June 2014

What it means for higher education

Promoting Research Excellence: Latest OECD Insights

How much is spent on research across OECD countries?

- Higher education institutions’ (HEIs) expenditure on research is significant: reaching about 0.4% of GDP on average in OECD countries, and up to 0.9% of GDP in some Nordic countries.
- Governments continue to be the primary funders of research in HEIs and public research institutes. In HEIs, public funding has declined in relative terms since the 1980s, but still accounts for about 70% of research funding, on average, in OECD countries, with large variations across countries.

What is the impact of “Research Excellence Initiatives” (REIs)?

- For 22 out of 28 REIs examined in a recent OECD study, results are very positive: government departments funding REIs reported improved quantity, quality and visibility of the research produced, increased collaboration among institutions and with external partners, and modernised approaches to managing research in institutions. REIs also boosted the competitiveness and economic impact of national research.
- Host institutions receiving REIs and Centres of Excellence (CoEs) funded through REIs reported similar benefits.
- Challenges exist, however, including the excessive concentration of research and the high costs of REI schemes, both during the lifespan of the REI and after it ends.

What it means for higher education

For governments:

- Identify clear goals for REIs: well-defined goals help identify the most appropriate design for REI schemes, including their number, duration and degree of selectivity. For example, efforts to boost the national research landscape and increase its international profile may be best served by a large-scale comprehensive REI scheme. On the other hand, several specialised REIs may be more effective in meeting targeted needs (e.g. regional).
- Maintain a balance between concentration and differentiation: governments may tend to channel research funding to a small number of HEIs with a proven track record in research, which may reduce competition and limit differentiation. While efforts to fund collaborative centres may help, further measures may be required. Developing different schemes with several degrees of selectivity can be one way to ensure fair competition, foster research diversity and multiply niches of excellence across the research landscape.

For institutions:

- Assess and manage financial risk: while there are clear returns on investment to HEIs receiving REI funding, such institutions should consider the costs associated with running a Centre of Excellence, e.g. overhead costs. HEIs also need to assess possible longer term costs after the REI ends, such as labour costs if members of staff are integrated in the host institution. In addition to planning costs, third party funding could be considered.
- Maximise benefits:
  - Recipient institutions can often use REI funding to modernise the way they manage research and develop excellence in niche areas of strategic importance to the institution. HEIs could also use REI funding as an opportunity to engage in broader thinking on how to improve research impact and ensure it benefits teaching and fosters innovation.
  - Institutions not selected for funding need to consider how they can take advantage of the broad benefits that REIs provide to the entire research landscape, such as the enhanced profile of their country’s research on a global scale, and an increased focus on collaboration across institutions and with external stakeholders.

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New evidence on research funding

In February 2014, the OECD Directorate for Science, Technology and Industry released a new study on Research Excellence Initiatives (REIs), an innovative form of public funding that aims to enhance the quality, visibility and impact of research. This study sheds light on the features, benefits and challenges of REIs based on three surveys and six country case studies (OECD, 2014: 39, 133). This brief explores the new study and what it means for higher education.

REIs in context: governments still play a strategic role in funding research

Higher education institutions’ (HEIs) expenditure on research and development is significant: it reaches 0.4% of GDP on average in the OECD area, and close to 0.9% in Denmark and Sweden. Over the past decades, HEIs’ research expenditure has increased in many OECD countries, and nearly doubled in the Czech Republic, Denmark, Estonia, Portugal and the Slovak Republic.

At the same time, governments remain the primary funders of research carried out in the government and higher education sectors. For research conducted by public research institutes (PRIs), governments still provide more than 90% of funding; there has been little variation over the past three decades. In HEIs, the government share of total research funding has decreased from over 80% in the early 1980s to about 70% in 2010 on average across OECD countries, with substantial country differences. In 2010, the government contribution ranged from 90% or more in Australia, France, Luxembourg, and Singapore, to less than 60% (but more than 30%) in China, Israel, Japan, Switzerland, and Turkey.

Governments mainly provide research funding through two main mechanisms: core institutional funding and project-based funding. The former provides a sustainable funding base to HEIs. It is typically not dependent on applications and is allocated based on various criteria, which can include performance-based elements. Project-based funding is time-bound, based on applications, allocated on a competitive basis and is outcome-oriented. Exploratory work by the OECD provides an overview of the “policy mix” used by governments when it comes to funding research. As shown in Figure 1, there are wide variations across countries.

![Figure 1. Government funding: core institutional funding versus project-based funding](http://dx.doi.org/10.1787/888932891017). Note: This is an experimental indicator. International comparability is currently limited. In the legend, “Institution-based” funding means core institutional funding.

Research Excellence Initiatives (REIs): key features of a hybrid funding tool

In this funding landscape, REIs are unique. Although relatively recent, REIs have rapidly expanded: the number of OECD countries operating REIs went from less than 10% in the late 1990s to two-thirds of OECD countries today.

A first distinctive feature of REIs is that the research they fund must contribute to objectives of national relevance. The OECD study identifies their common and most important goal as strengthening the research and innovation capacity of countries and raising the research profile internationally. Other goals of REIs range from promoting early-stage researchers, recruiting top scientists from other countries, or developing linkages between research and industry.

Secondly, REIs are designed as a middle ground between project-based and institutional funding. They represent an attempt to combine the benefits of both tools, namely the flexibility and competitive nature of project-based funding and the structural capacity and sustainability of institutional funding. The 28 REI schemes analysed in the OECD study share the following key features:
• **Funding recipients**: funding goes to selected research units and institutions, not individuals.
• **Selection criteria and processes**: the quality of research and research-related activities is exceptional and is assessed based on peer-review. Application and selection processes are competitive and occur on fixed timeframes.
• **Funding features**: funding is long-term (four years minimum) and larger than individual project-based funding (usually a minimum of USD 1 million a year).

**Policymakers and recipient institutions view REIs as highly effective**

Of the 28 REI schemes examined in the OECD study, 22 had achieved their goals according to the public authorities providing the funding, while it was too early to tell for the remaining six. No funder reported that the objectives of REIs were not achieved. Table 1 highlights the benefits identified, categorised by the level of impact.

Table 1. Multi-faceted benefits of REIs from funder perspective

<table>
<thead>
<tr>
<th>Impact Level</th>
<th>Benefits</th>
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<tbody>
<tr>
<td>Research, researchers, research units</td>
<td>More, better and more innovative research, Improvement of researcher training, Positive impact on teaching, Strong performance of researchers supported, More support of early-stage research, Attracts more international researchers</td>
</tr>
<tr>
<td>Host institutions</td>
<td>Collaboration within and between institutions, Identification of priority areas in institutions, Modernisation of university structures, Better research strategies and management, Better linkages with industry</td>
</tr>
<tr>
<td>National level</td>
<td>Increased competitiveness and visibility, Increased in human capital, Ability to influence science policy (e.g. in the EU), Attracts more business investment and R&amp;D, Increased use of research in both private (commercialisation) and public sector</td>
</tr>
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Source: table based on findings of survey to ministries and departments funding REIs in OECD (2014), pp.67-70.

Interestingly, responses from Centres of Excellence (CoEs) and host institutions on the effects of REIs are largely consistent with those of funders. Both emphasised the positive impact of REIs on the national research landscape and on the institutions. Benefits for institutions ranged from enhanced international reputation, the ability to attract new sources of public and private funding and to pursue new, high-risk and long-term research not otherwise possible. Institutions also noted increased collaboration both within the institution and with external partners, and organisational improvement, such as a more effective management of research.

Finally, REI recipients also perceive them to have a long-term impact. Figure 2 shows the perceptions of CoE administrators on the CoE impact after REI funding ends: most of them view such impact as long-lasting and multi-faceted.

**REIs need to be carefully designed to maintain diversity and manage costs**

The study also reveals a number of risks associated with REIs. Two major pitfalls are the over-concentration of research and the cost and sustainability of REI schemes.

Indeed, the perception of current research is often influenced by past performance. Consequently, the concentration of research in a limited number of highly visible centres and HEIs can lead to reduced competition. While this may be beneficial to those selected, it might limit the diversity of research. One element pointing to reduced diversity is an examination of the fields of research eligible for REI funding. While many REIs are open to all fields, natural science, engineering and technology are most often targeted, as shown in Table 2.

Table 2. Fields of science eligible for funding in REIs

<table>
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<tr>
<th>Field of science</th>
<th>Number of REIs in which eligible</th>
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<tbody>
<tr>
<td>Natural sciences</td>
<td>26</td>
</tr>
<tr>
<td>Engineering and technology</td>
<td>26</td>
</tr>
<tr>
<td>Medical sciences</td>
<td>24</td>
</tr>
<tr>
<td>Agricultural sciences</td>
<td>19</td>
</tr>
<tr>
<td>Social sciences</td>
<td>22</td>
</tr>
<tr>
<td>Humanities</td>
<td>18</td>
</tr>
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Some countries have attempted to address excessive concentration through the design of their REI funding: the Netherlands’ Bonus Incentives Scheme was amended so different fields of science compete separately for REI funding. Other countries adopt different approaches such as administering several REI schemes at the same time, some highly selective and others allowing more institutions to access funding (e.g. case study for Japan [OECD, 2014:165]).

A second key issue emerging from the study is that of cost and sustainability of REIs and CoEs created through REI funding. The study shows that host HEIs face challenges during the lifespan of CoEs due to high overhead costs, which REI funding does not cover. Furthermore, a difficult question is that of fully winding down CoEs after REI funding ends – or not. Host institutions have often invested significant time and funds in supporting CoEs and strong links have developed between both entities during the lifespan of the REI funding. These links are not easily dissolved and CoEs are often integrated within the host institution after the REI ends, thus creating ongoing costs. One way to mitigate this is to raise additional funds from third parties. For example, in Germany (Saxony-Anhalt), an REI scheme was modified to require that centres raise EU funds as a complement to public funding.

In conclusion, policy experience from a range of countries suggests that REIs, although costly, can be a highly strategic investment for both governments and HEIs. To maximise their positive impact, REIs need to be well-designed. The right balance must be struck between competition and concentration of research funding. Costs must be factored in to the extent possible – both direct and potential, and at both national and institutional level. Third party funding may be sought as a complement. Finally, policymakers, in partnership with institutions, need to consider whether REIs should be a temporary tool for specific strategic goals (and in such a case, how to effectively close them), or whether REIs should become permanent. In both cases, costs and benefits should be monitored closely, and REIs should be viewed as one tool among the array of approaches available to government to support excellence in research.

To learn more from the OECD data


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