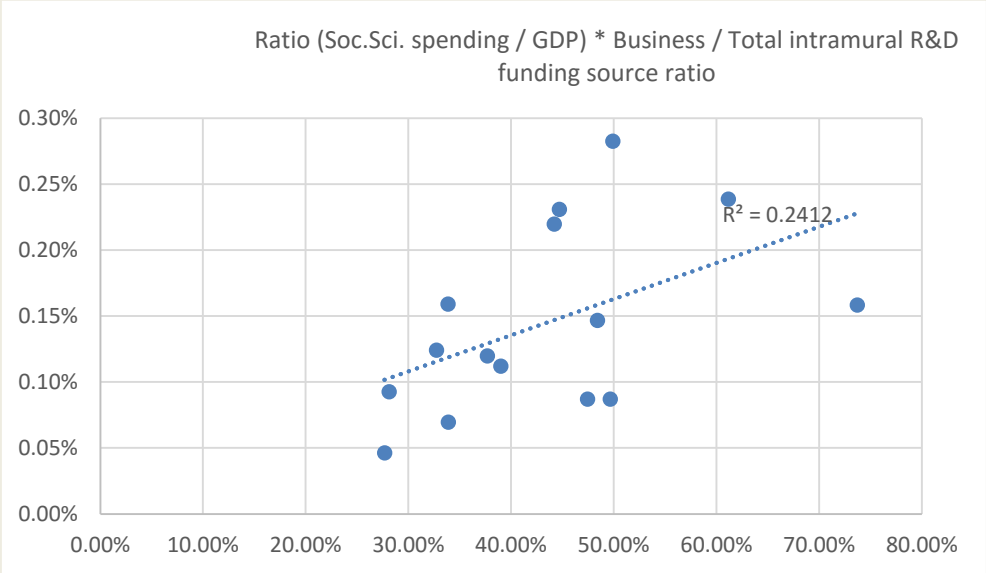


Figure 4. R&D spending correlation: share of social sciences (discipline, in percentage of GDP) and share of business sector (source, in percentage of total R&D spending).
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, Gross domestic expenditure on R-D by sector of performance and field of science, and Gross domestic product (GDP), all in PPP dollars – current prices, total intramural, 2011, Data extracted on July 22 and August 1, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

Figure 3 shows that there is indeed a negative correlation between the share of business funds and the share of social sciences from overall funds if we take the percentage share against all R&D spending. The higher the share of business funding, the more likely it is that we see a lower percentage of all spending going for research and development financing social sciences. This should not come as a surprise, considering the preference of business funding for fields like natural sciences and engineering. This is also not too informative if we accept the increase of social sciences spending *as percentage of the GDP* as an overall goal. If we shift our focus accordingly and look at the percentage of social sciences spending against total GDP (Figure 4), we find a positive connection. This shows that it is a false first impression that social sciences are disadvantaged by the business sector.

The important conclusion is that while more business spending decreases the share of social sciences from all R&D spending (i.e. relatively), it also tends to go hand-in-hand with more funds for social sciences in absolute terms or, rather, in the percentage of GDP. Using percentage of the GDP as a baseline should make the comparison more informative. Using absolute numbers would raise both the problem of the huge differences between countries that are richer and those that are poorer, and the problem of the lack of exchange rates specific to R&D spending, see earlier. (For detailed data and a confirmation that the share of social sciences spending per all R&D spending decreases with more overall R&D spending in percentage of the GDP, see Annex.) More funding from the for-profit sector is more likely to go hand-in-hand with higher levels of social sciences spending (in percentage of the GDP) as well, together with more spending for other fields like natural sciences, engineering and health sciences. These increases remain of course stronger, and there is an evident connection between more business spending and a bigger overall R&D budget per GDP.

Examining the role of business funding is often seen as of primary importance because of its growing role. E.g., it is common to point out the responsibility of governments to counterbalance the impact of business funding on the growing importance of applied research as opposed to basic research and a growing preference for areas like health sciences, natural sciences or engineering. Concerning the thesis of the growing role, Figure 5 shows that there has not been a considerable growth of the share of the input of the business sector, for the last 25 years, neither globally (based on data from 41, not all country data covering the entire time period), nor regionally, if we limit our focus to European (without Russia or Turkey) or OECD countries. (For more detailed data, see Annex.)

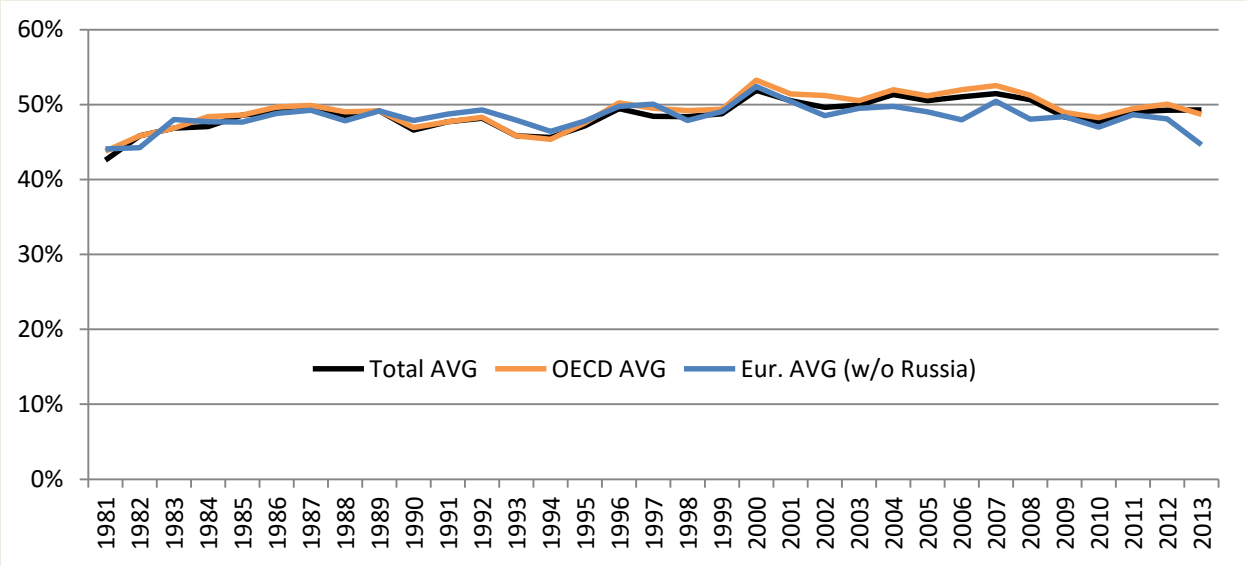


Figure 5. Share of the business sector from all R&D spending, 1981 – 2013.
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, in PPP dollars – current prices, total intramural, Data extracted on August 3, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

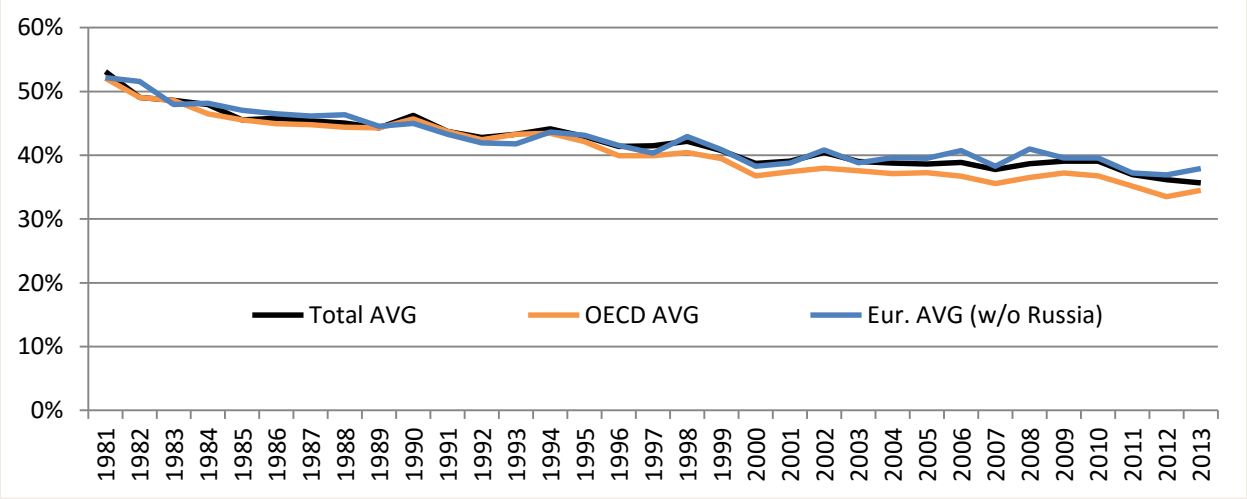


Figure 6. Share of the government sector from all R&D spending, 1981 – 2013.
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, in PPP dollars – current prices, total intramural, Data extracted on August 3, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

Figure 6 also shows that there is a constant decline in the share of government funding. Before we continue our inquiry into the causes and taking a brief look at the impact of the crisis.

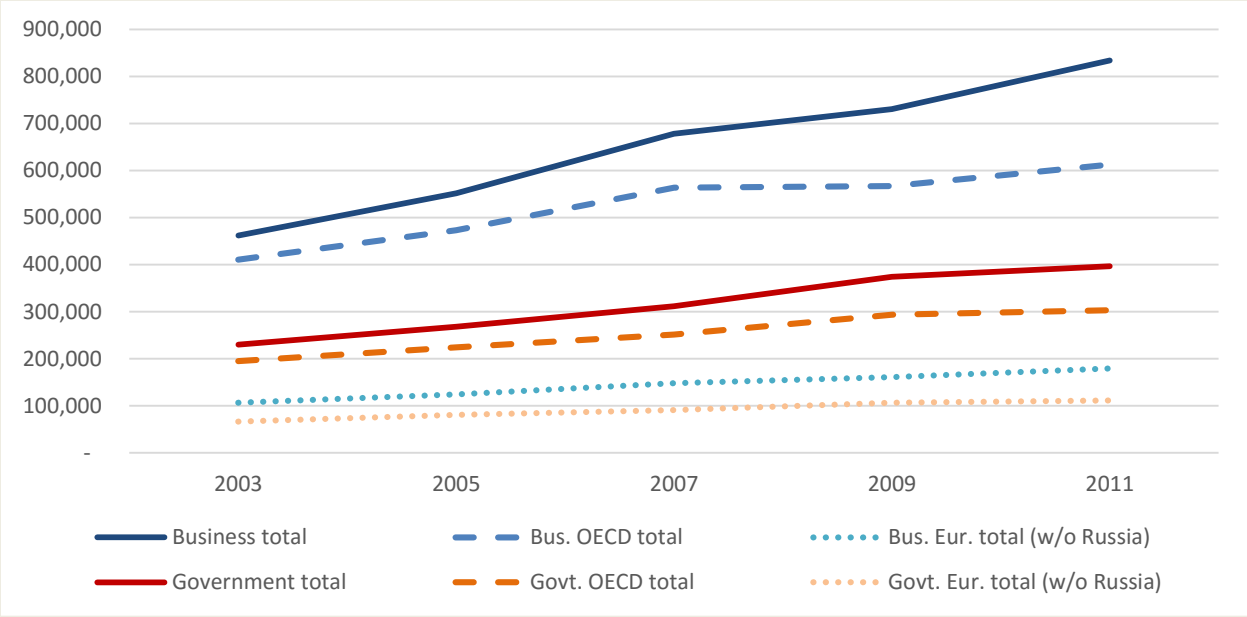


Figure 7. Government and business sectors R-D spending in PPP dollars, current prices, selected years, three groupings of countries (country list excluding Australia and Switzerland for lack of data)
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, in PPP dollars – current prices, total intramural, Data extracted on August 3, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

The absolute numbers (Figure 7) show that business spending stagnated in the years of the crisis (here the number for 2009), again rising by 2011 – and most of the growth comes from outside the OECD, most importantly from China. (Their increase of 38% from 2009 to 2011 is an important boost to the total in absolute numbers.) There seems to be some delay with government spending where there is still rise for 2009, but total spending is almost constant after 2009.

We have been witnessing a constant decline in the share of government funding. What can explain this phenomenon, if not business? Could it be other than the change in the general political atmosphere around funding scientific research? From among other sources, we find the most important increase in the share of funding from abroad, from 2.61–2.81% to 10.40–12.66%, with the higher shares in Europe. In most part, this translates into an increase in another type of 'government' spending, support from the European Commission, above 5% on average in member states (in 2012), with a slightly lower share of foreign business sources, from what the somewhat sporadic data can tell. Figure 8 shows the average share of foreign business spending in three groups of countries: all countries where data is available, European countries, without Russia, and OECD countries. As a fourth line, the share of R&D spending from the European Commission is added, only including data from countries that were EU members in the relevant year. The quite sporadic data might account for the sudden decrease in 2008, but even this limited data shows the growing share of foreign business spending as a clear trend, with some backlash after the crisis. The share of European Commission funding largely follows this in the sense that the decreasing share of business funding comes with the growing importance of European funds. (See the Annex for details.)

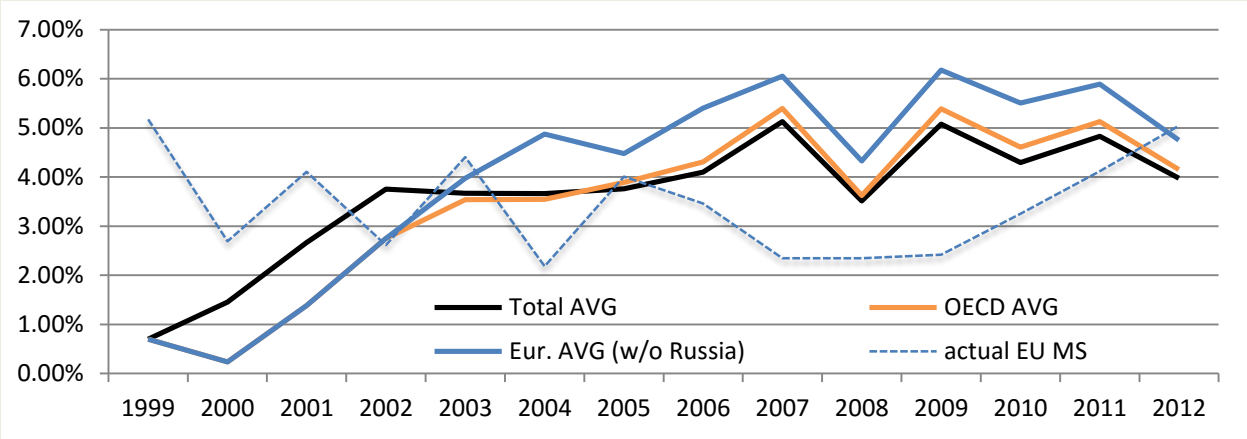


Figure 8. Share of foreign business spending (3 groups of countries) and share of European Commission funding in EU member states at the time, 1999 – 2012, in both cases based on percentage of all R&D spending.
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and source of funds, in PPP dollars – current prices, total intramural, Data extracted on August 3, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

The European integration might mean that the importance of funding from abroad, both from business and the European Commission, will be growing. The trends for domestic sources are clearer from the available data: the share of government funding slowly decreases, with a change of trend after the crisis. The role of the business sector remains important, but there is neither a considerable trend towards growing importance, nor a clear decrease of its share.

A 2011 OECD study focusing on public research institutions reveals that the share of the business sector in funding such institutions is higher than what general statistics based on the Frascati Manual (see earlier, right column of Table 1) suggest. For public research institutions, then, there seems to be a move towards industry that goes together with a growing preference for applied research.[16] This in turn confirms the second concern raised in the beginning of this subchapter, on the disparate impact of business spending on basic research.

As the ability of policy-makers to influence business decisions is limited, especially if it relates to changing priorities towards social sciences or basic research, government action in this area can seek to make up for the missing funds and spend taxpayers' money where private funds are less likely to flow, possibly also going hand-in-hand with an undesired impact on research priorities or wider social issues like the gender gap. These are all reasons to stress the responsibility of governments in this respect.

Here we will not look into the role played by governments to foster basic research (more than applied research), but will conclude this section comparing the share of business and government sectors by an overview of the share of the two in funding across fields of sciences. As indicated earlier, many countries do not provide data based on fields of sciences. As a result, trends or ratios indicating the share of natural sciences and engineering and social sciences and humanities, combined with the share of government

[16] OECD, *Public Research Institutions. Mapping Sector Trends,* OECD Publishing, 2011, especially Chapter 2: A Statistical View of Public Research Institutions, p. 25-54.

and business funding, might not be entirely reliable and serve more as an indication, especially if we divide the two fields even further. With this caveat, from the most recent year where data is available for most countries, 2011, the share of government and business funding by fields of sciences looks as follows (Table 7).

Field of Sciences / Sector	Government	Business
All fields of science	14.97%	57.59%
Natural sciences and engineering	**16.36%**	**57.16%**
Natural Sciences	29.77%	36.14%
Engineering and technology	9.45%	71.93%
Medical and Health sciences	21.10%	30.81%
Agricultural Sciences	38.17%	26.33%
Social sciences and humanities	**23.52%**	**12.02%**
Social Sciences	21.79%	14.78%
Humanities	28.69%	10.22%
Not elsewhere classified	23.51%	13.44%

Table 7: Share of all R&D funding, by field of sciences and the two main sectors, 2011
Source: OECD.Stat, Datasets: Gross domestic expenditure on R-D by sector of performance and field of science, in PPP dollars – current prices, total intramural, Data extracted on September 2, 2015, http://stats.oecd.org/Index.aspx?DataSetCode=GERD_SCIENCE#, Joint OECD-Eurostat international data collection on resources devoted to RD, last updated April 2015.

Most OECD countries provide data by sector, which makes the first data row more reliable than the others. This shows that the business sector outspends the government sector 1 to 4. This follows a similar trend than the total numbers for natural sciences and engineering (16% for government and 57% for business), also reflecting the decisive share of this field in overall R&D spending. There is more variation if we look at the various subfields, again with the caveat that many countries do not provide data at this level of detail. The available data show, on the other hand, a higher percentage for government spending for social sciences and humanities, 23.5%, and a considerably lower, but still important share of the business sector, around 12%.

The limitation of internationally comparable data suggests that at this level of detail, we should look at the actual funding bodies, at the national or regional level. Accordingly, we will continue our exploration with the share of scientific fields in the funding practice of bodies behind the 'government spending' label, using taxpayers' money, like the US National Science Foundation, the UK Research Councils or the European Commission.

2.4 Data from individual countries and the European Commission

Looking behind the numbers requires a more thorough examination of the research and development field of the countries in question, and we should consider the decisions of the funding bodies. Within the scope of the present paper it is only possible to indicate some trends in some of the most important countries.

The US is the leading country in terms of funds spent on research and development accounting for almost 30% of global spending in 2011, so I will start with this country. By way of comparison, the share of European Union countries was 22% in 2011 (26% in 2001). The leading three countries altogether cover

more than half of the global R&D spending: US, China and Japan with shares of 30%, 15%, and 10%, respectively, in 2011.[17]

The federal government's research spending is heavily leaning towards the life and physical sciences and engineering (altogether 78.8%), with social sciences only accounting for 2.1% of the research budget that is, in absolute numbers, globally the largest.

Field	Percentage of federal obligations for research, 2011
Environmental sciences	5.4%
Life sciences	51.9%
Mathematical and computer sciences	5.6%
Physical sciences	9.5%
Psychology	3.3%
Social sciences	**2.1%**
Other sciences (not classified)	4.8%
Engineering	17.4%
Total	100%

Table 8. US federal obligations for research, ratio of various scientific fields, 2011.
Source: National Science Board, Science and Engineering Indicators 2014, Table 4-37.

The total federal obligation amounts to $58,167M, out of which $1,222M goes to social science research. The total 2011 US research funding totaled at $424.4B, 69% of which came from the business sector. Both government sources and funding from business fluctuated roughly with the same tendency, putting research and development funds at around 2.6 to 2.9% of the GDP from 2001 to 2011.[18]

If we only look at funds distributed through the National Science Foundation, social sciences account for 4% of the total (Table 9). This is half of the budget that the relevant UK bodies spend to Social Sciences and Humanities combined (Economic and Social Research Council and Arts & Humanities Research Council), with 5+3%. (Table 10, data from both tables is from 2011)

[17] National Science Board, "Chapter 4: Research and Development: National Trends and International Comparisons," in Science and Engineering Indicators 2014, http://nsf.gov/statistics/seind14/content/chapter-4/chapter-4.pdf, p. 4-4.
[18] National Science Board, "Chapter 4: Research and Development: National Trends and International Comparisons," in Science and Engineering Indicators 2014, http://nsf.gov/statistics/seind14/content/chapter-4/chapter-4.pdf, p. 4-4.

Field of research	Amount	% Of total
Biological Sciences	511	13
Computer & Information Science & Engineering	457	11
Engineering	548	14
Geosciences	636	16
Mathematical & Physical Sciences	940	24
Social, Behavioral & Economic Sciences	178	4
Other Programs	728	18
Cyberinfrastructure	151	4
International Science & Engineering	35	1
Polar Programs	355	9
Other	188	5

Note: The mounts are in millions of euros. 2011 average exchange rate USD/EUR: 0.7188.
Source: NSF (2011). 'Full-year Appropriations Bill Passed, NSF Funded at $6.8 Billion for FY 2011'. Accessed on December 13, 2013. Accessible: http://www.nsf.gov/about/congress/112/highlights/cu11_0523.jsp

Table 9. US National Science Foundation funds distribution by field of research, 2011.
Source: Ryanne van Dalen, Sultan Mehmood, Paul Verstraten, Karen van der Wiel, Public funding of science: An international comparison, CPB Netherlands Bureau for Economic Policy Analysis, CPB Background Document, March 2014, http://www.cpb.nl/sites/default/files/publicaties/download/cpb-background-document-march-2014-public-funding-science-international-comparison.pdf, p. 99, Table 9.9.

	2011	% Of total
Engineering and Physical Sciences Research Council	854	26
Medical Research Council	672	20
Science & Technology Facilities Council	542	16
Biotechnology and Biological Sciences Research Council	488	15
Natural Environment Research Council	417	13
Economic and Social Research Council	180	5
Arts & Humanities Research Council	99	3

Note: The amounts are in millions of pounds.

Table 10. UK Research Council funds by scientific field, 2011.
Source: Ryanne van Dalen, Sultan Mehmood, Paul Verstraten, Karen van der Wiel, Public funding of science: An international comparison, CPB Netherlands Bureau for Economic Policy Analysis, CPB Background Document, March 2014, http://www.cpb.nl/sites/default/files/publicaties/download/cpb-background-document-march-2014-public-funding-science-international-comparison.pdf, p. 88, Table 8.5.

Staying with the UK, if we look at how research funds going to universities are distributed among the various disciplines (now combining all, not only government sources), we see that the share of arts, humanities and social sciences goes up to 20% (with social sciences proper at 14%). (Table 11)

Source of funding (in £ millions)	Creative Arts and Design	Humanities	Social Sciences	Science, Technology, Engineering, and Maths	*All Disciplines*
Quality-related (QR) research funding from HEFCE	78	135	312	1,033	*1,558*
Government research councils	14	45	138	1,428	*1,625*
Total internal government	**92**	**180**	**450**	**2,461**	***3,183***
Total as percentage (%)	**3**	**6**	**14**	**77**	**100%**
UK civil society	2	19	53	838	*912*
UK government	6	4	144	622	*776*
Government outside the UK	4	6	90	293	*393*
UK industry	3	1	47	224	275
Other sources	2	4	37	111	154
Industry outside the UK	0	0	15	122	137
Civil society outside the UK	1	3	15	106	125
Total external funding	**18**	**37**	**401**	**2,316**	**2,772**
Total as percentage (%)	**1**	**1**	**14**	**84**	**100%**
Total for all internal and external sources	***110***	***217***	***851***	***4,777***	***5,955***
Percentage of total grants and contracts	***2***	***4***	***14***	***80***	***100%***

Source: HESA Statistics, 2010–11.

Note: Data for Quality-related (QR) research funding is for 2012–13. Data for is taken from the most recent available year, 2010-11, and includes all funding from MRC, EPSRC, BBSRC, ESRC, NERC, STFC, and AHRC, plus the Royal Society, British Academy and the Royal Society of Edinburgh. See List of abbreviations for further details.

Table 11. Research grants and contracts to UK universities, estimated value, 2010-11, by type of donor and discipline area. Source: Simon Bastow, Patrick Dunleavy, Jane Tinkler, The Impact of Social Sciences, How academics and their research make a difference, Sage, 2014, http://www.uk.sagepub.com/upm-data/59598_Bastow__Impact_of_the_social_sciences.pdf, p. 11, Figure 1.6.

In Denmark, one in every four euros (krones) of public sector research spending goes to social sciences and humanities (the exact ratio is 24.7%, see Table 12). This should be compared to the fact that Denmark has a high share of business sector funding 61.16% and a relatively lower social science spending ratio, in the overall R&D spending, of 8.04% (data from 2011, see Table 5 above).

Field of research	Amount	Percentage
Natural sciences	487.8	20.0
Technical sciences	329.4	13.5
Health sciences	854.3	35.0
Agricultural and veterinary sciences	164.6	6.8
Social sciences	418.4	17.2
Humanities	183.0	7.5
Total	2,437.5	100

Note: The amounts are in millions of euro (current prices). 2011 average exchange rate DKK/EUR: 0.134. Source: Statistics Denmark website.

Table 12. R&D expenses in the public sector by field of research, Denmark, 2011.
Source: Ryanne van Dalen, Sultan Mehmood, Paul Verstraten, Karen van der Wiel, Public funding of science: An international comparison, CPB Netherlands Bureau for Economic Policy Analysis, CPB Background Document, March 2014, http://www.cpb.nl/sites/default/files/publicaties/download/cpb-background-document-march-2014-public-funding-science-international-comparison.pdf, p. 78, Table 7.4.

The Hungarian Scientific Research Fund (OTKA) – that recently ceased to exist as a separate entity, as a result of centralization – applied a pretty constant ratio that put Social Sciences and Humanities at 22-24% of the funds (Table 13). This is exactly the ratio that the OECD data shows for average government spending ratio for these fields: 23.52% (from all R&D government funding, 2011; see earlier, Table 7).

	Life Sciences	Physical Sciences & Engineering	Social Sciences & Humanities
2011	44%	32%	24%
2012	45.0%	33.0%	22.0%
2013	44.9%	32.0%	23.1%

Table 13. Share of scientific fields from funds distributed by the Hungarian Scientific Research Fund.
Source: OTKA Annual Report 2013 http://otka.hu/download?file=dd530de6af5a95b7c369f1f648814dc3.pdf, p. 12; OTKA Annual Report 2012 http://otka.hu/download?file=fa2682f0819b13b8fbe6c55878b80272.pdf, p. 14; OTKA Annual Report 2011 http://otka.hu/download?file=b645c49fafb40013b75a0bf5fe6eacdc.pdf, p. 29.

The data also shows that the success rates by fields fall between 25 and 30%, and it is slightly more likely for applications in the Social Sciences and Humanities field to succeed (Figure 9).

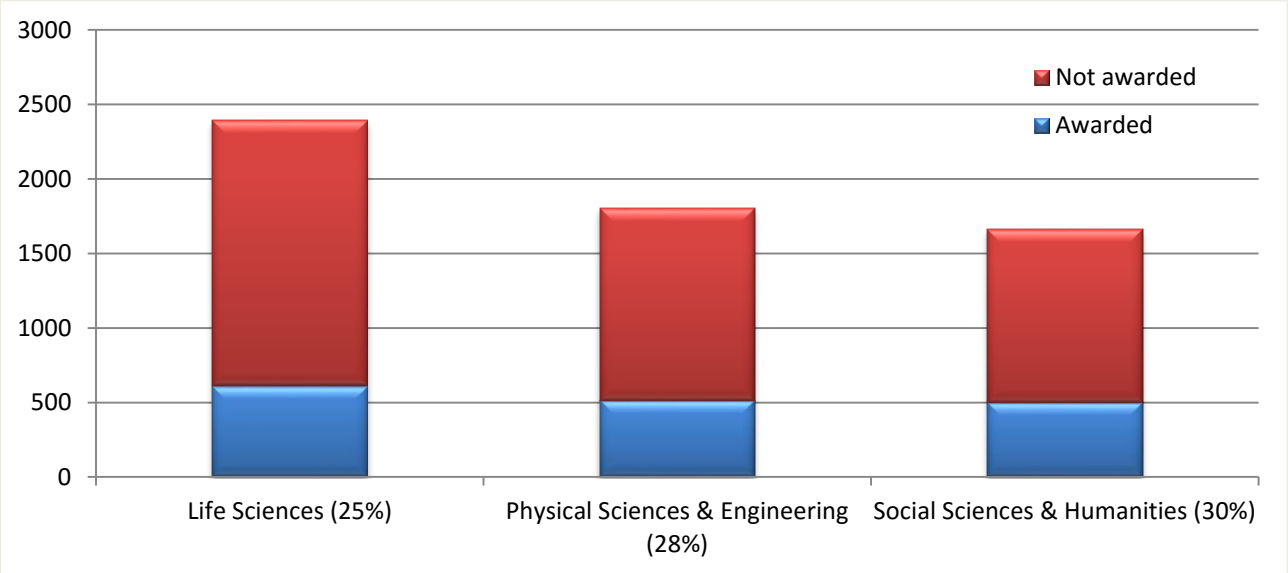


Figure 9. Applications success ratio by fields of sciences, Hungarian Scientific Research Fund, 2009-2013 (with the percentage of successful applications).
Source: European Science Foundation, Organisational Evaluation of the Hungarian Scientific Research Fund (OTKA), Evaluation Report, November 2014, http://www.esf.org/uploads/media/otka_evaluation_01.pdf, p. 21, Data calculated from Table 2. Application overview by gender and research programme activity, 2009-2013.

We have seen earlier that funds 'from abroad' are in some countries an important part of the picture. We also saw that in the EU member states an important part of these funds come from the European

Commission, which makes it an important player in defining how resources become available among the various disciplines. The European Research Council (ERC) publishes data on the applications received that is indicative of the relative size of the fields in Europe, at least their ability and capability to apply for ERC funds.

	Physical Sciences and Engineering	Life Sciences	**Social Sciences and Humanities**	Total	Physical Sciences and Engineering	Life Sciences	Social Sciences and Humanities
(indicative budget / awarded, € million)	percentage			No. of submissions			
2011 ERC Starting Grant, submissions (661 / more than 670)	41%	35%	**23%**	4,080	1,690	1,440	950
2012 ERC Starting Grant, submissions (730 / more than 790)	43%	35%	**22%**	4,741	2,058	1,653	1,030
2011 ERC Advanced Grant, submissions (661 / about 700)	40%	35%	**25%**	2,284	917	789	578
2012 ERC Advanced Grant, submissions (680 / about 720)	42%	34%	**24%**	2,304	978	773	553
2011 ERC Proof of Concept, eligible for evaluation, first and second deadline (indicative budget: 10)	58%	34%	**8%**	N/A			
	61%	34%	**5%**				

Table 14. Share of three main scientific fields from ERC grant submissions.
Sources: European Commission, Report from the Commission to the Council and the European Parliament on the European Research Council's operations and realisation of the objectives set out in the Specific Programme "Ideas" in 2011 COM(2012) 297 final, Brussels, June 19, 2012, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0297&from=EN, p. 3-4; European Commission, Fifth FP7 Monitoring Report, Monitoring Report 2011, August 29, 2012, http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/fifth_fp7_monitoring_report.pdf, p. 53-54; European Commission, Sixth FP7 Monitoring Report, Monitoring Report 2012, August 7, 2012, http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/6th_fp7_monitoring_report.pdf, p. 52.

Based on data from ERC submissions, the share of social sciences is around 22-25%, with considerably lower share for Proof of Concept submissions that are adjacent to other funds and that has a considerably lower budget size. Moving on to the actual awards, statistics on the distribution of funds from the Marie Curie Action show that social sciences and humanities, combined with economic sciences, have a share of 10% (Figure 10, based on funded projects before 2012).

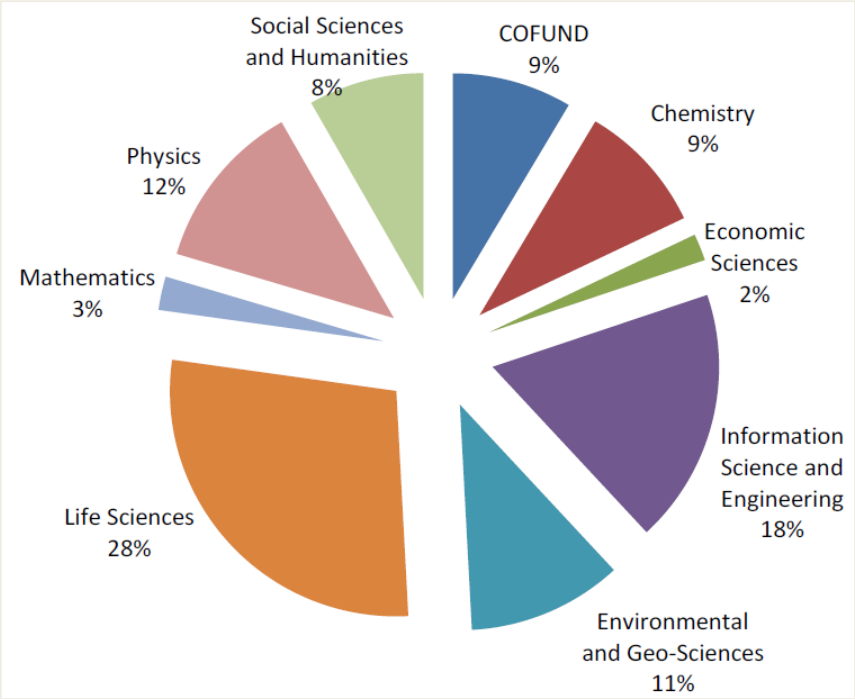


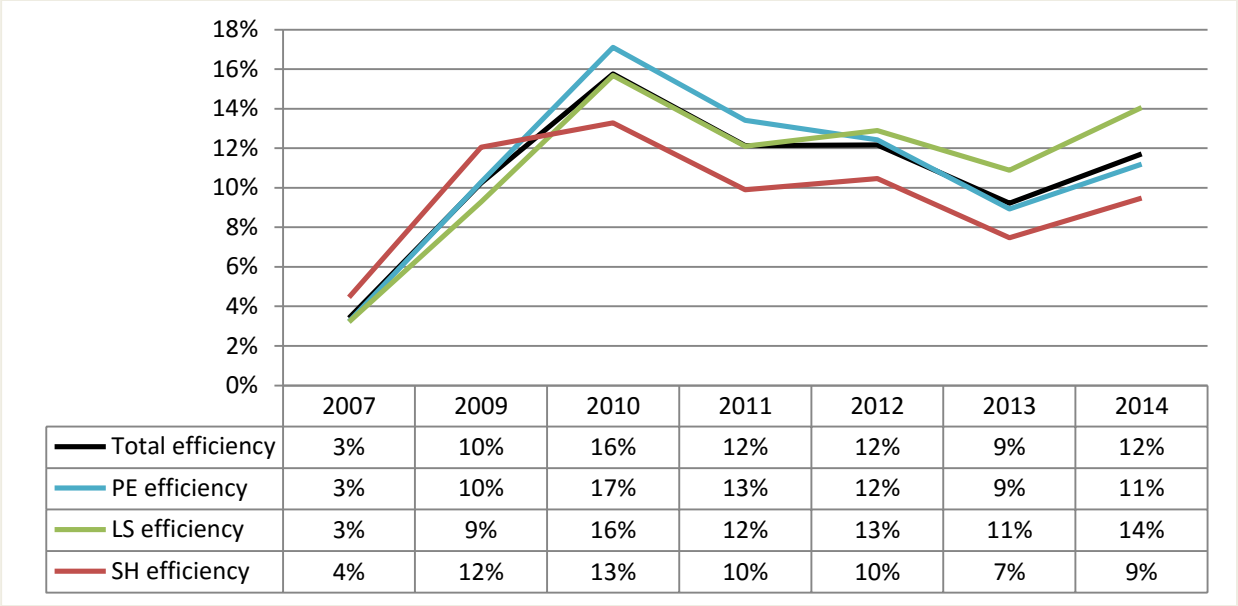
Figure 10. Marie Curie Actions budget distribution per scientific panel, shares based on projects funded by the end of 2011.
Source: European Commission, Fifth FP7 Monitoring Report, Monitoring Report 2011, August 29, 2012, http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/fifth_fp7_monitoring_report.pdf, p. 59, Figure 34.

ERC statistics are available based on three domains, both on evaluated and granted proposals. Table 15 compares the share of evaluated and granted projects across scientific domains. This shows that the share of social sciences and humanities from successful projects is slightly lower, than what the share of submissions would suggest (19% against 22-23% from 2010 to 2014).

	2007	2009	2010	2011	2012	2013	2014	2015
Physical Sciences & Engineering, evaluated	48%	45%	42%	41%	44%	45%	45%	44%
Physical Sciences & Engineering, granted	46%	45%	46%	46%	45%	44%	43%	N/A
Life Sciences, evaluated	37%	37%	35%	35%	35%	32%	32%	32%
Life Sciences, granted	35%	33%	35%	35%	37%	38%	38%	N/A
Social Sciences & Humanities, evaluated	15%	18%	22%	23%	22%	23%	23%	24%
Social Sciences & Humanities, granted	19%	22%	19%	19%	19%	19%	19%	N/A

Table 15. ERC funding distribution by domain, 2007 and 2009 – 2015.
Source: European Research Council, Statistics, http://erc.europa.eu/projects-and-results/statistics, data downloaded on August 3, 2015.

This also means that the 'efficiency' rate of submissions in the social sciences and humanities field remains lower than the average or the rate for the two other domains, as can be seen from Figure 11.



	2007	2009	2010	2011	2012	2013	2014
Total efficiency	3%	10%	16%	12%	12%	9%	12%
PE efficiency	3%	10%	17%	13%	12%	9%	11%
LS efficiency	3%	9%	16%	12%	13%	11%	14%
SH efficiency	4%	12%	13%	10%	10%	7%	9%

Figure 11. The ratio of successful ERC submissions ('efficiency') across the three domains (PE: Physical Sciences & Engineering, LS: Life Sciences, SH: Social Sciences & Humanities), 2007 and 2009 – 2014.
Source: European Research Council, Statistics, http://erc.europa.eu/projects-and-results/statistics, data downloaded on August 3, 2015.

The more or less constant share of the various fields of sciences in the practice of several funding bodies raises questions about how funds are distributed across scientific fields, what is the logic of distribution. While it is easy to see how qualitative criteria is used to select projects worthy of funding within specific scientific areas, it is harder to rely on individual assessment if we want to decide if a physics project on atomic structures is 'better or worse' than a sociological study dealing with the effects of an aging society. It would beyond the scope of present paper – and is thus an area for further research – to compare the practices of funders, both on the national and on the international level, how they decide on allocating money and how that influences the share of social sciences funding. As funders from the industry and charities usually have predefined goals that narrow their focus, it is especially important to bear in mind the responsibility of larger public funders and the role they can play in shaping national research scenes by thinking strategically about funding. With an emphasis on notions like 'excellence', 'impact' or 'social benefits', debates around funding and scientific fields tend to center around arguments on some inherent differences in how scientific research in the different disciplines contribute to wider social goals. The concluding section will look into these questions, with a focus on social sciences, heavily building on the debates in the UK as a country where these issues have been addressed quite extensively.

3 Assessing the impact of social sciences in the context of funding

3.1 Debating the 'output', 'impact', 'value', 'worth', 'benefit' or 'use' of scientific research

In search of the raison d'être of social sciences, it has become unavoidable to address the question of what use these disciplines have and what justifies funding research in these areas. Emilia Aiello and Mar Joanpere argue that this approach is simply about finding our way back to what social sciences are about, as set out by its pioneers like August Comte, Emile Durkheim and Max Weber.[19] One way to reflect on the 'output', 'impact', 'value', 'worth', 'benefit' or 'use' of social sciences and humanities is to look at the type of challenges that donors seek to resolve through distributing funds in this area. To cite titles in a recent edition of the (UK) Academy of Social Sciences,[20] these can include parenting and child development, health and well-being, the social challenges of climate change, recycling economies, poverty and inequality, financial stability and sustainable growth, food security and rural life, family and marriage, crime and policing, the Arab Spring, international migration. The European Commission publishes calls around widely defined challenges, and applicants need to demonstrate that the academic fields present in the submission are in fact capable of dealing with those questions in a meaningful way. Trying to capture the wider impact of research, the UK Arts and Humanities Research Council talks about contribution to 'civil capital' or enhancing the 'knowledge base' of society, informing public debates. Scientific advances themselves stimulate new ethical debates, requiring more research into the possible social impact on technological improvements, e.g., in the field of genetics.

Very generally speaking, the role of social sciences could be summed up by the goal of understanding complex social phenomena, from the highest, global level to the level of individuals. A more elaborated expression of this contribution from the Russell Group (the UK 'Ivy League') argues that research in social sciences and humanities can bring about policy shifts that in turn contribute to the development of democratic societies:

> *The broader contribution which research makes to a 'civilised' society, from exploring questions on the origin of our species and our universe to pondering the models of a successful multi-cultural society, is undoubtedly vast. Through exploring our cultural norms and researching their history, basis and role in society, research has led social debates on our ethical values, making a vital contribution to fundamental shifts in attitudes and policy and promoting a stable and progressive society …. Human rights research is one such area that exemplifies links between research and the tenets which underpin a modern democratic society. Research in law, social sciences and philosophy undertaken by the UK's research-intensive universities has been integral to the development of human rights legislation within the UK, Europe and around the world.*[21]

[19] Emilia Aiello & Mar Joanpere, Social Creation. A New Concept for Social Sciences and Humanities, *International and Multidisciplinary Journal of Social Sciences* 2014/3, 299-300, http://dx.doi.org/10.4471/rimcis.2014.41.
[20] Jonathan Michie, Cary Cooper, eds., *Why the Social Sciences Matter,* Palgrave Macmillan, 2015.
[21] Russell Pioneering Research Group, The social impact of research conducted in Russell Group universities, Russell Group Papers, Issue 3, 2012, http://www.russellgroup.ac.uk/uploads/SocialImpactOfResearch.pdf, p. 27, para. 3.10.

These are all questions that require policy responses, an adequate design of which requires scientific understanding. This is not to say that social science research would fulfill this goal by default, it is rather an expectation to be assessed. Finally, the goal of understanding should be seen in light of the aspiration to improve certain aspects of social life. It seems natural that funders increasingly stress the importance of research impact, see, e.g., the debate around the distribution and cuts of H2020 programmes. The FP7-funded project IMPACT-EV uses the terms dissemination (others get to know), transfer (actual application), impact (implying social improvement) and a new concept, 'social creation' (transforming society regardless of the means of conveying the message, thus a painting or a poem can qualify as much as a 'proper' publication).[22]

The widely discussed new UK system called Research Excellence Framework rests on three elements, one is academic impact ('output', with a 65% weight), the other is social, economic and cultural impact ('impact', 20%) and the third is the impact on sustaining the research environment ('environment', 15%).[23] The LSE Policy Group places published a handbook on 'Maximising the Impacts of Your Research: A Handbook for Social Scientists[24]) that goes beyond the debate whether social science research has an impact and helps to understand how a particular research could have (more) impact.

What should be clarified upfront is what research impact is and how it should be measured. There seems to be a general understanding, even consensus that funds should be distributed according to 'quality' (based on 'excellence'), 'impact', 'output', 'result'. There is less agreement on what these mean in fact and how to measure these and who should be involved. While a funder with a smaller influence on research in general can disregard how the conditions set will influence academic research, larger donors like governments and national scientific funding bodies have a recognized responsibility in assessing how their behavior will influence the national, or even international, academic space. Add to all this that it is extremely hard to find reliable and operationalizable standards that would tell how to distribute funds across the various fields of sciences, e.g., what ratio should go to natural sciences and what should social sciences get.

The Research Councils UK differentiates, for its own funding purposes, between academic, and economic and societal impacts. The latter is 'the demonstrable contribution that excellent research makes to society and the economy' including 'all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations' that can happen through economic benefits, increasing effectiveness, or 'enhancing quality of life, health and creative output'.[25] However, it should be recognized

[22] Evaluating the impact and outcomes of EU SSH research (2014-2017), http://impact-ev.eu/.
[23] Research Excellence Framework, Assessment framework and guidance on submissions, July 2011, updated January 2012, http://www.ref.ac.uk/media/ref/content/pub/assessmentframeworkandguidanceonsubmissions/GOS%20including%20addendum.pdf, p. 6., para. 25.
[24] LSE Public Policy Group, Maximising the Impacts of Your Research: A Handbook for Social Scientists, Consultation Draft 3, April 2011, http://www2.lse.ac.uk/government/research/resgroups/LSEPublicPolicy/Docs/LSE_Impact_Handbook_April_2011.pdf.
[25] Research Councils UK, Typology of Research Impacts, updated March 2011, http://www.rcuk.ac.uk/RCUK-prod/assets/documents/impacts/TypologyofResearchImpacts.pdf.

that impact in the social sciences might not be easily measured by the metrics most widely used, including 'job creation, patents, or spin-outs'.[26] There is a pay-off between the straightforward tools of showing impact and how far these can go in demonstrating the actual scope of social and economic impact. It can prove to be especially burdensome to go after a fuller impact of social science research, an attempt that seeks to do more justice to social sciences, and also research in general. It is thus not surprising that many national reports only include numbers of more direct economic impact, as in the US debate on the 2009 economic stimulus package, where the impact of research was measured based on job creation data.[27] The Dutch and the New Zealand systems are more inclusive, reaching beyond (internal) research excellence, focusing on wider impact. The Australian Research Quality Framework attempted to extend the understanding of research impact considerably. This also meant that there should be an agreement on what to measure and how, if one wants to see the social, economic, environmental and cultural side of research impact. The failure to find such an agreement also meant the end of the experiment and the Research Quality Framework.[28]

One widely debated example for funding research is the UK system that distributes recurring research funds ('block grants' in addition to specific grants by research councils, the EU etc.[29]) in higher education based on a four-step process, through the Higher Education Funding Council for England (HEFCE). Here a quality-driven classification in steps 1 and 2 is followed by steps 3 and 4 that divide funds across (broader) subject areas (called 'units of assessment') and individual institutions, respectively.[30] The latter stage is also a quality-based assessment, but step 3 applies cross-field comparison as well. This means that the quality assessment may now result in changes of funding ratios across scientific areas. The new distribution system uses a 2008-09 baseline, and as part of the transition process, up to 2015-16, a fallback provision made sure that the ratio between arts, humanities and social sciences on the one hand and science, technology, engineering and mathematics ('STEM') on the other. It was the second group that would have got a smaller share without the transitional measure, so arts, humanities and social sciences got less funding in the intermediary years. Yet, by 2015, the proportion has increased and 'STEM

[26] Russell Pioneering Research Group, The social impact of research conducted in Russell Group universities, Russell Group Papers, Issue 3, 2012, http://www.russellgroup.ac.uk/uploads/SocialImpactOfResearch.pdf, p. 21, para. 2.30.

[27] Russell Pioneering Research Group, The social impact of research conducted in Russell Group universities, Russell Group Papers, Issue 3, 2012, http://www.russellgroup.ac.uk/uploads/SocialImpactOfResearch.pdf, p. 21, para. 2.33.

[28] Russell Pioneering Research Group, The social impact of research conducted in Russell Group universities, Russell Group Papers, Issue 3, 2012, http://www.russellgroup.ac.uk/uploads/SocialImpactOfResearch.pdf, p. 21, para. 2.33-34.

[29] This dual system means that around half of an English university budgets is covered from these block grants, covering (and assessing) both teaching and research activity, while the other half is mostly covered from funds distributed by the research councils. Various charities, foundations and industry are also potential sources. Natasha Gilbert, "English university funding unveiled", Nature 458, 12 (2009), published online on March 4, 2009, http://www.nature.com/news/2009/090304/full/458012a.html. This study does not deal with funds for teaching that have seen a slight decline in the recent period, as opposed to stagnation in the research funding.

[30] Higher Education Funding for England, Guide to funding 2015-16. How HEFCE allocates its funds, 2015/4, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201504/2015_04.pdf, p. 31.

protection' seems no longer necessary and is being discontinued.[31] The relevant assessment looks at the ratio of top quality ('world-leading' and 'internationally excellent', '4*' and '3*' as opposed to 'internationally recognized' and 'nationally recognized', '2*' and '1*'[32]) activity within the group or institution, also weighing quality and cost.[33] This four-tier 'overall quality profile' is in turn measured based on the quality of research outputs (65%), the social, economic and cultural impact of the research (20%) and the research environment (supporting resources and infrastructure, 15%).[34]

It is at this point that we can link back the 'output' question to funding, based on experiences from the UK.

3.2 The use of the 'quality' component in research funding in the UK

Given the rich and detailed source of data, it is worth taking a look at how the numbers changed in the past 18 years. The two tables below (Figure 12 and Figure 13) summarize the distribution of funding classified along three main fields, based on the largest pool from the UK funds distributed by the Higher Education Funding Council for England, the 'Mainstream quality-related research (QR) funding'. Currently this accounts for some 65% of the total funds from HEFCE. What we can see is that there was a slow (higher-than-inflation) growth up to 2003 when a sudden stop was followed by a decrease (approx. 15%), some catching up and another decrease. It was the period 2007-08 that saw a sudden increase (approx. 24%) that was followed by a slight decrease and stagnation (this meant a decrease in funding, considering inflation).

[31] Higher Education Funding for England, Guide to funding 2015-16. How HEFCE allocates its funds, 2015/4, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201504/2015_04.pdf, p. 34. For a summary of these changes, see Holly Else, "Research funding formula tweaked after REF 2014 results", Times Higher Education, February 20, 2015, https://www.timeshighereducation.co.uk/news/research-funding-formula-tweaked-after-ref-2014-results/2018685.article: "arts, humanities and social science subjects could see a boost in funding from the REF compared with the RAE", i.e. with the transition to the new distribution system.

[32] Higher Education Funding for England, Guide to funding 2015-16. How HEFCE allocates its funds, 2015/4, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201504/2015_04.pdf, p. 30 (para. 131).

[33] Higher Education Funding for England, Guide to funding 2015-16. How HEFCE allocates its funds, 2015/4, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201504/2015_04.pdf, p. 31 (para. 140). Cost-weighing is meant to account for how expensive it is to conduct research, on average, in a field of science, with a weight of 1.0 (most social sciences) to 1.6 (most natural sciences). For a full list of the most recent numbers, see the table: Assignment of REF 2014 units of assessment to HEFCE research cost bands, HESA cost centres and HEFCE teaching price groups, March 13, 2015, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Funding,and,finance/Annual,funding/Funds,for,research/Mapping%20of%20REF2014%20UOAs%20to%20cost%20centres.xls.

[34] Higher Education Funding for England, Guide to funding 2015-16. How HEFCE allocates its funds, 2015/4, http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/2015/201504/2015_04.pdf, p. 30 (para. 132).

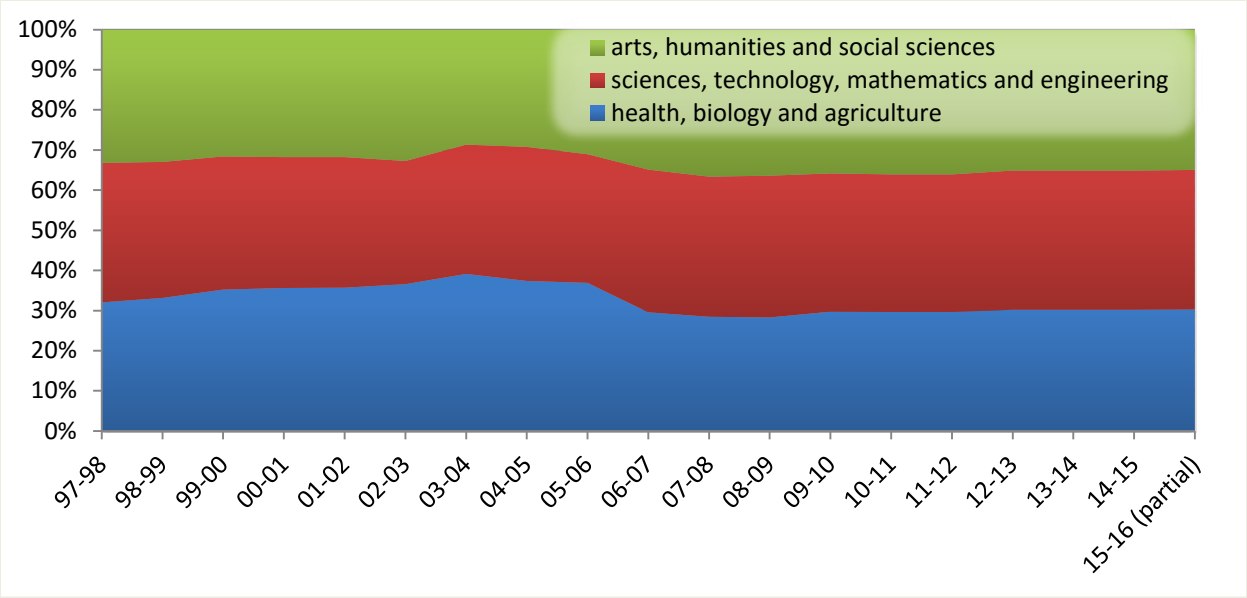


Figure 12. HEFCE (UK) mainstream quality-related research funding distribution per subject areas,[35] from 1997, percentage of total funds.

Source: Higher Education Funding Council for England, Mainstream quality-related research (QR) funding distribution per subject areas. The author's compilation based on data tables from the HEFCE archive of annual funding allocations, http://www.hefce.ac.uk/funding/annallocns/Archive/ and http://webarchive.nationalarchives.gov.uk/20100202100434/http://hefce.ac.uk/research/funding/qrfunding/previous.asp (for a detailed list, see Annex).

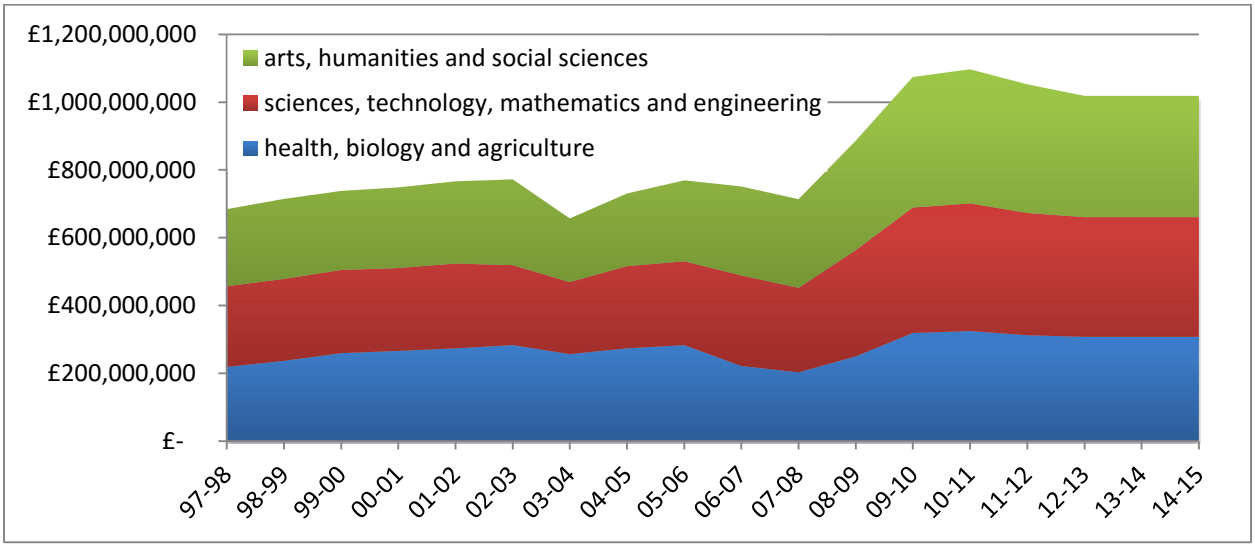


Figure 13. HEFCE (UK) mainstream quality-related research funding distribution per subject areas,[36] from 1997, GBP nominal values.

[35] The subject areas are grouped into these three groups based on the following system: health, biology and agriculture 1-17 in the period 1997-99, 1-16 in the period 1999-2015 and 1-6 in the period 15/16; sciences, technology, mathematics and engineering 18-34, 17-31 and 7-16; arts, humanities and social sciences 35-69, 32-67 and 17-36, respectively, based on the typology in the source database.

[36] The subject areas are grouped into these three groups based on the following system: health, biology and agriculture 1-17 in the period 1997-99, 1-16 in the period 1999-2015 and 1-6 in the period 15/16; sciences,

Source: Higher Education Funding Council for England, Mainstream quality-related research (QR) funding distribution per subject areas. The author's compilation based on data tables from the HEFCE archive of annual funding allocations, http://www.hefce.ac.uk/funding/annallocns/Archive/ and http://webarchive.nationalarchives.gov.uk/20100202100434/http://hefce.ac.uk/research/funding/qrfunding/previous.asp (for a detailed list, see Annex).

The data show the more or less steady share of the three disciplines, at or around 30-35-35%, with a lower share for the category 'health, biology and agriculture'. Given that there was explicit effort to maintain this ratio (see earlier), this is hardly surprising. However, we might see fluctuation in the future as the compensatory scheme, designed to benefit science, technology, engineering and mathematics, ceased to apply. This change would then be a result of cross-disciplinary race for funding, based on a detailed set of standards assessing quality, including research impact. More generally, the increased interest in the grand challenges of contemporary societies, or societal challenges (Horizon 2020), that requires social sciences contribution disproportionately, might also result in an increased share arts, humanities and social sciences.[37]

There are independent attempts that seek to show the economic impact of social sciences. The calculations of the LSE Public Policy Group on the social sciences departments in the UK came with the number of £4.8bn value added or, on a broader take, including benefits through the mediation of experienced staff, £19.4bn.[38] Extended literature is available on how widely research impact should be understood. The UK based Academy of Social Sciences edited a series of publications, the 'Make the Case' series,[39] that present the added value of social sciences at various areas from management through crime or environment to wellbeing. One is, however, always reminded the limited capability of metrics or, rather, the need for responsible use thereof.[40] An area where such reminders are always legitimate is the use of metrics in publication data, often presented as the single most important measuring tool for scientific output, maybe combined with patents. This might or might not be legitimate, depending on the type of research, but there is always a danger that standardized assessment without due regard for the different publication cultures and strategies in the various disciplines end up discriminating against certain fields. Research also points to the danger of too much reliance on measuring publication output, as this might disparately impact innovation, an important goal of academic activity.[41]

We started off by saying that the most practical delimitation of what counts as social science, in terms of scientific output, comes from private parties providing citation data. It is more generally true that the

technology, mathematics and engineering 18-34, 17-31 and 7-16; arts, humanities and social sciences 35-69, 32-67 and 17-36, respectively, based on the typology in the source database.

[37] I am grateful to Judit Mosoni-Fried for this observation.

[38] LSE Public Policy Group, *Assessing the Impacts of Academic Social Science Research. Modelling the economic impact on the UK economy of UK-based academic social science research,* November 28, 2012, http://blogs.lse.ac.uk/impactofsocialsciences/files/2013/10/Impacts-of-academic-SSR-Cambridge-Econometrics-Nov-2012.pdf, p. 32, Table 19.

[39] See the list at https://acss.org.uk/publication-category/making-the-case/.

[40] For a thorough and critical study, see, e.g., The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management, July 2015, http://blogs.lse.ac.uk/impactofsocialsciences/files/2015/07/2015_metrictide.pdf.

[41] Jacob G. Foster, Andrey Rzhetsky, James A. Evans, Tradition and Innovation in Scientists' Research Strategies, *American Sociological Review* October 2015 vol. 80 no. 5, 875-908.

availability of such complex sets of numbers has a huge impact of how we assess scientific work. This means that they might become de facto standards and bases for assessment without due regard to the limitations. Chi argues, based on data from two political science departments in Germany, that the exclusion of non-source items in the social sciences (i.e. items not indexed by major providers, e.g., non-ISI journal articles, conference papers, many sources in German only) disregards how publication and knowledge production works in that field, as 'the impact of non-source items is high but underestimated'.[42]

Even in such cases, one could argue for standardization and show that this trend could be a positive phenomenon, pushing researchers to areas where there is more visibility and more citation. Yet, not only citations to non-source items are missed but also citations by non-source items, which makes the distortion even worse. The question is also how far bibliometrics should go in prescribing, rather than describing. (The thesis in question argues for the creation of a national database, adjusting bibliometrics to the peculiarities of the field, not vice versa.)

The distortion problem can impact disproportionately the social sciences and humanities, even though measurement of non-journal type publications has been evolving. Larivière et al. note that journal literature 'accounts for less than 50% of the citations in several disciplines of the social sciences and humanities'.[43]

Assessing impact usually links back to funding decisions and technical (and practical) decisions about what data to use and how, will have far-reaching consequences on how research is done in the various disciplines.

[42] Pei-Shan Chi, The Characteristics and Impact of Non-Source Items in the Social Sciences – A Pilot Study Of Two Political Science Departments in Germany, PhD dissertation, Humboldt University, Berlin, 2014, http://edoc.hu-berlin.de/dissertationen/chi-pei-shan-2014-07-21/PDF/chi.pdf, p. 132.

[43] Vincent Larivière, Éric Archambault, Yves Gingras and Étienne Vignola-Gagné, The place of serials in referencing practices: Comparing natural sciences and engineering with social sciences and humanities, Journal of the American Society for Information Science and Technology, Volume 57, Issue 8, June 2006, published online April 7, 2006, http://onlinelibrary.wiley.com/doi/10.1002/asi.20349/abstract;jsessionid=46E2FA94D0CAE1BBF51819AF0FED7D39.f01t04?deniedAccessCustomisedMessage=&userIsAuthenticated=false, p. 997.

Conclusion

The paper contributes to the debates around funding scientific research by analyzing recent international trends, and show funding patterns from the perspective of funds devoted to social sciences. It is mostly a groundwork summarizing the key issues around the definition of scientific fields, the various statistics and the considerations behind policy decisions to fund research.

The first chapter showed the complexity behind statistics, ie. that even the basic categories of natural sciences and social sciences are not so clear-cut as it might first appear, and categories might change with time and vary across countries, even if international guidelines are available. While this is in itself a challenge for having comparative data, the somewhat sporadic statistics allowed us to present basic connections. It was suggested that simple geographical, regional patterns cannot explain variation, either in the natural/social sciences funding ratio or in funding intensity (social sciences funding in percentage of the GDP). A further line of inquiry supposed that the share of the business sector might have a direct impact on social sciences spending. While this connection can be confirmed, it would be a mistake to conclude that more business funding is, in absolute numbers, bad for social sciences funding. The boost that more business funding gives to research funding in general also shows in social sciences funding, if measured in percentage of the GDP.

The financial crisis shook up earlier trends that showed a growing share for foreign business sources as well as a general decline of the share of government funding. If the earlier trends continue with the recovery, it will become more and more important for governments to take into account business preferences and focus on funding research, e.g., further away from applied sciences, that cannot compete for business funding. The paper assessed recent datasets on specific (public) funding bodies. This seems to show the predefined preference of these entities rather than general trends. Looking into the arguments behind such policy choices, the final chapter deals with the question of the 'use', 'output' or 'impact' of scientific research, and social sciences in particular. The relevant debates based on experiences in the UK show some of the challenges in this field.

The growing share of (foreign) business funding and the limited ability of governments to influence this means that government funds will have a more and more important role in shaping research beyond the areas with more direct economic benefits. Informed policy decisions should be based on the assessment of the various factors described by terms like 'output' or 'impact' of scientific research. The paper presented the UK experience as a model that combines various forms of assessment and that could inform policy decisions elsewhere.

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Annex

Supporting tables

- OECD statistics:
  - Main Science and Technology Indicators, GERD as a percentage of GDP (Gross Domestic Expenditures on R&D / GDP), 2000-2014
  - Gross domestic expenditure on R-D by sector of performance and field of science, 2011 (in two tables)
  - Gross domestic expenditure on R-D by sector of performance and source of funds, 2011 (in two tables: domestic and foreign)
  - Gross domestic expenditure on R-D by sector of performance and source of funds, 1981-2014 (in three tables: 1981-1991, 1992-2002, 2003-2014)
- Applications success ratio by fields of sciences, Hungarian Scientific Research Fund, 2009-2013
- ERC funding distribution by domain, 2007 and 2009 – 2015
- Higher Education Funding Council for England mainstream quality-related research funding distribution per subject areas

Detailed information on the OECD dataset

Gross domestic expenditure on R-D by sector of performance and field of science
Contact: RDSurvey@oecd.org
Data source(s) used: Joint OECD-Eurostat international data collection on resources devoted to RD
Date last updated: April 2015; forthcoming update March 2016.
Reference period: 1981 onward.
Unit of measure used: Data are provided in million national currency (for the euro zone, pre-EMU euro or EUR), million current PPP USD and million constant USD (2005 prices and PPPs).
Variables collected: This table contains research and development (R&D) expenditure statistics on gross domestic R&D expenditure by sector of performance (business enterprise, government, higher education, private non-profit, and total intramural) and by field of science (natural sciences, engineering, medical sciences, agricultural sciences, social sciences, and humanities).
Geographic coverage: OECD COUNTRIES (Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States) and NON-MEMBER ECONOMIES (Argentina, China, Romania, Russian Federation, Singapore, South Africa, and Chinese Taipei)

OECD Datasets

Main Science and Technology Indicators, GERD as a percentage of GDP (Gross Domestic Expenditures on R&D / GDP), 2000-2014, data extracted on 31 Jul 2015 17:55 UTC (GMT) from OECD.Stat

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Country															
Australia	1.48	..	1.65	..	1.73	..	2	..	2.25	..	2.2	2.13	..	..	..
Austria	1.89	2	2.07	2.18	2.17	2.38	2.37	2.43	2.59	2.61	2.74	2.68	2.88	2.95	2.99
Belgium	1.93	2.03	1.89	1.83	1.81	1.78	1.81	1.84	1.92	1.98	2.05	2.15	2.24	2.28	..
Canada	1.87	2.04	1.99	1.99	2.01	1.99	1.96	1.92	1.87	1.92	1.84	1.78	1.71	1.62	..
Chile	..	..	..	..	..	..	..	0.31	0.37	0.35	0.33	0.35	0.36	0.39	..
Czech Republic	1.12	1.11	1.1	1.15	1.15	1.17	1.23	1.31	1.24	1.3	1.34	1.56	1.79	1.92	..
Denmark	..	2.32	2.44	2.51	2.42	2.39	2.4	2.51	2.78	3.07	2.94	2.97	3.02	3.06	..
Estonia	0.6	0.7	0.72	0.77	0.85	0.92	1.12	1.07	1.26	1.4	1.58	2.34	2.16	1.74	..
Finland	3.25	3.2	3.26	3.3	3.31	3.33	3.34	3.35	3.55	3.75	3.73	3.64	3.42	3.31	..
France	2.08	2.13	2.17	2.11	2.09	2.04	2.05	2.02	2.06	2.21	2.18	2.19	2.23	2.23	..
Germany	2.4	2.39	2.42	2.46	2.42	2.43	2.46	2.45	2.6	2.73	2.72	2.8	2.88	2.85	..
Greece	..	0.56	..	0.55	0.53	0.58	0.56	0.58	0.66	0.63	0.6	0.67	0.69	0.8	..
Hungary	0.79	0.92	0.99	0.92	0.87	0.93	0.99	0.97	0.99	1.14	1.15	1.2	1.27	1.41	..
Iceland	2.59	2.87	2.86	2.73	..	2.69	2.91	2.56	2.53	2.66	..	2.49	..	1.99	..
Ireland	1.09	1.06	1.06	1.13	1.18	1.2	1.21	1.24	1.39	1.63	1.62	1.53	1.58	..	..
Israel	3.96	4.22	4.17	3.94	3.92	4.09	4.19	4.48	4.39	4.15	3.96	4.1	4.25	4.21	..
Italy	1.01	1.04	1.08	1.06	1.05	1.05	1.09	1.13	1.16	1.22	1.22	1.21	1.27	1.26	..
Japan	3	3.07	3.12	3.14	3.13	3.31	3.41	3.46	3.47	3.36	3.25	3.38	3.34	3.47	..
Korea	2.18	2.34	2.27	2.35	2.53	2.63	2.83	3	3.12	3.29	3.47	3.74	4.03	4.15	..
Luxembourg	1.57	..	..	1.65	1.62	1.59	1.69	1.65	1.65	1.72	1.5	1.41	1.16	1.16	..
Mexico	0.33	0.35	0.39	0.39	0.39	0.4	0.37	0.37	0.4	0.43	0.45	0.43	0.43	0.5	0.54
Netherlands	1.8	1.82	1.77	1.81	1.82	1.81	1.77	1.7	1.65	1.69	1.72	1.9	1.95	1.98	..

Year			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
New Zealand			..	1.1	..	1.15	..	1.12	..	1.16	..	1.26	..	1.25	..	1.17	..
Norway			..	1.56	1.63	1.68	1.55	1.48	1.46	1.56	1.56	1.72	1.65	1.63	1.62	1.65	..
Poland			0.64	0.62	0.56	0.54	0.56	0.57	0.55	0.56	0.6	0.67	0.72	0.75	0.89	0.87	..
Portugal			0.72	0.76	0.72	0.7	0.73	0.76	0.95	1.12	1.45	1.58	1.53	1.46	1.38	1.37	..
Slovak Republic			0.64	0.63	0.56	0.56	0.5	0.49	0.48	0.45	0.46	0.47	0.62	0.67	0.81	0.83	..
Slovenia			1.36	1.47	1.44	1.25	1.37	1.41	1.53	1.42	1.63	1.82	2.06	2.43	2.58	2.59	..
Spain			0.88	0.89	0.96	1.02	1.04	1.1	1.17	1.23	1.32	1.35	1.35	1.32	1.27	1.24	..
Sweden			..	3.91	..	3.61	3.39	3.39	3.5	3.26	3.5	3.42	3.22	3.22	3.28	3.3	..
Switzerland			2.33	..	..	..	2.68	..	..	..	2.73	..	..	..	2.96	..	..
Turkey			0.48	0.54	0.53	0.48	0.52	0.59	0.58	0.72	0.73	0.85	0.84	0.86	0.92	0.94	..
United Kingdom			1.73	1.72	1.72	1.67	1.61	1.63	1.65	1.69	1.69	1.75	1.69	1.69	1.63	1.63	..
United States			2.62	2.64	2.55	2.55	2.49	2.51	2.55	2.63	2.77	2.82	2.74	2.76	2.7	2.73	..
OECD - Total			2.14	2.18	2.15	2.16	2.13	2.16	2.19	2.22	2.29	2.34	2.3	2.33	2.33	2.36	..
European Union (28 countries)			1.68	1.7	1.71	1.7	1.67	1.67	1.7	1.7	1.77	1.84	1.84	1.88	1.92	1.91	..
European Union (15 countries)			1.79	1.81	1.82	1.82	1.79	1.8	1.82	1.83	1.91	2	1.99	2.03	2.06	2.06	..
Non-OECD Member Economies	Argentina		0.37	0.36	0.33	0.34	0.37	0.38	0.4	0.4	0.42	0.48	0.49	0.52	0.58	0.58	..
	China (People's Republic of)		0.9	0.95	1.07	1.13	1.23	1.32	1.39	1.4	1.47	1.7	1.76	1.84	1.98	2.08	..
	Romania		0.36	0.39	0.38	0.38	0.38	0.41	0.45	0.52	0.57	0.46	0.45	0.49	0.48	0.39	..
	Russia		1.05	1.18	1.25	1.29	1.15	1.07	1.07	1.12	1.04	1.25	1.13	1.09	1.12	1.12	..
	Singapore		1.82	2.02	2.07	2.03	2.1	2.16	2.13	2.34	2.62	2.16	2.01	2.15	2	..	..
	South Africa		..	0.72	..	0.76	0.81	0.86	0.9	0.88	0.89	0.84	0.74	0.73	0.73	..	..
	Chinese Taipei		1.91	2.02	2.1	2.22	2.26	2.32	2.43	2.47	2.67	2.83	2.8	2.89	2.94	2.99	..

Gross domestic expenditure on R-D by sector of performance and field of science, total intramural, 2011, PPP Dollars – current prices, Million dollars, Data extracted on 22 Jul 2015 13:04 UTC (GMT) from OECD.Stat (in two tables)

Field of Sciences			Canada	Chile	Czech Republic	Denmark	Greece	Hungary	Ireland	Korea	Netherlands	Norway
All fields of science			25393.102	1232.069	4683.791	7157.096	1986.887	2696.154	3151.201	58379.654	14622.967	5057.414
All fields of science	Natural sciences and engineering		23248.58	996.545	4342.619	1818.224	1618.401	2402.257	2972.255	56078.544	12436.217	4325.887
	Natural sciences and engineering	Natural Sciences	..	235.598	1347.569	496.822	282.475	606.75	..	7493.952	2763.827	..
		Engineering & technology	..	423.697	2451.153	332.628	766.577	1418.914	..	40902.947	5939.271	..
		Medical and Health sci.	..	130.712	373.092	805.423	504.588	200.525	..	6345.401	2320.742	..
		Agricultural Sci.	..	206.538	170.805	183.351	64.761	176.068	..	1336.244	1412.387	..
	Social sciences and humanities		2144.521	235.524	341.172	575.55	368.49	249.799	178.946	2301.11	2186.75	731.527
	Social sciences and humanities	Social Sciences	..	186.33	195.946	413.25	157.468	159.731	..	1489.651	1579.164	..
		Humanities	..	49.194	145.226	162.3	211.023	90.068	..	811.459	607.586	..
	Not elsewhere classified		..	..	..	..	..	44.098	..	..	..	..

Field of Sciences			Poland	Portugal	Slovak Republic	Slovenia	Turkey	Non-OECD Member Economies: Argentina	Russia	South Africa	Chinese Taipei
All fields of science			6394.7	4142.364	903.474	1418.612	11245.516	4471.69	35192.077	4652.174	27348.649
All fields of science	Natural sciences and engineering		5816.497	3409.969	758.254	1300.861	9402.81	3612.767	33719.183	3964.124	26277.566
	Natural sciences and engineering	Natural Sciences	1644.98	912.339	187.199	526.177	1296.613	959.309	6671.178	1537.193	2880.082
		Engineering & technology	2992.569	1799.727	430.771	704.61	5559.979	1661.062	25250.964	1268.55	20659.008
		Medical and Health sci.	723.15	527.665	71.926	36.463	1980.211	485.088	1165.248	800.006	1965.353
		Agricultural Sci.	455.799	170.239	68.359	33.611	566.006	507.308	631.798	358.375	773.123
	Social sciences and humanities		578.203	732.394	145.22	117.75	1842.71	824.602	1472.895	688.05	1071.083
	Social sciences and humanities	Social Sciences	384.119	499.765	76.411	71.031	1198.102	507.482	988.667	584.494	752.05
		Humanities	194.084	232.63	68.809	46.719	644.608	317.12	484.227	103.556	319.033
	Not elsewhere classified		..	..	..	..	..	34.321	..	..	..

Gross domestic expenditure on R-D by sector of performance and source of funds, total intramural, 2011, PPP Dollars – current prices, Data extracted on 22 Jul 2015 13:04 UTC (GMT) from OECD.Stat (in two tables: domestic and foreign)

Source of Funds		Total (funding sector)	Business enterprise	Sub-total government	Sub-total government		Higher education	Private non-profit
					Direct government	General university funds		
Country	**Unit**							
Australia	US Dollar, millions	20955.603	..	..	..	..	..	..
Austria	US Dollar, millions	9906.502	4573.497	3542.294	1878.81	1663.484	65.995	46.964
Belgium	US Dollar, millions	9729.114	5852.147	2278.241	1742.778	535.463	279.276	58.437
Canada	US Dollar, millions	25393.102	12295.31	8733.743	6459.373	2274.37	1911.439	929.911
Chile	US Dollar, millions	1232.069	417.575	414.65	344.706	69.944	118.092	19.742
Czech Republic	US Dollar, millions	4683.791	1765.014	1953.953	..	..	43.795	0.323
Denmark	US Dollar, millions	7157.096	4377.594	2014.845	753.346	1261.499	..	256.124
Estonia	US Dollar, millions	733.449	403.443	240.208	240.208	0	2.097	0.721
Finland	US Dollar, millions	7892.045	5288.588	1975.598	1348.234	627.364	11.788	99.687
France	US Dollar, millions	53428.413	29409.374	18779.606	14249.665	4529.941	674.392	425.974
Germany	US Dollar, millions	96282.448	63194.067	28724.979	..	..	..	335.983
Greece	US Dollar, millions	1986.887	650.489	978.313	491.43	486.882	45.091	19.88
Hungary	US Dollar, millions	2696.154	1279.64	1027.175	1027.175	..	..	26.686
Iceland	US Dollar, millions	314.837	156.932	125.91	77.531	48.379	4.286	1.837
Ireland	US Dollar, millions	3151.201	1565.085	892.446	745.828	146.618	24.396	14.061

Source of Funds		Total (funding sector)	Business enterprise	Sub-total government	Sub-total government		Higher education	Private non-profit
					Direct government	General university funds		
Israel	US Dollar, millions	9615.076	3773.788	1092.055	587.488	504.568	208.961	168.4
Italy	US Dollar, millions	25769.282	11618.98	10798.576	5327.355	5471.221	228.287	789.185
Japan	US Dollar, millions	148389.229	113552.432	24347.449	16998.327	7349.122	8541.785	1236.237
Korea	US Dollar, millions	58379.654	43032.914	14538.279	..	..	420.542	257.063
Luxembourg	US Dollar, millions	668.956	319.843	204.136	204.136	..	0.417	8.035
Mexico	US Dollar, millions	8058.471	2961.896	4804.681	..	..	178.406	57.69
Netherlands	US Dollar, millions	14622.967	7299.59	5196.871	5196.871	..	46.451	487.038
New Zealand	US Dollar, millions	1766.589	705.962	731.536	611.744	119.792	166.901	49.128
Norway	US Dollar, millions	5057.414	2235.226	2354.092	1320.047	1034.045	18.698	55.615
Poland	US Dollar, millions	6394.7	1797.916	3568.418	3568.418	0	156	15.978
Portugal	US Dollar, millions	4142.364	1852.282	1730.259	..	..	221.929	87.983
Slovak Republic	US Dollar, millions	903.474	305.851	449.503	235.443	214.06	16.697	3.503
Slovenia	US Dollar, millions	1418.612	868.582	447.001	439.929	7.072	3.271	0.154
Spain	US Dollar, millions	20149.1	8928.44	8961.453	6131.163	2830.289	802.199	111.086
Sweden	US Dollar, millions	13315.798	7631.15	3685.624	2055.613	1630.01	124.812	398.269
Switzerland	US Dollar, millions	..	..	..	..	..	..	..
Turkey	US Dollar, millions	11245.516	5153.254	3289.251	..	..	2344.515	381.295
United Kingdom	US Dollar, millions	39132.645	17945.044	11916.721	8690.315	3226.406	452.503	1866.896

Source of Funds		Total (funding sector)	Business enterprise	Sub-total government	Sub-total government		Higher education	Private non-profit
					Direct government	General university funds		
United States	US Dollar, millions	429143	251405	133767	133767	0	12965	14748
Non-OECD Member Economies		..	..	..	..	..	..	..
Argentina	US Dollar, millions	4471.69	1070.252	3199.943	3122.558	77.385	129.591	48.688
China (People's Republic of)	US Dollar, millions	247808.303	183157.277	53714.057	..	..	..	..
Romania	US Dollar, millions	1726.212	645.698	848.081	730.314	117.767	20.228	3.922
Russia	US Dollar, millions	35192.077	9740.676	23605.414	23487.828	117.592	268.916	69.741
Singapore	US Dollar, millions	8359.708	4624.916	3180.92	3180.92	0	135.466	..
South Africa	US Dollar, millions	4652.174	1814.666	2002.941	1299.811	703.13	6.533	130.393
Chinese Taipei	US Dollar, millions	27348.649	19835.563	7177.359	6540.508	636.851	259.287	66.627

Source of Funds		Funds from abroad	Funds from abroad								
			Foreign Business Enterprises	Foreign Business Enterprises		Other National Governments	Higher Education	PNP	European Commission	International Organisations	Not elsewhere classified
				Enterprises within same group	Other business enterprise companies						
Country	**Unit**										
Australia	US Dollar, millions	..	..	..	..	..	..	..	..	..	..
Austria	US Dollar, millions	1677.752	1450.506	..	..	..	..	..	179.855	9.037	38.353

Source of Funds		Funds from abroad	Funds from abroad								
			Foreign Business Enterprises	Foreign Business Enterprises		Other National Governments	Higher Education	PNP	European Commission	International Organisations	Not elsewhere classified
				Enterprises within same group	Other business enterprise companies						
Belgium	US Dollar, millions	1261.013	923.02	..	..	2.432	0.546	0	280.243	31.596	23.176
Canada	US Dollar, millions	1521.086	..	..	..	..	..	..	..	..	..
Chile	US Dollar, millions	262.009	..	..	..	..	..	..	..	..	..
Czech Republic	US Dollar, millions	920.705	465.922	..	..	4.238	0.077	1.571	443.577	5.32	..
Denmark	US Dollar, millions	508.527	327.669	..	..	8.673	..	64.802	107.389	..	..
Estonia	US Dollar, millions	86.98	33.292	..	..	..	..	..	38.675	..	15.013
Finland	US Dollar, millions	516.383	288.831	..	..	..	..	..	200.294	6.601	20.656
France	US Dollar, millions	4139.068	2719.963	..	..	176.06	0	0	710.652	532.394	0
Germany	US Dollar, millions	4027.412	..	..	..	..	..	..	..	..	..
Greece	US Dollar, millions	293.114	43.748	..	..	..	..	..	236.022	4.667	8.676
Hungary	US Dollar, millions	362.653	258.618	..	..	0.8	0.453	4.759	88.54	6.036	3.447
Iceland	US Dollar, millions	25.872	..	..	..	..	..	..	..	..	..
Ireland	US Dollar, millions	655.213	..	..	..	..	..	..	..	..	..
Israel	US Dollar, millions	4371.872	..	..	..	..	..	..	..	..	..
Italy	US Dollar, millions	2334.254	1435.413	..	..	237.393	27.707	11.707	537.874	68.421	15.739
Japan	US Dollar, millions	711.298	..	..	..	..	..	..	..	..	..
Korea	US Dollar, millions	130.857	105.948	..	..	2.987	1.735	14.226	0.832	5.129	..
Luxembourg	US Dollar, millions	136.524	..	..	..	..	..	..	..	..	..

Source of Funds		Funds from abroad	Funds from abroad								
			Foreign Business Enterprises	Foreign Business Enterprises		Other National Governments	Higher Education	PNP	European Commission	International Organisations	Not elsewhere classified
				Enterprises within same group	Other business enterprise companies						
Mexico	US Dollar, millions	55.799	55.799	..	..	..	..	..	..	..	..
Netherlands	US Dollar, millions	1593.017	1109.874	..	..	..	35.938	..	137.684	309.521	..
New Zealand	US Dollar, millions	111.716	..	..	..	..	..	..	..	..	..
Norway	US Dollar, millions	393.783	267.56	..	..	24.686	2.905	4.496	74.759	7.513	11.864
Poland	US Dollar, millions	856.333	76.714	..	..	..	..	..	671.442	61.229	46.893
Portugal	US Dollar, millions	249.909	25.052	..	..	6.562	16.708	3.03	188.72	9.838	..
Slovak Republic	US Dollar, millions	127.92	27.95	..	..	0.874	0.505	0.319	85.621	12.65	0
Slovenia	US Dollar, millions	99.604	29.56	..	..	0.418	0.5	0.099	47.847	5.128	16.054
Spain	US Dollar, millions	1345.923	392.65	..	..	196.474	10.704	8.633	717.685	19.777	..
Sweden	US Dollar, millions	1475.944	1123.533	..	..	64.834	..	53.765	216.529	10.956	..
Switzerland	US Dollar, millions	..	..	..	..	..	..	..	..	..	..
Turkey	US Dollar, millions	77.201	3.632	..	..	0.457	6.224	10.833	52.804	3.251	..
United Kingdom	US Dollar, millions	6951.48	4832.034	..	..	162.364	1.987	147.86	859.127	203.526	565.414
United States	US Dollar, millions	16259	..	..	..	..	..	..	..	..	..
Non-OECD Member Economies		..	..	..	..	..	..	..	..	..	..
Argentina	US Dollar, millions	23.216	..	..	..	..	..	..	..	..	..
China (People's Republic of)	US Dollar, millions	3314.651	..	..	..	..	..	..	..	..	..

Source of Funds		Funds from abroad	Funds from abroad								
			Foreign Business Enterprises	Foreign Business Enterprises		Other National Governments	Higher Education	PNP	European Commission	International Organisations	Not elsewhere classified
				Enterprises within same group	Other business enterprise companies						
Romania	US Dollar, millions	208.283	32.431	..	..	0.366	0.606	0.245	169.301	4.768	0.565
Russia	US Dollar, millions	1507.33	467.405	..	..	486.453	..	..	..	262.044	291.435
Singapore	US Dollar, millions	418.406	390.348	..	..	28.058	..	..	..	..	..
South Africa	US Dollar, millions	697.641	..	..	..	..	..	..	..	..	..
Chinese Taipei	US Dollar, millions	9.814	..	..	..	..	..	..	..	..	..

Gross domestic expenditure on R-D by sector of performance and source of funds, PPP Dollars - Current prices, millions, Total intramural, Data extracted on 03 Aug 2015 20:22 UTC (GMT) from OECD.Stat (in three tables: 1981-1991, 1992-2002, 2003-2014)

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Country	**Source of Funds**											
Australia	Total (funding sector)	1607.558	..	..	2163.035	..	2832.025	2969.6	3297.845	..	3828.045	..
	Business enterprise	323.946	..	..	606.143	..	1061.305	1176.768	1375.355	..	1574.835	..
	Sub-total government	1170.627	..	..	1482.181	..	1675.896	1681.707	1786.766	..	2102.566	..
Austria	Total (funding sector)	951.05	1073.456	1158.302	1252.545	1327.151	1430.642	1496.147	1651.103	1810.132	2028.256	2291.219
	Business enterprise	477.792	520.856	566.037	603.473	651.885	690.549	730.722	836.3	960.169	1056.708	1151.292
	Sub-total government	445.737	522.823	560.343	615.04	638.585	701.931	725.473	771.879	786.091	902.291	1065.969
Belgium	Total (funding sector)	..	..	1872.23	2002.277	2170.329	2259	2388.754	2515.724	2799.205	..	3102.247
	Business enterprise	..	..	1213.612	1326.002	1443.96	1562.974	1688.004	1800.765	1788.153	..	2011.554
	Sub-total government	..	..	624.563	636.128	685.312	648.053	658.628	671.955	895.992	..	969.695
Canada	Total (funding sector)	3880.274	4460.206	4651.904	5234.991	5817.202	6225.327	6425.368	6858.733	7643.079	8263.848	8696.3
	Business enterprise	1581.992	1691.24	1612.772	1851.317	2328.23	2579.422	2637.138	2762.747	2926.676	3189.556	3321.066
	Sub-total government	1963.779	2327.579	2454.586	2718.921	2800.282	2921.064	2903.629	3007.066	3562.595	3792.833	3971.068
Chile	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	2097.61
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	617.52
Denmark	Total (funding sector)	579.141	661.693	737.748	815.254	899.737	1024.348	1129.803	1236.111	1333.333	1469.371	1604.337

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Business enterprise	246.009	293.227	336.627	386.465	439.692	492.822	536.978	582.545	623.949	724.057	824.129
	Sub-total government	309.634	340.948	365.667	387.648	413.608	469.692	516.959	563.629	606.682	621.848	636.501
Estonia	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Finland	Total (funding sector)	553.171	..	737.235	866.354	980.088	1083.738	1214.382	1346.486	1495.876	1626.056	1709.525
	Business enterprise	301.603	..	414.807	..	..	..	724.242	..	930.716	..	962.719
	Sub-total government	239.905	..	306.852	..	..	..	462.606	..	527.468	..	699.206
France	Total (funding sector)	10967.438	12447.574	13350.74	14668.749	15805.377	16410.045	17594.715	18991.445	20989.181	23209.229	24263.218
	Business enterprise	4487.585	5182.457	5601.45	6024.968	6550.726	6758.664	7362.542	8222.973	9209.992	10093.371	10318.305
	Sub-total government	5856.493	6724.105	7186.353	7879.54	8361.5	8618.557	9093.686	9482.42	10100.103	11203.635	11831.622
Germany	Total (funding sector)	18510.757	20153.129	21345.544	22732.151	25736.242	27134.876	29418.892	31426.308	33720.153	35347.333	39381.907
	Business enterprise	10522.684	11457.672	12575.43	13542.656	15723.254	16864.203	18744.902	20014.52	21401.451	22460.367	24293.882
	Sub-total government	7736.493	8408.397	8446.14	8844.007	9645.122	9843.003	10171.54	10733.108	11428.982	11950.166	14116.89
Greece	Total (funding sector)	133.459	..	..	..	..	259.706	..	308.519	415.973	..	447.453
	Business enterprise	28.608	..	..	..	..	60.184	..	72.763	80.799	..	97.314
	Sub-total government	104.852	..	..	169.469	191.512	193.331	201.689	209.393	286.658	..	258.111
Hungary	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	886.404
	Business enterprise	..	..	..	..	..	..	..	..	..	..	496.607
	Sub-total government	..	..	..	..	..	..	..	..	..	..	354.88
Iceland	Total (funding sector)	20.256	..	23.667	27.064	29.248	31.05	36.449	..	51.206	52.888	64.469
	Business enterprise	1.163	..	4.14	..	7.057	..	11.377	..	12.222	12.624	15.768

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Sub-total government	17.335	..	17.221	..	18.803	..	24.152	..	33.687	34.793	44.949
Ireland	Total (funding sector)	160.542	173.341	173.521	204.06	235.274	259.252	277.005	290.245	320.445	373.089	443.183
	Business enterprise	60.547	65.375	73.027	88.262	107.577	123.088	134.651	146.135	177.557	220.663	268.497
	Sub-total government	90.658	97.885	88.91	98.871	108.544	115.322	117.141	114.544	109.031	112.457	123.421
Israel	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	1737.826
	Business enterprise	..	..	..	..	..	..	..	..	..	..	755.685
	Sub-total government	..	..	..	..	..	..	..	..	..	..	641.007
Italy	Total (funding sector)	4984.383	5459.081	6044.957	6866.405	8094.863	8571.373	9518.085	10488.963	11434.725	12505.894	12475.052
	Business enterprise	2496.327	2647.635	2723.591	2984.155	3612.085	3452.1	3971.908	4607.547	5305.305	5471.052	5533.334
	Sub-total government	2352.882	2649.359	3167.859	3634.598	4188.112	4738.786	5135.008	5436.275	5657.662	6440.085	6184.458
Japan	Total (funding sector)	25808.685	29454.347	33370.319	37335.075	42961.094	44528.532	48914.285	54516.258	61594.974	69134.452	73311.856
	Business enterprise	16074.7	18770.658	21741.699	24965.441	29587.823	30570.383	33500.799	38430.329	44510.21	50542.072	53271.933
	Sub-total government	6954.746	7513.866	7998.552	8405.98	9021.232	9467.665	10497.767	10860.329	11477.853	12478.553	13328.473
Korea	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	7140.345
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Luxembourg	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Mexico	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	529.011
	Sub-total government	..	..	..	..	..	..	..	..	..	942.672	1141.162

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Netherlands	Total (funding sector)	2672.695	2974.855	3223.722	3327.665	3793.176	4208.034	4593.028	4772.943	4945.518	5460.13	5474.787
	Business enterprise	1237.977	1335.091	1494.41	1607.043	1961.628	2200.908	2378.402	2549.201	2641.493	2624.873	2618.44
	Sub-total government	1262.519	1442.094	1521.208	1556.188	1675.883	1853.512	2032.552	2037.295	2069.579	2639.128	2658.338
New Zealand	Total (funding sector)	288.574	..	312.681	..	..	..	..	..	401.386	469.931	475.299
	Business enterprise	52.291	..	59.922	..	..	..	..	..	133.365	137.879	130.316
	Sub-total government	236.078	..	252.565	248.575	248.56	..	..	..	259.819	283.347	293.894
Norway	Total (funding sector)	510.691	576.923	644.268	753.644	878.704	..	1086.161	..	1191.541	..	1315.157
	Business enterprise	204.589	..	291.487	357.921	453.595	..	546.791	..	543.042	..	585.581
	Sub-total government	291.983	..	331.564	363.11	397.892	..	508.445	..	604.754	..	651.229
Poland	Total (funding sector)	..	..	..	..	..	..	..	..	..	2006.102	1620.194
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Portugal	Total (funding sector)	..	175.298	199.517	209.957	245.361	264.871	309.077	345.827	445.309	518.313	619.106
	Business enterprise	..	52.521	60.89	64.753	69.387	71.043	83.91	94.638	120.928	140.128	141.771
	Sub-total government	..	108.571	123.782	130.387	154.596	168.254	201.051	228.462	282.075	320.218	373.58
Slovak Republic	Total (funding sector)	..	..	..	..	..	..	..	..	..	711.108	807.085
	Business enterprise	..	..	..	..	..	..	..	..	..	477.975	551.536
	Sub-total government	..	..	..	..	..	..	..	..	..	233.133	255.549
Slovenia	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Spain	Total (funding sector)	1128.469	1391.205	1449.542	1586.955	1856.36	2173.479	2453.32	2991.503	3429.137	4157.894	4522.842

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Business enterprise	482.902	637.769	666.143	775.99	876.622	1070.601	1149.095	1421.616	1640.67	1972.336	2175.879
	Sub-total government	632.07	734.289	765.628	798.973	886.174	1047.313	1241.928	1460.396	1603.956	1876.39	2067.55
Sweden	Total (funding sector)	2079.424	..	2637.678	..	3381.428	..	3884.423	..	4311.152	..	4487.995
	Business enterprise	1140.691	..	1532.519	..	2059.49	..	2331.061	..	2525.813	..	2776.409
	Sub-total government	880.051	..	1035.987	..	1229.659	..	1434.616	..	1644.257	..	1524.07
Switzerland	Total (funding sector)	2107.647	..	2328.391	..	..	3505.39	..	..	4203.14	..	..
	Business enterprise	1582.855	..	1802.674	..	..	2765.336	2931.475	..	3107.991	..	..
	Sub-total government	524.792	..	525.717	..	..	740.055	..	..	973.465	..	..
Turkey	Total (funding sector)	..	..	..	..	..	..	..	..	..	778.858	1322.609
	Business enterprise	..	..	..	..	..	..	..	..	..	213.702	377.041
	Sub-total government	..	..	..	..	..	..	..	..	..	556.23	926.531
United Kingdom	Total (funding sector)	12246.059	..	13267.385	..	15230.247	16143.447	16962.828	18131.943	19404.659	20052.638	19656.57
	Business enterprise	5149.301	..	5722.866	..	6988.423	7623.346	8278.14	9330.678	9815.402	9946.885	9752.135
	Sub-total government	5889.941	..	6504.343	..	6624.842	6629.241	6696.095	6620.372	7066.599	7127.374	6882.716
United States	Total (funding sector)	72749.617	81165.868	90403.063	102874.5	115218.82	120561.75	126666.53	134202.14	142225.62	152388.7	161387.8
	Business enterprise	35948.13	40692.264	45263.994	52186.959	57961.813	60991.221	62575.865	67976.94	74966.162	83207.762	92300.494
	Sub-total government	34777.359	38172.118	42562.08	47822.136	54022.932	55904.565	59980.042	61616.973	62074.364	63405.243	62778.15
Non-OECD Member Economies	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Argentina	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..

Year		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
China (People's Republic of)	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	8975.415
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Romania	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Russia	Total (funding sector)	..	..	..	..	..	..	..	..	..	24146.887	16681.37
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Singapore	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
South Africa	Total (funding sector)	..	..	1311.755	..	1507.692	..	1451.965	..	1542.137	..	1944.178
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Country	**Source of Funds**											
Australia	Total (funding sector)	4880.096	..	5731.9	..	6701.056	..	6865.11	..	7951.316	..	9885.298
	Business enterprise	2220.655	..	2745.448	..	3313.242	..	3267.744	..	3811.588	..	5128.509
	Sub-total government	2451.904	..	2719.22	..	3066.36	..	3216.014	..	3618.78	..	4070.588
Austria	Total (funding sector)	2370.929	2469.15	2723.805	2892.698	3101.7	3376.759	3703.421	4101.893	4477.258	4791.524	5229.776
	Business enterprise	1169.234	1209.645	1259.447	1320.713	1387.448	1462.396	1545.09	1684.951	1871.978	2001.284	2334.068
	Sub-total government	1124.13	1184.942	1339.504	1356.849	1339.98	1384.93	1399.281	1597.479	1701.386	1833.808	1757.542
Belgium	Total (funding sector)	..	3429.556	3594.425	3803.21	4092.48	4444.328	4622.623	5012.139	5574.169	6070.589	6010.854
	Business enterprise	..	2280.543	2401.757	2551.302	2767.022	3002.608	3035.768	3317.871	3479.009	3846.82	3569.147
	Sub-total government	..	806.876	824.666	877.603	942.033	986.191	1098.887	1177.963	1278.087	1335.649	1393.405
Canada	Total (funding sector)	9226.1	10017.879	11043.669	11367.688	11426.685	12173.131	13554.133	14810.927	16746.644	18967.719	19145.334
	Business enterprise	3617.041	4131.635	4862.128	5197.035	5289.887	5848.692	6196.584	6648.416	7513.83	9541.665	9856.56
	Sub-total government	4156.546	4237.701	4209.043	4076.301	3847.491	3891.642	4113.083	4624.583	4905.212	5534.609	6047.179
Chile	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Czech Republic	Total (funding sector)	1820.088	1308.458	1253.509	1263.139	1360.576	1531.354	1645.316	1672.503	1864.579	1993.485	2063.863
	Business enterprise	..	..	..	797.138	811.537	916.073	990.349	879.831	954.844	1045.79	1108.753
	Sub-total government	395.426	295.465	350.187	407.689	472.763	471.473	606.122	712.756	829.864	868.918	868.294

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Denmark	Total (funding sector)	1705.053	1826.974	..	2188.909	2327.396	2566.13	2832.923	3118.774	..	3767.094	4147.211
	Business enterprise	863.801	913.894	..	989.087	1175.313	1370.045	..	1839.142	..	2313.423	..
	Sub-total government	658.867	689	..	866.604	831.07	927.467	..	973.233	..	1062.578	..
Estonia	Total (funding sector)	..	..	..	..	..	..	67.116	82.469	81.397	102.393	116.606
	Business enterprise	..	..	..	..	..	..	15.585	19.955	19.696	33.729	34.004
	Sub-total government	..	..	..	..	..	..	42.496	53.4	48.158	53.282	62.788
Finland	Total (funding sector)	1769.357	1828.879	2051.108	2173.709	2493.856	2910.832	3342.994	3867.806	4447.53	4568.371	4814.678
	Business enterprise	..	1035.43	..	1292.758	..	1830.779	2135.376	2589.428	3124.355	3233.546	3347.27
	Sub-total government	..	728.462	..	762.777	..	898.241	1004.424	1128.596	1166.585	1166.073	1258.08
France	Total (funding sector)	25269.761	26106.407	26694.702	27484.202	28153.227	28475.486	29267.945	30762.85	32978.205	35822.407	38152.911
	Business enterprise	11772.376	12282.158	12994.621	13287.321	13659.53	14700.067	15646.273	16647.047	17318.692	19420.249	19879.629
	Sub-total government	10982.611	11350.977	11107.291	11526.091	11682.198	11058.716	10926.647	11364.359	12750.026	13226.271	14615.311
Germany	Total (funding sector)	39106.268	38383.073	38644.408	40238.205	41454.832	43258.613	45167.061	49431.531	52375.396	54453.396	56657.034
	Business enterprise	23943.695	23349.785	23336.712	24155.633	24699.974	26530.746	28185.763	32341.168	34591.311	35753.248	37121.03
	Sub-total government	14227.528	14275.662	14508.098	15242.109	15793.587	15543.927	15716.032	15857.813	16444.771	17122.526	17926.399
Greece	Total (funding sector)	..	602.184	..	677.847	..	781.015	..	1116.952	..	1269.845	..
	Business enterprise	..	121.666	..	172.813	..	168.52	..	269.844	..	419.653	..
	Sub-total government	..	282.54	..	366.363	..	425.415	..	546.167	..	591.66	..
Hungary	Total (funding sector)	864.947	817.294	782.433	668.371	613.691	725.782	728.348	773.584	977.334	1271.341	1492.607
	Business enterprise	454.357	433.694	297.249	256.494	238.45	265.284	262.895	297.506	369	442.913	442.763
	Sub-total government	359.427	330.702	417.498	354.942	307.03	397.881	409.527	411.826	484.153	681.635	873.886
Iceland	Total (funding sector)	73.264	76.269	83.507	95.229	..	129.541	152.355	182.239	216.567	256.328	263.812

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Business enterprise	17.872	24.131	26.421	32.936	..	54.34	57.478	79.119	..	118.313	..
	Sub-total government	51.125	48	52.556	54.6	..	65.925	85.216	75.015	..	87.145	..
Ireland	Total (funding sector)	520.32	619.159	723.661	815.436	924.093	1009.945	1101.046	1148.996	1223.102	1294.014	1430.225
	Business enterprise	335.303	385.829	472.219	549.222	617.379	679.405	720.394	739.578	804.653	863.482	907.064
	Sub-total government	130.914	172.493	164.479	183.867	223.992	245.759	254.529	251.329	286.767	330.682	393.865
Israel	Total (funding sector)	1964.737	2185.253	2449.513	2674.017	3057.168	3514.342	3840.221	4606.592	6154.431	6719.333	6845.658
	Business enterprise	868.294	748.338	824.214	909.321	1162.3	1422.824	1667.847	2162.847	3247.184	3603.941	3638.313
	Sub-total government	719.879	845.657	911.366	975.152	1084.011	1144.246	1144.657	1302.216	1344.463	1356.246	1318.373
Italy	Total (funding sector)	12433.586	12018.038	11702.865	11697.213	12224.42	13207.892	14150.331	14081.086	15256.364	16811.99	17268.878
	Business enterprise	5885.791	5320.437	5119.166	4882.271	5253.925	..	..	..	..	..	..
	Sub-total government	6029.272	6163.69	5870.85	6199.315	6211.6	..	..	..	..	..	..
Japan	Total (funding sector)	74550.199	74896.914	75772.544	82572.798	83065.365	87778.408	91030.894	92773.73	98757.998	103825.76	108166.23
	Business enterprise	52969.204	51048.31	51671.015	55413.566	60949.541	64942.51	66058.11	66961.573	71520.606	75845.391	80125.625
	Sub-total government	14448.355	16197.986	16254.724	18858.601	15524.287	15957.292	17601.097	18222.819	19338.668	19739.208	19863.217
Korea	Total (funding sector)	8123.808	9637.451	11726.468	13321.753	14889.067	16335.26	14636.912	15792.639	18541.715	21284.913	22506.776
	Business enterprise	..	..	..	10158.919	11147.491	11835.672	10118.6	11047.977	13420.306	15422.497	16250.073
	Sub-total government	..	..	..	2536.467	3015.056	3743.971	3795.424	3932.606	4439.05	5312.094	5712.27
Luxembourg	Total (funding sector)	..	..	..	..	..	..	..	..	387.387	..	..
	Business enterprise	..	..	..	..	..	..	..	..	351.299	..	..
	Sub-total government	..	..	..	..	..	..	..	..	29.701	..	..
Mexico	Total (funding sector)	..	1351.167	1921.697	1941.486	2081.423	2514.198	2923.544	3505.009	3362.82	3634.889	4171.255
	Business enterprise	..	192.897	364.722	341.379	404.677	425.289	689.367	826.438	992.598	1084.622	1447.07

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Sub-total government	1114.458	991.217	1222.683	1284.937	1390.274	1786.66	1776.319	2147.237	2119.156	2146.532	2313.656
Netherlands	Total (funding sector)	5498.132	5768.768	6188.288	6561.852	6978.546	7475.962	7578.101	8429.799	9068.144	9554.758	9697.966
	Business enterprise	2583.424	2544.36	2772.488	3015.964	3381.707	3406.862	3681.664	4136.621	..	4605.713	..
	Sub-total government	2691.067	2796.468	2713.509	2766.616	2895.041	2923.015	2869.636	3106.876	..	3697.156	..
New Zealand	Total (funding sector)	505.453	551.758	..	602.791	..	760.117	..	760.724	..	962.622	..
	Business enterprise	150.036	186.773	..	203.339	..	231.69	..	259.413	..	363.923	..
	Sub-total government	297.864	302.169	..	315.19	..	397.493	..	385.06	..	453.375	..
Norway	Total (funding sector)	..	1534.559	..	1735.394	..	2000.318	..	2178.077	..	2664.198	2792.174
	Business enterprise	..	679.236	..	865.733	..	988.061	..	1078.86	..	1408.727	..
	Sub-total government	..	752.787	..	763.35	..	858.322	..	926.664	..	1027.773	..
Poland	Total (funding sector)	1746.867	1854.376	1833.971	1812.969	2033.549	2213.893	2414.542	2638.079	2606.296	2612.045	2472.248
	Business enterprise	..	..	724.211	651.897	790.178	776.74	913.283	1006.154	769.048	803.776	743.041
	Sub-total government	..	..	1051.257	1092.219	1175.031	1365.223	1424.574	1543.999	1734.433	1692.13	1530.913
Portugal	Total (funding sector)	689.885	688.579	686.223	709.029	785.089	857.971	1003.588	1169.431	1324.95	1472.361	1453.201
	Business enterprise	139.512	139.248	138.772	138.08	160.584	182.194	213.628	249.342	358.368	464.387	459.676
	Sub-total government	409.865	409.089	407.689	462.885	525.334	585.252	693.208	814.848	858.419	897.433	879.657
Slovak Republic	Total (funding sector)	644.734	519.073	369.151	412.007	442.074	564.669	434.144	368.154	384.495	411.7	398.306
	Business enterprise	411.882	355.98	221.177	248.937	253.641	358.825	224.903	183.546	209.242	230.901	213.336
	Sub-total government	232.852	163.093	142.527	155.864	174.734	195.053	196.825	176.252	163.818	169.849	175.662
Slovenia	Total (funding sector)	..	354.285	418.797	393.512	353.752	373.41	413.081	451.046	482.393	549.449	577.592
	Business enterprise	..	134.733	169.221	180.489	173.599	200.362	217.067	256.708	257.191	300.3	346.68
	Sub-total government	..	171.194	189.673	159.838	153.527	138.354	164.854	165.767	193.087	203.728	205.701

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Spain	Total (funding sector)	4882.558	4936.601	4772.825	5003.619	5364.686	5610.416	6554.738	6817.909	7794.401	8421.954	9808.498
	Business enterprise	2133.19	2025.435	1922.525	2228.052	2439.459	2508.238	3264.53	3330.905	3875.93	3973.16	4792.712
	Sub-total government	2450.787	2546.568	2500.024	2179.756	2356.317	2447.802	2537.275	2782.692	3012.05	3357.54	3834.871
Sweden	Total (funding sector)	..	5341.675	..	6300.485	..	7200.851	..	8239.058	..	10379.487	..
	Business enterprise	..	3266.87	..	4145.764	..	4874.88	..	5529.474	..	7445.416	..
	Sub-total government	..	1762.102	..	1777.834	..	1859.665	..	2155.258	..	2313.911	..
Switzerland	Total (funding sector)	4485.507	..	..	..	5151.013	..	..	..	5768.751	..	..
	Business enterprise	3024.88	..	..	..	3475.258	..	..	..	3985.437	..	..
	Sub-total government	1273.114	..	..	..	1387.01	..	..	..	1337.486	..	..
Turkey	Total (funding sector)	1329.145	1328.818	1047.948	1205.321	1565.288	1867.408	1985.061	2421.317	2824.767	3019.174	3008.86
	Business enterprise	449.381	414.687	345.706	371.112	575.962	780.68	829.09	1048.862	1212.265	1354.791	1242.048
	Sub-total government	850.383	865.82	633.458	751.543	886.01	1003.431	1059.028	1155.248	1429.42	1449.281	1521.495
United Kingdom	Total (funding sector)	19746.505	20988.982	21790.51	21913.093	22346.865	23071.185	23944.513	25938.534	27872.782	29193.782	30635.691
	Business enterprise	10122.359	10845.23	10965.32	10564.848	10627.231	11523.629	11397.598	12584.313	13464.451	13297.332	13329.723
	Sub-total government	6528.994	6741.07	7131.972	7197.35	7048.085	7082.262	7338.438	7574.636	8425.704	8426.38	8848.88
United States	Total (funding sector)	165834.74	166146.5	169612.54	184076.99	197792.15	212708.79	226934	245548	269513	280238	279891
	Business enterprise	96228.633	96548.98	99203.36	110870.13	123416.17	136227.14	147845	164660	186037	188336	180643
	Sub-total government	62924.8	62502.35	62808.15	65173.975	65702.9	67055.572	68825	69651	70716	77883	83428
Non-OECD Member Economies	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..
Argentina	Total (funding sector)	..	..	..	..	1318.213	1457.77	1499.512	1620.933	1592.848	1507.133	1247.947

Year		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Business enterprise	..	..	..	..	..	396.679	405	417.654	370.881	313.342	303.388
	Sub-total government	..	..	..	..	..	954.804	993.415	1093.569	1126.437	1120.343	876.591
China (People's Republic of)	Total (funding sector)	10069.822	11239.174	11842.317	12339.837	13809.506	17530.238	19615.456	24873.812	32646.608	38086.771	47479.821
	Business enterprise	..	..	..	..	..	..	..	..	18801.055	..	..
	Sub-total government	..	..	..	..	..	..	..	..	10906.442	..	..
Romania	Total (funding sector)	..	..	..	974.625	913.737	719.113	589.53	482.885	468.815	559.33	579.825
	Business enterprise	..	..	..	379.974	379.74	379.826	249.686	242.437	229.513	266.221	241.032
	Sub-total government	..	..	..	559.582	501.39	304.877	311.901	225.331	191.29	240.286	280.675
Russia	Total (funding sector)	7544.594	7325.839	7176.619	7081.589	7894.028	8795.843	7691.101	8673.943	10504.506	12657.92	14558.089
	Business enterprise	..	..	2530.209	2376.202	2487.906	2693.538	2684.661	2738.628	3452.566	4256.272	4820.13
	Sub-total government	..	..	4470.464	4358.005	4900.849	5360.293	4119.94	4435.46	5757.248	7242.709	8506.374
Singapore	Total (funding sector)	..	..	1097.084	1260.664	1659.388	1961.378	2380.387	2680.427	2994.547	3363.876	3645.246
	Business enterprise	..	..	652.778	740.535	954.415	1041.873	1263.255	1437.683	1646.776	1822.97	1817.846
	Sub-total government	..	..	412.824	410.227	640.097	802.475	1024.343	1129.965	1206.03	1291.907	1541.086
South Africa	Total (funding sector)	..	1463.554	..	..	..	1769.753	..	..	..	2564.098	..
	Business enterprise	..	..	..	..	..	..	..	..	..	1431.363	..
	Sub-total government	..	..	..	..	..	..	..	..	..	932.881	..
Chinese Taipei	Total (funding sector)	..	..	..	5782.048	6310.553	7073.348	7779.552	8620.832	9164.847	9809.247	10948.257
	Business enterprise	..	..	..	..	..	..	5131.748	5688.321	5953.698	6362.45	6912.274
	Sub-total government	..	..	..	..	..	..	2543.486	2804.954	3059.713	3270.428	3854.023

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Country	**Source of Funds**												
Australia	Total (funding sector)	..	11683.189	..	15503.242	..	19133.001	..	20546.15	20955.603	..	..	..
	Business enterprise	..	6380.044	..	9002.576	..	11844.786	..	..	..	..	..	..
	Sub-total government	..	4705.102	..	5828.345	..	6619.147	..	..	..	..	..	..
Austria	Total (funding sector)	5707.803	6005.706	6802.55	7381.629	7917.494	8854.095	8860.474	9585.857	9906.502	10628.722	10752.629	11030.138
	Business enterprise	2575.37	2832.135	3103.493	3571.31	3855.559	4082.81	4169.796	4324.868	4573.497	4678.074	4743.811	4906.819
	Sub-total government	1966.121	1956.957	2442.79	2380.927	2557.199	3276.658	3093.572	3666.967	3542.294	4182.627	4201.11	4266.043
Belgium	Total (funding sector)	5901.654	6029.53	6171.135	6715.704	7168.536	7799.272	8044.795	8766.041	9729.114	10333.994	10603.422	..
	Business enterprise	3559.124	3626.909	3683.02	4098.986	4400.184	4756.916	4716.17	5047.67	5852.147	..	..	..
	Sub-total government	1389.797	1472.037	1521.368	1503.319	1587.874	1812.643	2036.048	2228.484	2278.241	..	..	..
Canada	Total (funding sector)	20133.515	21643.01	23089.966	24091.534	24741.994	24911.899	25027.67	25029.091	25393.102	25121.017	24565.359	..
	Business enterprise	10132.399	10860.85	11392.962	12322.895	12171.624	12321.065	12143.338	11752.712	12295.31	11902.512	11410.253	..
	Sub-total government	6330.099	6717.048	7339.879	7491.996	7909.826	8474.631	8648.535	8806.138	8733.743	8621.357	8564.48	..
Chile	Total (funding sector)	..	..	..	..	861.123	1026.32	963.991	1028.149	1232.069	1343.656	..	..
	Business enterprise	..	..	..	..	334.878	448.789	259.917	261.585	417.575	469.549	..	..
	Sub-total government	..	..	..	..	306.398	346.503	369.432	414.943	414.65	483.182	..	..
Czech Republic	Total (funding sector)	2300.958	2455.857	2664.509	3084.206	3586.476	3496.857	3660.339	3796.41	4683.791	5387.976	5812.939	..
	Business enterprise	1183.771	1297.139	1284.168	1513.576	1691.927	1575.33	1455.206	1547.763	1765.014	1960.399	2185.378	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Sub-total government	962.45	1028.669	1204.805	1386.071	1603.728	1566.56	1748.404	1686.94	1953.953	1981.872	2019.342	..
Denmark	Total (funding sector)	4231.793	4336.763	4418.877	4857.811	5311.722	6235.818	6717.152	6811.777	7157.096	7362.752	7513.404	..
	Business enterprise	2534.217	..	2630.369	..	3242.522	..	4173.862	4161.154	4377.594	4416.155	4491.489	..
	Sub-total government	1146.666	..	1218.779	..	1376.098	..	1755.88	1922.532	2014.845	2141.638	2198.856	..
Estonia	Total (funding sector)	139.296	170.268	207.224	290.424	312.941	379.072	376.4	444.253	733.449	706.221	592.192	..
	Business enterprise	45.908	62.12	79.765	110.749	130.279	150.821	144.861	193.709	403.443	362.231	249.03	..
	Sub-total government	67.691	75.173	90.142	129.397	142.845	189.635	183.743	196.126	240.208	270.526	279.642	..
Finland	Total (funding sector)	4959.946	5388.686	5601.228	6068.158	6637.144	7487.877	7514.76	7653.066	7892.045	7443.946	7175.595	..
	Business enterprise	3472.072	3731.891	3744.853	4038.804	4526.699	5263.052	5117.72	5058.531	5288.588	4693.864	4365.518	..
	Sub-total government	1275.749	1418.578	1436.945	1523.8	1596.306	1634.946	1803.695	1965.969	1975.598	1986.972	1867.731	..
France	Total (funding sector)	36913.781	37986.289	39235.696	42013	44015.891	46547.847	49757.031	50729.969	53428.413	54540.996	55218.147	..
	Business enterprise	18744.003	19271.752	20376.856	21983.904	23009.066	23655.251	26005.637	27139.59	29409.374	30203.917	..	..
	Sub-total government	14401.737	14710.099	15158.304	16179.629	16791.294	18116.376	19261.317	18839.118	18779.606	19071.525	..	..
Germany	Total (funding sector)	59527.508	61330.868	64298.788	70228.974	74023.145	81970.656	82822.152	87822.013	96282.448	100699.07	100991.37	..
	Business enterprise	39444.662	40821.973	43449.763	47962.655	50424.536	55144.193	54767.874	57599.328	63194.067	66536.361	..	..
	Sub-total government	18550.849	18720.973	18250.999	19330.827	20365.702	23282.101	24652.201	26605.739	28724.979	29417.682	..	..
Greece	Total (funding sector)	1421.725	1469.149	1615.499	1749.592	1866.967	2284.659	2130.454	1927.317	1986.887	1945.394	2273.861	..
	Business enterprise	401.299	..	501.82	..	..	668.019	713.352	703.986	650.489	603.281	688.632	..
	Sub-total government	659.971	..	756.307	..	..	1420.65	1166.352	930.083	978.313	979.678	1188.615	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Hungary	Total (funding sector)	1460.559	1437.738	1615.661	1852.99	1870.885	2058.174	2382.736	2472.569	2696.154	2842.692	3249.569	..
	Business enterprise	448.093	533.445	637.307	802.396	820.629	994.231	1106.249	1171.337	1279.64	1332.718	1520.852	..
	Sub-total government	847.624	744.894	798.371	829.636	830.895	860.707	1000.334	972.65	1027.175	1048.021	1165.92	..
Iceland	Total (funding sector)	251.402	..	287.076	326.407	310.621	333.59	337.939	..	314.837	..	..	..
	Business enterprise	110.312	..	137.784	160.908	156.398	167.963	161.555	..	156.932	..	..	..
	Sub-total government	100.868	..	116.252	129.121	120.52	129.432	135.982	..	125.91	..	..	..
Ireland	Total (funding sector)	1616.304	1830.08	2009.436	2253.794	2537.585	2738.324	3066.688	3166.45	3151.201	3271.467	..	..
	Business enterprise	974.048	1071.657	1154.386	1204.009	1257.315	1335.217	1597.293	1653.755	1565.085	1646.905	..	..
	Sub-total government	482.186	569.986	643.02	718.766	822.837	921.883	913.733	931.898	892.446	891.683	..	..
Israel	Total (funding sector)	6204.19	6656.091	6966.3	7501.015	8748.694	8706.366	8506.847	8672.909	9615.076	10625.692	11032.852	..
	Business enterprise	3176.842	3628.915	3917.688	4125.938	4949.859	4610.565	3192.515	3256.653	3773.788	3782.619	..	..
	Sub-total government	1257.281	1163.349	1007.335	1003.376	1065.704	1062.496	1092.269	1079.348	1092.055	1289.229	..	..
Italy	Total (funding sector)	17321.78	17482.922	17999.035	20207.214	22317.27	24076.149	24648.78	25151.543	25769.282	26849.638	26520.41	..
	Business enterprise	..	..	7139.013	8168.582	9377.552	11054.635	10884.267	11233.089	11618.98	11891.106	..	..
	Sub-total government	..	..	9121.251	9492.095	9879.438	10112.267	10388.828	10453.996	10798.576	11423.455	..	..
Japan	Total (funding sector)	112192.26	117597.89	128694.56	138564.85	147602.23	148719.24	136953.96	140607.43	148389.23	151810.01	160246.83	..
	Business enterprise	83747.487	87976.646	97964.303	106791.16	114694.9	116257.52	103081.73	106764.83	113552.43	115550.76	120953.06	..
	Sub-total government	20213.274	21255.344	21568.689	22426.396	23070.4	23229.548	24194.676	24146	24347.449	25564.794	27720.359	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Korea	Total (funding sector)	24071.713	27942.354	30618.326	35413.065	40640.266	43906.413	45987.242	52172.793	58379.654	64458.181	68937.037	..
	Business enterprise	17816.57	20946.477	22951.391	26717.861	29932.5	31999.627	32689.745	37462.266	43032.914	48169.509	52171.822	..
	Sub-total government	5742.432	6465.382	7049.806	8170.547	10077.118	11156.177	12598.283	13954.55	14538.279	15372.887	15740.017	..
Luxembourg	Total (funding sector)	452.727	485.392	495.332	616.608	639.929	682.829	683.895	641.412	668.956	563.775	571.469	..
	Business enterprise	363.947	..	394.901	..	486.437	..	480.539	284.168	319.843	..	116.942	..
	Sub-total government	50.504	..	82.275	..	116.715	..	165.913	223.345	204.136	..	..	..
Mexico	Total (funding sector)	4401.936	4778.963	5346.151	5462.067	5717.113	6626.573	7008.036	7863.672	8058.471	..	..	..
	Business enterprise	1527.306	1845.462	2219.192	2469.986	2548.664	2534.855	2737.545	2847.356	2961.896	..	..	..
	Sub-total government	2469.844	2405.837	2629.406	2717.686	2900.88	3597.028	3726.003	4756.873	4804.681	..	..	..
Netherlands	Total (funding sector)	9883.096	10420.023	10904.379	11727.498	12062.132	12467.827	12370.156	12822.169	14622.967	15183.495	15376.722	..
	Business enterprise	4644.45	..	5050.473	..	5884.109	..	5584.873	..	7299.59	7320.806	7242.606	..
	Sub-total government	3986.514	..	4235.88	..	4587.156	..	5058.357	..	5196.871	5312.586	5278.342	..
New Zealand	Total (funding sector)	1108.651	..	1189.316	..	1431.255	..	1655.439	..	1766.589	..	..	..
	Business enterprise	423.908	..	488.273	..	582.834	..	645.709	..	705.962	..	..	..
	Sub-total government	485.277	..	513.811	..	604.028	..	740.287	..	731.536	..	..	..
Norway	Total (funding sector)	2990.944	3064.505	3315.857	3713.456	4190.107	4630.523	4676.887	4743.834	5057.414	5396.202	5519.606	..
	Business enterprise	1511.226	..	1551.408	..	1886.108	..	2039.777	..	2235.226	..	2381.558	..
	Sub-total government	1214.113	..	1444.646	..	1883.27	..	2187.293	..	2354.092	..	2527.378	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Poland	Total (funding sector)	2479.36	2770.786	2982.426	3197.283	3620.718	4150.907	4864.695	5722.56	6394.7	7827.43	7918.125	..
	Business enterprise	750.411	844.517	994.641	1056.772	1240.366	1264.308	1318.095	1397.155	1797.916	2528.594	2955.779	..
	Sub-total government	1555.053	1708.489	1721.188	1836.94	2122.079	2481.915	2940.465	3487.036	3568.418	4017.905	3740.905	..
Portugal	Total (funding sector)	1446.191	1551.091	1755.164	2399.218	2989.852	3981.886	4376.95	4362.845	4142.364	3911.551	3942.651	..
	Business enterprise	458.809	530.194	636.552	1030.61	1406.082	1914.558	1919.98	1917.171	1852.282	1800.828	..	..
	Sub-total government	869.234	891.124	968.831	1165.733	1332.368	1740.503	1989.705	1968.11	1730.259	1687.206	..	..
Slovak Republic	Total (funding sector)	420.258	403.925	440.056	482.441	517.936	594.116	592.783	816.111	903.474	1127.524	1190.628	..
	Business enterprise	189.523	154.669	161.055	168.644	184.369	206.06	208.113	286.13	305.851	425.143	478.571	..
	Sub-total government	213.663	230.698	250.966	268.062	279.27	310.921	299.722	404.556	449.503	468.757	463.126	..
Slovenia	Total (funding sector)	520.5	620.049	674.891	796.322	795.387	972.574	1019.331	1162.928	1418.612	1508.921	1537.842	..
	Business enterprise	271.595	362.702	369.802	472.435	463.455	610.854	591.045	678.869	868.582	938.88	981.88	..
	Sub-total government	195.086	185.849	251.069	274.004	283.203	304.41	363.488	410.139	447.001	432.681	413.263	..
Spain	Total (funding sector)	10925.282	11787.566	13330.802	16070.325	18316.534	20414.936	20554.756	20336.22	20149.1	19452.853	19133.2	..
	Business enterprise	5282.93	5662.852	6170.78	7564.582	8326.137	9176.894	8912.491	8742.615	8928.44	8878.846	8859.591	..
	Sub-total government	4377.555	4834.021	5731.071	6827.958	7996.111	9302.967	9682.219	9485.09	8961.453	8390.52	7964.543	..
Sweden	Total (funding sector)	10381.04	10452.087	10509.932	11949.286	12085.013	13496.069	12599.701	12585.382	13315.798	13703.194	14151.281	..
	Business enterprise	6760.929	..	6711.403	..	7584.591	..	7451.442	..	7631.15	..	8625.77	..
	Sub-total government	2523.897	..	2571.13	..	2977.132	..	3434.192	..	3685.624	..	3990.54	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Switzerland	Total (funding sector)	..	7471.638	..	..	..	10525.203	..	..	..	13251.399	..	..
	Business enterprise	..	5210.184	..	..	..	7177.155	..	..	..	8053.93	..	..
	Sub-total government	..	1696.803	..	..	..	2404.008	..	..	..	3368.332	..	..
Turkey	Total (funding sector)	2845.086	3569.082	4617.455	5195.491	7048.762	7744.474	8867.128	9852.515	11245.516	12430.838	13315.103	..
	Business enterprise	1030.285	1353.251	1999.622	2392.297	3414.801	3659.536	3632.628	4445.878	5153.254	5814.42	6507.735	..
	Sub-total government	1622.212	2033.034	2315.006	2526.609	3317.82	2449.006	3010.885	3036.632	3289.251	3504.614	3535.648	..
United Kingdom	Total (funding sector)	31093.645	32024.391	34080.661	37045.731	38734.966	39396.925	39432.852	38139.276	39132.645	38851.819	39858.827	..
	Business enterprise	13117.302	14110.559	14334.306	16743.551	17800.221	17895.194	17562.405	16799.974	17945.044	17719.974	18552.982	..
	Sub-total government	9871.847	10541.363	11154.039	11805.951	11977.56	12080.514	12836.915	12310.751	11916.721	11140.514	10759.644	..
United States	Total (funding sector)	293852	305640	328128	353328	380316	407238	406000	409599	429143	453544	..	..
	Business enterprise	186113	191307	207725	227110	246741	258691	247270	234202	251405	268175	..	..
	Sub-total government	90353	96461	101044	105501	110931	123757	132545	133497	133767	139665	..	..
Non-OECD Member Economies	Total (funding sector)	..	..	..	..	..	..	..	..	..	..	..	..
	Business enterprise	..	..	..	..	..	..	..	..	..	..	..	..
	Sub-total government	..	..	..	..	..	..	..	..	..	..	..	..
Argentina	Total (funding sector)	1462.713	1745.722	2037.406	2406.691	2676.2	2951.227	3409.955	3837.872	4471.69	5185.838	..	..
	Business enterprise	384.82	536.275	632.003	707.138	783.463	782.706	731.066	856.527	1070.252	1106.673	..	..
	Sub-total government	1007.306	1126.381	1330.008	1604.387	1807.393	2082.215	2572.436	2866.652	3199.943	3837.852	..	..

Year		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
China (People's Republic of)	Total (funding sector)	56447.113	69268.816	85714.197	104323.73	122921.58	144684.85	184379.16	213009.91	247808.3	293064.52	336495.44	..
	Business enterprise	33926.268	45489.222	57463.764	72036.578	86502.855	103798.42	132282.72	152706.28	183157.28	216987.29	251030.08	..
	Sub-total government	16885.409	18445.099	22580.827	25780.638	30264.168	34130.252	43163.09	51160.969	53714.057	63214.819	71027.099	..
Romania	Total (funding sector)	644.31	731.912	831.802	1093.333	1438.396	1866.651	1493.175	1516.641	1726.212	1738.384	1452.925	..
	Business enterprise	292.428	321.718	309.675	332.484	386.494	434.239	518.917	489.413	645.698	598.123	450.667	..
	Sub-total government	306.879	358.913	445.016	700.798	965.748	1308.478	820.058	825.021	848.081	868.25	759.675	..
Russia	Total (funding sector)	17213.744	16970.801	18120.51	22893.871	26535.661	30058.385	34654.585	33093.513	35192.077	38787.929	40694.501	..
	Business enterprise	5295.68	5326.362	5436.871	6595.179	7813.483	8625.201	9213.774	8441.237	9740.676	10560.365	11459.191	..
	Sub-total government	10260.821	10290.116	11224.821	13987.951	16616.224	19453.907	23031.703	23281.03	23605.414	26313.627	27527.633	..
Singapore	Total (funding sector)	3804.966	4448.955	5063.217	5609.963	6882.836	8018.106	6611.403	7194.047	8359.708	8149.318	..	..
	Business enterprise	1962.179	2460.015	2974.729	3272.769	4119.014	5089.861	3447.236	3821.729	4624.916	4349.55	..	..
	Sub-total government	1589.406	1685.087	1843.519	2041.42	2401.426	2396.082	2669.512	2893.625	3180.92	3140.388	..	..
South Africa	Total (funding sector)	3058.798	3519.156	4058.032	4584.53	4908.835	5235.086	4847.857	4405.288	4652.174	4870.706	..	..
	Business enterprise	1675.051	1710.873	1780.134	2053.449	2094.353	2232.636	2060.753	1767.928	1814.666	1867.391	..	..
	Sub-total government	1041.51	1253.042	1549.866	1851.565	2243.049	2363.014	2154.566	1961.643	2002.941	2210.15	..	..
Chinese Taipei	Total (funding sector)	12197.712	13573.46	15156.181	17258.981	19220.83	21414.091	22383.181	24860.595	27348.649	28710.963	30332.138	..
	Business enterprise	7715.239	8788.856	10132.839	11589.464	13228.557	15076.634	15605.857	17705.951	19835.563	21272.922	22887.107	..
	Sub-total government	4297.188	4562.729	4780.898	5421.173	5740.177	6048.761	6471.169	6836.712	7177.359	7106.802	7114.238	..

Applications success ratio by fields of sciences, Hungarian Scientific Research Fund, 2009-2013 (with the percentage of successful applications). Source: European Science Foundation, Organisational Evaluation of the Hungarian Scientific Research Fund (OTKA), Evaluation Report, November 2014, http://www.esf.org/uploads/media/otka_evaluation_01.pdf, p. 21, Data calculated from Table 2. Application overview by gender and research programme activity, 2009-2013

	N° Applicants	Awarded	Success rate	Not awarded
Life Sciences (25%)	2394	610	25%	1784
Physical Sciences & Engineering (28%)	1803	512	28%	1291
Social Sciences & Humanities (30%)	1662	499	30%	1163
International	70	0	0%	70
Publication Grants	212	145	68%	67
Total	6141	1766	29%	4375

ERC funding distribution by domain, 2007 and 2009 – 2015. Source: European Research Council, Statistics, http://erc.europa.eu/projects-and-results/statistics, data downloaded on August 3, 2015. PE: Physical Sciences & Engineering; LS: Life Sciences; SH: Social Sciences & Humanities.

	2007	2009	2010	2011	2012	2013	2014	2015
Total evaluated	8787	2392	2767	4005	4652	3255	3204	2872
Total granted	299	245	436	486	566	300	375	
PE evaluated	4236	1069	1175	1662	2028	1467	1456	1253
PE granted	137	110	201	223	252	131	163	
LS evaluated	3273	883	982	1413	1620	1038	1010	922
LS granted	105	82	154	171	209	113	142	
SH evaluated	1278	440	610	930	1004	750	738	697
SH granted	57	53	81	92	105	56	70	

Higher Education Funding Council for England mainstream quality-related research funding distribution per subject areas. Source: Higher Education Funding Council for England, Mainstream quality-related research (QR) funding distribution per subject areas. HEFCE archive of annual funding allocations, http://www.hefce.ac.uk/funding/annallocns/Archive/ and http://webarchive.nationalarchives.gov.uk/20100202100434/http://hefce.ac.uk/research/funding/qrfunding/previous.asp

Unit of Assessment / year	Health, biology and agriculture	Sciences, technology, mathematics and engineering	Arts, humanities and social sciences	Total
97-98	£ 219,142,370	£ 237,786,782	£ 227,070,846	£ 683,999,998
98-99	£ 236,751,517	£ 242,158,535	£ 235,452,562	£ 714,362,614
99-00	£ 259,864,149	£ 244,802,153	£ 233,389,067	£ 738,055,369
00-01	£ 266,519,479	£ 244,397,838	£ 237,477,495	£ 748,394,812
01-02	£ 273,828,828	£ 249,615,647	£ 243,383,606	£ 766,828,082
02-03	£ 282,603,945	£ 236,667,338	£ 252,860,503	£ 772,131,786
03-04	£ 256,963,649	£ 211,908,086	£ 188,348,153	£ 657,219,889
04-05	£ 273,204,557	£ 243,475,636	£ 213,639,440	£ 730,319,632
05-06	£ 283,491,753	£ 246,625,647	£ 238,952,796	£ 769,070,196
06-07	£ 221,779,792	£ 267,363,579	£ 261,870,657	£ 751,014,028
07-08	£ 202,995,768	£ 249,211,818	£ 261,420,808	£ 713,628,395
08-09	£ 250,315,138	£ 313,317,000	£ 322,397,416	£ 886,029,554
09-10	£ 319,152,288	£ 369,572,694	£ 385,243,573	£ 1,073,968,555
10-11	£ 325,034,569	£ 376,333,692	£ 395,399,766	£ 1,096,768,027
11-12	£ 311,997,972	£ 361,280,614	£ 379,496,226	£ 1,052,774,812
12-13	£ 307,333,651	£ 353,816,372	£ 357,344,958	£ 1,018,494,981
13-14	£ 307,333,651	£ 353,816,372	£ 357,344,958	£ 1,018,494,981
14-15	£ 307,333,651	£ 353,816,372	£ 357,344,958	£ 1,018,494,981
15-16 (partial)	£ 105,696,149	£ 121,320,403	£ 122,040,566	£ 349,057,117

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