

Research Funding for Economics in Europe

Report of the *European Economic Association Standing Committee on Research* and the *Academic Careers Observatory of the Max Weber Programme*, European University Institute.

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Executive Summary

Developing a competitive and open European research area (ERA) is essential for growth and to the process of European integration. However, different languages, a diversity of academic traditions and a variety of informal barriers often inhibit the free flow of research funding, the mobility of academic talent and, as a result, the efficient allocation of R&D funding. In times of financial restraint the latter becomes particularly important.

In this context, research grants, in particular if they are allocated across national borders (e.g. by the European Research Council (ERC)), can provide a viable tool to circumvent limits to integration and consequently to enhance the exchange of ideas. In fact, the relationship between openness and successful research funding is reciprocal and internationalization can benefit national and regional funding, e.g. by permitting the inflow of foreign resources. However, if not designed correctly, research funding can also aggravate the initial problem, for example by conditioning grants on nationalities and/ or local use or by failing to retain and attract the most able researchers.

To assess the state of European integration for research in economics and to provide a unique user perspective on available research funding in Europe, the [Academic Careers Observatory \(ACO\)](#) of the [Max Weber Programme \(MWP\)](#) and the [European Economic Association \(EEA\)](#) conducted a survey, inviting members of the EEA as well as a selection of acclaimed researchers to answer an online questionnaire regarding their sources of, and experience with, research funding in economics. While the sample is potentially biased to the extent that it represents only the most active and successful researchers, it is of significant size (2,385 valid responses) and exhibits common sociological features, such as for example the 'gender scissors problem'. By summarizing the perceptions of only the most active researchers, the sample is in addition representative of precisely that fraction of academics' research grants are typically intended to cater for.

In order to assess the state of integration, and to evaluate the role of research funding for economists, this report is thus structured as follows: first, the profile of the profession is analyzed by gathering personal information and assessing the respondents' current working positions. Subsequently attention is focused on the research funding experience of the respondents, revealing both the specifics of research funding, as well as subjective perceptions of funding application and fruition processes. Finally, the survey is supplemented with commentaries about the state of research funding in selected European countries.

Results

***Research Funding in Europe.** This section provides general background information on research funding in Europe. It shows for example that Anglo-Saxon and Continental countries have not only the largest, but also the fastest growing research budgets. The statement is qualified by the observation that while other countries and regions cannot match total R&D expenditure, they are more dominant when spending is analyzed relative to GDP (Scandinavian countries) or when only the share of expenditure on Social Sciences and Humanities (SSH) is considered (Portugal, Turkey, Norway, Spain).*

***The Economics Profession.** The first part of the survey describes the sample and collects a number of facts about the profession: for instance, the majority of the participants who responded were from Germany, Italy, the UK and Spain, about one fourth of them is female, and they are on average about 40 years old. Ageing over the academic career is reflected as well as an increasing gender divide (the 'gender scissors problem'). In addition, the survey shows how research intensity is decaying with seniority, how women allocate a larger fraction of their time to research than do men, and that universities, rather than research institutes, are the primary employers for active research economists. Finally, the data shows that there is considerable national variation in terms of research internationalization: while Scandinavian and Anglo-Saxon countries are the most open, Mediterranean countries as well as Central and Eastern Europe are less integrated into the international environment. It is also the case that researchers move towards less international environments after completion of their PhDs and subsequent post-doctoral fellowships; the latter feature of the data seems to reflect the lack of openness to pursue stable academic and research careers in many European countries.*

***Research Funding in Economics.** In addition to unveiling the largely unexplored recipients' perspective on research funding within ERA, the sample also allows identification of the most relevant funding sources for economists.*

A first observation to make is that sources are fairly heterogeneous across countries. Yet national public funding stands out as the primary source, particularly in the UK and in Continental European countries. Together with funding from the home institution, national public funding accounts for more than 60% of the budget in all countries with the exception of Italy. Funding flows across countries are relevant, although not large, and indicate relative openness (Austria, Netherlands). They also indicate the need to substitute for domestic weaknesses (Italy).

Moreover, the following observations with respect to both national and supra-national financing sources stand out: there appears to be a positive correlation between the perception of management quality, and of trust in evaluation procedures. That is, countries with national agencies that are perceived as not

well managed (Italy, France, CEE) also exhibit significantly higher mistrust in the evaluation process. Moreover, scholars are not entirely satisfied with either the Framework Programme (FP), or the European Research Council (ERC). In addition to low success rates, cumbersome procedures and high logistical costs are perceived as major obstacles to submitting an application, plus the allocation of funds is considered more flexible with national and institutional grants than with FP or ERC grants. There is evidence that researchers with a successful research record obtain higher application success rates when applying for national public grants, while the same does not pertain to FP (not ERC) and ERC grants. Satisfaction levels with European sources display considerable diversity and there is some evidence of an inverse relation between satisfaction at national and European levels

When it comes to improving the provision of research funding, the respondents mention flexibility, adequate funding, competent and transparent evaluation and the simplification of the application process first. In addition, stable and regular calls are asked for and economists express a need for teaching buyouts and salary complements. Open calls, and an accent on excellence, are mentioned as missing, as well as a lack of funding opportunities at all career stages (in particular for young researchers) and support for innovative ideas.

Openness, Internationalization & Mobility. Anglo-Saxon, but also smaller Continental countries such as Austria and Belgium, attract the largest portions of foreign funds. However, while these portions continue to grow in Anglo-Saxon countries, they diminish in Continental countries. In terms of researcher mobility, the UK leads, followed by Scandinavian and Continental countries. CEE countries and Turkey are relatively closed.

This section also provides an opportunity to contrast the survey evidence with more general data on researcher mobility. The sample, while being more international than the average researcher, reflects the relative patterns of openness well. Following the proportion of foreigners over their academic careers further reveals that regions such as Scandinavia, and also Spain and Germany, are relatively open for younger researchers but exhibit only a small fraction of foreign full professors. This pattern is inverted in countries such as the CEEs but also in Switzerland.

Finally, not surprisingly, the highest proportion of foreign researchers among the sample respondents are at the post-doctoral stage.

Conclusion. The single most important conclusion from the survey is that in spite of the advances made by many funding agencies, there is still ample room to improve efficiency. In particular, the most active researchers in economics agree on the value of flexible research grants, as well as on having 'competent and transparent' evaluation procedures. There is a consensus in favour of a 'competitive bottom-up approach' to research funding among the survey

participants that weighs stronger than other important elements such as the size of grants. The report also shows that many agencies have not yet implemented the competitive bottom-up approach successfully and that countries with schemes that 'properly assess and trust the researcher' are typically also the ones with a more international and better integrated research environment. As the case of the UK shows, openness can very well imply that national efforts are multiplied when resources and talent move into the country.

Regarding the Framework Programme, perceptions differ by country, but lack of flexibility of the FP (not ERC) is a major concern.

In addition, the report provides a variety of insights about the profile of the profession in general, about academic careers in economics and about the 'users' perspective' on European research funding for economics; furthermore, it answers questions related to the gender divide, the allocation of time and on how to administer a successful funding scheme (transparent evaluation, appropriately sized grants etc.).

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1. INTRODUCTION

Integrating diverse academic traditions and a variety of institutional structures, the European research environment is by its very construction fragmented (*Grigolo et al. (2010)*). Adding to language barriers, this organisational heterogeneity necessarily affects openness and researcher mobility and consequently the efficient allocation of resources. Moreover, in contrast to the United States (US), these difficulties seem to be particularly pronounced with regard to research in Economics. US departments are better able to assemble a critical mass of high profile researchers across sub-disciplines, benefit from scale economies and attract not only the most able European graduate students, but also leading senior scholars. As a result, the research produced at these departments is more often cited in leading scholarly journals and outperforms Europe-based publications with respect to their academic impact (*Albarrán et al. (2010)*).

A common conjecture is that many of these differences are related to the US' ability to provide a more coherent funding structure. The variety of regional, national and supra-national grants, while in principle able to provide more funding opportunities to European researchers, entails costs that may easily offset the benefits. The diversity of requirements often makes it difficult for European researchers to identify the most suitable sources of funding. In addition, the necessity to be alert to uncoordinated calls and deadlines across countries has high opportunity costs and adds to the inefficiencies related to limited cross-border access. Unlike in Europe, grants in the US are not concerned with (potentially conflicting) national interests and rely on academic excellence as the leading criterion for allocation. Finally, scholars need not worry about access to national academic systems when being offered academically valuable but temporary employment.

These difficulties are well-known and the European Commission in particular has begun to address them systematically: the Framework Programmes (FP) have existed since the mid-1980s and with the formal introduction of the European Research Area (ERA) in 2000, efforts have become even more focused. In 2005, the establishment of the European Research Council (ERC) further contributed to the formalization of the important role the Commission assigns to the creation of an integrated research area. However, more effort is clearly needed. The Max Weber Programme of the European University Institute has created the Academic Careers Observatory (ACO), a one-stop source aimed at informing researchers in the social sciences about academic careers, peculiarities of national academic structures, and available grants in the Member States¹.

¹ The Max Weber Programme is funded by the European Commission (DG Education and Culture). The ACO website is: <http://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/Index.aspx>

The EEA Survey

The evidence presented on the user perspective on research funding in Europe results from a survey conducted among professional research economists. It was addressed to members of the European Economic Association (EEA) as well as to the union of the top 12.5% RePec listed economists in Europe and the top 25% RePec listed economists from each member country. In total, 5416 individuals were invited to participate, 2385 provided valid responses.

The survey was conducted between 21 June and 15 July 2010 and asked the participants to provide information on personal characteristics, their current occupation and their main sources of funding. It also asked them to indicate the significance of research funding throughout the different stages of their academic career and, most importantly, to voice their opinion on the structure, accessibility, transparency and general satisfaction with the existing sources. Respondents were also asked to indicate their experience with different agencies and name their most recent applications. As a consequence, the results presented in this section contain unique information on researchers' sources of funding and their corresponding evaluation.

Similarly, in 2007 the European Economic Association established the Standing Committee on Research Funding (EEA-SC) with the aim to monitor and advise funding agencies and governments across Europe and provide them with an informed perspective on the needs and requirements of successful and competitive research in Economics.

This report provides a summary of recent joint efforts of the ACO and the EEA-SC. It summarizes information from a recent survey among Europe-based researchers in Economics and reviews briefly the landscape of sources for research funding in selected member states. The user perspective is unique, not only among research economists, and adds to the available structural information significantly, both about the sociology of the research economics profession in Europe and, as the main focus of the survey, about the researcher's perception regarding the adequacy of existing funding institutions and schemes.² In particular, it helps to identify weaknesses with respect to the available programmes but also with respect to the visibility of existing facilities. Consequently, the report addresses policymakers and academics alike. It suggests to the former opportunities to improve upon the current situation, and provides the latter with a catalogue of available resources that can help guide future career choices. As such the report provides an important step towards the much needed communication between the two.

² The Academic Careers Observatory has extended the survey to cover European sociologists and political scientists, which will allow for more comprehensive results regarding Social Sciences.

The remainder of the report is structured as follows: Section 2 provides general background about research funding in Europe, while Section 3 describes the profile of the sample and thus of the most active European research economists. Section 4 then uses the survey data to elaborate on Sections 2 and 3 and describes the respondents' budget sources and thereby the state of research in economics. Section 5 exploits the subjective evaluation asked for in the survey, to summarize economists' reasons (not) to apply for funding from the available sources and to ask them which elements they consider most desirable. Section 6 illustrates the state of openness of different regions within ERA and Section 7 provides expert summaries on selected countries. Finally Section 8 concludes the report.

2. RESEARCH FUNDING IN EUROPE

Summary

- *Continental and Anglo-Saxon countries have the largest and fastest growing R&D budgets in Europe.*
- *Only 'Other Continental' countries have reduced R&D expenditure in levels since 2007.*
- *Relative to GDP, R&D expenditure also decreased in the UK and 'Other Anglo-Saxon' countries.*
- *In relative terms, Scandinavian countries have increased their research budgets most rapidly.*
- *The fraction of expenditure for SSH out of total R&D expenditure lies between 5-20%.*
- *Portugal and Turkey have relatively large SSH budgets.*
- *Norway and Spain have the fastest growing budgets for SSH.*
- *The data does not reflect the Euro crisis of 2009-11.*

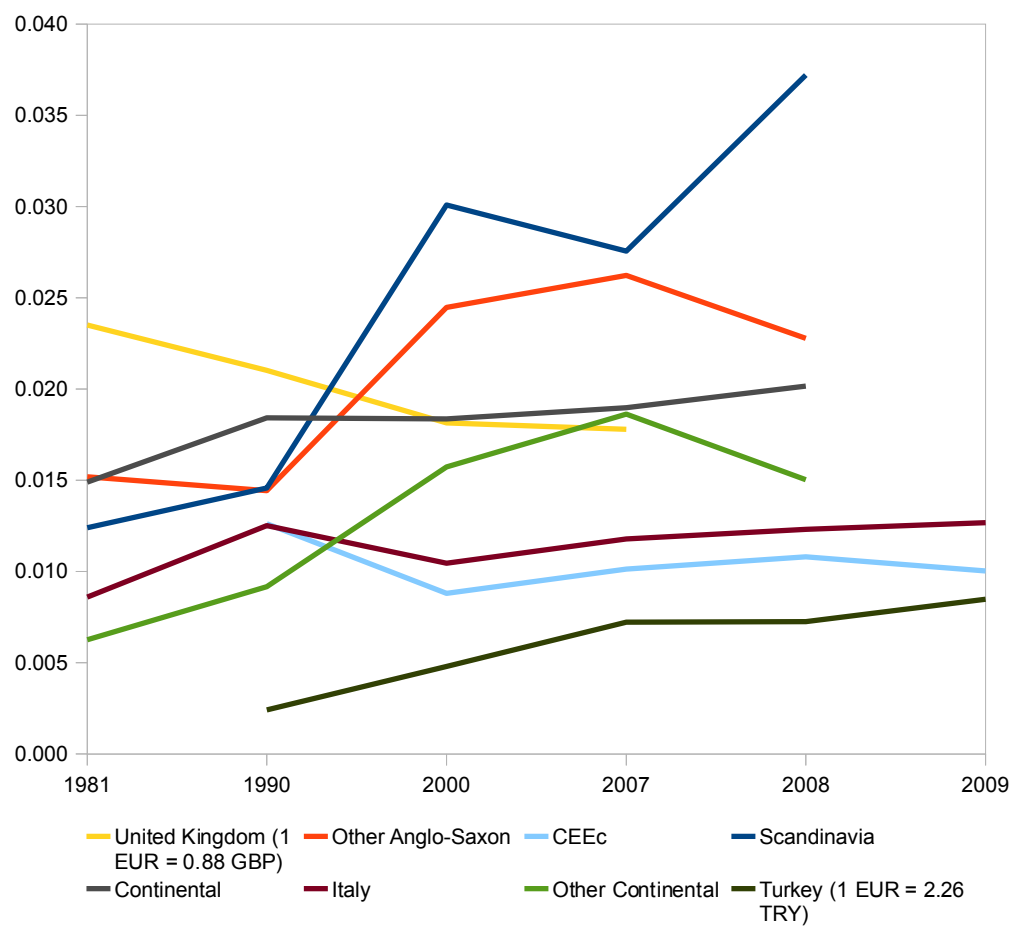
In this section, general information on research funding in Europe is presented. Thus, it provides the background against which to interpret the survey data and augments the more detailed country reports in Section 7.

A natural starting point for the analysis is the comparison of total R&D expenditure: Table A.1 and Figure A.1 in the Appendix show that Continental and Anglo-Saxon countries on average have the largest R&D budgets in Europe.³ While this is not surprising, it is interesting to notice that R&D expenditure in these countries is also the fastest growing; as a result, the gap relative to the peripheral countries – and thus inequality – can be expected to widen in the future. While R&D expenditure in Italy followed a similar trend to, for example, that in the UK until 2007, the numbers document that its total R&D expenditure has stagnated ever since. Among 'Other Continental' countries R&D expenditure has even decreased since 2007.⁴ As shown in Figure 1, this negative trend persists even when considered relative to gross domestic product (GDP). Interestingly however, also the UK and 'Other Anglo-Saxon' countries have decreased their R&D expenditure in relative terms since 2007. On the other hand, Scandinavian countries exhibit a strong upward trend of R&D expenditure over GDP.

³ Tables and Figures numbered A.XX refer to the Appendix throughout the report.

⁴ See the Appendix for the grouping of countries.

Figure 1: R&D expenditure (as % of GDP).



Source: OECD

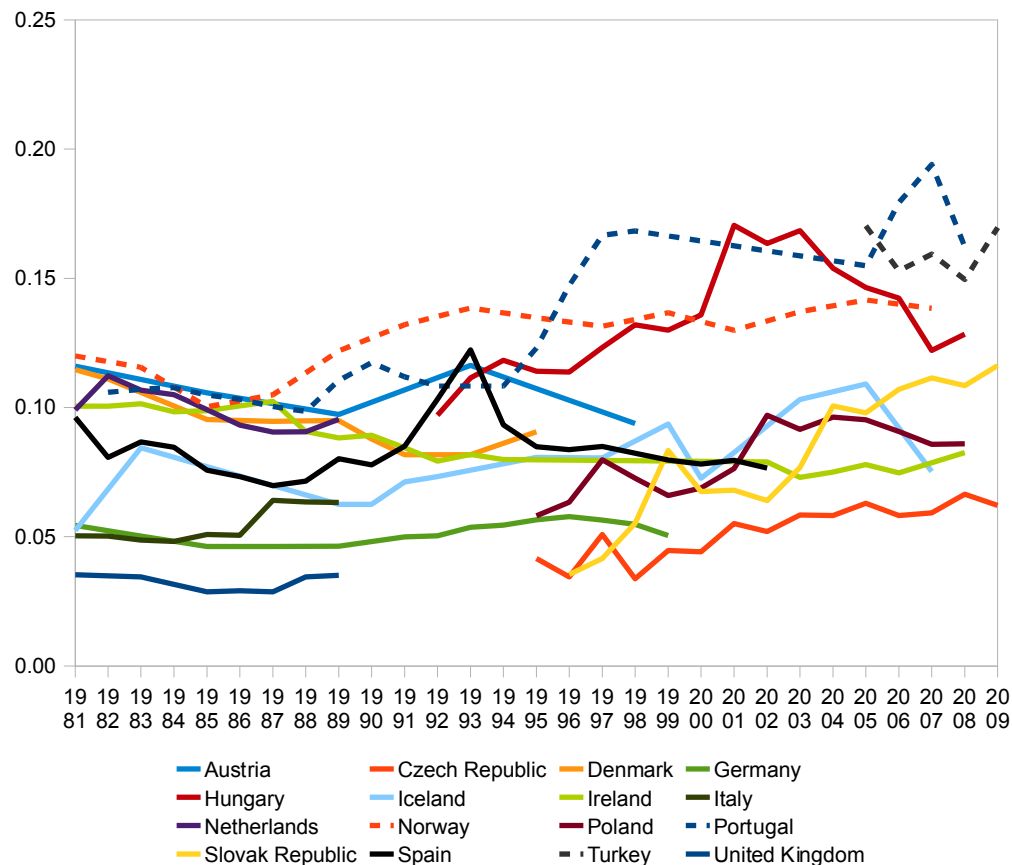
Notes: GDP in current prices/ expenditure approach.

Due to their relatively low capital intensity, the Humanities and Social Sciences (SSH) however, do not typically constitute a defining proportion of countries' research budgets, and consequently it is not clear how relevant these trends are for research in Economics. The natural next step is therefore to study comparable data at a more disaggregated level.

Figure 2 shows that the fraction of SSH out of total R&D spending lies indeed only between 5% and 20%.⁵ The corresponding data in levels is provided in Figure 3 and Table A.2. Even though the data is not complete, it is sufficient to show that the developments at the SSH level are different from the trends for total R&D expenditure. First, Spain and Norway stand out as the countries with the fastest growing budgets for research in SSH and while the most recent data for Spain is from 2000, the trend in Norway appears to continue through at least 2007.

⁵ It is somewhat higher for individual observations of Israel and Slovenia. For expositional purposes we have excluded them from Figure 2. The complete numbers however, are available in Table A.1 and Table A.2.

Figure 2: *Gross domestic expenditure (intramural) on SSH (as % of Total R&D).*

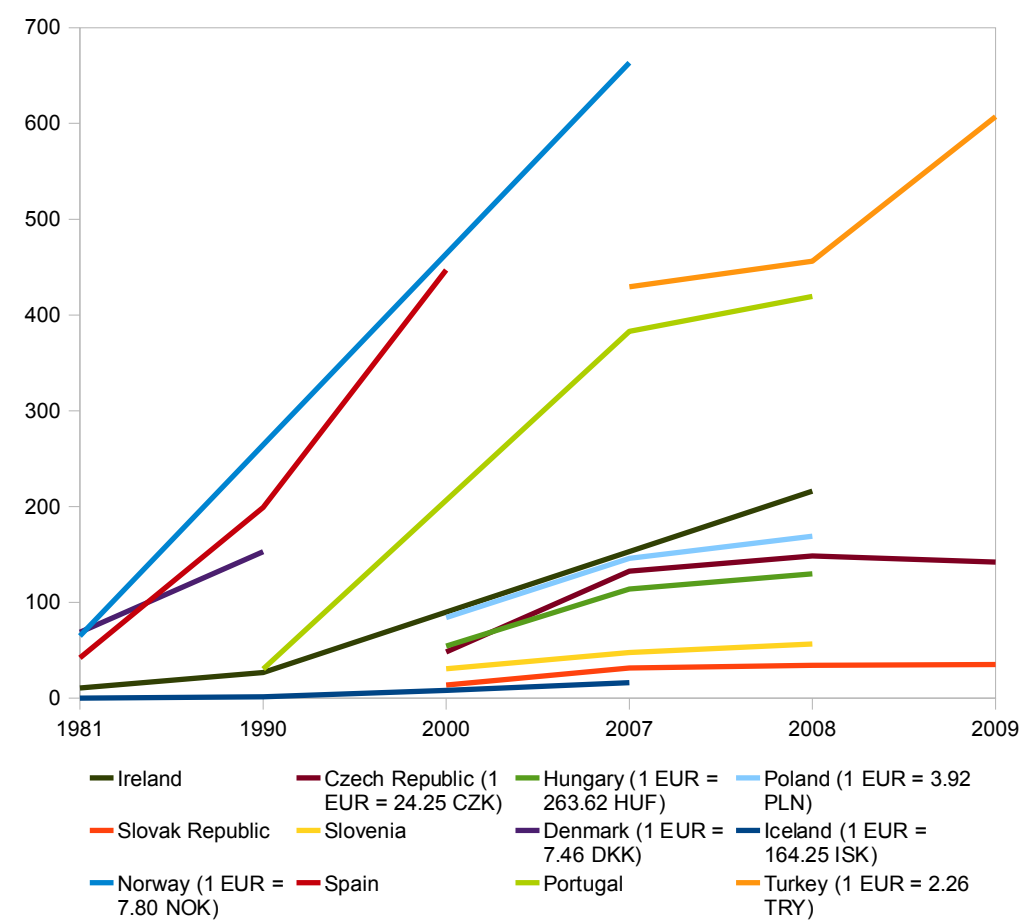


Source: OECD

Maybe surprisingly, Portugal and Turkey also have relatively large budgets for expenditure on SSH, and while Turkey appears to be growing at rates comparable to Norway, Portugal has recently slowed down. SSH expenditure in all other countries that report disaggregated data appears to be fairly low and stagnating. A final observation to make in Figure 2, is that, on average, high GDP countries seem to be spending lower amounts of their research budget on SSH.

As a corollary to the observations, it ought to be mentioned that the available data mostly describes pre-crisis trends. Countries such as Greece, Portugal and Spain, indeed also Ireland and the UK, are facing severe budget cuts and are thus likely to reduce R&D expenditure in the future; these developments do not yet show up in the official data, but we posit that they ought to be carefully watched.

Figure 3: Total R&D Expenditure for SSH (in Million EUR)



Source: OECD

3. THE SURVEY INFORMATION REGARDING THE ECONOMICS PROFESSION

Summary

- *Majority of respondents from Germany, Italy, UK and Spain.*
- *23.6% female respondents.*
- *Average age: 41.8 years.*
- *Evidence of 'gender scissors problem' (increasing gender divide over an academic career).*
- *Ageing over an academic career is well documented.*
- *Preponderance of university researchers.*
- *Research institutes are the second most important employer for research economists.*
- *Respondents allocate the largest portion of their time to research, but research intensity declines over academic career span.*
- *Female respondents allocate more time to research.*
- *Significant heterogeneity with respect to internationalization of the respondents' research environment.*
- *Internationalization of research environment is typically lower after the PhD and Postdoctoral phases.*

In this section, the profile of the economics profession, as represented by the sample respondents, is discussed in some detail. Information of this kind is interesting in itself, and is not, to our knowledge, available for other disciplines in Europe.⁶ Consequently researchers with an interest in determinants of careers should find this section equally interesting as practitioners who engage in designing institutions for higher education. In addition, the data, as in the previous section, serves to provide a background against which to interpret the subjective evaluations which will be discussed later on.

While it is acknowledged that the sample is potentially biased to the extent that it only represents the most active European research economists, its size is significant and it reflects well-known demographic patterns. Moreover, it is representative of the segment of research economists that is primarily targeted by competitive research grants.

In short, the sample is characterized as follows: the majority of participants is resident in either Germany (17.4%), Italy (14.1%), the United Kingdom (13.7%) or Spain (10%). They are 23.6% female (Figure 5) and on average 41.8 years old

⁶ The MWP-ACO conducted a similar survey for Political Science and Sociology. Preliminary results are available here: <http://www.eui.eu/Documents/MWP/Conferences/ResearchFundingInCrisis/MWP-ACOSurveyStatsMarimon.pdf>

(Figure 4). In addition, the sample documents the '*gender scissors problem*' (i.e. an increasing gender divide) as well as ageing over the academic career. There is a preponderance of university-employed economists (Figure A.6) but also significant heterogeneity with respect to the internationalization of the corresponding research environment (Figure A.9). Respondents predominantly spend their time on conducting research and while this remains true across gender, research intensity appears to be decaying over the career (Figure A.4).

In what follows, these observations will be discussed in greater detail.

As indicated before, roughly one third of the sample consists of women. However, Figure 5 also shows that the group decreases over the academic career span. For instance, while there are 40.1% of female PhD students among the respondents, we observe only 13.5% female full professors.⁷ Particularly striking is the drop from 30.1% among tenure track associate professors to less than half of this value among full professors. Since Figure 4 shows that the average age of a tenure track associate professor is 43.6, while it is 50.2 for full professors, it seems unlikely that family related choices play an important role here, and it remains to be determined whether the profession is indeed reluctant to award women full professorships. Additional gender related findings are that women seem to allocate more time to research and less to administrative tasks (Figure A.5) and that some country groups seem to attract more women in economics than others (Table A.5). For example, while the ratio of residents over citizens is high in total and even higher in the subsample of female respondents for Anglo-Saxon countries, the proportion of female respondents is lower in particular in the CEE countries, Turkey and Italy.

As mentioned earlier, universities are the most important employers for research economists in Europe (Figure A.6). The proportion of respondents employed by universities is lowest in CEE countries, where it is equal to roughly 60%; whereas it amounts to more than 90% in Turkey and the UK. The second most important employers are research institutes. However, with a maximum of slightly over 20% in CEE countries and Germany, they are significantly less relevant.

In terms of working time allocation, it is interesting to see not only that research activity is typically allocated the most time throughout the academic career and that, as mentioned earlier, this time in fact decreases over the academic life cycle, but also that the time is increasingly taken up by administrative and fundraising-related tasks (Figure A.4). That is, while the teaching load remains fairly constant over the professorial career (it is less during PhD and postdoctoral years), administrative tasks increase from roughly 10% for assistant professors to almost 20% among full professors. Similarly, the time allocated to fundraising also doubles although it is less important in absolute terms (about 5% for full professors). Interestingly, the same pattern is not reflected in the age profile. Research time decreases from 22

⁷13.5% is actually slightly higher than comparable data for the UK and the US (e.g. THE, 14 February 2008: <http://www.timeshighereducation.co.uk/story.asp?storycode=400586>). This may reflect a higher fraction of female professors in most of the European countries, but could also be explained by a higher propensity of women to respond to the survey. However, in any case, the number suggests that, if anything, we are underestimating the gender divide here.

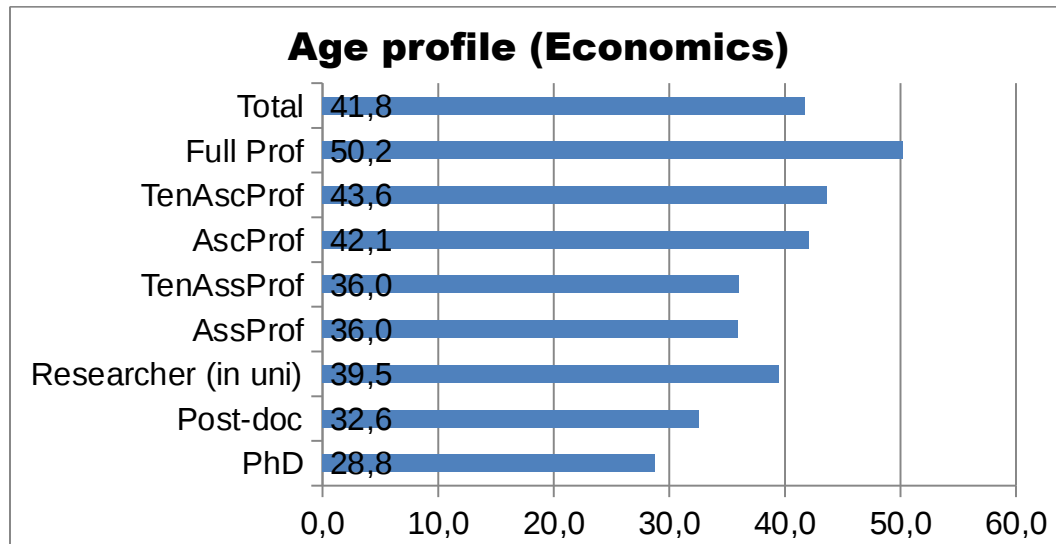
(more than 60%) to 45 (40%), remains fairly constant until 58 and increases to about 55% at the age of 65 and older (Figure A.3).

Figure A.4 could in principle be explained by efficiency gains (i.e. conditional on research output, senior researchers need to spend less time, and potentially choose to spend more time, on activities such as fundraising). This interpretation however would not be consistent with the age profile and the fact that administrative tasks make up for a large part of the lost research time. Alternative explanations could also be inefficiencies in the way the research environment is administered in ERA and institutional structures which are designed to 'protect' young researchers from administrative tasks.

Finally, the sample exhibits heterogeneity with respect to the internationalization of the respondents' research environment (Figure A.7, Figure A.8 and Figure A.9). While in the Anglo-Saxon countries roughly 80% report that their environment is well integrated in the international research community, the number decreases to about 45% in CEE countries and Turkey, and also in Italy. In these countries, individual efforts play a much larger role, suggesting a lack of coordination and/or cooperation. Scandinavian countries perform similarly to Anglo-Saxon countries, while continental countries, at 60-70%, perform slightly worse. The quality of the researchers, and correspondingly the potential bias, in our sample is reflected by the fact that the number of people who report only sporadic integration into the international research environment is negligible in all cases. The latter observation is, again, a reminder that our sample comprises active research economists, rather than the entire profession. Hence, conclusions should be drawn with particular care when they are likely also to affect less active researchers.

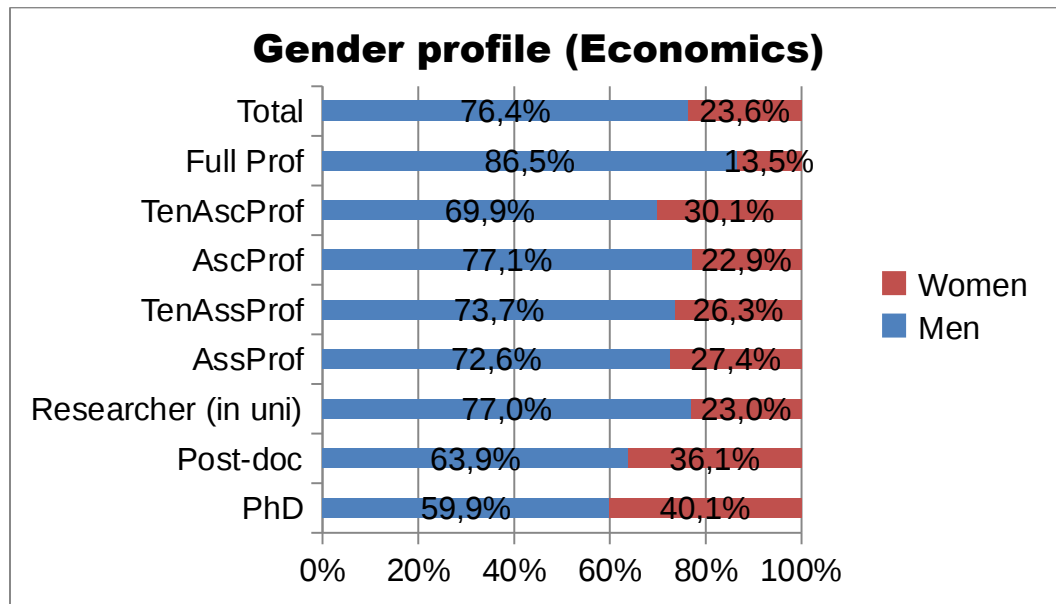
While no particular pattern emerges for the integration of the research environment relative to the years from graduation (Figure A.8), the results relative to occupation (Figure A.9) are interesting. Extending the interpretation of the cross-sectional data to a time-series interpretation, the data suggests that PhD students and postdoctoral researchers from highly integrated environments are typically placed in positions that are less well integrated. This downward trend in internationalization over the career is only reversed at the stage of 'full professorial'. While the downward trend is consistent with anecdotal evidence, the latter is likely to be an artefact of a composition effect. That is, full professors that enter our sample are active researchers, and thus placed in well-integrated research institutions. Researchers at less integrated institutions at the stage of full professor are relatively more likely not to be present in our sample, as they will have typically shifted the focus towards teaching as well as advisory and administrative tasks.

Figure 4: *Age profile of EEA-ACO Survey respondents*



Source: EEA Survey

Figure 5: *Gender profile*



Source: EEA Survey

4. RESEARCH FUNDING IN ECONOMICS

Summary

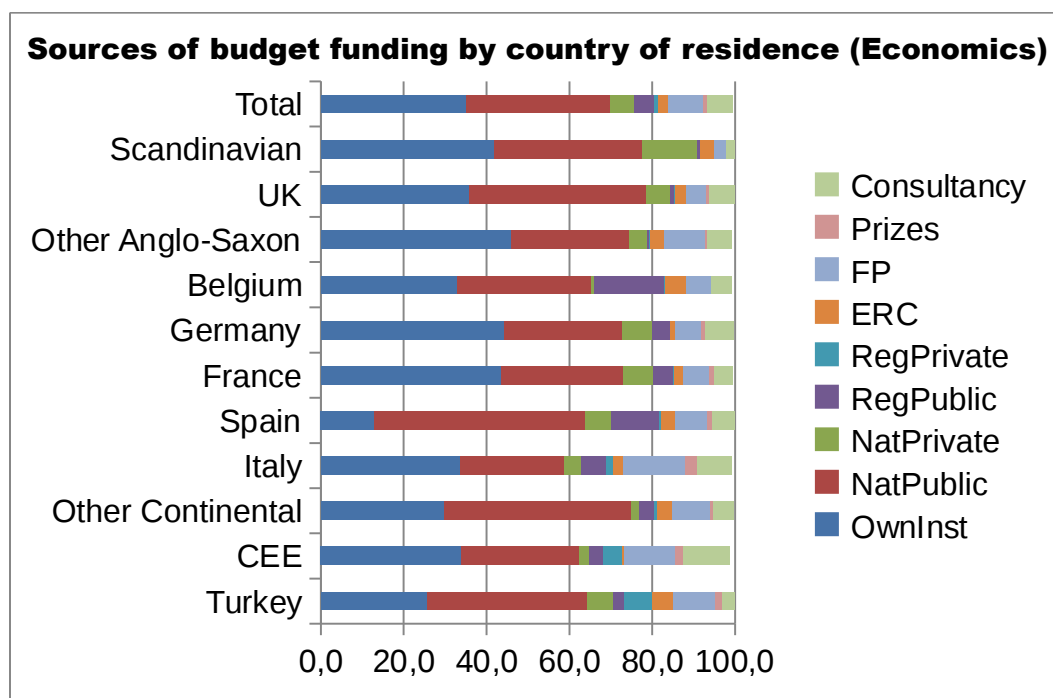
- *On average, funding from the own institution and public national grants explain most of the researchers' budgets.*
- *Funding from the institution is mostly relevant in the UK, Scandinavia and Germany.*
- *National Public grants dominate in Spain, Turkey and Other Continental countries.*
- *Framework Programmes (not ERC) provide for a larger budget share than ERC grants.*
- *Framework programmes, ESRC (UK) and the ERC receive most applications.*
- *Most reported grants are small.*
- *Researchers with a high RePec ranking (in particular at the senior level) have higher application success rates than EEA members of comparable age, who are not ranked as high.*
- *Academic ranking (RePec) seems to be a minor determinant of application success for FP (not ERC) and ERC grants; if anything, the distribution of success rates is skewed towards lower rates among RePec ranked researchers.*

This section provides a summary of the funding sources that were reported by the survey participants. While this information is already indicative of how satisfied the researchers are with certain schemes, the issue of satisfaction will only be addressed fully in the subsequent section. Instead, the purpose of this section is once more to provide background and convey a sense of how experienced the respondents are with the schemes that they are asked to evaluate.

In general, budget sources are very heterogeneous. However, on average funding from the home institution and public national grants explain most of the budget (Figure 6). While the former is more prominent in countries such as Germany, France, Scandinavia and 'Other Anglo-Saxon' countries, the latter plays a more important role in Spain, Turkey, UK and the 'Other Continental' countries.

From a European perspective it is interesting to note that the amount of funding that is provided through the Framework Programmes (not ERC) is on average larger than the amount that is allocated through the ERC. However, there are, again, significant heterogeneities. While in Italy, Spain, Continental countries and Turkey, Framework Programmes play a larger role, the amounts are more balanced, for example in the UK and Germany, but also in the CEE countries.

Figure 6: *Sources of budget funding by country of residence.*



Source: EEA Survey

In addition to the proportion of budget income, the survey data allows for a second, more direct, measure of the respondents' application behaviour. In fact, it asked the participants to name directly the last three agencies that they had applied for. The benchmark version of the corresponding frequency plot is provided in Figure 7. The programmes that were mentioned most frequently in this open question are the Framework Programmes, the ESRC(UK) and the ERC.

Alternative versions of the same frequency plot, conditional on gender and some selected countries, are provided in the Appendix (Figure A.10 and Figure A.11). While the picture does not change dramatically over these variations, some observations are worth mentioning. For example, the NWO and the Norwegian Research Council seem to rank relatively higher among male than among female applicants. While this can be due to a number of reasons, both Norway and the Netherlands stand out as they are generally perceived to assign high priority to gender equality. In contrast, grants issued by the Catalan government and the Portuguese FCT rank much higher among female researchers (Figure A.10).

Figure A.11 also contains some evidence in favour of the earlier claim that national conditions affect the perception of, and the behaviour towards, supra-national funding sources. For example, while in Spain and the UK the main national providers of research funding attract more applications than the European alternatives, this is not true for Italy and Belgium.

Since these two countries are structurally very different it is also clear that the relationship between national conditions and their impact on the popularity of

supranational funding, is complex. While Belgium is an example of a small and open country, with typically multilingual residents and a relatively small GDP, none of these characteristics applies to Italy. Belgian residents report applications to the ERC and Framework programmes but, more importantly, also to the agencies of neighbouring (France) and other (Spain) countries, while, Italian residents rely primarily on national funding and the centrally administered European sources.

Next, the survey also provides information on the size of the grants that researchers receive. The common observation for national (Figure 8 and Figure 9) and supra-national (Figure 10, Figure 11, Figure A.15 and Figure A.16) grants is that there seem to be many relatively small grants. This feature is most pronounced for Framework grants but holds true also across other sources.

Whether it is desirable from the researcher perspective of course depends on the associated administrative costs. More precisely, cumbersome application procedures can render small grants to be a very inefficient source of funding. In fact, the subjective evaluation of application processes presented in the following sections seems to suggest that researchers perceive application processes as being unnecessarily complicated. In this case, small grants are an inefficient mode of allocation.

In addition, the figures show that national public sources provide the largest grants.

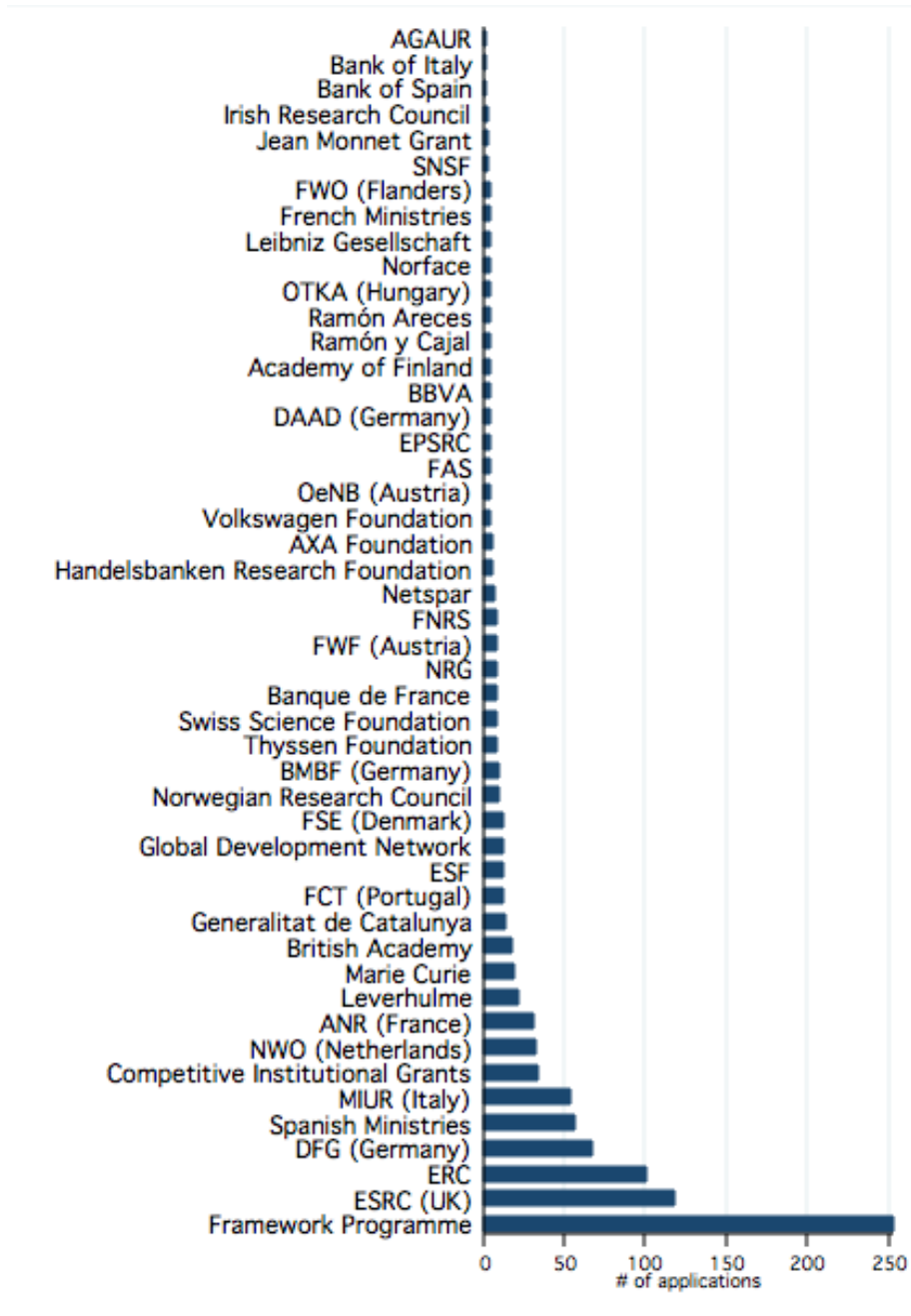
Finally, participants were also asked to self-report the success rates of their applications. While the associated numbers are clearly only an imperfect measure of actually allocated grants, the corresponding figures provide interesting insights into the distribution of grant recipients.

Basing measurement of research quality on whether the respondent is RePec listed, Figure A.12 shows that success rates for national public grants are highest for senior researchers (> 40 years old) who are also RePec listed.⁸ For junior researchers, the listing appears to be less relevant, although the distribution of success rates among RePec ranked junior applicants remains to be skewed towards higher success rates.

For the European schemes, most applicants are senior researchers who are also listed among the top 12.5% in Europe or the top 25% in their country. However, compared to the national funding schemes, the allocation of grants does not appear to rely on research criteria as much as the national grants. In fact, if anything, researchers with a high RePec ranking on average seem to face relatively lower success rates for applications to FP (not ERC) grants. As far as ERC grants are concerned, the same conclusion applies, although it is more fragile, due to a low number of observations (Figure A.13 and Figure A.14).

⁸ Since we are selecting only the top 12.5% overall and the top 25% from each country, RePec listing provides some measure of researcher quality. However, we acknowledge that the ranking itself might be imperfect, and, more importantly, that successful researchers are free not to register with RePec.

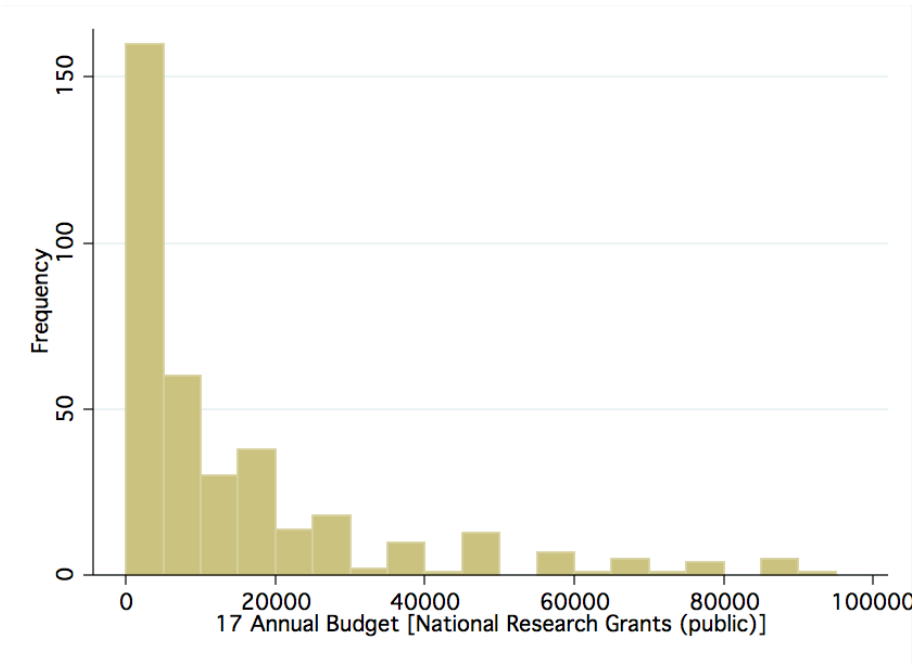
Figure 7: *Most frequently named funding agencies.*



Source: EEA Survey

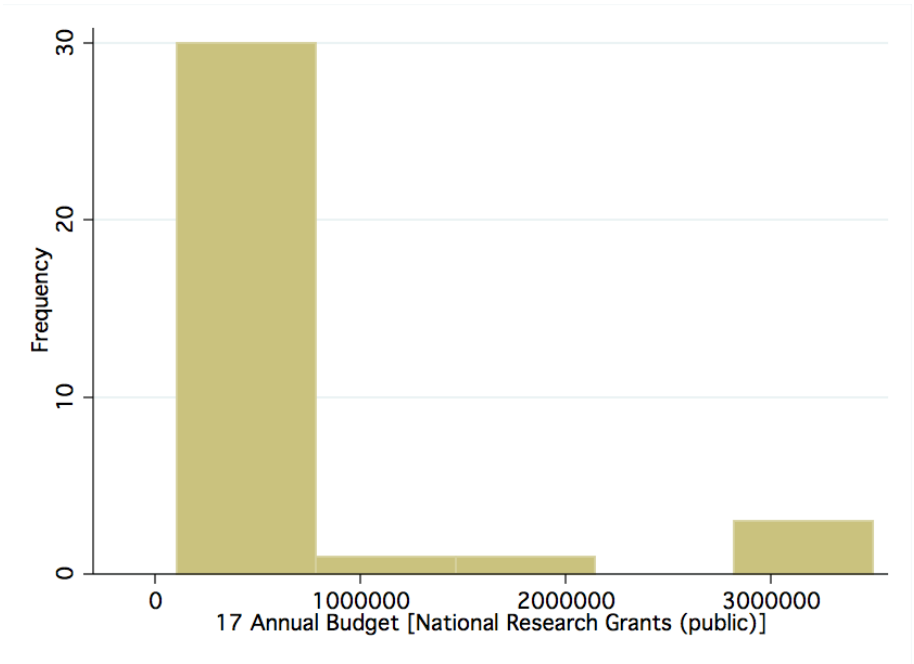
Comment: Here, we consider only explicitly named agencies. That is, if a respondent replied only that he applied his 'National public' agency the observation is ignored since it could not be assigned to a particular agency.

Figure 8: *Distribution of grant size (National public grants) [$< 100,000$]*



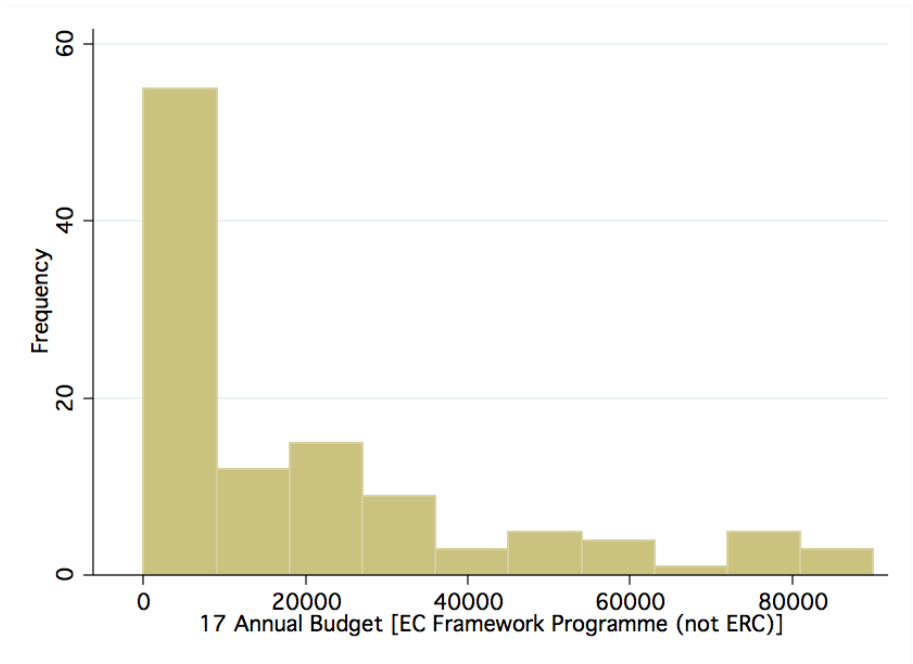
Source: EEA Survey

Figure 9: *Distribution of grant size (National public grants) [$> 100,000$]*



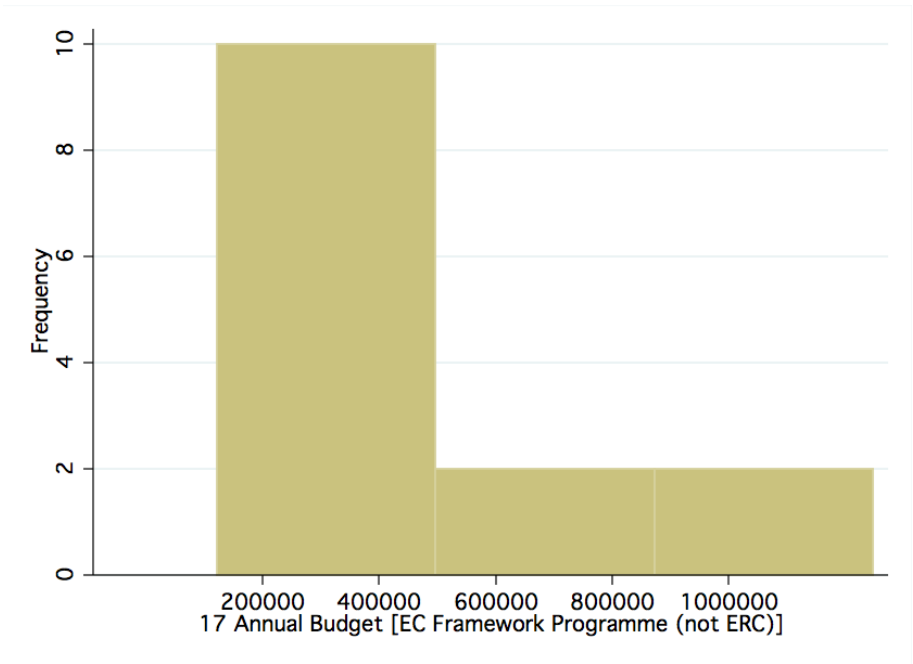
Source: EEA Survey

Figure 10: *Distribution of grant size (Framework (not ERC)) [$< 100,000$]*



Source: EEA Survey

Figure 11: *Distribution of grant size (Framework (not ERC)) [$> 100,000$]*



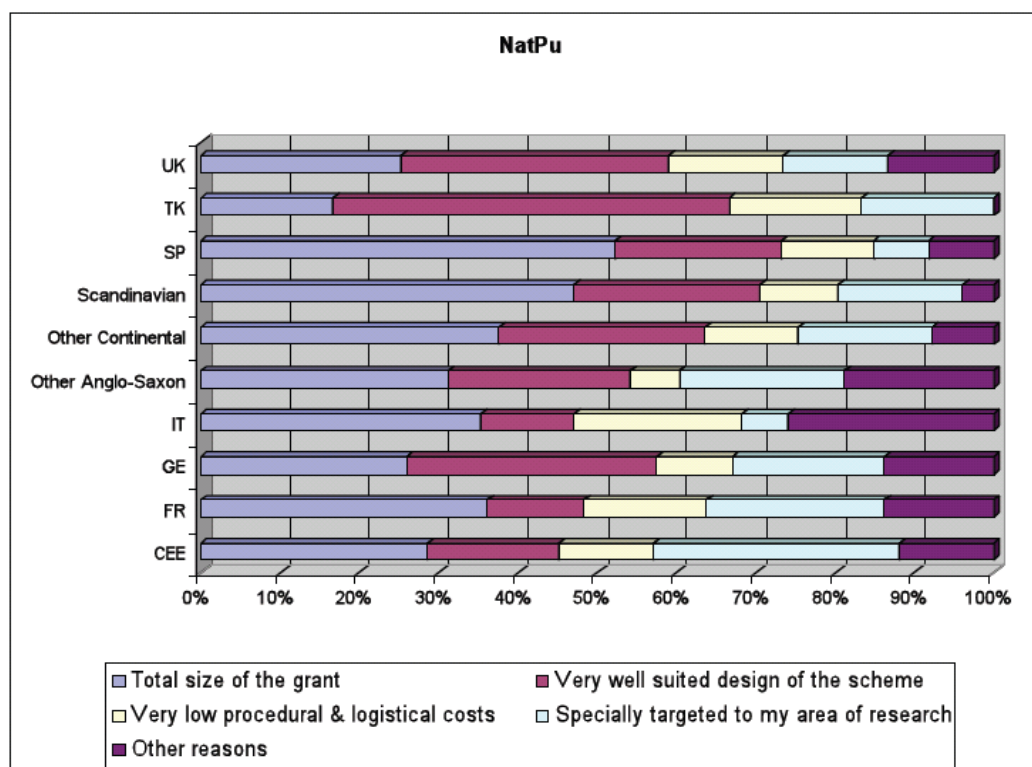
Source: EEA Survey

5. STABILITY, SATISFACTION AND REASONS (NOT) TO APPLY

Summary

- *Main drivers for application to a grant: sufficient funding, low administrative costs, chances of success.*
- *Stability of national grants is problematic in Italy.*
- *Perception of stability of supra-national grants is heterogeneous and depends on national conditions.*
- *The primary reason for applying for national public funding and ERC grants is grant size.*
- *In Germany, Turkey and the UK well-suited design of schemes ranks similarly high.*
- *In an open question, more than one out of five respondents expresses dissatisfaction with the lack of grant flexibility.*
- *Researchers question the competence and transparency of evaluation procedures in many countries; however, it appears to be the case that respondents that are more satisfied on a national level are also more critical of the European grant authorities (e.g. respondents from the UK or Scandinavia)*
- *Application procedures are perceived to be inappropriately time-demanding (although there is heterogeneity across countries).*
- *According to every tenth economist in the sample, the available grants do not match the needs of the proposed projects*
- *Institutions in the UK, Scandinavia, Germany & Turkey are perceived to be very well-managed. Italian agencies are perceived to be the worst managed.*
- *Respondents frequently mention teaching buyouts and open topics as missing yet desirable elements in research funding.*
- *Emphasis on excellence, and more grants for young researchers, are demanded.*
- *Support for innovative ideas is mentioned as missing.*
- *Framework programmes (not ERC) are among the least satisfactory schemes (although they are valued more in countries with less stable national funding).*
- *ERC grants perform better but still rank low with respect to overall satisfaction.*
- *Based on application success, satisfaction with ERC grants is substantially higher. The same does not apply for Framework (not ERC) grants.*

Figure 12: *National public research funding – reasons to apply*



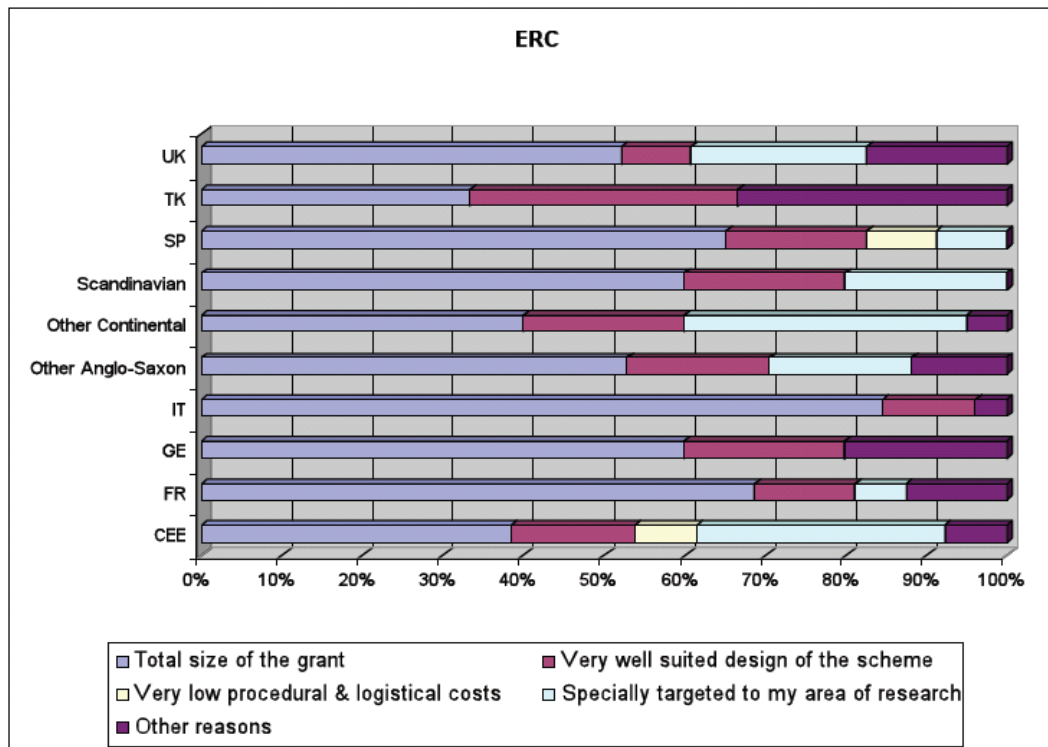
Source: EEA Survey

In short, the main identified reasons for application for a grant are the following: sufficient funding, low administrative costs, and chances of success. To a lesser extent, it also appears to be relevant whether grants are targeted to the specific research area of the applicant (Figure A.12, Figure A.13 and Figure A.17).

While reasons not to apply are consistent, they also reveal a lack of confidence in the evaluation process as an additional source of dissatisfaction (Figure A.20 to Figure A.22). Surprisingly, this confidence is particularly low in the Anglo-Saxon countries (including the UK) and applies to both national public grants and, to a lesser extent, to Framework (not ERC) schemes. Moreover, for supra-national grants (Framework and ERC) the procedural costs of applying are perceived to be high in general.

With the exception of Italy, stability of national grants does not appear to be an issue (Figure A.18). Interestingly however, perceptions of the stability of supra-national grants are fairly heterogeneous across ERA countries. For example, ERC grants are perceived to be much more stable in Germany and France than, for example, in Spain or Italy. Nonetheless, ERC grants, seconded by many national schemes, are perceived to be fairly stable in general (Figure A.19). Framework programmes instead appear to be associated with an unnecessarily long application time.

Figure 13: ERC research funding – reasons to apply



Source: EEA Survey

The prime reason for applying for national public funding is the overall size of the grant. However, in Turkey, Germany and the UK the size of the grants ranks only second and respondents mention the appropriacy of the schemes as the primary determinant of their application (Figure 12). Whether it is purely incidental that these are the same countries in which respondents receive equal proportions of their research budget from Framework and ERC sources is not clear. However, it is true that respondents from all countries, including Turkey, Germany and the UK, name the size of the grant as the foremost reason to apply for an ERC grant (Figure 13).

Interestingly, these summary statistics are consistent with answers to the following open question about missing elements in available research funding: “Based on your experience, please indicate the three most common missing elements in available grants for research in Economics.”

In reply, more than one out of five (22.22%) researchers expressed dissatisfaction with the lack of flexibility of the available funds. This is a frequency that indicates that the bottom-up approach to research funding has not (yet) been implemented successfully within ERA. In addition to the perceived lack of flexibility, roughly one out of ten among the respondents questions the competence and transparency of the evaluation procedure (12.11%) and believes that the application procedures are inappropriately time-consuming (10.40%). As hinted at earlier, however, there is

considerable heterogeneity across countries with respect to both concerns and, consequently, dissatisfaction is likely to also vary significantly over the sample.

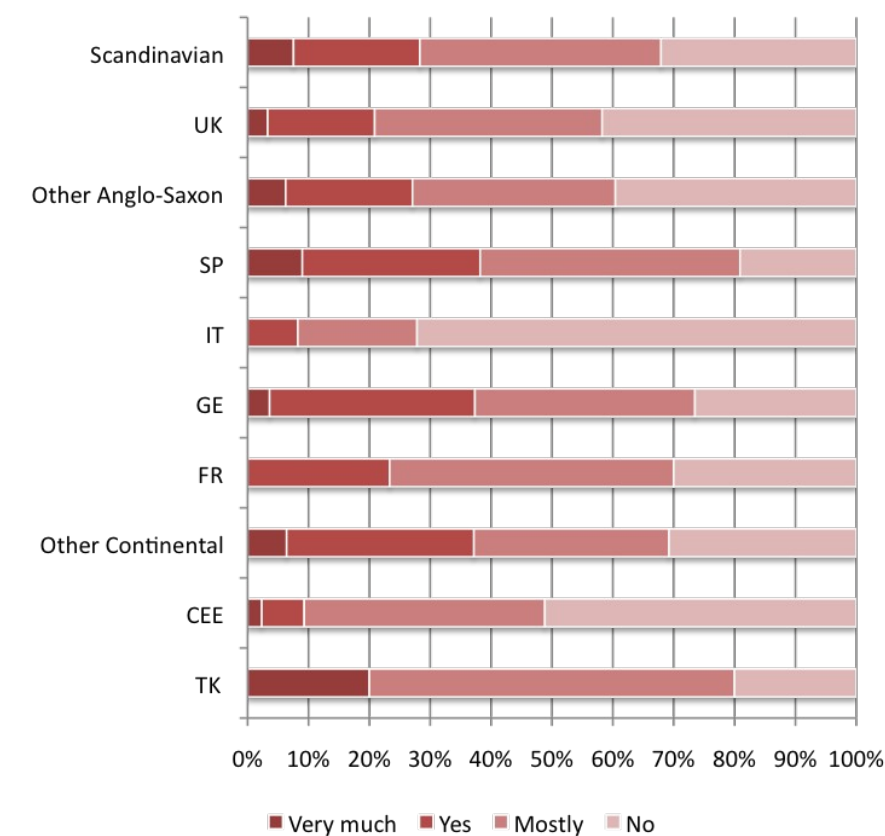
Moreover, 9.12% perceive funding to be inadequate, implying that according to every tenth economist within ERA, available grants do not match the needs of the proposed projects. Finally, respondents highlight the lack of stability, teaching buyouts and open topics as commonly missing elements and demand more emphasis on excellence, grants in particular for young researchers, and more support for innovative ideas.

The aforementioned heterogeneity across national funding agencies becomes evident again when respondents are asked to assess the management of their national agencies (Fehler: Referenz nicht gefunden. While the UK, the Scandinavian countries, Germany and Turkey stand out with institutions that are perceived to be well-managed, Italian national public funding ranks lowest. The heterogeneity mostly translates into the global assessment of satisfaction although for some countries overall satisfaction is found to be lower than would be expected on the basis of the management assessment (see for example the UK and Spain).

In a final, more global question, respondents were then asked to express their overall satisfaction with the different schemes (Figure 14,15 and 16). It turns out that the Framework programmes (not ERC) are found to be among the least satisfactory (although they are valued more in countries with unstable national funding such as Italy). ERC grants do perform slightly better but still rank low in terms of overall satisfaction. Based on the success of an application, however, satisfaction with ERC grants is substantially higher, while the same does not apply to Framework (not ERC) programmes, where even successful candidates appear to be dissatisfied (Figure 17).

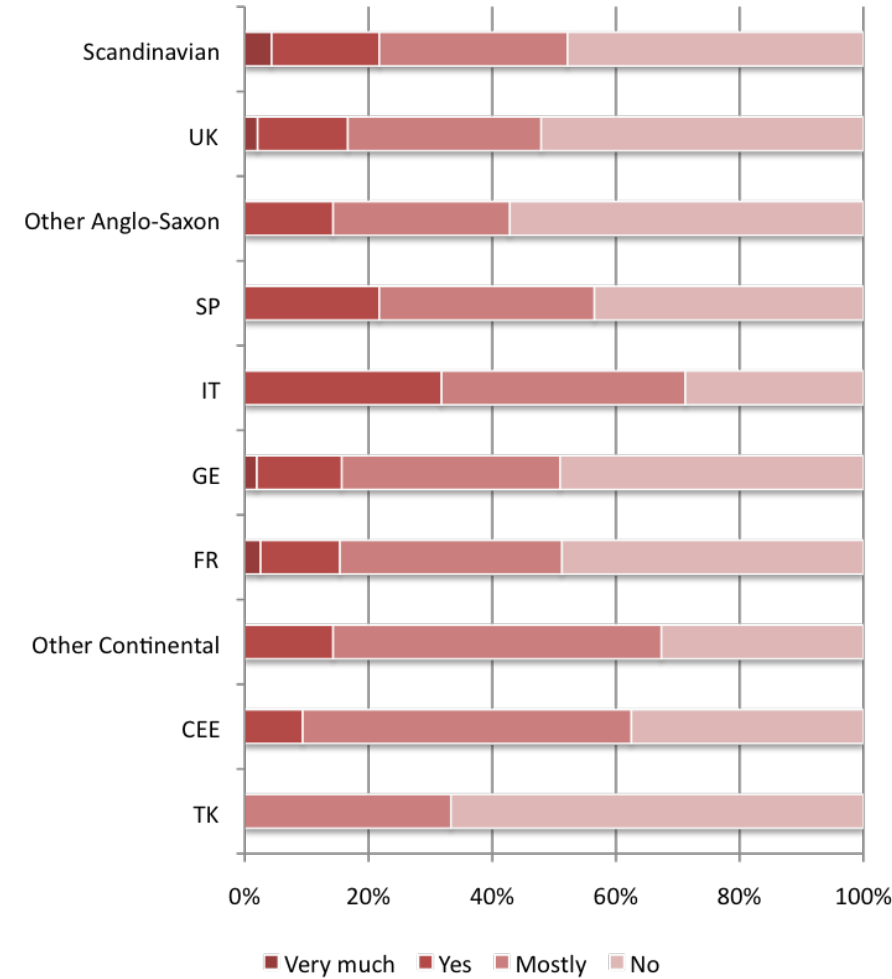
While in particular the call for more flexibility is reflected in many of the responses, answers also point towards the difficulties of providing funding for economists. Since projects, and therefore monetary requirements, are immensely diverse, standardization is naturally hard to achieve. As a result, grants are either highly specialized (and thereby by construction top-down), or likely to be considered 'inadequate' by many.

Figure 14: *Overall satisfaction with national (public) funding*



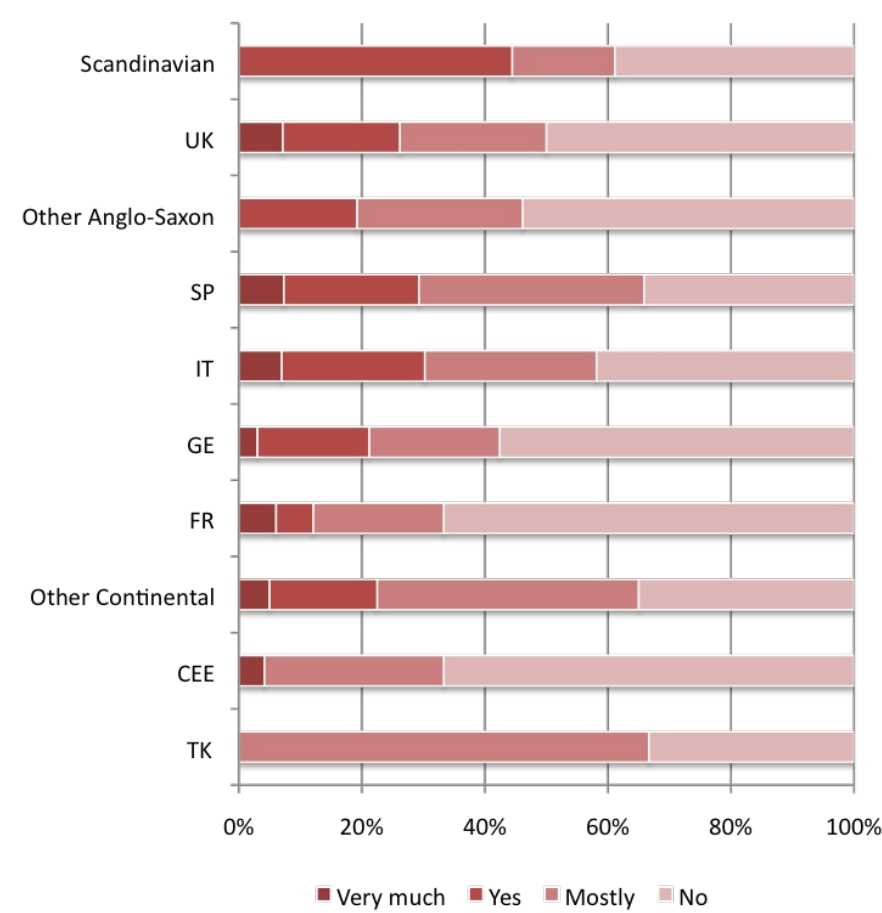
Source: EEA Survey

Figure 15: *Overall satisfaction with Framework Programmes (not ERC)*



Source: EEA Survey

Figure 16: Overall satisfaction with ERC grants



Source: EEA Survey

Figure 17: Conditional satisfaction

Satisfaction		
Yes	Mostly	No
National (Pub)		
79%	70%	47%
ERC		
55%	27%	9%
FP (not ERC)		
62%	47%	30%

Source: EEA Survey

6. OPENNESS, INTERNATIONALIZATION & MOBILITY

Summary

- *Anglo-Saxon countries attract most foreign funds. Smaller continental European countries fare similarly well (e.g. Austria and Belgium).*
- *In addition, foreign funds continue to increase in Anglo-Saxon countries, while they seem to decline in Continental countries.*
- *Scandinavian and Continental countries are more closed than the UK in terms of researcher mobility.*
- *CEE countries and Turkey are even more closed.*
- *Survey data confirms relative patterns of openness. However, levels are much higher among survey respondents. That is, the sample is more mobile than European researchers, on average.*
- *Scandinavian countries employ very few foreign full professors. The same applies to Spain and Germany, although figures are slightly higher.*
- *The number of foreign PhD students in Italy is surprisingly high, compared to the number of foreigners at later stages of the academic career span.*
- *Switzerland employs many foreign full professors, while however very few junior researchers from abroad.*
- *CEE countries frequently seem to admit foreigners at senior positions.*
- *The highest average number of foreigners is present at the postdoctoral level.*

The European Commission (EC) has defined the integration of ERA as one of its foremost priorities; in addition, examining researcher mobility and the cross-border flexibility of research grants also proves informative with regard to the integration of the European labour market in general, and thus the progress of the European idea.

To evaluate indicators of openness and mobility for research economists in context, this section therefore adds to the survey information, providing more general budget and R&D data from sources such as Eurostat and the OECD. This information also hints at potential biases that may arise from the selection of survey participants.

When discussing research budgets in the context of research funding, and with a particular focus on openness and mobility, it is useful to first examine how large the proportion of foreign funds in the budgets of the different countries is, in general. The corresponding OECD data for the overall research budget is provided in

Figures A.24 to A.27 in the Appendix. As expected, Anglo-Saxon countries seem to be attracting the most foreign funds, thereby providing evidence for the notion that openness and flexibility of the domestic funding system does not necessarily imply a drain of talent and capital, but rather, in a competitive environment context, can also benefit the domestic research landscape. It also turns out that some of the continental countries (in particular the smaller ones, such as Austria or Belgium) fare similarly well in attracting foreign resources. However, while the trend for the Anglo-Saxon countries is upward, the amount of foreign funds seems to be declining in most continental countries.

Figure A.26 shows in addition that Scandinavian countries are on average less successful in attracting foreign research funding, and with levels of around 0.1 are, in this dimension, comparable to the CEE countries. Of the latter group however, some countries (e.g. Slovakia or the Czech Republic) seem to have made considerable progress recently and exhibit steep upward trends. In contrast, Turkey attracts very little outside funds despite its well managed institutions

Clearly, mobile research funding in particular in the SSH is beneficial for the research environment only if it is accompanied by mobility of researchers, and it is therefore valuable to analyse the openness of the different country groups more directly with respect to human capital.

Starting at the very beginning of the academic career, Table A.4 and Figure A.34 report the percentage of foreign students that participate in tertiary education. Consonant with the previous indicators, the percentage of foreign students is high in the UK (17.91% in 2006). It turns out however, that it is even higher in small countries such as Liechtenstein (88.26% in 2007) and Luxembourg (30.46% in 1998); while these countries clearly constitute special cases, their examples also highlight that considering the percentage of foreign participants in an isolated fashion is likely to bias the conclusions with respect to the role of the funding and/or the educational system. The lesson to be learned from this is that factors such as country size and domestic languages should be borne in mind.

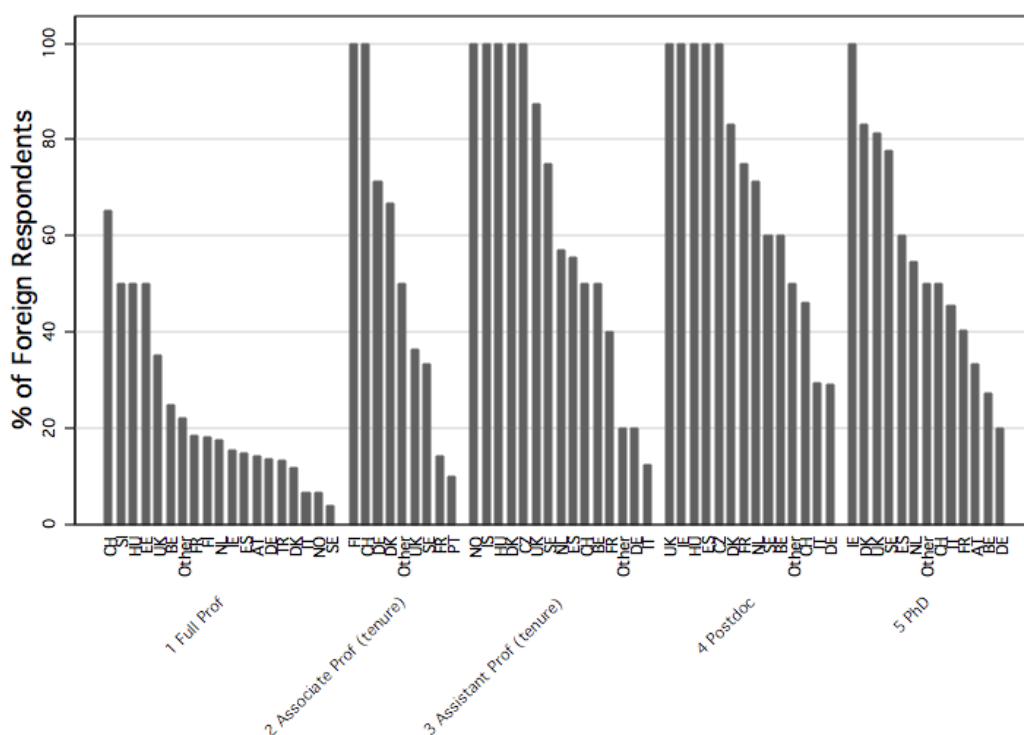
Looking at simple averages however, the data confirms that Scandinavian (6.96% in 2007) and Continental (8.67% in 2007) countries are more closed than the UK, but, at the same time much more open than CEE countries (2.18% in 2007) and especially Turkey (1.52% in 2007). In addition, Figure A.34 nicely illustrates that Anglo-Saxon countries not only seem to perform best in terms of levels but, again, also with respect to the trend.

In the last column, Table A.4 is then supplemented with information from the survey when it reports the corresponding percentages of foreign PhD students among the respondents. While it should be kept in mind that this subsample is special – in the sense that it contains only PhD students and, even more importantly, specifically those who are either registered with the EEA or ranked in RePec – the numbers pretty much confirm the pattern of relative openness described previously.

However, the fractions among the survey respondents are far more extreme (81.25% for the UK, 40.19% for Continental countries but also 0% for CEE and Turkey).

Interestingly, and in contrast to the Eurostat observations, Italy seems to be attracting a very large number of foreign PhD students in Economics (45.45%). Since this is in stark contrast to the impression that has been developed with respect to the Italian system throughout the report, this observation suggests it could be opportune to examine the degree of openness also with regard to later stages of the academic career. The corresponding data is presented in Figure 18 (and in more detail in Figures A.35 to A.38).⁹

Figure 18: *Foreign Residents over the academic career.*



Source: EEA Survey

Notes: Academic career from right to left. High bars imply large numbers of foreigners.

It is interesting to see that Scandinavian countries (e.g. Denmark or Sweden), while fairly open up to the level of assistant professor, employ very few foreign full professors. A similar pattern, although less pronounced, emerges for Continental countries, such as Spain and Germany. With respect to Italy it does confirm that the fraction of foreign respondents rapidly declines after the PhD level.

⁹ In light of the sample size, however, it may well be that the numbers for Italy are driven by individual institutions such as the European University Institute and Bocconi University. Both institutions host large international PhD programmes with PhD students who frequently participate in EEA meetings and are thus more likely to be selected into the sample.

Switzerland seems to be the counterpart to Italy, in the sense that very few foreigners report from junior positions, while it ranks highest for foreign full professors.

Interestingly, the CEE countries seem to be relatively flexible in terms of admitting foreigners to their system also at the senior level. While striking in light of the earlier analysis, the selection bias has to be kept in mind, the sample features only relatively successful research economists and, moreover, relatively few respondents from the CEE countries. Hence, as with Italian PhD students, it may well be that the results are driven by individual institutions.

Across countries the number of foreign respondents seems to be highest among postdocs, suggesting that the systems are to some extent successful in attracting foreigners but fail to provide them with the right incentives for a longer career.

7. COUNTRY REPORTS

Section 7 starts the second main section of the report. It moves away from the survey evidence and aims at providing a description of the funding landscape for selected ERA countries. The background information collected covers budget data, indicators of academic performance and openness, as well as information on research personnel. Notably, there appears to be a close link between a country's academic tradition and the organization of research funding within that country.

7.1. Continental European

Continental European countries are traditionally characterized by a high degree of centralization and inward orientation. Moreover, they are considered to be “closed” in the sense that (permanent) access to the academic system is difficult for outsiders. Continental European countries tend to have one major source of research funding (ministry, funding agency) with a limited degree of independence. In addition, evaluation is often only conducted *ex ante* and by senior researchers from within the country. Hence the relevance of “informal rules”, highlighted by Grigolo et al. (2010) for the academic system as a whole, also implies that funding is frequently allocated to recipients on the grounds of the rules of the system and is not necessarily channelled towards the academically most valuable projects.

Since the group of Continental European countries contains the largest part of ERA in terms of population as well as in terms of budget size, considerable diversion within this group is not surprising. The most significant difference with regard to research funding strategies is the comprehensiveness and the success of reforms that are aimed at overcoming the traditional obstacles to integration.

In order to outline the heterogeneity but also in order to contrast successful reform efforts with examples of failed ones, some of the countries are reviewed individually below.

7.1.1. France

The situation of research funding and research in Economics in France is currently undergoing radical reform. While France has traditionally displayed strong evidence of the defining features of a European Continental academic system, i.e. has been heavily regulated but yet often driven by informal agreements and has been strongly inward oriented, recent reforms aim to introduce more of the successful features of the Anglo-Saxon academic system. These reforms initiated a process of decentralization that affects both the academic system as such, but also the particular aspect of research funding. With respect to the latter, changes are most evident through the creation of a publicly financed but independent research agency (the Agence Nationale de la Recherche (ANR), was created in 2005 and changed its status to an administrative public institution in 2007). Moreover, efforts were made to restructure the Centre National de la Recherche Scientifique (CNRS) into thematic institutes with the explicit tasks of research performance and research funding.

While the actual implementation is heavily debated in France, a noteworthy feature of the reform effort is the creation of an external Evaluation Agency for Research and Higher Education (AERES) that signals an independent evaluation of funded projects. It remains questionable however, whether the actual appointments to the evaluating committee do fully meet these standards.

In addition, the university reform aims at providing universities with more autonomy regarding the allocation of public funds and encourages private fund raising. While the fear is that this will come at the cost of a lower overall level of public funding, the additional freedom of allocation certainly benefits project-based research.

In summary it has to be said that the reforms of the French academic system in general, and of research funding in particular, seem promising. They are likely not to be sufficient but the recent protests suggest that even more radical steps would face prohibitively strong political opposition. The success of French researchers in the highly competitive US market suggests that the potential is not sufficiently exploited in the current system; the reforms – although only small – are likely to improve the situation.

7.1.2. Italy

Research funding in Italy faces problems that are common to countries with a European Continental academic system. More precisely, Italy is strongly inward oriented and inaccessible to 'outsiders'. Research funding lacks external evaluation procedures, is rarely transparent and is mainly institutional, as opposed to project

based funding. Researcher mobility is typically difficult both across institutions and across country borders.

While these general patterns can also be observed in Germany, France and Spain, it appears that reforms have been less successful in Italy. Not only is the system still almost closed to foreigners,¹⁰ but reform efforts have actually contributed to this inaccessibility by increasing fragmentation. Financial uncertainty is high because programmes are not renewed or phased out. In addition, application deadlines are irregular and variable. While this dispersion causes difficulties even for Italian experts, it makes it virtually impossible for foreigners to apply. Unlike Spain, Italy has not experienced deep institutional reforms or budget shifts. However, ERAWATCH reports that the main provider of research funding, the Ministry of Education, University and Research (MIUR), has increasingly allocated means to basic and project-based funding. This observation is supported, for example, by the deactivation of the “Centri di Eccellenza” programme that provided institutional funding to successful research centres between 2000 and 2003.¹¹

An evaluation of the available funding opportunities must conclude that the main difficulties appear to be of a bureaucratic nature. First, it is rare to have information about funding programmes available in English. Clearly this severely limits the accessibility to foreigners. Second, financial uncertainty is introduced not necessarily by wrongly designed funding programmes but through the frequency of their re-shaping. Funding is generally not ensured for more than four years and renewals are uncertain because specific programmes often cease to exist after short periods. In addition, payments can be delayed or programmes are phased out even before their initial termination date. Hence, while the design of the programme often points in the right direction, the funding system lacks the stability that would allow it to make an impact. Hence, in summary it has to be said that, even though the reforms show that the main problems are acknowledged, measures to overcome them are not sufficient. In order to promote an international research environment long-term planning is crucial.

7.1.3. Germany¹²

Research funding for economics in Germany is almost entirely publicly financed, that is, private initiatives play no important role. One particular feature of the German system is that financial means provided especially by the federal ministries of Education and Research (BMBF) and of Economics and Technology (BMWV) and the corresponding ministries of the federal states (*Bundesländer*) are pooled in the budget of funding agencies which then manage and allocate these funds independently. The three most relevant funding agencies for research (and education) in Economics are the German Research Foundation (DFG), the German Academic Exchange Service (DAAD) and the Alexander von Humboldt Foundation

¹⁰Applications usually have to be handed in in English and Italian and calls as well as programme descriptions are very often in Italian only.

¹¹The sole beneficiary for research in Economics was IGIER.

¹²This section is an abbreviated and slightly adjusted version of a summary provided by Prof. W. Leininger (University of Dortmund).

(AvH). Across disciplines, they manage annual budgets of €2,300 million., €320 million. and €70 million. respectively. Less than 2% of these sums go to economics. Funding opportunities are mostly project based and the allocation follows the bottom-up principle. The evaluation of funded projects is mostly conducted by a Scientific Board of (usually German) senior experts who evaluate results according to international discipline standards.

As in most Continental European countries, there are a variety of initiatives to reform the German university system and to improve its research achievements. The single most important one is the “Excellence Initiative” administered by Deutsche Forschungsgemeinschaft (DFG). The Excellence Initiative aims to promote top-level research as well as to improve the quality of German universities and research institutions in general, thus making Germany a more attractive research location, making it more internationally competitive and focussing attention on the outstanding achievements of German universities and the German scientific community. The Excellence Initiative was passed by the German federal and state governments in 2005 for a period of 6 years. It funds graduate schools, research clusters of excellence and institutional strategies of entire universities on a competitive basis across all disciplines.

Generally, however, German universities are massively underfunded, which creates particularly unfavourable research conditions at departments of “mass disciplines” such as Business Administration and Economics. Several states recently introduced (modest) regular student fees, which however, could not be employed for research purposes, but Baden-Württemberg and Nordrhein-Westfalen have recently decided to scrap student fees after changes in government. These political decisions parallel the impact of the financial crisis on university funding in an unfortunate way: while the federal government is committed to supporting the aforementioned funding agencies, even to the extent of moderate budget increases, the federal state governments have to cut back on the general funding of universities. The latter may affect research, in particular success chances of German institutions in EU programmes in an adverse way.

Fragmentation of efforts and insufficient coordination of research actors have been identified as main obstacles for an improved research performance of Germany. This general diagnosis is in particular applied to the field of economics. However, over the past 5-10 years enormous progress – exemplified by the Excellence Initiative and its significant general impact on the governance of research in Germany – has been made in rectifying these deficiencies. Universities, research societies (such as Max Planck) and research institutes have moved much closer to each other. In particular, the transformation of the Institutes for Economic Research (Wirtschaftsforschungsinstitute) and their close cooperation with universities (both at staff and programme levels) has changed economics. There is increased

competition for top researchers and young talent at all levels. Whether these developments are sustainable depends on the universities' ability to establish more permanent programme structures of their own. In particular, the establishment of graduate schools at university departments, which are less dependent on external funding (limited to a 3-5 year period), would seem to be very important in order to maintain the reformed graduate education and doctoral research structures.

7.1.4. Spain

R&D expenditures per-capita have grown 132% from 2000 to 2008, which are years of population growth, and the number of researchers has increased more than 80% in the same period¹³. This makes Spain one of the European countries where R&D expenditures – especially in human resources and in the public sector – have grown more in the last decade. As in other countries, this trend has been interrupted by the crisis, but R&D has remained a priority for the national and most regional governments. In contrast to Germany and France, research funding in Spain exhibits strong regional tendencies. In addition, similar to most European Continental countries, Spain has begun to put in place reforms that aim at increasing competition and openness.

Moreover, research funding in Spain is becoming increasingly project based. For example, institutional funding decreased from roughly 60% of total public funding during the early 1980s to about 23% in 2005. Spanish research funding opportunities, although organized in a highly centralized manner and without independent funding agencies – as for example in Germany – appear to be very open and accessible to foreign researchers. This is reflected in the large and increasing number of grant holders from abroad. Together with the strong increase in the research budget, these figures suggest that there exists a strong dedication to overcome the traditional problems of European Continental academic systems, and the increasing acceptance of Spanish national and regional grants by researchers from abroad provides evidence of a successful mode of implementation for these reforms. This internationalisation of the research environment additionally contributes to the return of high profile Spanish researchers who have pursued successful careers abroad. Moreover, the newly adopted Spanish Science Act establishes that an Agency for Science and Technology should be created in a year's time (early 2012), assuming most of the current Government competencies on this area – not in higher education.

However, the academic system as such does not yet reflect the openness the funding opportunities suggest. Teaching is mainly in Spanish and the teaching load is generally high. Moreover, tenured positions are often still allocated not according to academic excellence but according to the region of origin or employment. Finally, bureaucracy has also to be mentioned as an obstacle to internationalisation. At the post-doctoral level it causes a high degree of financial uncertainty (e.g.

¹³ See "Main Science and Technology Indicators. Volume 2010/2," OCDE, 2010.

delayed payments), while at more senior levels restrictions on the possible salaries constrain the brain-gain. Nevertheless, some innovations promoted in Catalonia since 2000 (public creation of excellence-driven research centres of private management, as well as a public-funded private structure, ICREA, to attract tenure top scholars from all over the world) have introduced important changes into the previously existing research culture. For example, more than half of the ERC grants received in Spain have gone to scholars of these new Catalan institutions. In summary it has to be said that as most of the European Continental countries, Spain has acknowledged the shortcomings of the traditional academic system and has introduced reforms to counteract them. While traditional weaknesses are still present, it can be said that compared to other countries with a similar tradition, Spain has followed, since 2000, 'the Lisbon agenda' of making R&D a policy priority at the national and, in many cases, regional level. Nevertheless, while it introduced some reforms early on in the process (e.g. special labour contracts for researchers), the process of reforms is far from being complete. For example, the process of the creation of an independent national funding agency. As hinted at before, it remains to be seen how global economic conditions and corresponding budget cuts interfere with the promising developments.

7.2. Scandinavia

In Scandinavian countries, research funding is generally organized in a centralized manner and the government is allocated a prominent role with respect to the determination of the general research agenda. However, funding agencies enjoy independence with respect to the implementation of goals. Funding provision resembles the common practice in Anglo-Saxon countries with respect to transparency and their competitive nature.

However, similar to Continental European countries, academic careers are often determined by informal agreements, and despite a formally open funding system and success in attracting visitors, long-term careers by foreigners are rare. In addition to the dominance of informal arrangements, teaching obligations in native languages are a likely reason for this relative weakness. Unlike the transitioning Continental European countries, however, Scandinavian countries do not exhibit strong determination to open their system further. Instead, larger budgets and revised research strategies (e.g. Sweden) aim at improving the existing research infrastructure

In addition, academic success is promoted through readily available funding for international education of young researchers (PhD grants) and increased efforts to tie Scandinavian scholars with a career abroad to home institutions (i.e. to reverse the brain-drain by offering competitive research environments).

7.2.1. Sweden¹⁴

Scandinavian universities are, by and large, owned and run by the central government. Only in Sweden is there a significant share of non-governmental university education, but even there the government is in charge of about 93% of all university-level institutions, as measured by their running R&D costs, a level that has remained stable over the last decade.¹⁵

The second largest source of R&D funding in the university system as a whole are the public research councils and the like; they cover about 15% of costs. While research councils disburse public funds too, the difference from other central government funding is that research council money is supposedly distributed according to the quality of proposed research, which means that a larger amount goes to the more competitive research groups.

In Sweden, private sector money is about as important as research council funds, and by 2010 may have surpassed the research councils. As one might expect, private universities obtain a larger fraction of their R&D running costs from non-government sources, but the government remains by far the largest sponsor. However, the declining trend in direct funding from the national government is even stronger for private than for public institutions, as is the increasing trend in EU funding.

The Public research councils invoke procedures that are about as onerous as NSF in the United States. The associated workload for applicants is non-negligible, and Swedish researchers often voice concerns about the excessive administrative burden of applying, and accounting for, research funding. For example, a recent report from the Royal Academy of Sciences (*“Många söker men få blir utvalda,” Forskningsstrategiska utskottet, April 2010*) argues that current procedures are wasteful. Still, the impression is that most economists prefer these domestic procedures to those of EU funding bodies.

Private foundations often impose a lighter load. The Handelsbanken Research Foundations are spectacularly unbureaucratic, paying more attention to the proven skills of the applicants than to extensive documentation of project plans, and requiring only a minimum of progress reports and the like. HRF has also demonstrated great sensitivity to researchers' views about priorities.

7.3. Anglo-Saxon

Countries with a traditionally Anglo-Saxon academic system typically perform better than their Continental or Central European counterparts. Anecdotal evidence and indicators provided in the appendix suggest that a vital part of the success stems from the open structure of the system. Funding agencies are typically characterized

¹⁴This section is an abbreviated and slightly adjusted version of a summary provided by Prof. Ellingsen (Stockholm School of Economics).

¹⁵For a detailed account of the governance of Swedish universities, and its historical development, see L. Engwall and T. Nybom, “The visible hand vs the invisible hand: Allocation of research resources in Swedish universities” in R. Whitley and J. Gläser (eds.), *The Changing Governance of the Sciences. The Advent of Research Evaluation Systems*, 2008, Berlin: Springer, pp. 31-49.

by a high degree of independence. Eligibility, assignment and evaluation procedures are transparent and usually open to foreigners (if the money is spent within the country).

The system is competitive and strongly oriented at the discipline's standards; *ex ante* as well as *ex post* evaluation is frequently conducted by external committees. Informal agreements and rules are less important and careers for foreign scholars are much more common than in other countries. Language barriers are low and progressive salaries encourage long-term career planning. The range of available funding programmes is relatively large and tailored towards specific needs at different career stages. These countries often host successful PhD programmes that attract foreign researchers and introduce them to the academic system early on.

In addition to the successful structure of the funding opportunities, it should also be mentioned that the academic tradition of these countries has endowed them with “assets” such as a critical mass of renowned scholars and highly acclaimed institutions. While these are not directly related to the question of research funding, they certainly deserve consideration when causal conclusions are drawn.

7.3.1. Netherlands¹⁶

Research in the Netherlands is mostly financed through the regular university system and the Dutch Science Foundation (NWO). As suggested by the introduction for Anglo-Saxon countries in general, the Dutch research environment is vital and successful.

Dutch science accounts for 2.6% of the total number of scientific publications in the world, 3% of all citations worldwide refer to these publications (even though just 0.25% of the world's population live in the Netherlands) and the R&D sector employs almost 90,500 fte – 6429 of which are funded by the NWO. Finally, Dutch university research is third in the world in terms of scientific impact.

Nonetheless, as indicated by the results of the survey, discontent and room for improvement are still present. For example, 9 billion EUR amounts to not even 2% of Dutch GDP, the international orientation ensures a net outflow of graduates and just 12% of all innovative companies state a university as a partner; Moreover, Dutch R&D investments, in particular by companies, continue to remain under par. Finally, although there has been an increase in the number of scientific staff at universities, this is mostly due to indirect government funding (NWO) and less due to direct government funding or funding by third parties

University research programmes in the Netherlands are regularly evaluated. Programmes (there are about 100 in economics) are self-evaluating mid-term (three years) and there is an outside peer review after six years. One problem is that higher quality scores in these evaluations do not lead to higher income, i.e. success is not rewarded directly. Basic university research funding is particularly under pressure,

¹⁶This section is an abbreviated and slightly adjusted version of a summary provided by Prof. E. Van Damme (Tilburg University).

since universities are forced to match 2nd and 3rd stream money. It has been calculated that the matching factor is 0.84. Given outside funding of €956 million, it follows that €803 million is tied, this in turn implies that only €612million is 'freely available'. At the University level there is strong competition in general, but quality is not directly financially rewarded. Economics is open to foreigners and able to attract them also because of favourable tax treatment. In addition, economics has a well developed tenure track system.

Of the NWO budgets about 10% is available for social sciences – this is one of the eight fields distinguished. There is also some attention to how to deal with interdisciplinary fields. The social sciences are further subdivided into roughly four categories that compete with each other: (I) Economics and Business, (II) Law, (III) Psychology and (IV) Sociology and Political Sciences

There are typically broad-based committees that assess proposals and researchers frequently complain about a lack of expertise and transparency. Moreover, an attempt is being made to ensure that the number of proposals accepted will be a direct proportion of the total number submitted

In addition, there is strong bottom-up stimulation. Proposals are judged basically on two criteria with equal weight: quality of the proposal and quality of the candidate. However, it would be desirable if the latter (past performance) had a higher weighting, especially for more established researchers.

Female researchers are hugely under-represented. but the m/f ration is monitored and there have been special programmes for women in the past. These programmes however no longer exist.

Project oriented programmes stimulate small scale projects. Full or associate professors can request a subsidy for a PhD or post-doc project, 4 years and 3 years respectively, and the main selection criteria are innovativeness of the proposal and quality of the main applicant and its research group. In 2009 a budget is available of about € 8.6 million. This would be sufficient to finance about 40-50 PhD students, however the programme is hugely oversubscribed. (There are some 500 applications per year.) In addition, themes are usually multidisciplinary and in the applied field. Lobbying plays an important role here.

In summary, the situation in the Netherlands has to be considered favourable for the promotion of successful research in economics. Remaining problems seem to be rooted in traditional structures of the academic system, but steps have been taken in the right direction and appear to be successful in particular with respect to openness. Moreover, the debate in the Netherlands appears to be active and in recent years there has been a clear determination to improve the research environment for economists.

7.4. Central & Eastern European

Central and Eastern European countries form a very heterogeneous group and the classification is largely determined by their common political history. Moreover, research budgets are traditionally small in absolute terms and wages (and therefore grants) are rarely competitive on a European, let alone world level. While private contributions to R&D have become more and more important, they tend to favour the Natural Sciences more strongly than the Social Sciences.

In addition, informal arrangements, in transparency and inward orientation are stronger than in Continental European countries and external evaluation is not common. The Central and Eastern European countries are effectively inaccessible to foreigners due to reasons ranging from the language barrier to the relevance of personal contacts.

However, countries such as Poland or Hungary are implementing reforms and appear to be pursuing promising strategies. The role of the Academies of Science is reduced and research is shifting towards universities. The central Hungarian funding agency, OTKA, for example has been designed in cooperation with the German DFG and offers individual grants that are comparable in design to the programmes offered by leading agencies in Anglo-Saxon, Scandinavian and the successful transitioning countries.

7.4.1. Hungary¹⁷

An important feature of Hungarian research funding is the special role of the network of public research institutes and the exceptional role of the Hungarian Academy of Sciences (HAS) in designing and implementing the country's R&D strategy. The Institutes are organised according to disciplines and include two research institutes in economics: the Institute of Economics (IEHAS) and the Institute for World Economics (IWE). In addition the Centre for Regional Studies has a strong emphasis on interdisciplinary applied research on the borders between economics and regional studies, economic geography as well as development studies, and consults and performs advisory work for local government. The institutes are independent legal entities with a high degree of autonomy in setting their research priorities and in allocating their resources. They are supervised and monitored on an annual basis by different functional units of HAS. The academy also provides medium term research funds for small units at higher education institutions and within its institutes.

Other major public funding agencies are the Hungarian Scientific Research Fund (OTKA) and the National Office for Research and Technology (NKTH). Moreover, public institutions like the National Competition Authority (GVH) and the National Bank of Hungary (MNB) take part in financing research in economics with open

¹⁷This section is an abbreviated and slightly adjusted version of a summary provided by László Halpern, Zsuzsa Balabán and Attila Havas.

calls. Private firms and large commercial banks support research in economics as their expenditure on applied research is deductible from their innovation tax.

Few private foundations provide support for research in economics and their significance appears to be limited. International agencies relevant for funding research in economics in Hungary are framework programmes of the European Commission (EC), the Global Development Network (GDN) initiated by the World Bank and the European Science Foundation.

OTKA provides the most easily available funding opportunities for researchers in economics. It covers all disciplines, but its structure is most suitable for the social sciences and humanities. It is bottom-up and offers a wide-range of support that includes research grants at two scales, small and large, postdoctoral projects, international networking, publication support, and matching funds for international projects. An institutional affiliation is required for project funding. Typical projects do not allow for the covering wages and the administrative burden is considerable, even though somewhat lighter than EU framework projects. The grants are mostly used for international conference participation and for the purchase of computers, software and data.

NKTH instead mostly supports cooperation between private firm and research organisations; this arrangement is better suited for research in science, but there are limited calls open to economics, social sciences and the humanities.

The research department within MNB has a mandate to produce academic research in fields that are of relevance for central banks. Moreover, it issues regular calls for short term research assignments that are very popular among PhD students and postdoctoral researchers.

In general, proposal evaluations lack transparency; they are not consistent across programmes and evaluating experts and there is hardly any feedback. Sometimes funding agencies leave the evaluation criteria open in order to leave room for discretion. *Ex-post* evaluation is nonexistent in Hungary and the evaluation of research institutes and university departments is scarce or based on ad hoc, loose or inadequate criteria. Institutions in higher education and their different curricula are assessed by, and get accreditation from, the Hungarian Accreditation Committee. HAS assesses its institutes by using a set of indicators and aims at introducing external advisory boards with the task of helping the evaluation. MNB has recently contracted external evaluators to assess its past research activity.

The academic research institutes, IEHAS, IWE and CRS, enjoy advantageous public funding which provides stability for their employees. However, as the employees are civil servants, mostly on tenured positions, the stability also implies that a selection of researchers can take place only upon hiring; there are no incentives to perform afterwards. Fluctuation from and into the private sector or government is very rare and there are hardly any temporary or short-term

assignments. In addition, it is very common to have a full-time job at an institute of HAS and a part-time job in teaching or vice versa.

In principle, academic excellence is an important criterion of funding eligibility in Hungary, however the definition of excellence is different from the international standards in economics. Excellence is assessed on the basis of the academic degree and may deviate from the actual publication performance. In addition, a necessary condition for becoming a member of HAS is to publish a monograph, while publishing in top international journals without having a monograph is in general not sufficient. This incompatibility with international standards is a disadvantage for newcomers and early-career researchers. It requires the fulfilment of very different standards if a researcher aims for both domestic promotion and an international reputation.

Finally, most funding in economics is made through public subsidy to academic institutes. However, due to institutional rigidities they are not able to open flexible positions and medium term, project-based assignments. Research projects are mostly affiliated to a single institution, making managers reluctant to enter into research collaborations with multiple institutions. Domestic funding agencies are reluctant to accept overhead costs in the budget. Their claim is that this is the duty of the founder or owner of the institution and their project budgets should not be burdened by these costs.

7.4.2. Romania¹⁸

Progress has been made in Romania, especially since 2005, in developing the national system of research development and innovation. Stimulated by Romania's accession to the EU, this progress is expressed primarily in the explicit political commitment to develop research and innovation, in the adoption of explicit and ambitious policies and strategies for research and innovation, and also in the creation of a new institutional framework to support the implementation of these policies and strategies.

Romania has a *National Research, Development and Innovation Strategy 2007-2013*, which articulates the “vision of Romanian society concerning the role of science, technology and innovation for the development of the knowledge society ..., targeting economic and social progress”. Moreover, a *National Authority for Scientific Research* has been created with the mission to prepare, implement, monitor and assess policies in RDI. Finally, funding bodies and mechanisms, such as the *National Council for University Research*, have been created.

On the practical side, however, Romania is confronted with major challenges in the area of RDI. One of the main such challenges is clearly related to funding. Funding of research in Romania varies significantly from year to year, creating an unstable financial environment. Moreover, the absolute level of funding remains low and far from the objective adopted as part of the Lisbon strategy (to allocate 3%

¹⁸This section is an abbreviated and slightly adjusted version of a summary provided by Liviu Matai.

of GDP). Researchers in Romania are greatly concerned by the fact that the allocation for RDI was reduced from 0.61% of GDP in 2008 to only 0.33% in 2009 (the initial plan was to reduce this allocation even further, to 0.18%).

Moreover, it appears that no special attention is given to research in Economics. The discipline is practically absent from all major policy and strategy documents about research and development. Economics is usually grouped together with the social sciences and it appears that there are no particular policy objectives, budget allocation benchmarks or special funding mechanisms for research specifically in economics.

Nonetheless, the *Romanian higher education system*, provides education and promotes research in the area of economics through both its public and private institutions. In addition to the flagship institution in economic education and research, the Bucharest Academy of Economic Sciences (with an enrolment of almost 50,000 students), practically all comprehensive universities in Romania offer degrees in economics and their academic staff in the economics departments and faculties carry out research. Some of these universities have established research institutes in specialized sub-fields of economics. Public universities receive significant subsidies from the state (*Ministry of Education*) for their regular operations. They supplement this funding through other means, including fee-paying students, research grants from national and international funding agencies and cooperation with the private sector. Romania has one of the largest private higher education sectors in the region, with funding based overwhelmingly on tuition fees.

Moreover, the *National Authority for Scientific Research* operates specifically to promote research under the authority of the Ministry of Education. The mission of this institution “*is to ensure the development, application, monitoring and evaluation of policies in the field of research development and innovation, consistent with the strategy and the Governing Programme, for the purpose of ensuring on this basis the enlargement of the national and international technological and innovation patrimony, sustainable economic development, access on the internal, European market and on global markets, the creation of the informational knowledge-based society, the satisfaction of citizens' needs and a growth in the quality of their lives.*” The *National Council for University Research* instead assumes the central role in distributing funds from the state budget in the area of university research.

In 2006, a study by the Ad Astra Association of Romanian Researchers (accessed at <http://www.ad-astra.ro/phare/chestionar/rezultate.pdf>) identified the main problems in the area of research funding as the following, in order of importance: (I) decision on research funding was not based on quality and performance; there were no objective

criteria to evaluate research projects and initiatives submitted for funding; (II) excessive bureaucracy; (III) no coherent organisation of the funding system at the national level; (IV) nonexistence of a strategic vision for the role of research in the future; (V) insufficient funding; (VI) incompetent decision makers and the absence of managerial skills of the staff working in the funding system.

It appears that, with the adoption of the new national strategy and the creation of new institutions in this context, considerable progress has been made, and the situation in 2009 is different from that of 2006. Romania developed a relatively well articulated national strategy and policies for research and development. The lack of adequate funding and the unpredictability of funding however remain major concerns and severely interfere with the implementation of the national strategy. Instead, the increasing degree of decentralisation of funding decisions, in particular through the creation of agencies that benefit from increased autonomy from the government/ministries, deserves positive mention. In addition, the outlook is improved due to the introduction of competitive funding with well-elaborated procedures on a relatively large scale and the investment in training administrators.

Economics research in Romania had to be completely restructured after the fall of the communist regime in 1989. The process of restructuring has progressed slowly, and there is still a significant degree of controversy among researchers about strategic priorities, also reflecting thematic, methodological, and ideological differences. The main areas of remaining disagreement are summarised by a member of the Romanian Academy of Sciences, Păun Ion Otiman: Should economics in Romania focus on fundamental research or rather on applied research? Should the institutes of the Academy take the lead or should university research in economics be supported instead? What should be the role of the public sector and, respectively, of the private sector in funding research in economics? How should long-term research activities be combined with ad-hoc research in economics? What should be the criteria to evaluate research in economics?

However, while the debate about economic research has been going on for a while, it actually seems to reflect a much larger and impassioned debate about the role of science, research and development in Romanian society; while the adoption of a generic national strategy and the implementation of novel institutional structures reflects the fact that some clarity has been achieved at the “macro” level, progress is less evident at the disciplinary level. As in other disciplines, researchers in economics have reached no consensus and only very limited clarity regarding how to conceive, design and carry out research in economics.

Funding of economics research reflects this overall situation. Disputes and indecision regarding priorities in economics research are visible at all levels (national, sectoral, intra-sectoral) and appear to result in a limited “bargaining weight” of the community of economics researchers as a whole when it comes to the allocation of available national funding.

7.4.3. Poland¹⁹

The largest source of financing R&D in Poland is the state budget and it is highly unlikely that this structure of financing R&D will change substantially in the foreseeable future. The scientific community considers the share of budget allocated to Science and Higher Education as too low and for years has been lobbying for higher spending on science. All state support for separately budgeted research is channeled through the Ministry of Science and Higher Education and the main criteria of selection and evaluation of the applications for grants awarded by the Ministry are: (I) accordance of the project with the general aims of the scientific policy of the state, (II) the scientific quality of the project, (III) the applicability of the expected results of the research project, (IV) the importance of the research for the development of international cooperation in research and (V) the possibility of co-funding of the project from other sources.

It is very difficult to obtain data about the sources of non-budget financing of R&D, since a significant part of it comes from private businesses. The largest source of non-budget funding however is the Foundation for Polish Science (FNP), formed in 1991. It is an independent, self-financing, non-profit, non-governmental organization with a mission to support science in Poland.

Research in economic sciences is mainly conducted at the State Economic Universities. There are five Economic Universities in Poland which specialize exclusively in research and education in economics and management (Katowice, Krakow, Poznan, Warszawa, Wroclaw). In addition, the largest State Universities (Warsaw, Lodz, Gdansk, Lublin, Szczecin etc.) have big Departments of Economics. Research in economics is also actively conducted in the best private universities, many of which specialize in management, business and finance. Less significant (in terms of the size) research is conducted in the Polish Academies of Sciences, in the State Scientific Institutes and in independent think-thanks such as CASE.

¹⁹This section is an abbreviated and slightly adjusted version of a summary provided by Andrzej Baniak.

8. CONCLUSIONS AND RECOMMENDATIONS

Ten most desirable often missing elements.

Respondents were most concerned with a lack of ...

1. *Flexibility*
2. *Competent and transparent evaluation*
3. *Simple (application) procedures*
4. *Adequate funding*
5. *Stability and regularity of calls and funding*
6. *Teaching buyouts and salary complements*
7. *Open topics*
8. *Accent on excellence*
9. *Grants for all stages of the career, specially for young researchers*
10. *Support for innovative ideas*

This report, and in particular the survey, is unique to the extent that it assesses available sources of research funding from the perspective of users from a specific discipline. While in general very little representative feedback exists for national and supra-national funding initiatives (an exception is a recent survey about FP7 by Schindler-Daniels et al. (2011)), the discipline-specific view is unprecedented.

While it is acknowledged that some of the results had long been suspected or were available in the form of anecdotal evidence, the contribution here is to document them thoroughly in a significant and relevant sample. However, in addition to empirically confirming common conjectures, the survey also uncovers several surprises, for example. the reluctance of Continental and Scandinavian countries to hire foreign full professors and the CEE countries' relative advantage in this domain, or the research record as a stronger determinant of success rates in National Public than in FP (not ERC) funding among others.

As such, the survey and our analysis of it provide an informational source for: economists who are applying for funds, for funding agencies that are asked to allocate funds efficiently and with the aim of promoting competitive research, and researchers who are interested in research on careers and research funding. Moreover, it can also serve as a valuable instrument for the EEA and the European Commission.

The results presented are preliminary to the extent that the collected information is immensely rich and our analysis, for now, leaves the regional data largely unexplored. As mentioned throughout, the results also suffer potentially from a bias attached to our sample selection procedure. However, as argued before, we believe that the information is representative of the group of researchers that is typically targeted with competitive research grants. Our confidence is increased by the fact that well-known sociological phenomena are nicely represented and that the general patterns match well with unpublished results of comparable surveys that MWP-ACO is currently conducting among researchers in Sociology and Political Science.

Leaving out the selection issue and the information in the yet to be explored regional data, the report provides, in summary, the following.

It paints a sociological picture of researchers in economics in Europe and provides evidence of a persistent ‘gender scissors problem’ as well as, to a lesser extent, of ageing throughout the academic career, and the preponderance of university positions and national heterogeneity in terms of internationalization. In addition, evidence on the allocation of time shows how research is a dominant activity that is mostly independent of the gender gap, but that also exhibits declining intensity over the academic career.

Moreover, the survey reveals that the main funding source is national, that the balance between National Public and Own Institutional funding is heterogeneous across countries and that the sum of both sources is less than 60% only in Italy. Funding flows across countries are relevant – although not large – and show the openness of some national systems (Austria, Netherlands), and the need to substitute domestic weaknesses in some cases (Italy).

As expected, reported research budgets exhibit heterogeneity across countries, but also among beneficiaries. There are many smaller grants and few very large ones. The latter are typically from National Public sources.

The allocation of funds is perceived as being more flexible with national and institutional grants, than with Framework Programme (not ERC) grants. Reasons (not) to apply to different granting institutions are consistent with the elements that are perceived to be most desirable (sufficient funding, low administrative costs, chances of success and, to a lesser extent, grants targeted to the research area). Lack of confidence in the evaluation process is an important reason not to apply to National Public grants, in particular in countries in which research funding agencies are perceived to be badly managed. Moreover, it appears to be the case that procedural costs are a main deterrent to apply to FP (not ERC) as well as to ERC. Instead, calls of the ERC are perceived as the most stable, followed by many public national schemes. As far as the perception of ‘application time’ FP (not ERC) is concerned there do not seem to be significant differences among the granting authorities.

To the extent that RePec ranking provides a valid measure of research quality, national authorities, on average, appear to assign more weight to the research record when allocating research funds than selection committees of the ERC and Framework grants.

There is heterogeneity with respect to the perceived management of national agencies (with UK, Scandinavia, GE and TK at the top and Italy at the bottom) and across countries in the global assessment of satisfaction.

The FP(not ERC) ranks among the less satisfactory schemes, although satisfaction is higher for residents in countries with low satisfaction for their agencies (e.g. Italy). The ERC also performs low in the satisfaction ranking (with some strong supporters), although the satisfaction appears to be substantially higher among successful candidates. The same does not necessarily apply for national and FP(nonERC) grants where even among successful candidates, and those who have applied repeatedly, a fair amount of dissatisfaction persists.

The single most important conclusion from the survey is therefore that in spite of the advances made by many funding agencies, there is still ample room to improve the efficient allocation of funding resources. In particular, the most active researchers in economics agree on the value of flexible research grants, as well as on having 'competent and transparent' evaluation procedures. There appears to be a consensus in favour of a 'competitive bottom-up approach' to research funding among the survey participants that weighs more strongly than other important elements, such as the size of grants.

The report also reveals that many agencies have not yet implemented the competitive bottom-up approach successfully and shows that countries with schemes that 'properly assess and trust the researcher' are typically also the ones with a more international and better integrated research environment.

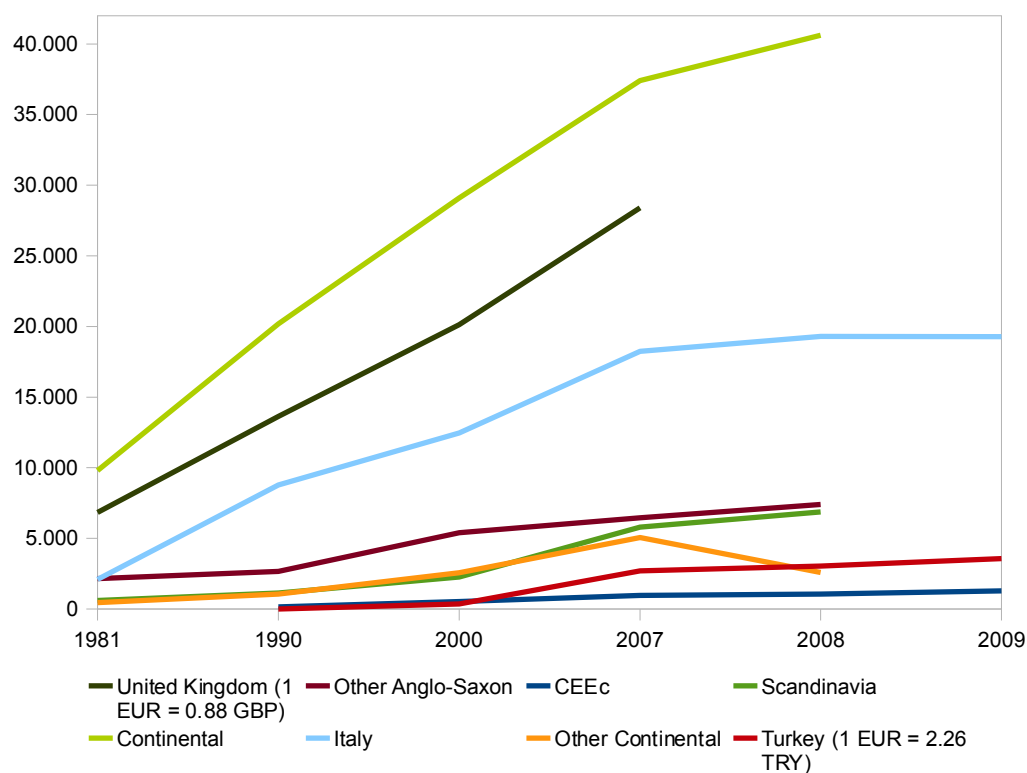
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APPENDIX

Central & Eastern European		Anglo-Saxon		Continental	
CEE		UK	United Kingdom	FR	France
BG	Bulgaria			GE	Germany
CZ	Czech Republic			IT	Italy
EE	Estonia	Other Anglo-Saxon		SP	Spain
HR	Croatia	CH	Switzerland		
HU	Hungary	IE	Ireland		
LT	Lithuania	IL	Israel	Other Continental	
LV	Latvia	NL/NT	Netherlands	AT	Austria
PL	Poland			BE	Belgium
RO	Romania	Scandinavian		CY	Cyprus
RU	Russia	DK	Denmark	GR	Greece
SI	Slovenia	FI	Finland	LX	Luxembourg
SK	Slovakia	IC	Iceland	PT	Portugal
UKR	Ukraine	NO	Norway		
		SW	Sweden	TK	Turkey

Figure A.1: Total R&D Expenditure (in Million EUR)



Source: OECD

Table A.1: Total R&D expenditure. (Millions EUR)

Year	1981	1990	2000	2007	2008	2009
United Kingdom (1 EUR = 0.88 GBP)	6,844.89	13,626.14	20,134.09	28,405.50		
Other Anglo-Saxon	2,149.01	2,670.42	5,401.85	6,460.07	7,409.89	
Ireland	105.81	300.25	1,175.90	2,434.20	2,616.48	
Israel (1 EUR = 4.99 ILS)			4,400.00	6,604.01	6,778.56	
Netherlands	3,014.46	5,040.59	7,626.00	10,342.00		
Switzerland (1 EUR = 1.27 CHF)	3,326.77		8,405.51		12,834.65	
CEE^c		141.76	535.16	971.60	1,058.18	1,292.73
Bulgaria						
Croatia						
Czech Republic (1 EUR = 24.25 CZK)			1,092.26	2,238.50	2,231.27	2,282.46
Estonia			37.03	173.65	208.04	
Hungary (1 EUR = 263.62 HUF)		126.47	399.77	932.00	1,010.50	
Latvia						
Lithuania						
Poland (1 EUR = 3.92 PLN)		137.53	1,223.49	1,702.30	1,965.87	
Romania						
Russia						
Slovak Republic		161.29	202.02	282.63	316.46	302.99
Slovenia			256.37	500.51	616.95	
Ukraine						
Scandinavia	612.98	1,139.85	2,266.86	5,795.92	6,871.09	
Denmark (1 EUR = 7.46 DKK)	598.98	1,742.09		5,863.15		
Finland	436.40	1,655.47	4,422.61	6,242.67	6,871.09	
Iceland (1 EUR = 164.25 ISK)	0.98	22.00	111.11	213.88		
Norway (1 EUR = 7.80 NOK)	540.23			4,794.42		
Sweden (1 EUR = 8.95 SEK)	1,488.30			11,865.47		
Continental	9,793.56	20,189.68	29,097.20	37,412.18	40,616.47	
France	9,523.69	23,959.24	30,953.60			
Germany	19,419.38	34,050.51	50,619.00	61,481.98	66,531.54	
Spain	437.62	2,559.29	5,718.99	13,342.37	14,701.39	
Italy	2,094.41	8,780.40	12,460.30	18,231.40	19,304.30	19,276.00
Other Continental	454.35	1,058.56	2,570.78	5,065.83	2,585.08	
Austria	896.13	1,857.59	4,028.67	6,867.82		
Belgium			4,963.95	6,356.93		
Cyprus						
Greece	12.57					
Luxembourg			363.90			
Portugal		259.54	926.59	1,972.73	2,585.08	
Turkey (1 EUR = 2.26 TRY)		0.56	353.29	2,695.21	3,050.02	3,578.52

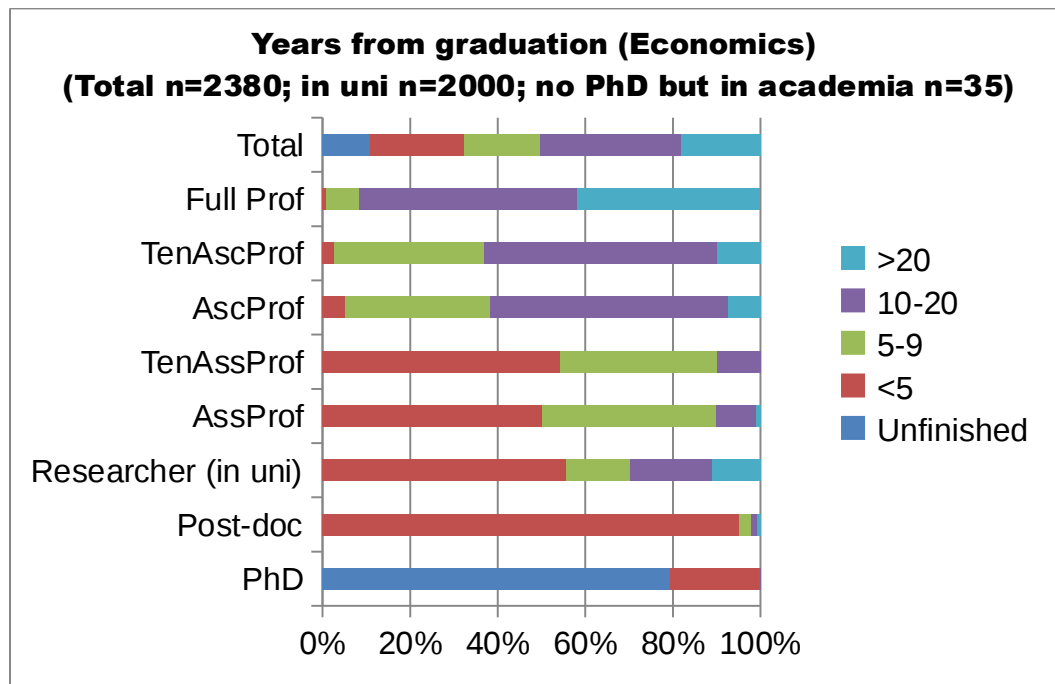
Source: OECD

Table A.2: Total R&D Expenditure for SSH (in Million EUR)

Year	1981	1990	2000	2007	2008	2009
United Kingdom (1 EUR = 0.88 GBP)	241.82					
Other Anglo-Saxon	154.61	26.79			298.94	
Ireland	10.64	26.79			216.00	
Netherlands	298.59					
Switzerland (1 EUR = 1.27 CHF)					381.89	
CEE^c			46.18	94.27	107.60	88.56
Czech Republic (1 EUR = 24.25 CZK)			48.23	132.61	148.29	141.93
Hungary (1 EUR = 263.62 HUF)			54.32	113.76	129.75	
Poland (1 EUR = 3.92 PLN)			84.18	145.96	168.98	
Slovak Republic			13.64	31.51	34.33	35.20
Slovenia			30.53	47.52	56.66	
Scandinavia	44.51	77.16	8.07	339.77		
Denmark (1 EUR = 7.46 DKK)	68.66	152.95				
Iceland (1 EUR = 164.25 ISK)	0.05	1.38	8.07	16.09		
Norway (1 EUR = 7.80 NOK)	64.81			663.45		
Continental	549.62	199.13	446.98			
Germany	1,057.15					
Spain	42.09	199.13	446.98			
Italy	105.45					
Other Continental	52.77	30.46		382.87	419.50	
Austria	103.95					
Greece	1.58					
Portugal		30.46		382.87	419.50	
Turkey (1 EUR = 2.26 TRY)				429.50	456.08	606.98

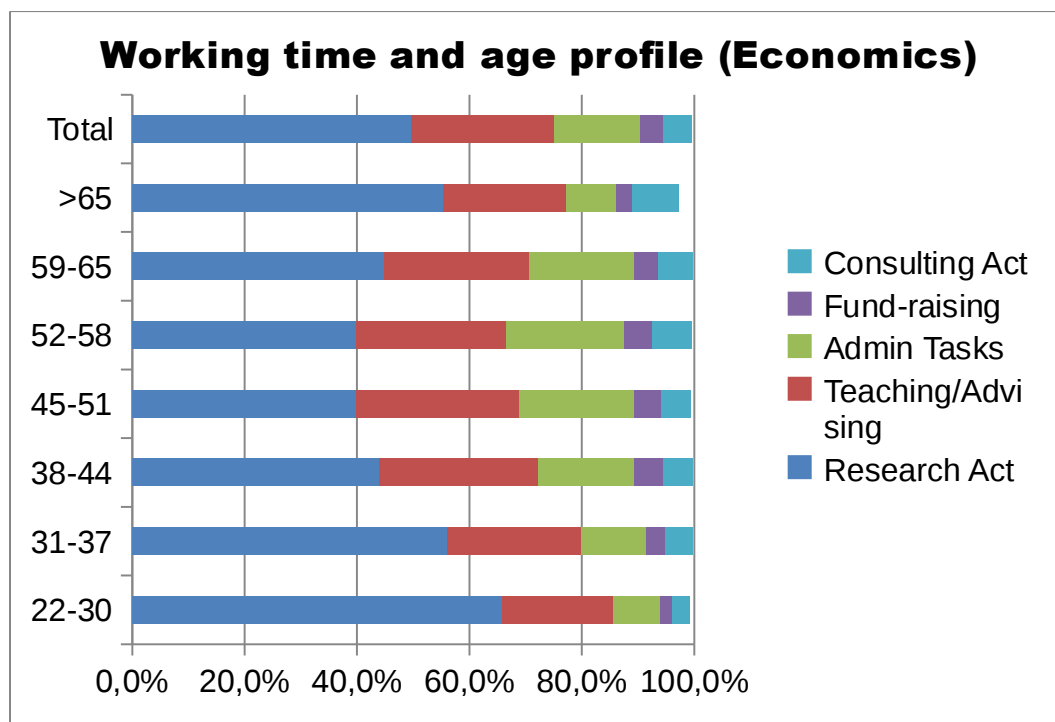
Source: OECD

Figure A.2: Years from graduation



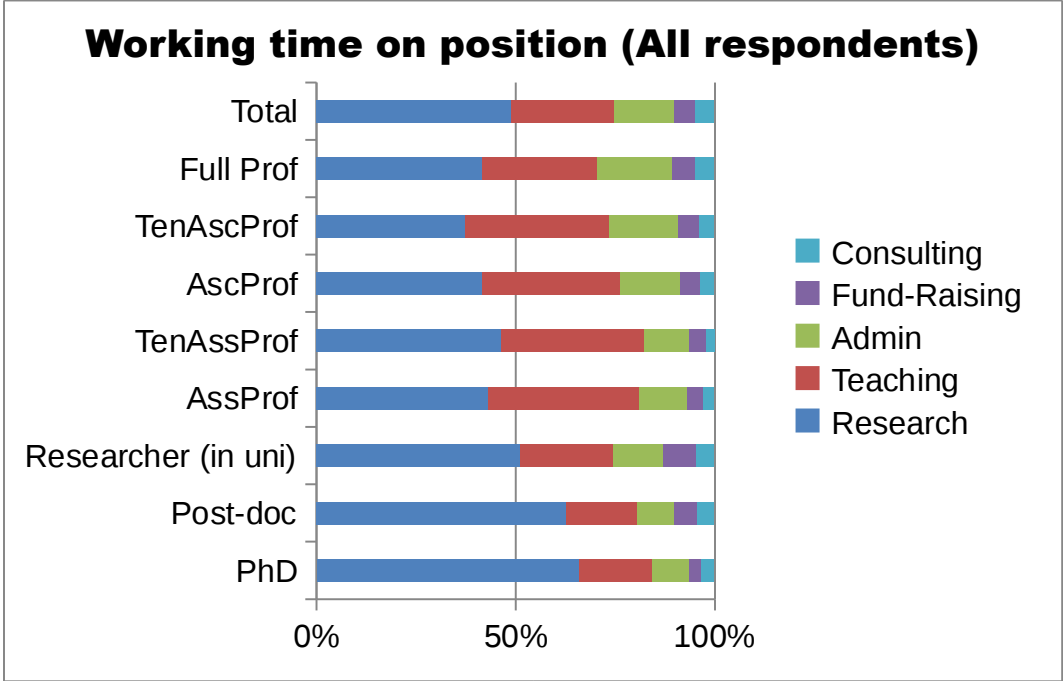
Source: OECD

Figure A.3: Working time and age profile.



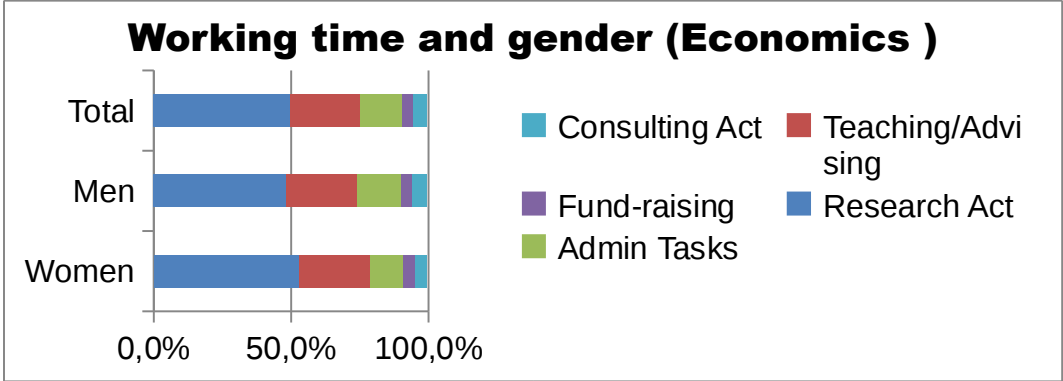
Source: EEA Survey

Figure A.4: Working time and position.



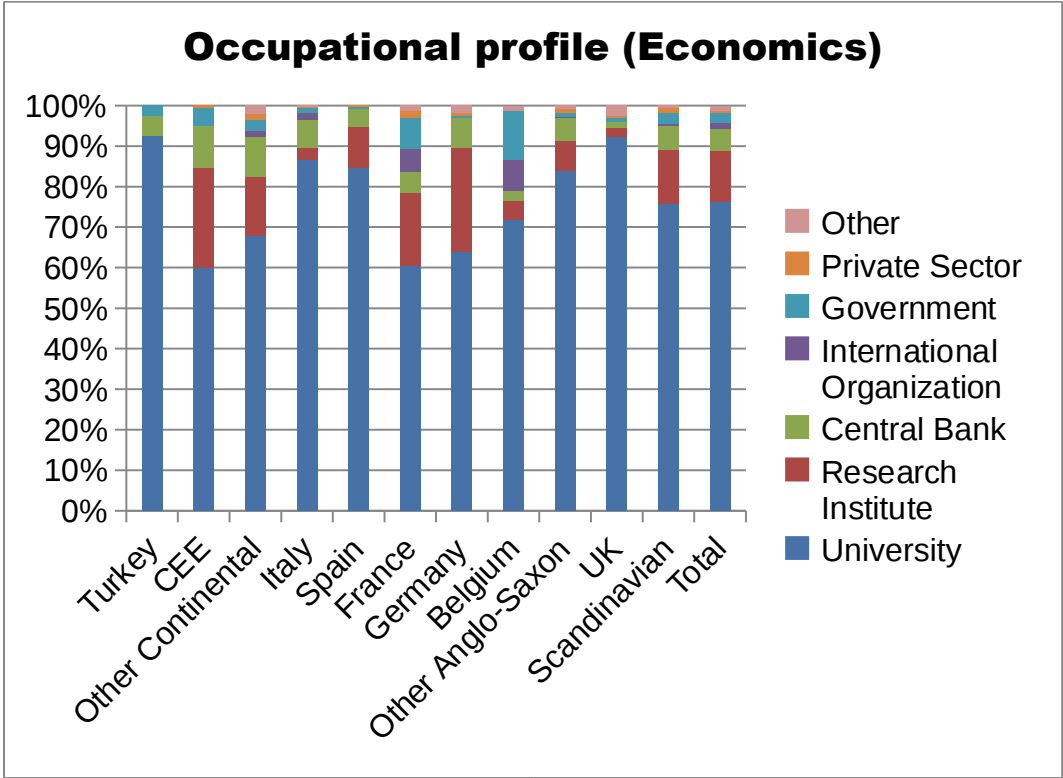
Source: EEA Survey

Figure A.5: Working time and gender.



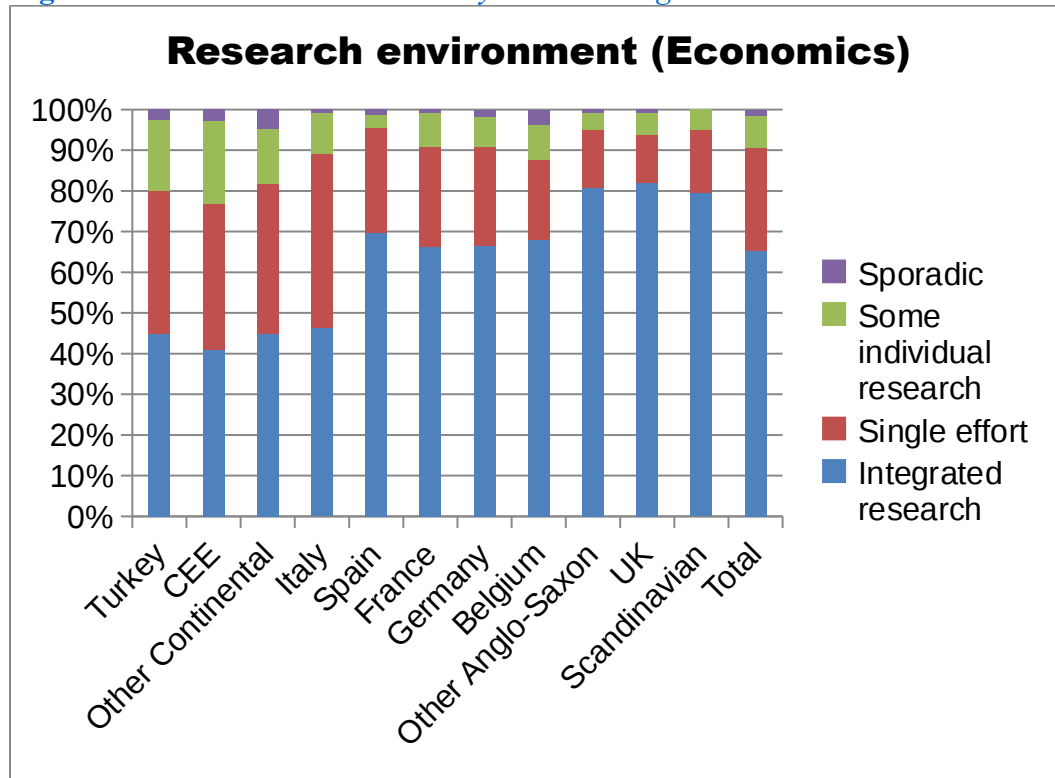
Source: EEA Survey

Figure A.6: Occupational profile of EEA-ACO Survey Respondents



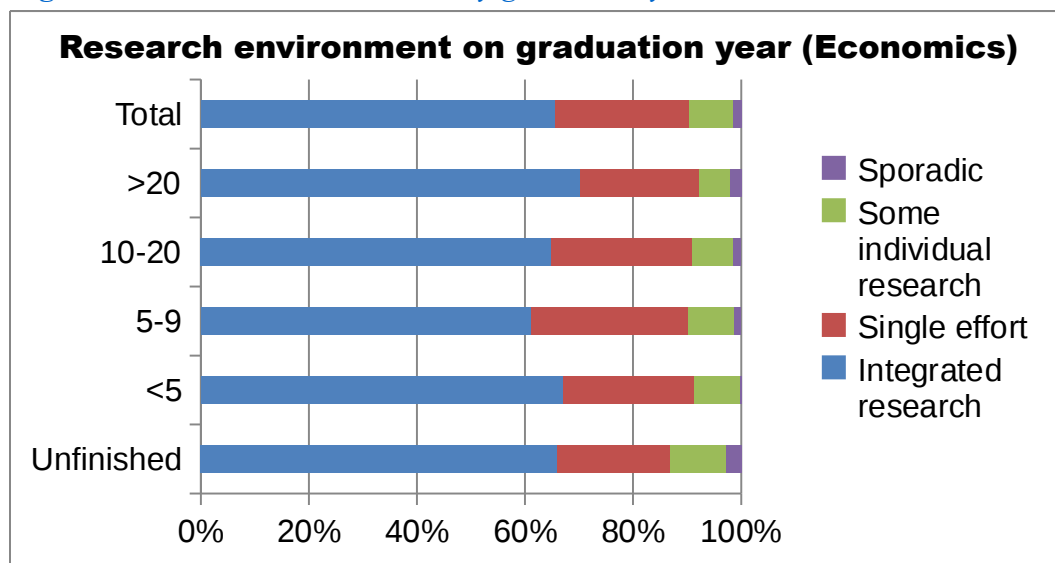
Source: EEA Survey

Figure A.7: Research environment by residence region.



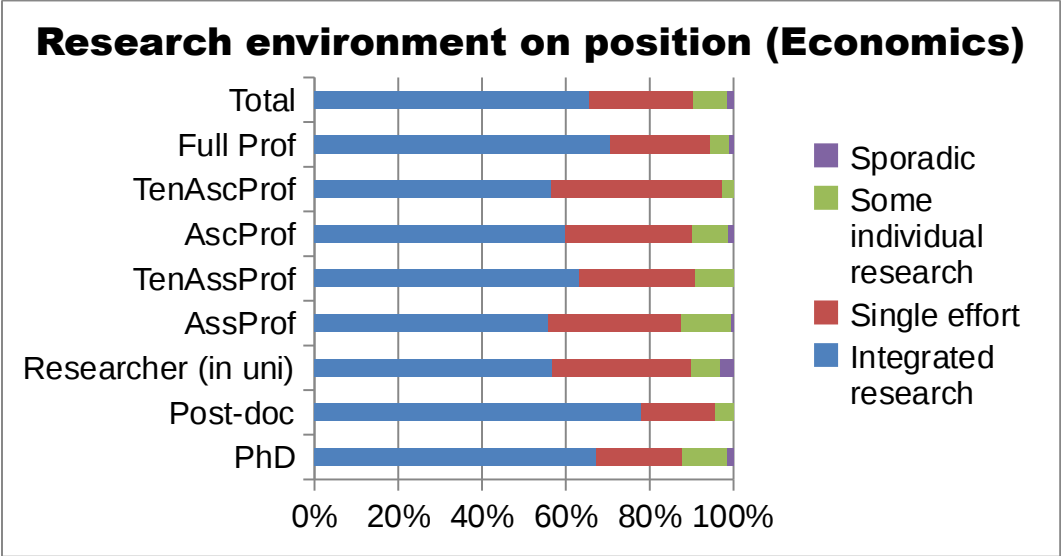
Source: EEA Survey

Figure A.8: Research environment by graduation year.



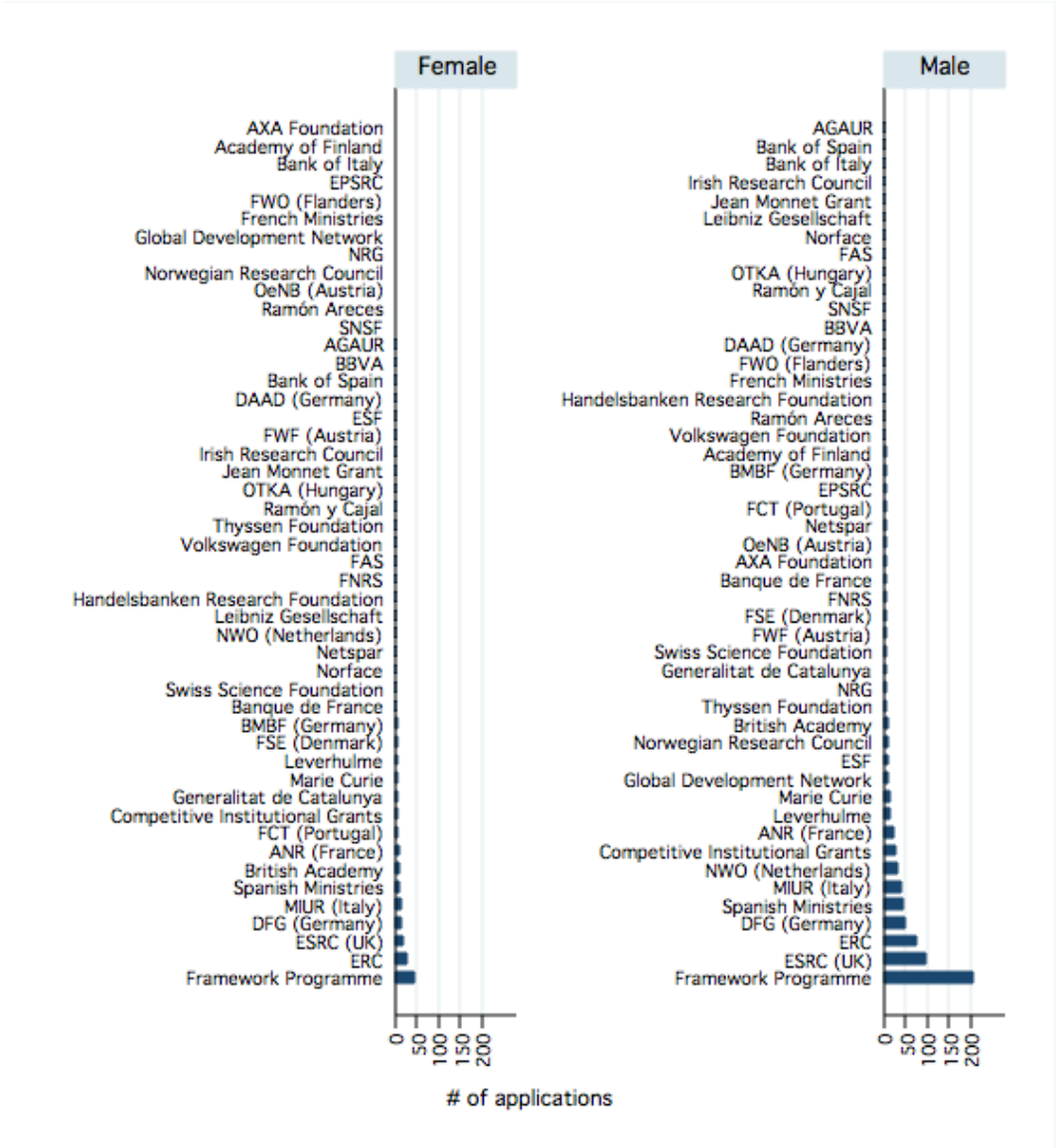
Source: EEA Survey

Figure A.9: Research environment by position.



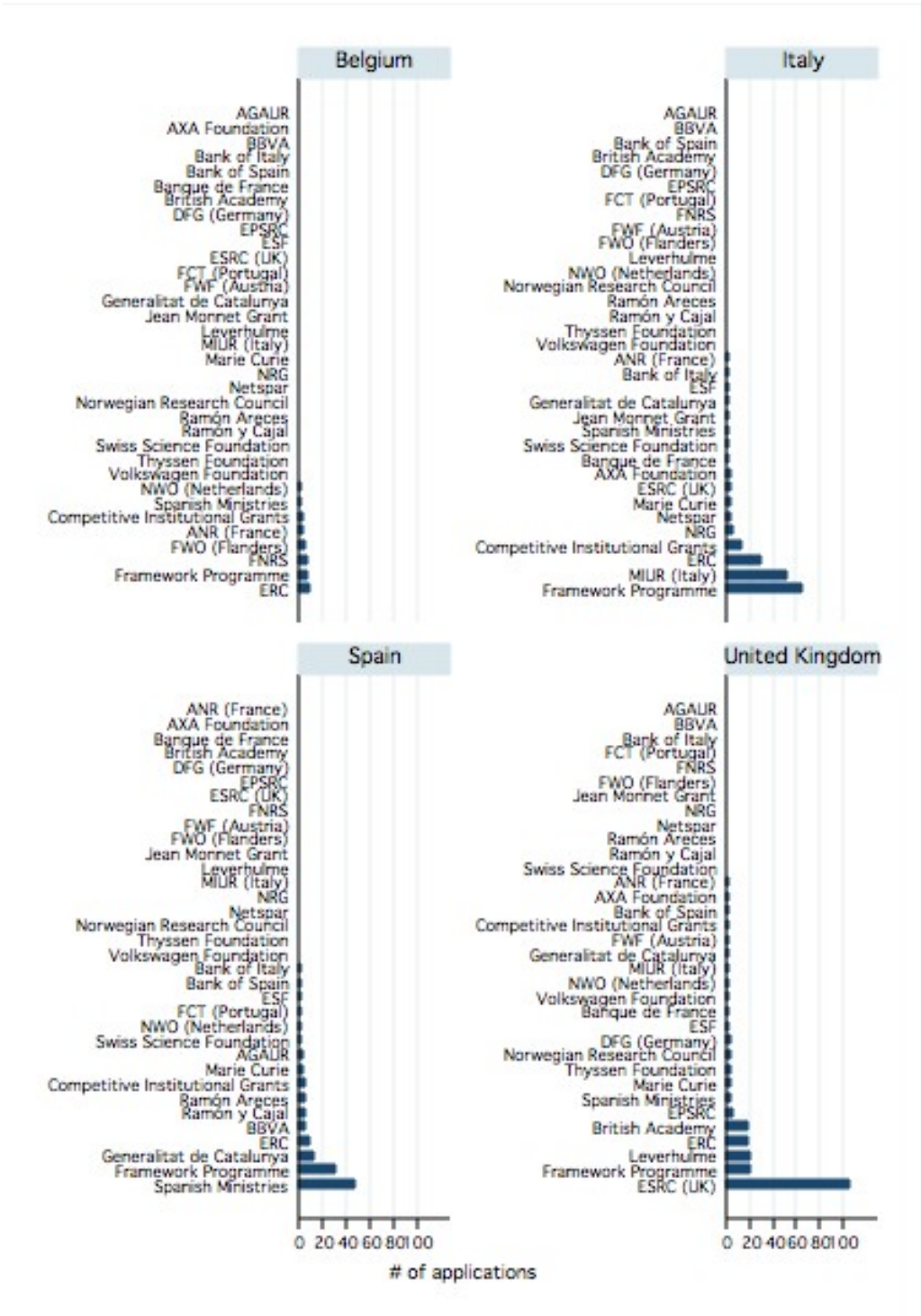
Source: EEA Survey

Figure A.10: Most frequently named funding agencies by gender



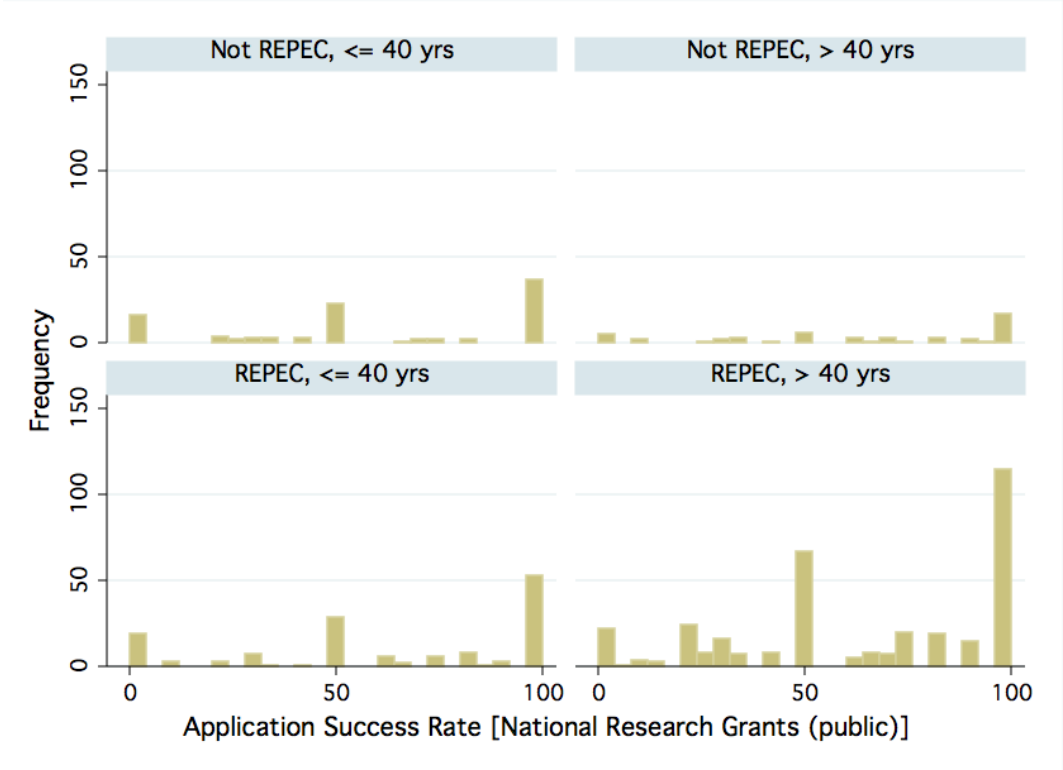
Source: EEA Survey

Figure A.11: Most frequently named funding agencies by country



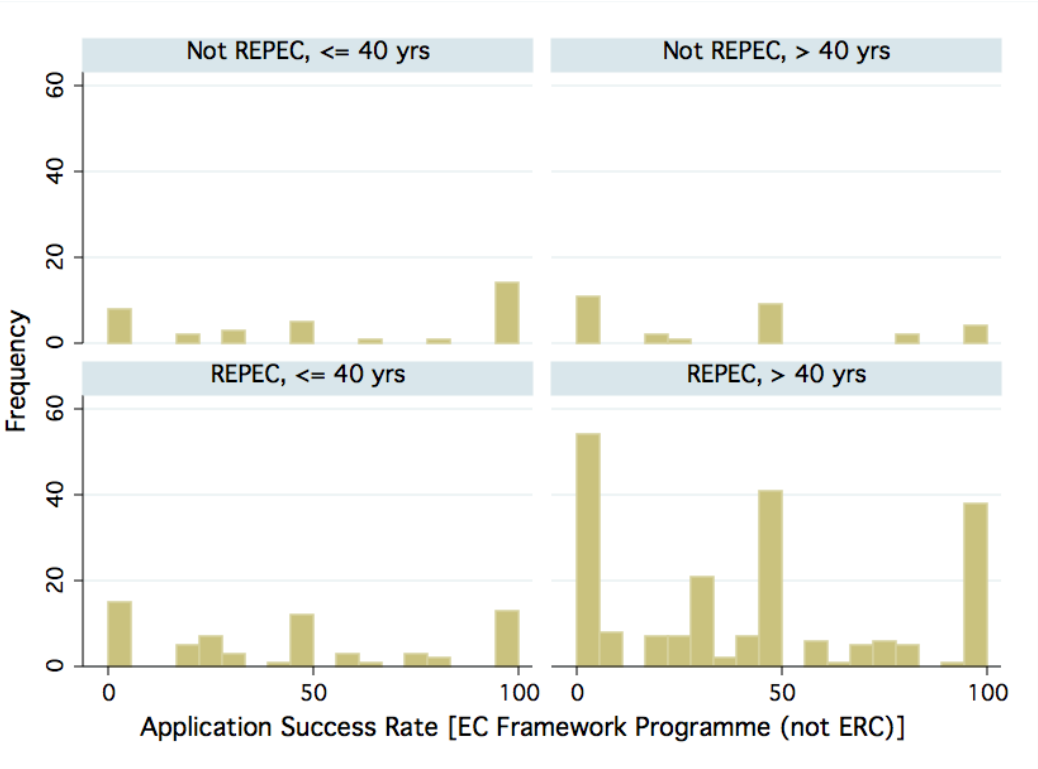
Source: EEA Survey

Figure A.12: *Success rates [National (Public) Grants] by seniority and RePec listing.*



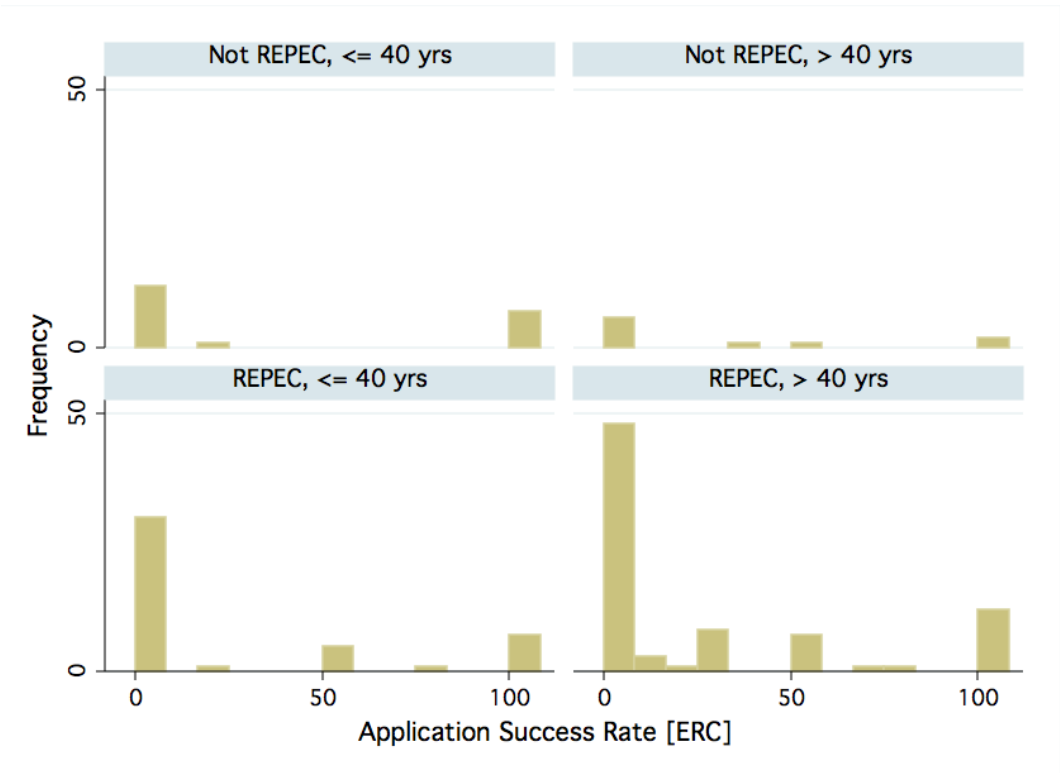
Source: EEA Survey
Notes: Success rates are self-reported.

Figure A.13: *Success rates [EC Framework [Not ERC] Grants] by seniority and RePec listing.*



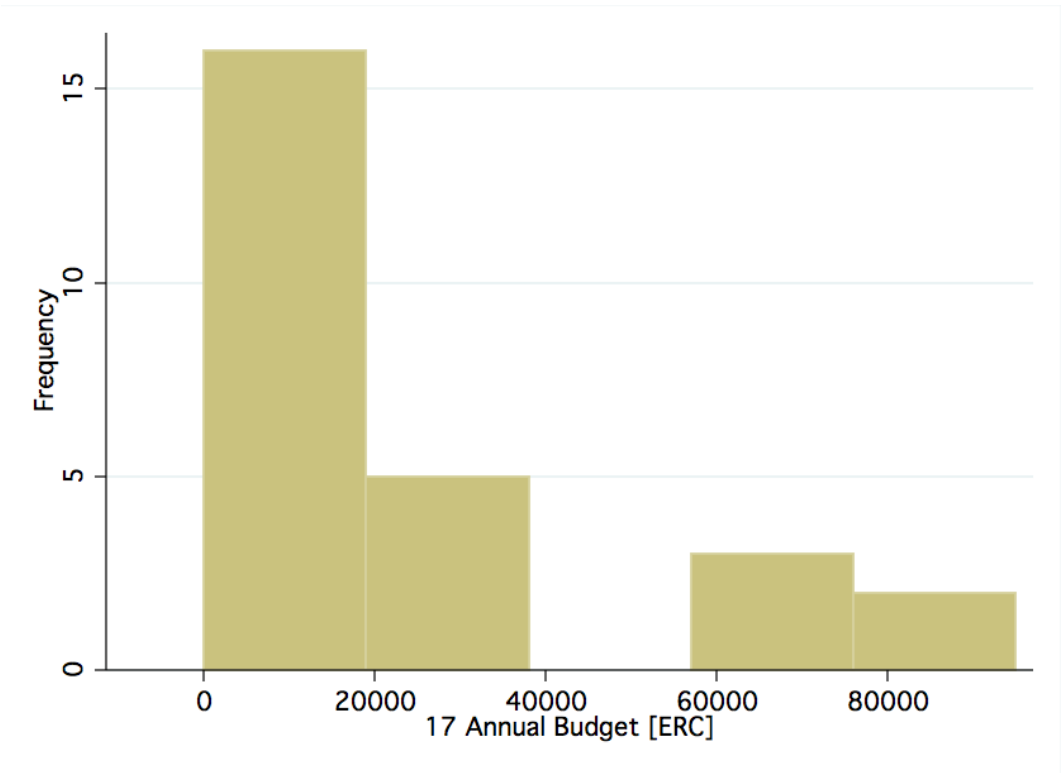
Source: EEA Survey
Notes: Success rates are self-reported.

Figure A.14: *Success rates (ERC Grants) by seniority and RePec listing.*



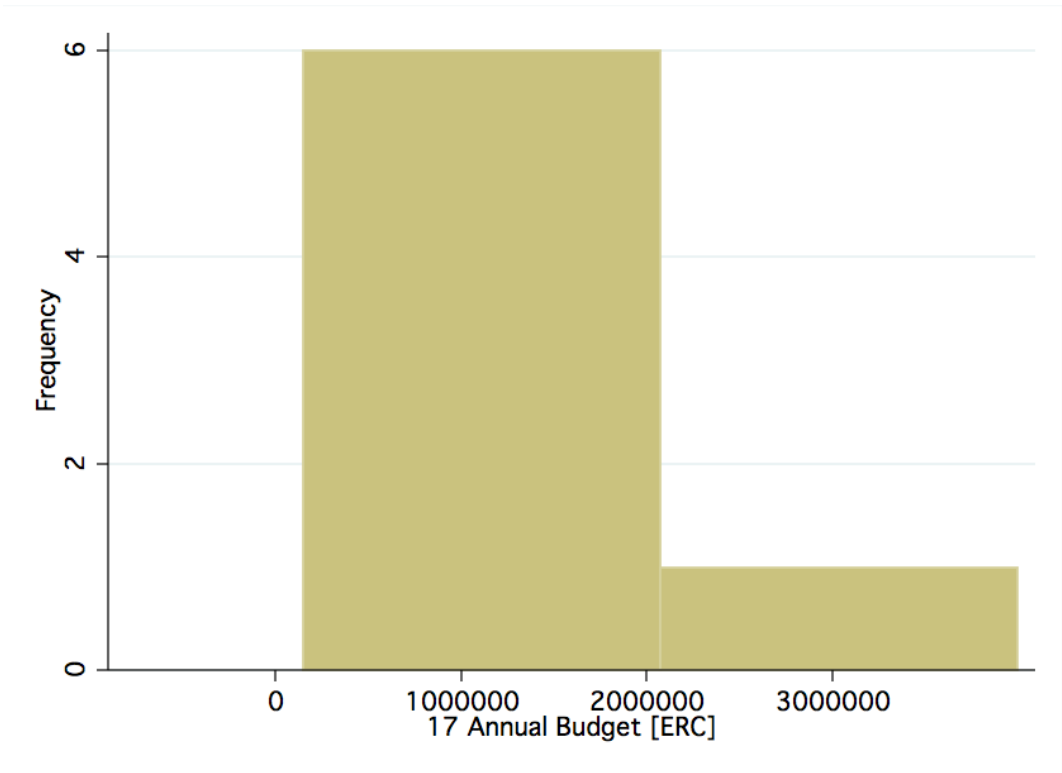
Source: EEA Survey
Notes: ^a Success rates are self-reported.

Figure A.15: *Distribution of grant size (ERC) [$< 100,000$]*



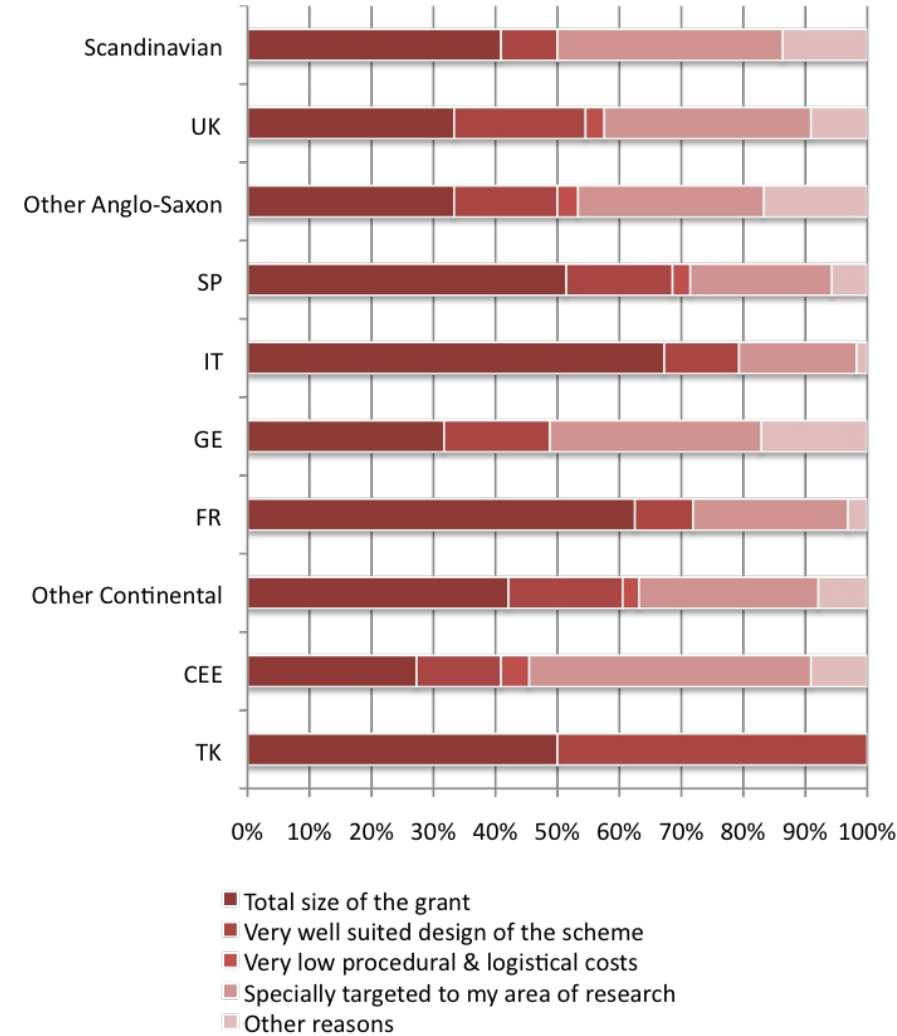
Source: EEA Survey

Figure A.16: *Distribution of grant size (ERC) [$> 100,000$]*



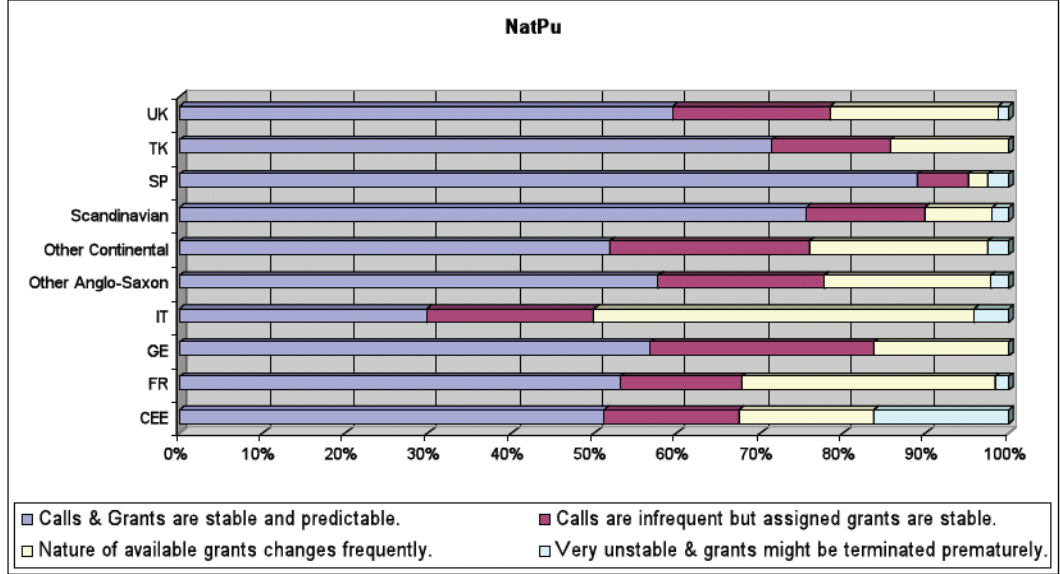
Source: EEA Survey

Figure A.17: *Framework research funding – reasons to apply*



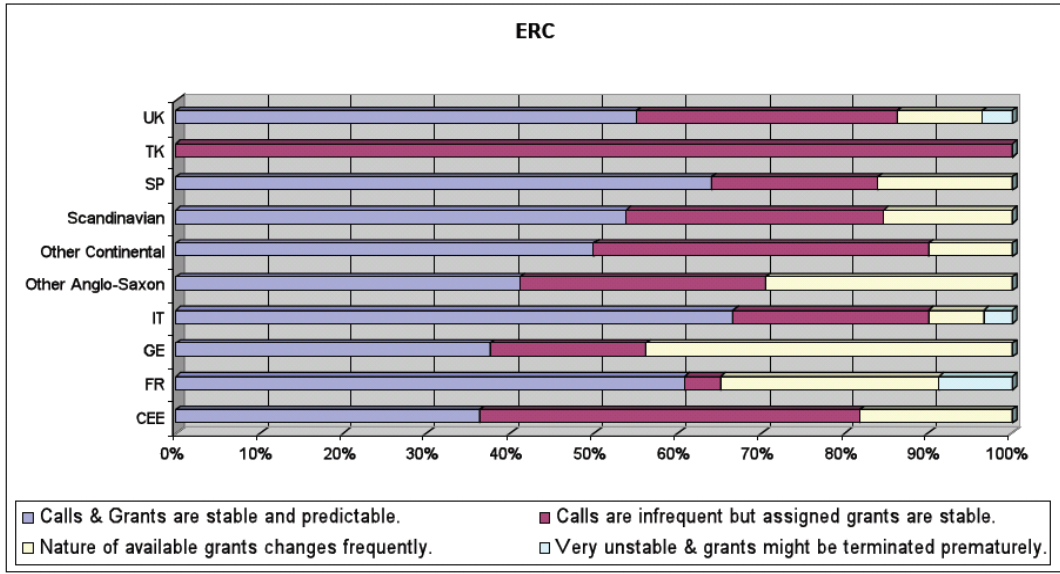
Source: EEA Survey

Figure A.18: National public research funding – perceptions of stability



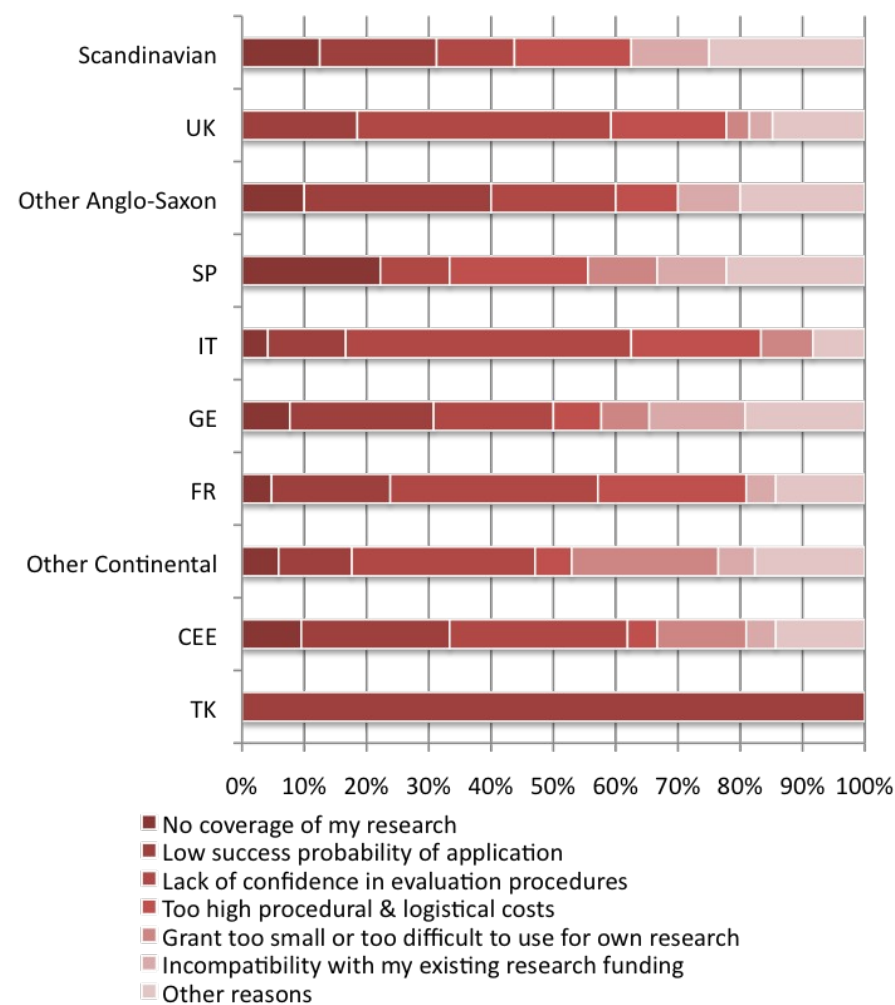
Source: EEA Survey

Figure A.19: ERC research funding – perceptions of stability



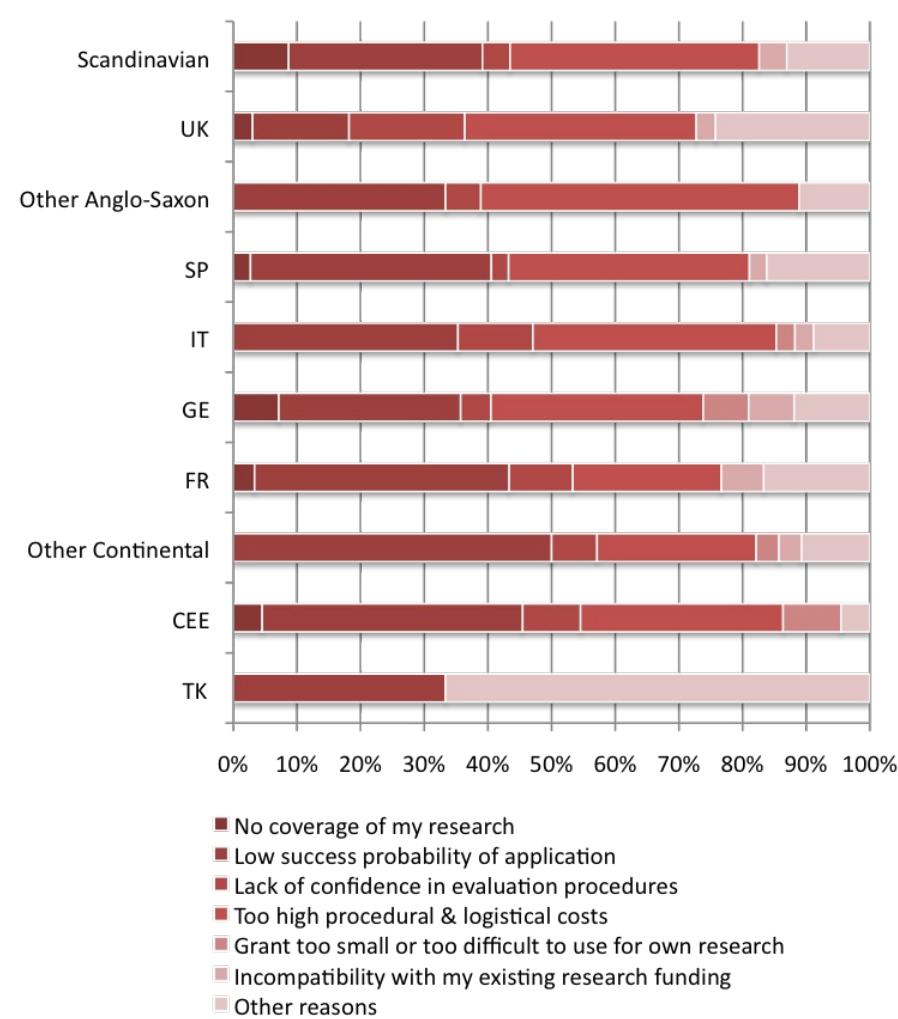
Source: EEA Survey

Figure A.20: *National public research funding – reasons NOT to apply*



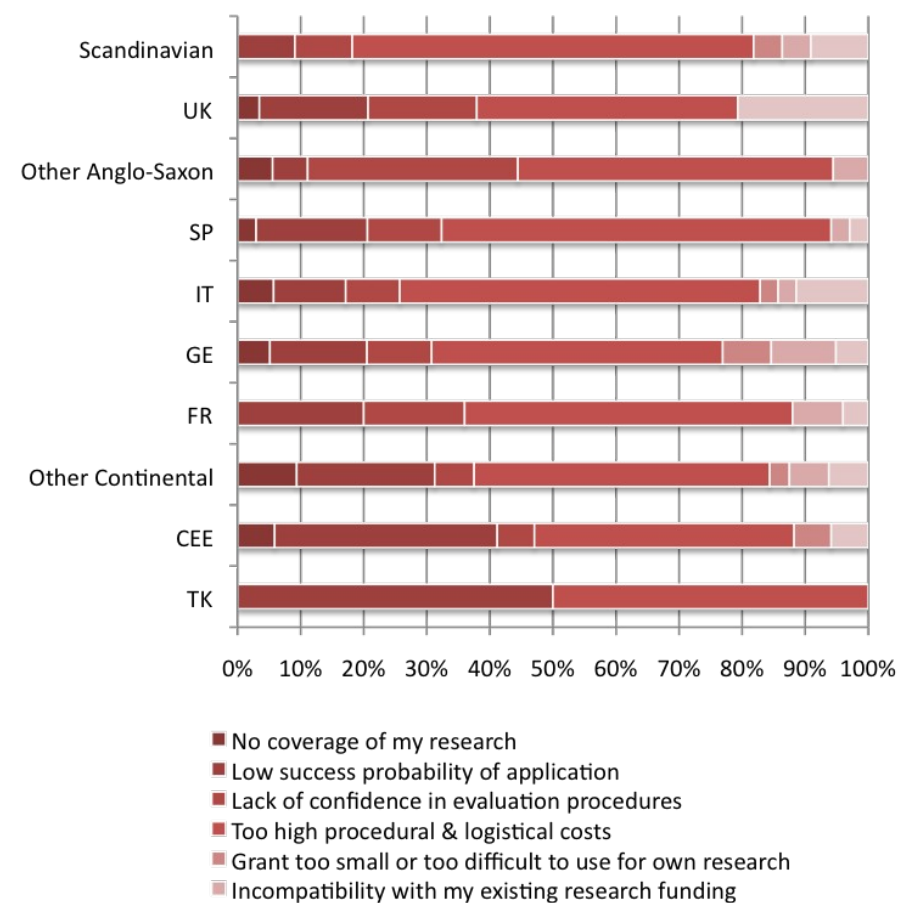
Source: EEA Survey

Figure A.21: *ERC research funding – reasons NOT to apply*



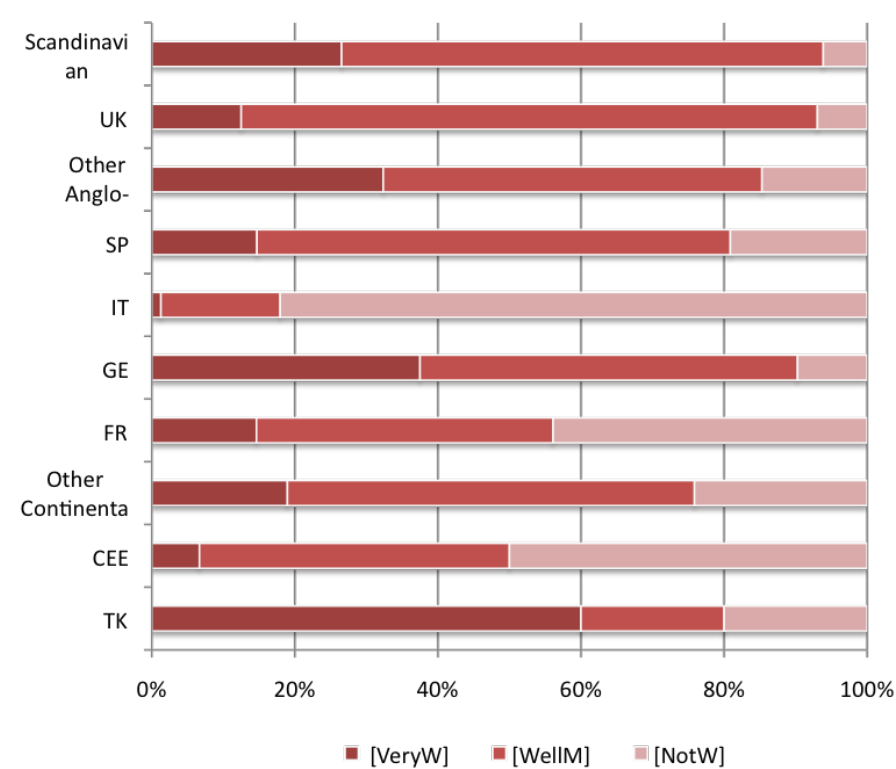
Source: EEA Survey

Figure A.22: Framework research funding – reasons NOT to apply



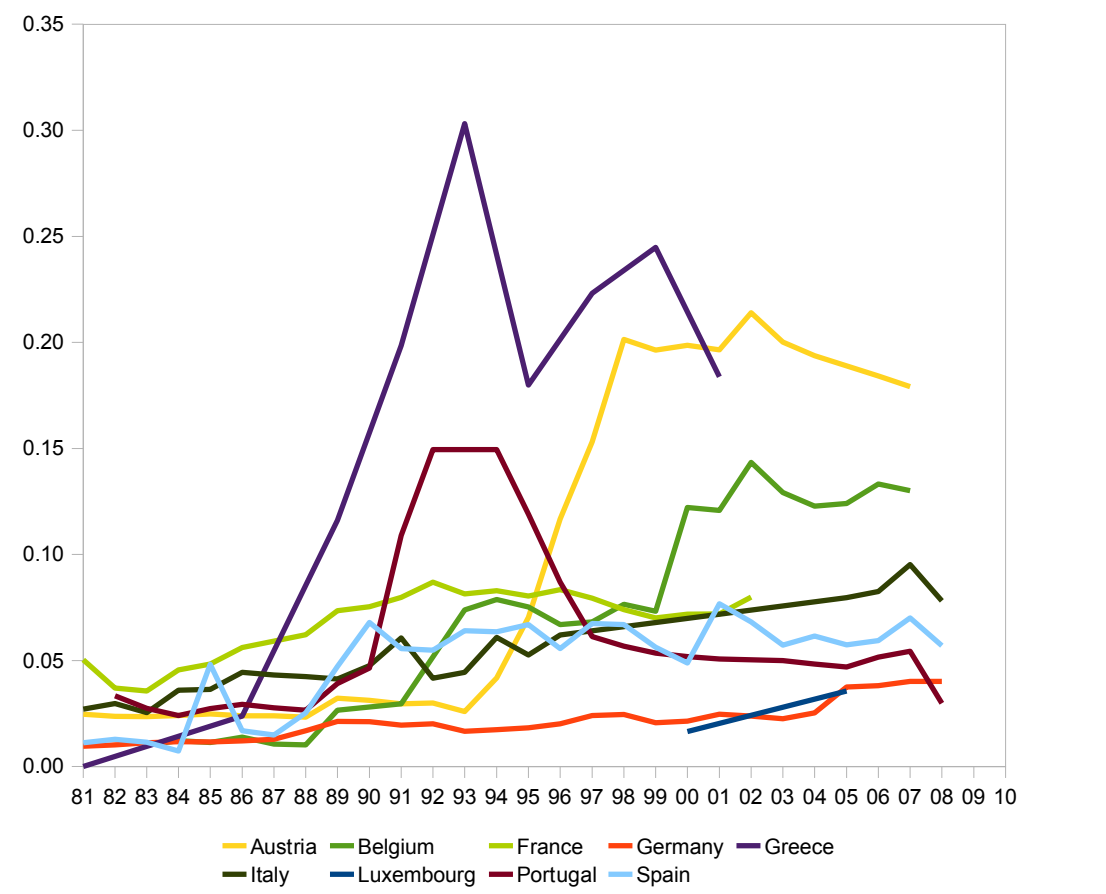
Source: EEA Survey

Figure A.23: *Perceived management of national agencies*



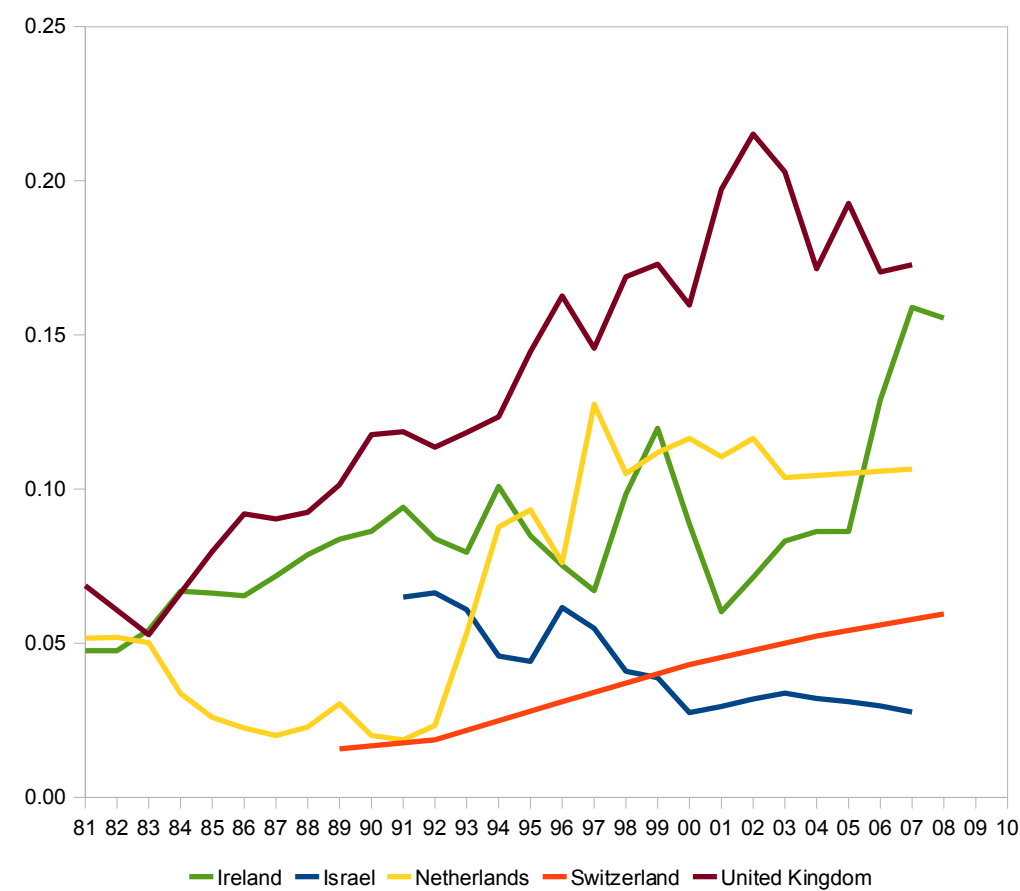
Source: EEA Survey

Figure A.24: Funds from foreign sources (as % of Total R&D spending). Continental Countries.



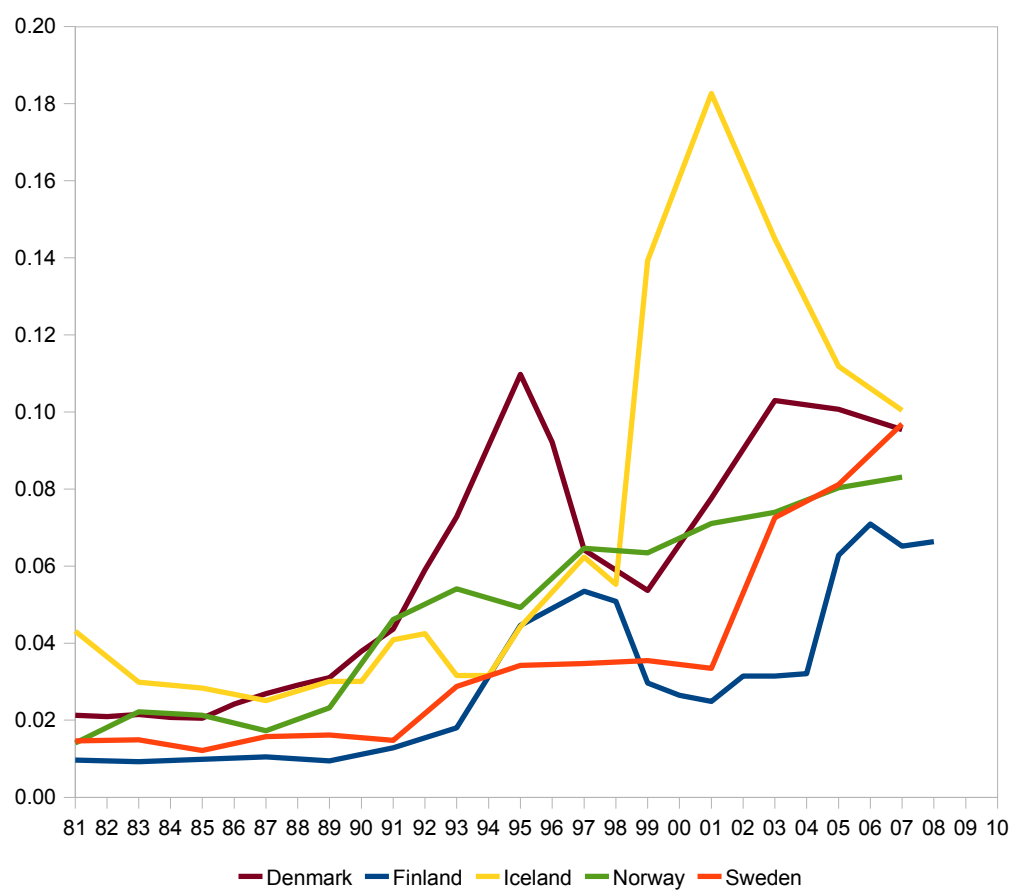
Source: OECD

Figure A.25: Funds from foreign sources (% of Total R&D spending). Anglo-Saxon Countries



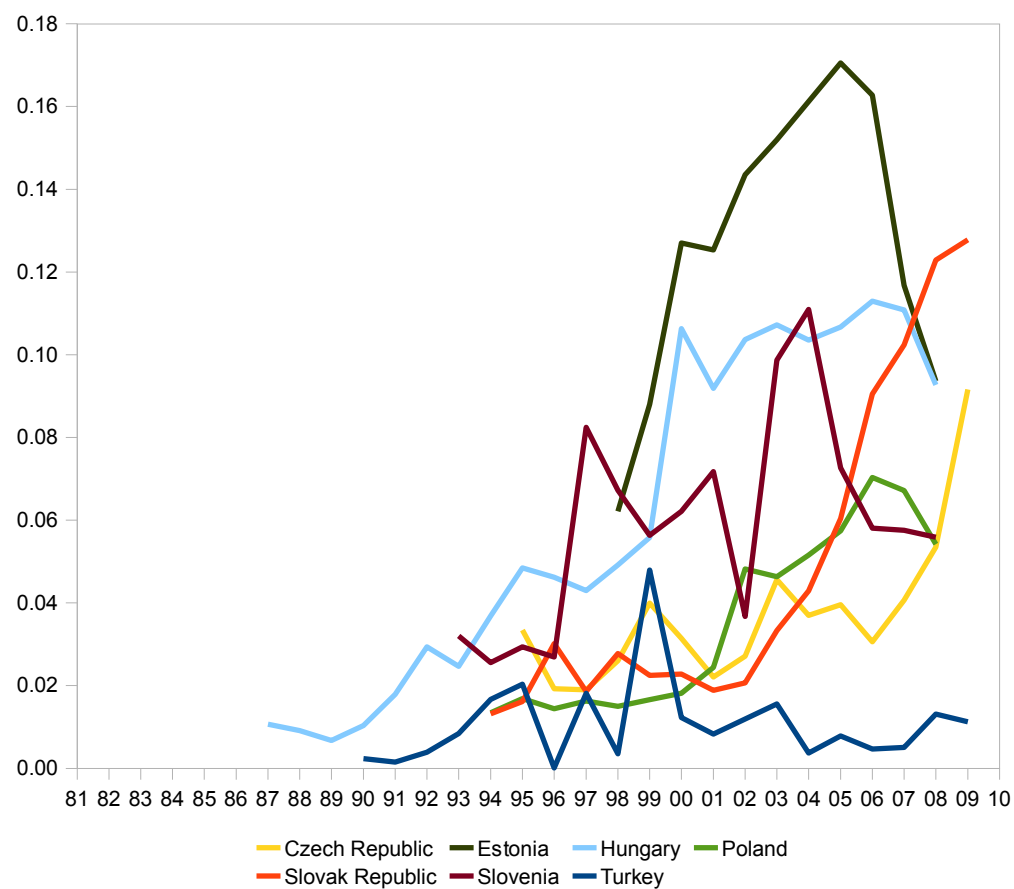
Source: OECD

Figure A.26: Funds from foreign sources (% of Total R&D spending).
Scandinavian Countries



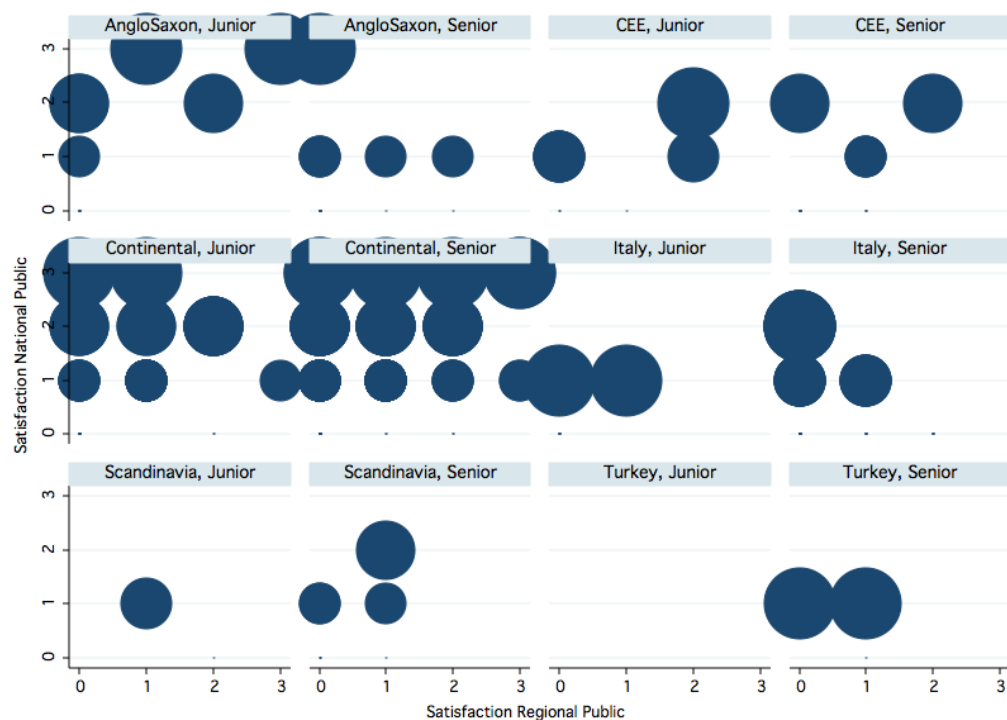
Source: OECD

Figure A.27: Funds from foreign sources (% of Total R&D spending). CEE and Turkey.



Source: OECD

Figure A.28: *Correlations: Satisfaction with National and Regional Public funding.*



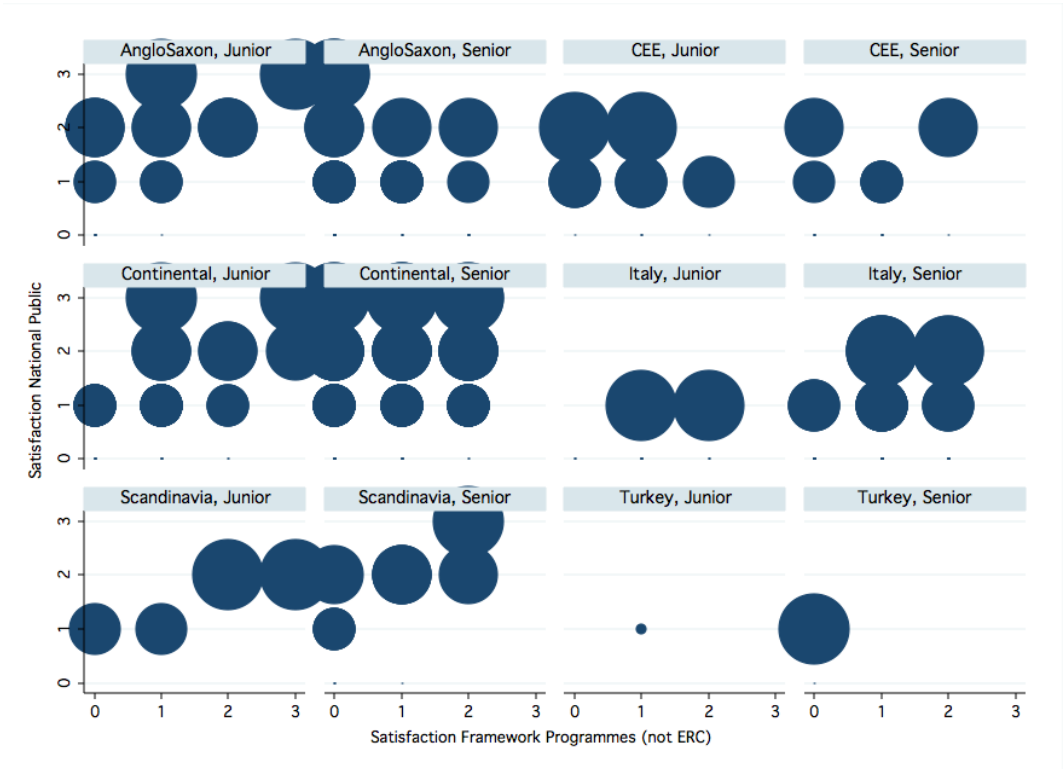
Notes:

Junior: age < 40

Frequency weighted scatter plot

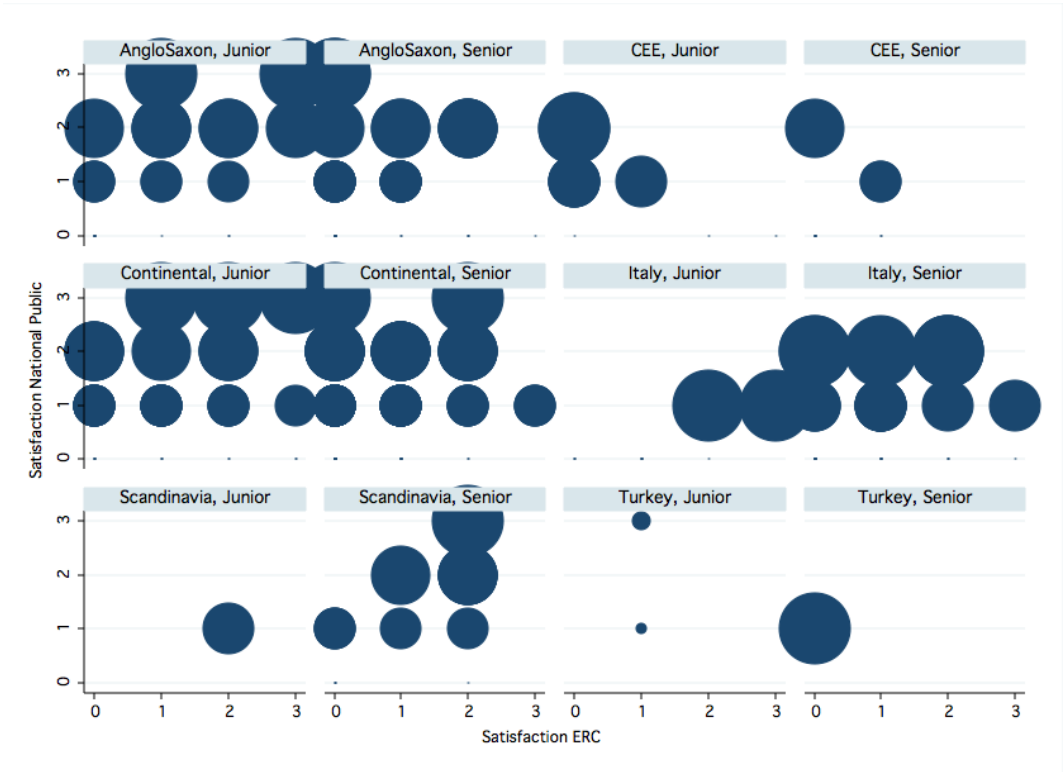
Source: EEA Survey

Figure A.29: *Correlations: Satisfaction with National Public funding and Framework Programmes.*



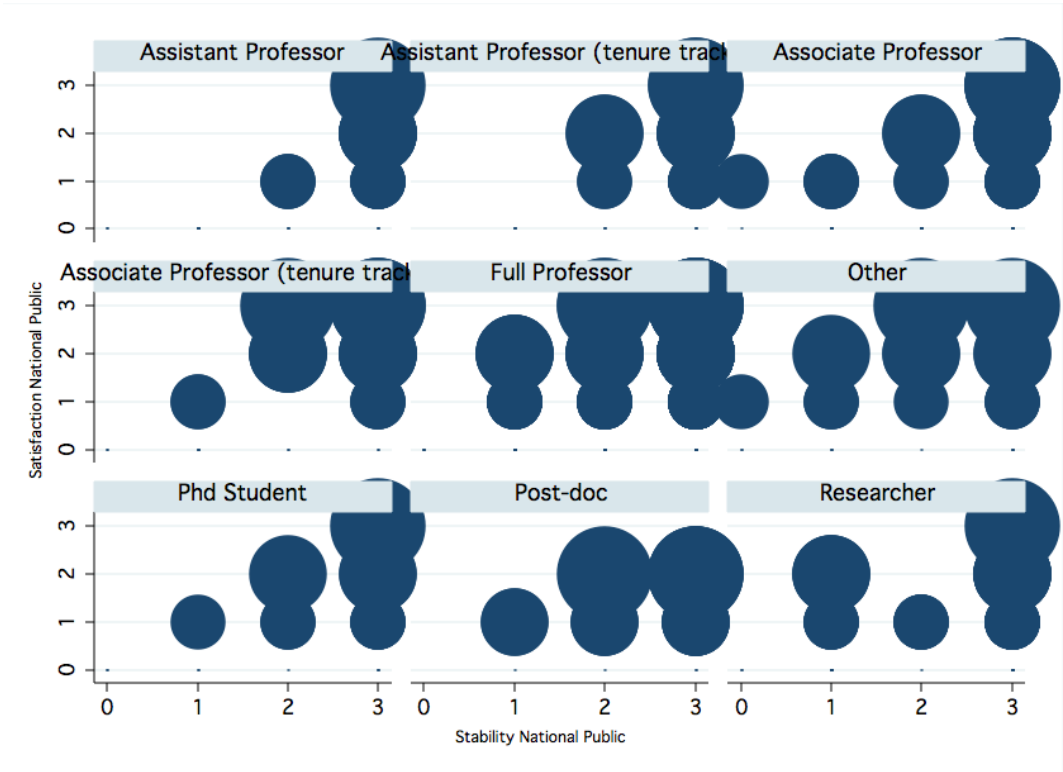
Notes:
Junior: age < 40
Frequency weighted scatter plot
Source: EEA Survey

Figure A.30: *Correlations: Satisfaction with National Public funding and ERC Programmes.*



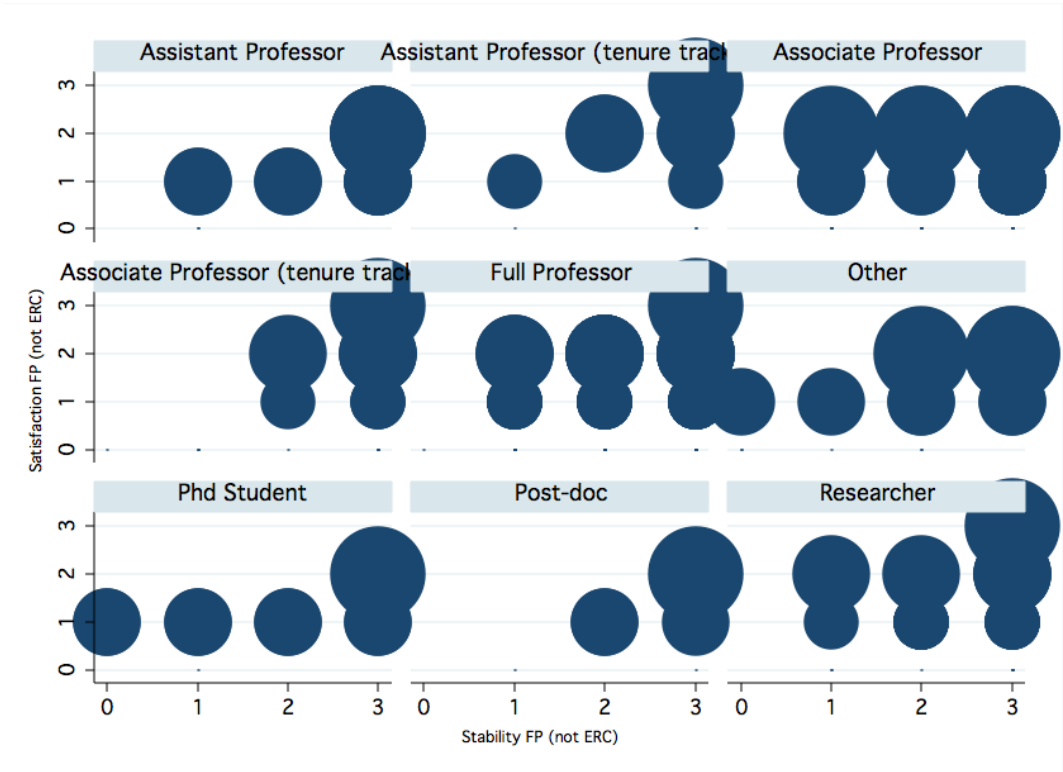
Notes:
Junior: age < 40
Frequency weighted scatter plot
Source: EEA Survey

Figure A.31: *Correlations: Stability and Satisfaction (National Public funding) by position.*



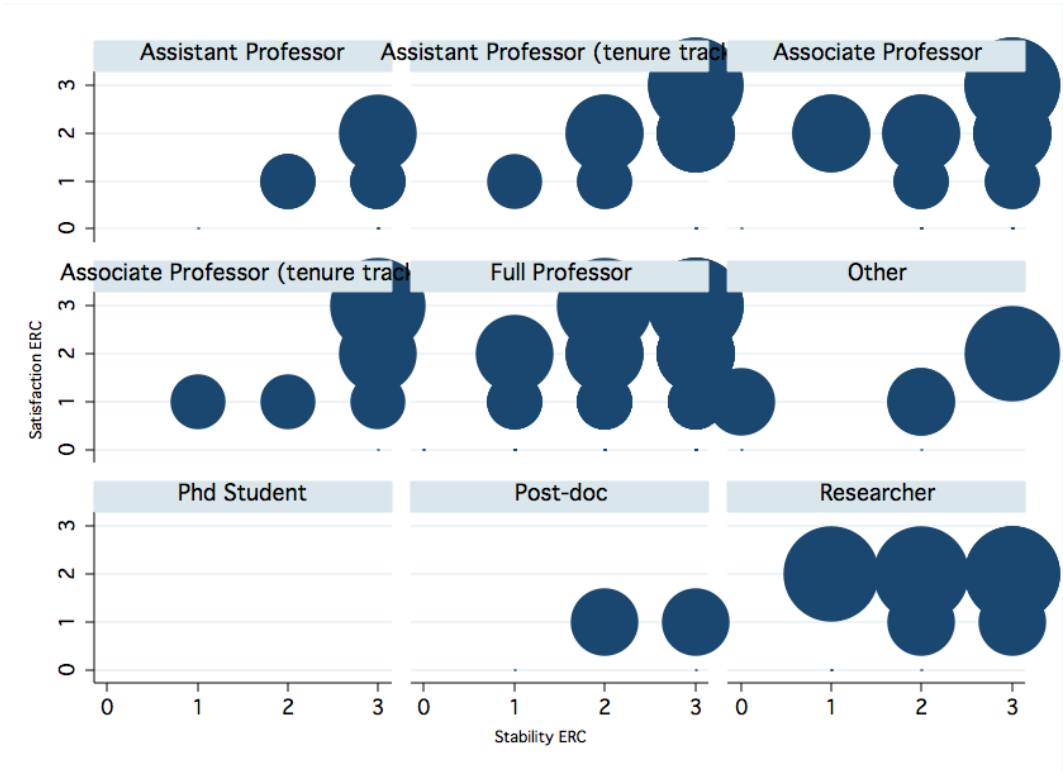
Notes:
Junior: age < 40
Frequency weighted scatter plot
Source: EEA Survey

Figure A.32: *Correlations: Stability and Satisfaction (Framework programmes) by position.*



Notes:
Junior: age < 40
Frequency weighted scatter plot
Source: EEA Survey

Figure A.33: *Correlations: Stability and Satisfaction (ERC programmes) by position.*



Notes:
 Junior: age < 40
 Frequency weighted scatter plot
 Source: EEA Survey

Table A.3: *Fraction of researcher from reporting country over total researcher headcount in higher education.*

	2002	2003	2004	2005	2006	2007	2008	2009
Switzerland	0.60		0.58		0.56		0.54	
CEE	1.00	1.00	0.99	0.97	0.97	0.97	0.97	0.97
Bulgaria				0.98	0.99	0.99	0.99	
Croatia				0.84	0.88	0.88	0.91	
Czech Republic				0.97	0.96			
Estonia	1.00	1.00	0.99	0.99	0.98	0.97	0.96	0.96
Latvia	1.00	1.00	1.00	1.00				
Lithuania		1.00	1.00	1.00	0.99	0.99	0.99	
Hungary			0.98	0.98	0.98	0.98	0.98	
Poland			0.99	0.99		0.99	0.99	
Romania		1.00	1.00	1.00	1.00	1.00	1.00	
Slovakia		0.99	0.99	0.99	0.99	0.98	0.98	0.98
Scandinavia		0.88		0.87		0.85		
Denmark				0.89		0.85		
Norway		0.88		0.85				
Continental	0.88	0.89	0.90	0.76	0.76	0.90	0.90	1.00
Continental (w/o Luxembourg)	0.88	0.89	0.90	0.90	0.89	0.89	0.89	1.00
Spain						0.95	0.95	
Cyprus	0.71	0.72	0.76	0.77	0.77	0.77	0.75	
Luxembourg				0.35	0.37			
Malta	1.00	0.99	0.99	1.00	1.00	1.00	1.00	1.00
Portugal	0.95	0.94	0.94	0.93	0.91	0.90	0.91	

Source: Eurostat

Table A.4: Fraction of foreign students participating in tertiary education.^{a,b}

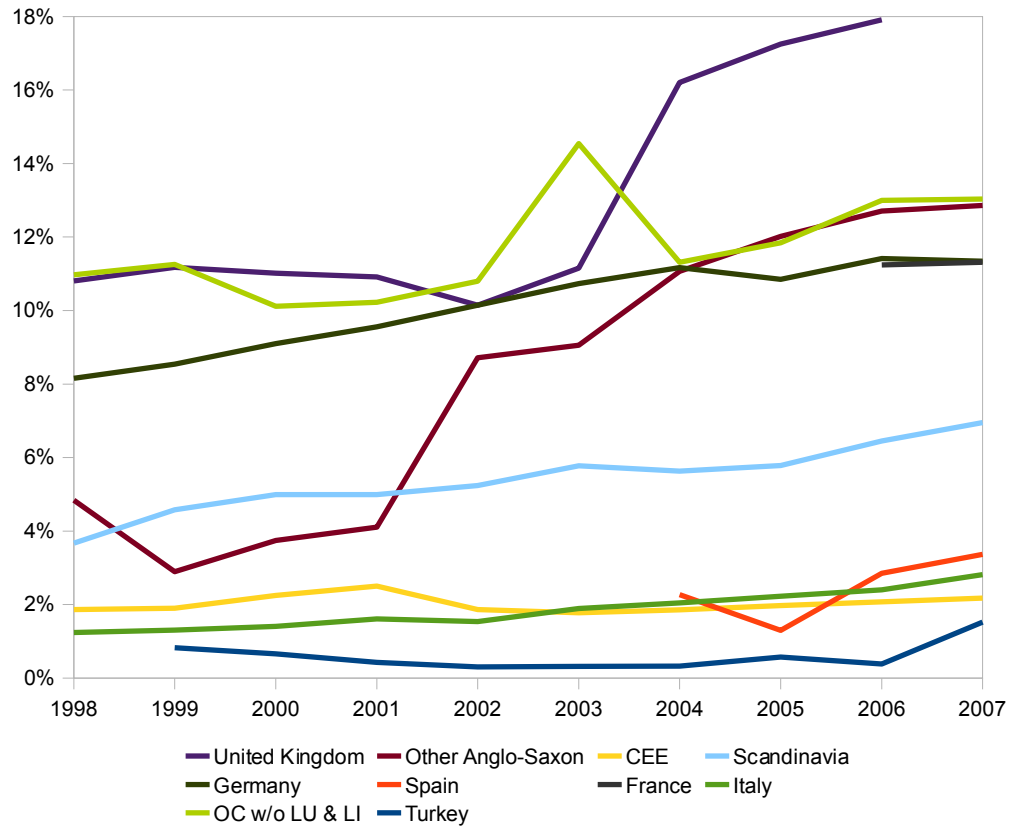
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Survey
United Kingdom	10.81%	11.17%	11.01%	10.92%	10.14%	11.16%	16.21%	17.25%	17.91%		81.25%
Other Anglo-Saxon	4.84%	2.90%	3.74%	4.11%	8.71%	9.06%	11.07%	12.02%	12.70%	12.86%	68.18%
Ireland	4.84%		4.62%	4.93%	5.22%	5.62%					100.00%
Netherlands		2.90%	2.87%	3.29%	3.69%	3.90%	3.91%	5.59%	6.18%	6.45%	54.55%
Switzerland					17.23%	17.66%	18.22%	18.44%	19.23%	19.27%	50.00%
CEE	1.86%	1.90%	2.25%	2.50%	1.87%	1.78%	1.86%	1.97%	2.07%	2.18%	0.00%
Bulgaria	3.25%	3.11%	3.11%	3.29%	3.50%	3.48%	3.63%	3.65%	3.70%	3.61%	0.00%
Czech Republic	2.01%	1.98%	2.25%	2.98%	3.43%	4.35%	4.68%	5.51%	6.34%	6.75%	0.00%
Estonia	1.48%	1.63%	1.61%		0.75%	1.71%			3.15%	3.20%	0.00%
Latvia	1.84%	2.25%	6.57%	7.70%	2.95%	2.01%			1.09%	1.11%	0.00%
Lithuania	0.38%	0.44%	0.44%	0.46%	0.46%	0.41%	0.40%	0.44%	0.62%	0.96%	0.00%
Hungary	2.61%	3.17%	3.24%	3.40%	3.32%	3.13%	3.06%	3.12%	3.30%	3.50%	0.00%
Poland	0.47%	0.41%	0.39%	0.38%	0.39%	0.38%	0.40%	0.48%	0.53%	0.61%	0.00%
Romania	3.87%	3.26%	2.78%	2.19%	1.82%	1.51%			1.41%	1.31%	0.00%
Slovenia	0.84%	0.83%	0.93%	0.94%	0.96%	0.95%	1.06%	1.10%	1.21%	1.30%	0.00%
Slovakia			1.16%	1.17%	1.08%	1.04%	1.00%	0.92%	0.88%	0.92%	0.00%
Croatia						0.55%	0.63%	0.56%	0.55%	0.67%	0.00%
Scandinavia	3.67%	4.58%	4.99%	4.99%	5.24%	5.78%	5.63%	5.79%	6.45%	6.96%	32.22%
Denmark	6.01%	6.49%	6.80%	6.60%	7.42%	8.98%	7.90%	7.50%	8.35%	8.98%	83.33%
Finland	1.73%	1.88%	2.06%	2.25%	2.38%	2.52%	2.64%	2.76%	2.90%	3.26%	0.00%
Sweden		7.28%	7.37%	7.35%	7.49%	7.83%	8.51%	9.21%	9.80%	10.34%	77.78%
Iceland	2.40%	2.45%	4.17%	4.13%	4.07%	4.35%	3.32%	3.19%	4.55%	4.95%	0.00%
Norway	4.54%	4.80%	4.56%	4.65%	4.82%	5.21%	5.79%	6.26%	6.66%	7.26%	0.00%
Continental	8.16%	8.54%	9.10%	9.56%	10.14%	10.73%	6.72%	6.07%	8.50%	8.67%	40.19%
Germany	8.16%	8.54%	9.10%	9.56%	10.14%	10.73%	11.17%	10.85%	11.42%	11.34%	20.19%
Spain							2.27%	1.30%	2.85%	3.37%	60.00%
France									11.24%	11.32%	40.38%
Italy	1.24%	1.31%	1.41%	1.61%	1.53%	1.89%	2.05%	2.23%	2.40%	2.82%	45.45%
Other Continental (OC)	20.72%	11.26%	10.12%	10.23%	10.80%	27.37%	11.31%	24.73%	25.82%	25.57%	7.58%
OC w/o LU & LI	10.97%	11.26%	10.12%	10.23%	10.80%	14.55%	11.31%	11.84%	13.00%	13.03%	10.10%
Belgium				10.62%	11.00%	11.18%	9.61%	9.82%	10.30%	10.50%	27.27%
Greece							2.41%				0.00%
Cyprus		17.16%	19.44%	20.71%	21.96%	28.91%	32.04%	24.41%	27.35%	26.87%	0.00%
Luxembourg	30.46%										0.00%
Malta		5.24%	5.64%	4.59%	4.82%	4.57%	5.62%	6.41%	7.15%	6.19%	0.00%
Austria	10.97%	11.38%	12.39%	11.55%	12.23%	13.53%	14.13%	14.11%	15.54%	16.70%	33.33%
Portugal			2.99%	3.66%	3.99%		4.09%	4.47%	4.65%	4.89%	0.00%
Liechtenstein						78.64%		89.18%	89.94%	88.26%	0.00%
Turkey		0.83%	0.66%	0.42%	0.30%	0.32%	0.33%	0.57%	0.39%	1.52%	0.00%

Notes:

^a Source: Eurostat

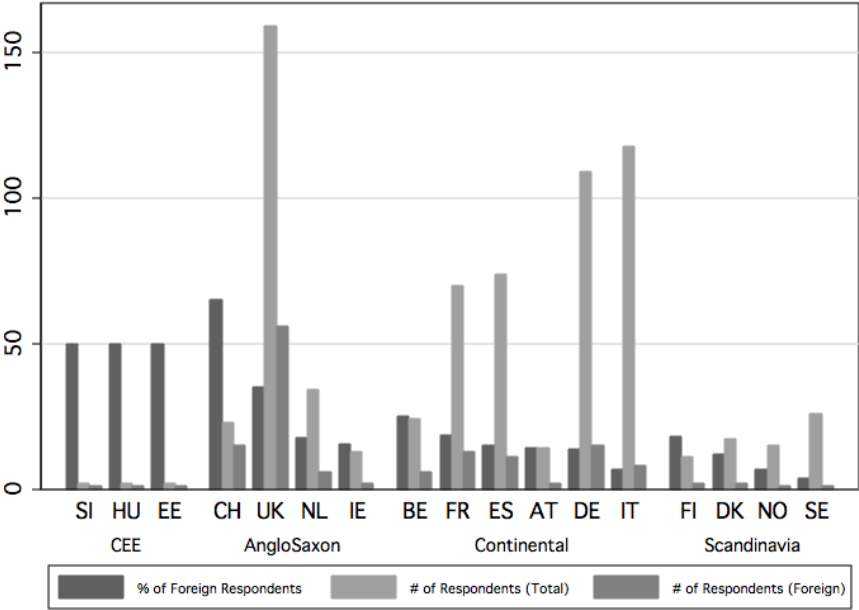
^b For Survey column: Only PhD students in the survey sample. Source: EEA Survey.

Figure A.34: *Fraction of foreign students participating in tertiary education.*



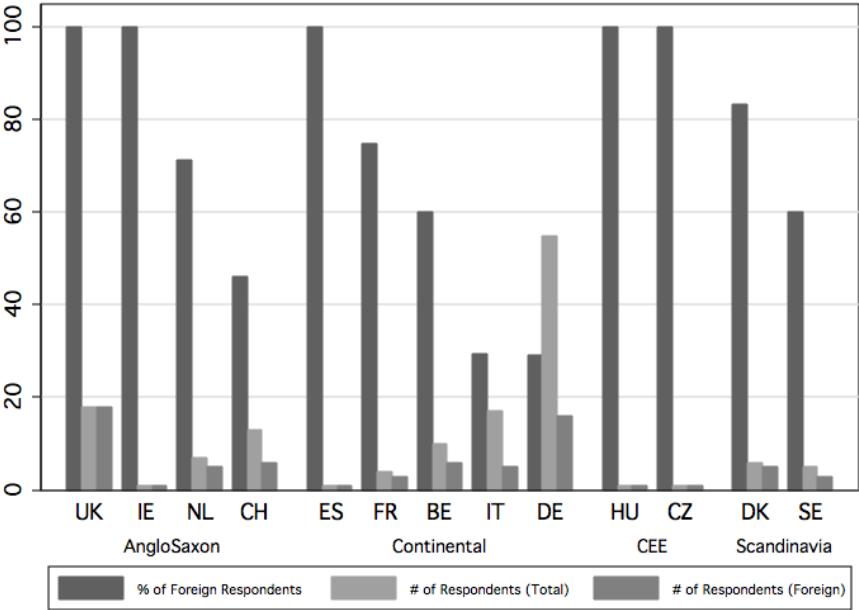
Source: Eurostat

Figure A.35: Total and foreign respondents by country (Full professors).



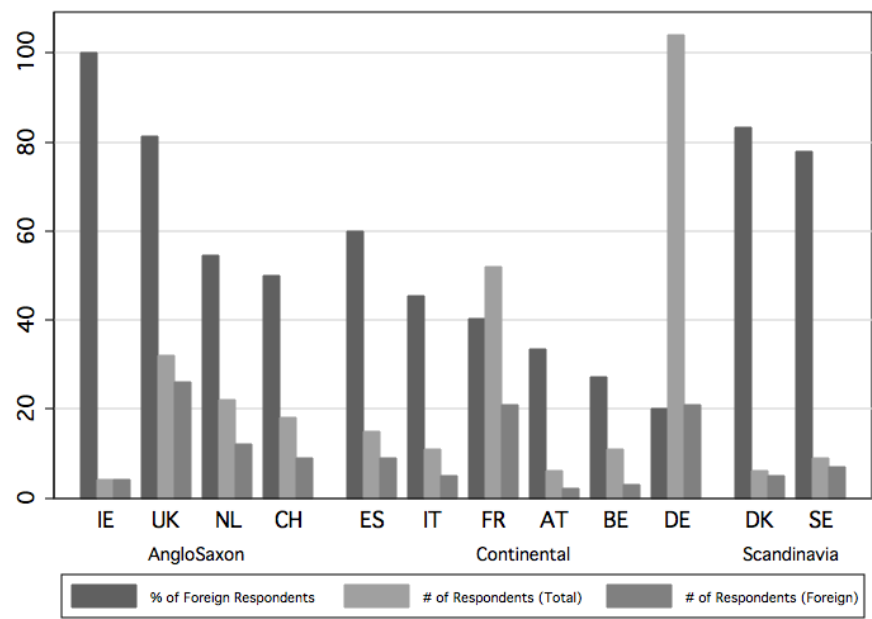
Source: EEA Survey

Figure A.36: Total and foreign respondents by country (Postdocs).



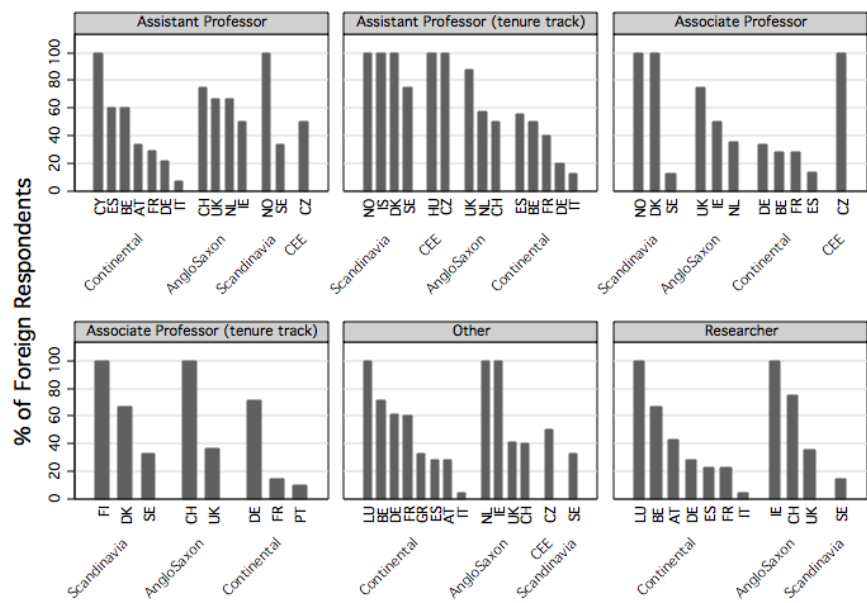
Source: EEA Survey

Figure A.37: Total and foreign respondents by country (PhD Students).



Source: EEA Survey

Figure A.38: Total and foreign respondents by country (Other positions).



Source: EEA Survey

Table A.5: Migration

	Nationality		Residence		Migration		Openness ^a	
	total	female	total	female	total	female	total	female
United Kingdom	167	27	330	70	+	+	1.98	2.59
Other Anglo-Saxon	161	15	217	34	+	+	1.35	2.27
Ireland	21	1	28	8	+	+	1.33	8.00
Israel	15	2	13	2	-	·	0.87	1.00
Netherlands	86	6	105	9	+	+	1.22	1.50
Switzerland	39	6	71	15	+	+	1.82	2.50
CEE^b	210	71	135	40	-	-	0.64	0.56
Bulgaria	18	11	3	2	-	-	0.17	0.18
Croatia	5	4	4	4	-	·	0.80	1.00
Czech Republic	17	3	17	1	·	-	1.00	0.33
Estonia	2	0	3	0	+	·	1.50	·
Hungary	23	5	20	5	-	·	0.87	1.00
Latvia	5	0	3	0	-	·	0.60	·
Lithuania	1	1	1	1	·	·	1.00	1.00
Poland	32	7	16	3	-	-	0.50	0.43
Romania	54	25	46	20	-	-	0.85	0.80
Russia	33	10	15	3	-	-	0.45	0.30
Slovakia	8	0	2	0	-	·	0.25	·
Slovenia	5	1	4	1	-	·	0.80	1.00
Ukraine	7	4	1	0	-	-	0.14	0.00
Scandinavia	166	29	177	38	+	+	1.07	1.31
Denmark	35	8	41	14	+	+	1.17	1.75
Finland	31	4	28	2	-	-	0.90	0.50
Iceland	5	2	3	2	-	·	0.60	1.00
Norway	34	5	34	7	·	+	1.00	1.40
Sweden	61	10	71	13	+	+	1.16	1.30
Continental	813	211	880	241	+	+	1.08	1.14
France	210	60	238	67	+	+	1.13	1.12
Germany	407	93	415	107	+	+	1.02	1.15
Spain	196	58	227	67	+	+	1.16	1.16
Italy	427	108	338	77	-	-	0.79	0.71
Other Continental	269	50	227	42	-	-	0.84	0.84
Austria	67	11	53	7	-	-	0.79	0.64
Belgium	73	8	83	12	+	+	1.14	1.50
Cyprus	8	1	6	1	-	·	0.75	1.00
Greece	53	9	31	5	-	-	0.58	0.56
Luxembourg	3	1	4	1	+	·	1.33	1.00
Portugal	65	20	50	16	-	-	0.77	0.80
Turkey	52	22	40	13	-	-	0.77	0.59

Source: EEA Survey.

Notes:

^a Ratio of residents to citizens in the sample.^b Central and Eastern European (CEE).

Table A.6: *Funding of running costs for university R&D in Sweden (universities with government principal).*

	1995	2007
Central government	72	61
Local government	2	4
Research councils etc	13	16
Private sector	12	16
EU	1	4

Notes: Funding of running costs for university R&D in Sweden (percentages).

Source: Statistics Sweden and own computations. Nominal amounts are taken from Statistics Sweden, Table "Driftskostnader för FoU inom högskolesektorn, mkr I 1995 års priser efter huvudman, lärosäte, finansieringskälla och tid." Central government is the sum of "fakultetsanslag", "direkta statsanslag" and "statliga myndigheter". Research councils etc is the sum of "forskningsråd", and "offentliga forskningsstiftelser". Private sector is the sum of "svenska företag", "utländska företag", "privata icke-vinstdrivande sektorn i Sverige" and "privata icke-vinstdrivande sektorn utomlands"

Table A.7: *Funding of running costs for university R&D in Sweden (universities with non-government principal).*

	1995	2007
Central government	64	50
Local government	0	2
Research councils etc	15	18
Private sector	20	23
EU	1	7

Notes: Funding of running costs for university R&D in Sweden (percentages.)

Source: Statistics Sweden and own computations. See the notes to Table A.6 for clarifications.

Table A.8: *Poland. GDP expenditure on R&D.*

Year	2004	2005	2006	2007
In current prices, mln PLN	5155.4	5574.6	5892.8	6673.0
ratio to GDP in per cent	0.56	0.57	0.56	0.57
per capita, in PLN	135	146	155	175

Source: Polish Statistical Office

Table A.9: *Poland. Structure of GDP expenditure on R&D (current prices).*

By Source of Funds				
Year	2004	2005	2006	2007
State budget	61.7	57.7	57.5	58.5
Economic entities	22.6	26	25.1	24.5
Units of Polish Academy of Science and research-development units	7.5	7	6.7	6.4
International organizations and foreign institutions	5.2	5.7	7	4.7
Others	3	3.6	3.7	5.9
By Fields of Science				
Year	2004	2005	2006	2007
Natural sciences	26.4	24.8	24	24.7
Technical sciences	44.3	47	46.9	49.5
medical sciences	11	10.2	11	9.8
agricultural sciences	8.7	8.5	9	7.4
social sciences	9.6	5.8	9.1	8.6

Source: Polish Statistical Office

Table A.10: *Poland. Structure of R&D expenditure by type of activities (current prices).*

Year	2004	2005	2006	2007
Basic research (badania podstawowe)	39.5	37.4	36.5	37.8
Applied research (badania stosowane)	25.2	24.2	24.6	23.9
Development work (prace rozwojowe)	35.3	38.4	38.8	38.3

Source: Polish Statistical Office

Description: Basic research – experimental or theoretical research pursued in order to increase existing knowledge of phenomena and facts, not aimed at direct practical application/ Applied Research – research pursued in order to increase the existing knowledge aimed at practical application./ Development work – work aimed at developing new or improving the existing materials, products, devices, services, processes, systems or methods.

Table A.11: Bulgaria. GDP expenditure on R&D.

Year	2004	2005	2006	2007
In current prices, million BGN	193.9	208.1	237.0	273.0
ratio to GDP in per cent	0.50	0.49	0.48	0.48
per capita, in BGN	25	27	31	36

Source: National Statistical Institute of Bulgaria

Table A.12: Bulgaria. Structure of GDP expenditure on R&D (current prices).**By Source of Funds**

Year	2004	2005	2006	2007
Business enterprise	28.2	27.8	30.6	34.2
Government	65.8	63.9	61.9	56.7
Higher education	0.3	0.4	0.7	1.0
Private non-profit	0.2	0.3	0.3	0.5
Abroad	5.5	7.6	6.5	7.6

By Fields of Science

Year	2004	2005	2006	2007
Natural sciences	30.1	33.4	29.9	26.3
Engineering and technology	29.7	27.7	36.6	41.0
Medical and health sciences	5.8	4.3	5.1	4.2
Agricultural sciences	20.7	18.4	18.0	19.2
Social sciences	7.4	9.5	4.0	3.2
Humanities	6.3	6.7	6.4	6.1

Source: National Statistical Institute of Bulgaria

Table A.13: Bulgaria. Structure of R&D expenditure by type of activities (current prices).

Year	2004	2005	2006	2007
Basic research	30,5	30,7	26,2	25,2
Applied research	50,6	49,9	52,2	48,7
Experimental development	18,9	19,4	21,6	26,1

Source: National Statistical Institute of Bulgaria

Table A.14: *Netherlands. University income for research.*

Dutch Government	1415	60%
NWO	320	14%
EU, market, private sponsors	636	26%
Total	2371	100%

Source: VSNU; income is divided into 1st stream (Dutch government), 2nd stream (NWO) and 3rd stream (EU, market, private sponsors). Amounts in MEUR for 2006.

Table A.15: *Netherlands. Subdivision of 1st stream income.*

Historical performance (lump sum)	854	60%
Ma-thesis (performance based)	246	18%
PhD-thesis (performance based)	175	12%
Research schools (performance based)	91	7%
Dynamization	50	3%
Total	1416	100%

Source: VSNU.

Table A.16: *Netherlands. Number of researchers (in fte) per year*

Field	FTE Res 1st stream	FTE Res 2nd stream	FTE Res 3rd stream	Total
Econ&Business	525	81	159	764
Law	480	91	77	648
Psych&SocSc	1095	436	310	1841
All	7524	4002	4986	16511

Source: VSNU.

Table A.17: *Netherlands. University income for research.*

Dutch Government	1725	74%
NWO	285	13%
EU, market, private sponsors	299	13%
Total	2309	100%

Source: NWO; income is divided into 1st stream (Dutch government), 2nd stream (NWO) and 3rd stream (EU, market, private sponsors). Amounts in MEUR for 2006.

Table A.18: *Netherlands. NWO budget.*

NWO Institutes	125
Universities	285
Other research	30
Overhead and other	88
Total	528

Source: NWO; 2007 in Million EUR