Same Objective, Different Governance –

How the Excellence Initiative and the Pact for Research and Innovation Affect the German Science System

Introduction

Research funding can be characterized as an instrument used by funders and science policy makers to affect the research of individual researchers, organizations or the whole research system. Research topics and funding schemes should be carefully chosen to achieve the funders' goals.

More than ten years ago the German federal government and the states had the overall objective to strengthen the German science and university system and their international competitiveness by focusing mainly on research excellence. They initiated two large research funding programs: the Excellence Initiative (ExV) and the Pact for Research and Innovation (PFI). The two funding programs have both similarities and differences. While the Excellence Initiative is dedicated to the university system, the Pact for Research and Innovation focuses on the public non-university research organizations. Although the Excellence Initiative and the Pact for Research and Innovation pursue the same goal, different funding and governance mechanisms are applied. This leads to two questions:

- What are the reasons for choosing different forms of funding in order to fulfill objectives that are to a great extent identical?
- How do these differing governance mechanisms affect the universities and the public non-university science system?

Funding and Governance

The governance of the Excellence Initiative is based on competition. The science policy aim of the program was to promote a "performance spiral" (ExV), which should lead to a higher performance und a better international standing of the German universities. Proposals for competitive grants have to be submitted and are reviewed in a group peer review process. The highly selective funding scheme produces temporarily funded winner universities. In contrast, the central science policy aim of the Pact for Research and Innovation was to give the public research organizations financial planning security, which means that the block grant steadily rises for the public non-university research organizations by an annual rate of 3% (2006-2010 and 2016-2020) respectively 5% (2011-2015).

It begs the question why the federal government and the states decided to run different funding schemes (competitive versus block funding) in the two programs which have largely the same goals. Two developments framed the conceptualization phase of the Excellence Initiative: An ongoing debate since the 90s about the "rotten" German universities (Simon, 1991) and the results of the international university rankings (Shanghai 2003, THE 2004), which show that the German universities couldn't keep up with the top 50 worldwide leading research universities. During this time the managerial self-governance of universities was highly questionable. It seemed that the competitive governance mechanism had to be the modus operandi for giving new impulses to the German university system – according to the ideas of New Public Management. In contrast, it looked as though the federal government and the states had a deeper trust in the managerial self-governance of the non-university research organizations, which also have a higher research performance than the universities (see bibliometric results). The governance mechanism of the Pact for Research and Innovation can be described as an external state guidance in terms of a target agreement, in which the science policy sets the main objectives, but give the non-university research organizations the freedom to choose the appropriate activity for achieving the given goals. Every year the non-university research organizations have to report their annual activities, but the future amount are independent of the degree of target achievement.

Methodology

The results based on data of the German Federal Statistical Office and bibliometric data of the Web of Science (WoS). In addition, data from the monitoring report of the Pact for Research and Innovation (GWK, 2014) is included, because the Federal Statistical Office didn't annual report the third-party funds of the non-university research organizations. For the bibliometric analysis the publications of the humanities and social sciences were excluded, due to a very low coverage in the WoS. For the analysis of the proportion of publications that belong to the worldwide top 10% highly cited papers (PP Top 10%) only citable document types (articles, reviews) were considered and measurement field and document type normalized in a three year citation window.

The study covers the time period from 2005 to 2012. The year 2005 was the last year before the financial support from both the Excellence Initiative and the Pact for Research and Innovation started. The investigation period ends 2012 because the first funding period of the Excellence Initiative terminated in this year. In order to differentiate the effects of the two funding programs different units were analyzed separately:

Non-university research organizations (NURO)

- Helmholtz Association (HGF)
- Leibniz Association (WGL)
- Max Planck Society (MPG)
- Fraunhofer Society (FHG)

University sector (Uni)

- Universities of Excellence (UoE), which are successful in each of the three funding lines (the graduate schools, the cluster of excellence and the university future concept)
- Excellence Initiative Universities (ExIn Uni), with success in at least one funding line
- Non Excellence Initiative Universities (No ExIn Uni), without any Excellence Initiative funding

Results

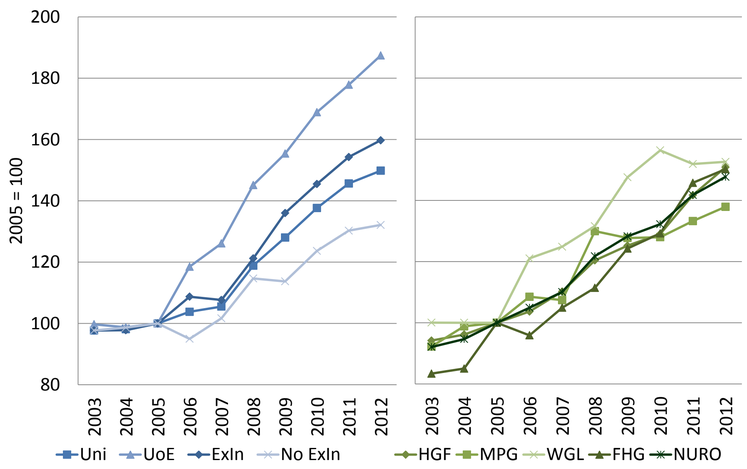

Figure 1: Development of the R&D expenditures of the university groups (w/o hospitals) and the non-university research organizations (NURO)

During the time period from 2005 to 2012 the growth of R&D expenditure for university and the non-university sector (Fig. 1) are almost the same (Uni 150%; NURO 148%). While the funding by the Pact for Research and Innovation fully comes to bear in 2006 the financial support of the Excellence Initiative rises slowly over the first two years. The increase of the universities of excellence (UoE 187%) and the excellence universities (ExIn 160%) are above the average while the non-excellence universities have a lower growth rate (No ExIn 132%). These results indicate an ongoing stratification process in the German university system. In comparison the increase of R&D expenditures of the non-university research organizations are more similar: WGL 153%, HGF 151% and the FHG 150%. Only the MPG has a slightly lower growth rate (138%).

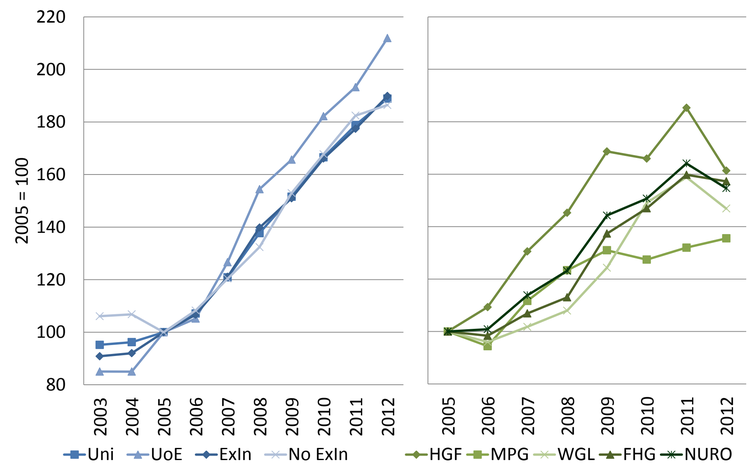

Figure 2: Development of the third-party funding of the university groups (w/o hospitals) and the non-university research organizations (NURO)

The third-party funding (Fig. 2) of the university groups rise more sharply than the non-university research organizations (Uni 189%; NURO 155%). The UoE (212%) have the highest growth rate in the university sector, but the overall stratification in the university sector is not as distinctive as the R&D expenditures (Figure 1). The universities with and without an excellence funding have an almost similar increase (ExIn 190%, No ExIn 186%). The third-party funding for non-university research organization – except the MPG – decreased sharply in 2012, because a federal funding program supporting research infrastructures in the non-university research sector during the financial crisis (2009-2011) was terminated. The HGF has the highest growth of third party funding (161%) followed by the FHG (157%), the WGL (147%) and the MPG (136%).

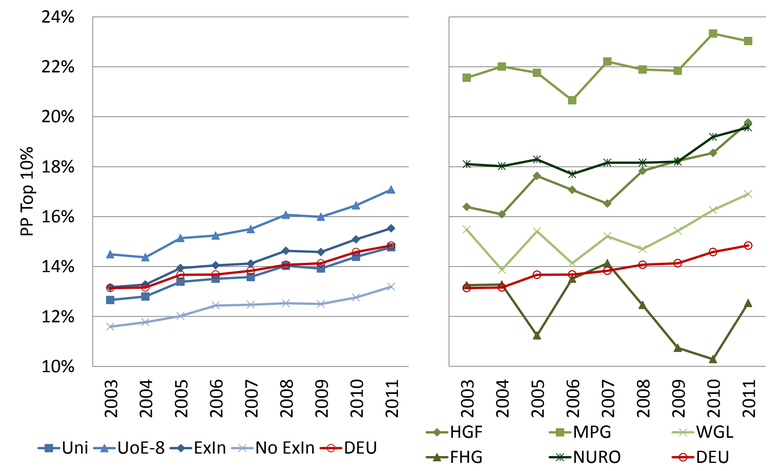

Figure 3: PP Top 10% of the university groups (w/o hospitals) and the non-university research organizations (NURO)

The university groups show the above mentioned differentiation: The UoE (year 2013: 17.1%) is exceeding the ExIn universities (15.5%) followed by No ExIn Universities (13.2%). The best performers in the German research systems in 2011 measured by the PP Top 10% indicator are the MPG (23.0%), HGF (19.8%), UoE (17.1) and the WGL (16.9%). The non-university research organizations have overall higher impact (NURO 19.6%) than the university sector (14.8%).

In comparison with the bibliometric results it can be concluded that a high share of third-party funding doesn't necessarily correlate with a higher value of PP Top 10% indicator. The MPG with the lowest share of third party funding (2012: 16%) is the outperformer of the German research system.

Discussion

The Excellence Initiative and other third party funding programs have changed the research conditions from the universities. The third-party funding rises more sharply than the total R&D expenditures (Fig. 1 & 2). In 2005 39% of the R&D expenditures of the university sector based on third party funding. In 2012 it rises up to 49%. The results indicate where a different governance of funding leads to: The competitive funding enhances the share of third party funding, while a growth in basic funding has the converse effect. For the non-university sector with a steady increase in basic funding the share of third party funding stays almost at the same level (2005: 31%; 2012: 33%).

	Uni	UoE	ExIn	No ExIn	NURO	HGF	WGL	MPG	FHG
2005	39%	51%	44%	31%	31%	23%	23%	17%	64%
2012	49%	58%	52%	44%	33%	25%	26%	16%	70%

Table 1: Share of third party funding of the total R&D expenditures of the university groups (w/o hospitals) and the non-university research organizations (NURO)

Within the university groups the UoE have the highest share of third party funding (2012: 58%) followed by the ExIn (52%) and the No ExIn (44%) universities. Considering that the third party funding doesn't cover the whole research expenditures, the success in attracting additional funds may yields, especially for the most competitive and successful universities, into internal governance problems. A report of the German Research Foundation (DFG) stated that depending on difference between the research fields and topics from 30% up to 300% of the personal costs of a research project has to be co-financed from university (DFG, 2013). That's over, in part far over the given flat rate of 20% overhead budgets provided from the German Research Council.

Former findings based on guided interviews with university leaders and researchers in the Excellence Initiative show that with a growing amount of co-financing the universities are more and more restricted in their future opportunities of actions (Bukow & Möller, 2013). But, the ability to act is essential for the organizational self-governance of a university. As some studies pointed out, organizational autonomy is an important factor for success in attracting competitive funds (Aghion, Dewatripont, Hoxby, Mas-Colell, & Sapir, 2010; Boer, Jongbloed, Enders, & File, 2010). An extensive competitive funding that limited the self-governance of the universities via a high degree of not fully funded research can have in the end no or the opposite effects. In contrast to the universities the non-university research organizations have a greater ability to choose the appropriate activity also within the funding scheme Pact for Research and Innovation.

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