



Coordination modes in public funding systems

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ABSTRACT

The aim of this paper is to look at public research funding systems from the perspective of their broader institutional arrangements, in order to observe how these shape the relationships between funding agencies and research actors. Accordingly, public funding is considered as a multilevel and multiactor system, where stable patterns are largely generated by the collective interaction among actors (beyond formal rules and structures) and where coordination between actors (especially funding agencies and performers) represents a key for the functionality of the systems. This drives to characterise the main organisational forms of public research funding in terms of their underlying coordination mode and to use this framework to evaluate them against a number of criteria. Further, the way how these organisational forms can be combined to yield national-level configurations is discussed, and some of their properties and conditions of functioning are derived from the previous discussion; this also leads to identification of three main configurations of funding systems – the project-based model, the mixed model, the vertically integrated model – which describe the variety of national systems and, to a large extent, underpin current discussion on European research policy.

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1. Introduction

The aim of this paper is to look at public research funding systems from the perspective of their broader institutional arrangements, in order to observe the way how these shape the relationships between funding agencies and research actors. While funding systems have always been a central concern in research policy studies – a fact which can be hardly surprising, given the distributive nature of this policy domain (Braun and Gilardi, 2006) – a review of the literature shows that they have been rarely addressed from this perspective (see however Benner and Sandström, 2000; Whitley, 2003). This limitation is unfortunate, since some of the most relevant research policy issues cannot be addressed adequately without a broader institutional approach.

Broadly speaking, the studies in the field can be classified by distinguishing between those focusing on the policy and on funding agencies and those addressing the choices and behaviour of research actors, at the level of individuals and research groups, as well as of whole research organisations.

A number of studies have focused on the design of research policies and on how these impact on the mix of funding instruments (see Guston, 2000; Larédo and Mustar, 2001); comparative studies have also looked at similarities and differences between countries and they spurred the debate on convergence of national

research policies vs. national specificities (see Elzinga and Jamison, 1995; Senker et al., 1999; Lemola, 2002). More specific analyses have dealt with funding agencies and with their portfolio of instruments, looking at the role and organisation of research councils (Braun, 1998; van der Meulen, 2003; Slipsaeter et al., 2007) or at the composition of public project funding (Lepori et al., 2007). A rather distinct tradition in Higher Education Studies deals with principles and approaches for funding higher education institutions (Jongbloed, 2008).

At the recipients' side, Sociology of Science and laboratory studies have focused on how the social organisation of sciences and its internal incentives drive the behaviour of individuals and the allocation of resources (Latour and Woolgar, 1979), taking into account the role of credit as a central asset in science (Merton, 1973; Dasgupta and David, 1994). Recent work looks at the impact of changing funding schemes towards more utility and politically driven priorities and it investigates the strategies of scientists for accommodating or shielding these changes (Laudel, 2006), as well as their impacts on the working of science. Moreover, other studies have focused on the strategies of universities and public research organisations (PRO) to increase their funding basis and to respond to policy changes (Sanz Menéndez and Cruz-Castro, 2003 for PRO; Jongbloed, 2007 for Higher Education Institutions).

Accordingly, most works in the field focused on a single system layer, looking at responses of individual actors and at horizontal relationships between them (for example cooperation vs. competition), but largely considering changes in other layers (for example at the policy level) as external factors, while there is a lack of stud-

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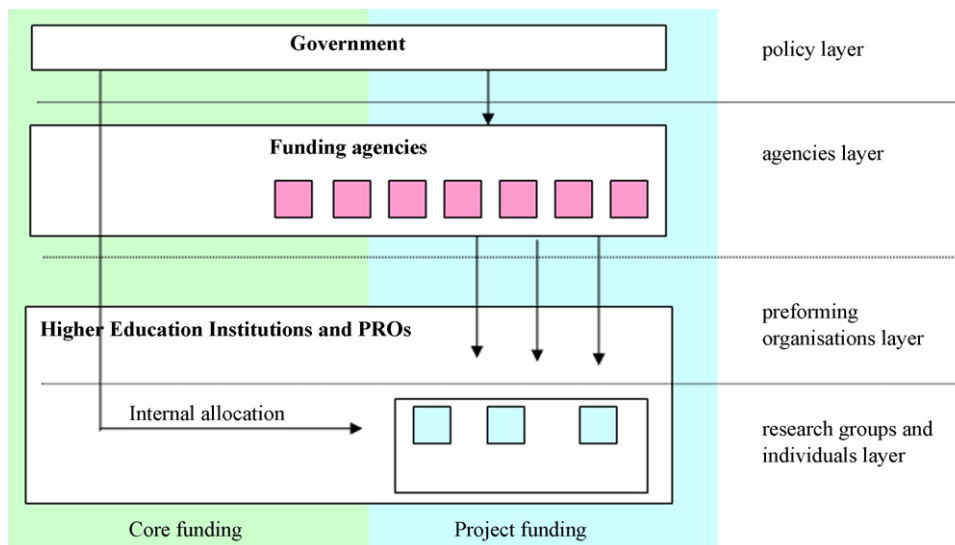


Fig. 1. An overall view of public research systems.

ies on interactions across institutional layers. The main exception has been the research line based on delegation and Principal–Agent Theory, investigating the relationship between state and the scientific community in terms of delegation modes (Braun and Guston, 2003; Braun, 2003) or dealing with vertical relationships between State, funding agencies and researchers (Caswill, 2003; van der Meulen, 1998). Yet, in most of its applications, this approach tends to focus on the interaction between an individual agency and a set of researchers, overlooking the presence of multiple principals and the complex nature of network interactions between funding agencies, research groups and external stakeholders, for example in research programs (Shove, 2003; Klerkx and Leeuwis, 2008).

Despite their value in modelling specific interactions, these approaches are hardly useful in addressing a basic question concerning research funding systems, namely to which extent different configurations of funding make a difference in terms of the system-level outputs and, correspondingly, which the most suitable mix of instruments is in order to achieve (different) policy goals. Moreover, it would be highly relevant to understand to which extent this configuration differs according to the characteristics of research (for example the search regime; Bonaccorsi, 2008), but also of the broader social and political environment in which research policy is embedded.

It has been suggested that answers to these questions are more related to general institutional properties of funding – like the degree of fragmentation or the ability of quickly moving resources to emerging domains (Bonaccorsi, 2007; Larédo, 2008) – than to policy intentions and characteristics of individual instruments. The aim of this paper is to develop this argument by representing research funding systems as sets of interconnected spaces of interaction between different layers of funders and performers and by examining how these interactions are shaped by different institutional settings. The paper is thus inspired by work on the relevance of institutional arrangements for the working of science (Whitley, 2003; Bonaccorsi, 2007), as well as by approaches in institutional economics like socio-economics (Hollingsworth et al., 2002) and comparative institutional analysis (Aoki, 2001).

The argument is developed in four steps. Firstly, in Section 2 a view of public research funding as a multilayer system characterised by a multiplicity of largely autonomous actors is presented. This drives to look at research funding in terms of how actors coordination is achieved; accordingly, in Section 3, the notion

of *coordination modes* is introduced, and their characteristics are discussed, while in Section 4, the observed organisational forms of public funding, in terms of the underlying (combinations of) coordination modes, are analyzed. Finally, in Section 5, national configurations and dynamics are presented through this framework. The paper is concluded through a short discussion about the implications of this approach for future empirical work.

2. A framework on public research systems

Fig. 1 provides an overview of public research funding, distinguishing among four organisational layers – the policy layer, funding agencies, performing organisations and research groups/individual researchers – as well as between two main allocation methods, core funding to research organisations and project funding to research groups.

The identification of the layers builds on different traditions in Science Policy Studies within Policy Evaluation, they distinguish between the political level, where principles and strategies are defined, and the operational level of the agencies in charge of implementing policies; in Science Policy Studies they look at the central role of the intermediary level in sciences policies; finally, the principal–agent tradition works on the triangular relationship among State, funding agencies and research actors.

The notion of “Government” has become itself fragmented and multilayered with the emergence of the European Union as a policy actor concerning research, but also with the increasing role of regional authorities (especially in federal states). Moreover, the term agency is used here in its broadest meaning, as long as it includes all types of operational units in charge of allocating some portion of public funding, also ministries and higher education funding agencies. While there is some understanding that these agencies are actors on their own (coherently with recent approaches on public administration; Braun and Gilardi, 2006), their degree of autonomy (as well as of intermediation with the scientific community) can be highly variable from case to case.

The multiplication of funding agencies and instruments (Lepori et al., 2007) and the emergence of the European and the regional levels as relevant for research funding drives to replace the idea of an overall policy rationale and coordination of public funding with an approach based on a broad set of largely autonomous agencies and instruments. In this setting, soft coordination is ensured through mechanisms like the Open Method of Coordination (Borrás

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