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Policy-making in science policy: The 'OECD model' unveiled☆

Luisa Henriques[a,b,*], Philippe Larédo[c,d]

[a] European Commission, Joint Research Centre (JRC), Institute for Prospective Technological Studies (IPTS), Edificio Expo, Avda. Inca Garcilaso s/n, 41092 Seville, Spain
[b] Fundação para a Ciência e a Tecnologia, Av. D. Carlos I, 126, 2, 1249-074, Lisboa, Portugal
[c] Université Paris-Est (ENPC, LATTS) Cite Descartes, 6 av. Pascal, 77455 Marne-la-Vallée Cedex 2, France
[d] Manchester Business School, Manchester Institute of Innovation Research, University of Manchester, Booth Street West, Manchester M15 6PB, United Kingdom

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ABSTRACT

This article addresses the issue of the development of national science policies in OECD countries in the 1960s. It argues that the Organisation for Economic and Co-operation and Development (OECD) acted as a policy innovator playing a central role in the development and adoption of what we call the "OECD model of science policy-making". Through a detailed analysis of the OECD country reviews, we reveal the OECD model and its seven key functions: horizontal coordination and advice, planning and budgeting, priority-setting, resources allocation and administration. Through analysis of OECD archives, we extract the reasons why OECD changed its role in the absence of a reference point against which to benchmark national situations. It highlights the ways the pre-existing mode of operation of OECD, centred on country reviews and peer pressure, was modified, and how effective these changes have been in the diffusion of the model among OECD members.

1. Introduction

Research systems in OECD countries witnessed an important development in the first half of the last century culminating in the increasing role played by science during World War II. The professionalisation of science and the scale of public investment gave a national dimension to science and research systems. The dynamics of nationalisation of science were, however, not followed by explicit national science policies, as research governance and funding remained distributed among multiple actors at the intermediate level. OECD countries will only start to adopt 'national' science policies with corresponding ministers and departments in the early 1960s. While the intervention of OECD has been acknowledged in this movement, little is known on its role.

OECD is probably the least studied international organisation. It is only recently that scholars have started to consider the role of OECD in transnational governance. Such work has analysed its ways of working, and in particular the critical role of the 'peer' review process (Woodward, 2009; Pagani, 2002). However, they have only focused on OECD traditional areas of intervention (Djelic and Sahlin-Andersson, 2006; Porter and Webb, 2008; Martens and Jakobi, 2010). The role of OECD in the field of science and technology policies has remained untouched, with one notable exception, the extensive historical work done by Godin on the role of OECD in standardising the measurement of S&T effort (Godin, 2009). There is however an important difference between science and the other domains covered by OECD. Most countries did not have 'national' science policies as such at the time OECD started to address this policy issue (King, 2001). Our aim in this paper is therefore to understand the role of OECD in the generalised adoption of science policies by OECD member countries in the 1960s.

Our assumption is that OECD played a central role by developing a *de facto* model for science policy-making and by generating, country by country, processes fostering its implementation. As with other domains, the central mechanisms were the construction of a transnational arena, the domain committee of national practitioners, and the use of country reviews. This study combines an analysis of OECD reports on science policy (two major documents issued in 1963 and 1971) with an in-depth study of the recommendations contained by the first national 'science policy reviews' done on each country (16 reviews of 17 countries, and all major countries reviewed during the 1960s). On this basis we can identify which we propose to label the 'OECD model of science policy making' which we characterise in terms of seven main functions (presented in Section 4).

To better understand the initial situation in OECD countries and the role played by OECD, archive research analysed the corpus of data associated with the functioning of the OECD directorate of scientific affairs and of the two successive committees that organised the involvement of national practitioners; the Committee for scientific research, followed from 1966 onwards by the Committee for

☆ The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

* Corresponding author.
E-mail address: luisa.henriques@fct.pt (L. Henriques).

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science policy. This enabled us to identify the 'modifications' made to the prevailing OECD approach (to follow King, the first head of the directorate, in his retrospective contribution, 2001). The first modification (examined in Section 2), central to our argument, is that reviews, contrary to work in other domains, had no 'point of reference' against which to benchmark the country under review. OECD could not thus play its traditional role as an "ideational agent" (Marcussen, 2001) and transformed itself into a policy innovator, mobilising a very different approach to the reviews and their discussion by the committee (the so-called "confrontation meetings"). Section 3 explains the changes in this role and presents the mechanisms adopted in order to promote the adoption of national science policies by member countries. This promotion was based upon a "model of science policy making" presented in Section 4. To better appraise the effective role of OECD, two sections examine the diffusion of the model. Section 5 is centred on the effective diffusion of the functions that compose the model, while Section 6 analyses the five factors, which, in our view, explain its rapid diffusion in OECD member states. Section 7 concludes that the very unique situation facing the OECD may well explain why this role and mode of operation have since disappeared and are largely ignored in studies of the OECD at large.

2. No science policy-making model was available for diffusion before the 1960s

National S&T policies were a creation of the 1960s. While public interventions supporting science were in existence at this time, they were not constituted as a national public policy in the same way as defence, public utilities, agriculture, or industry were already at that time.

Support to research has evolved without organised national support over several centuries, from the Renaissance period, when princes and kings were the main supporters of savants (Mokyr, 2002) onwards. The professionalisation of research materialised in the nineteenth century, with the establishment of research laboratories in public and private sectors in multiple domains, supported by philanthropy, business and governments (Dahan and Pestre, 2004; Mokyr, 2002; Rosenberg and Mowery, 1993; Ben-David and Sullivan, 1975). These laboratories, in sectors like agriculture, extraction industries, construction and public health, expanded in number and size in the first half of the twentieth century, and included new laboratories for cooperative research (Mowery, 1983; Hart, 1998). Research Councils emerged at the same time to sponsor research in addition to direct Government, private and non-profit support of their laboratories. They were public and semi-public organisations, governed autonomously by scientists (Braun, 1998; Guston, 2000). Research councils and the old academies of sciences, from the enlightenment period, constituted an intermediary layer, acting on behalf of Governments in distributing funds to research performers and in setting directions to research (Rip, 1994).

The evolutionary process of the "nationalisation of science" in the first half of the last century changed the scale and scope of research systems (Dahan and Pestre, 2004, p. 19). Their main components – higher education, government laboratories, business laboratories and non-profit laboratories – were already in place (Bernal, 1939; Bush, 1945). However there were few interactions within and between sectors, and with a low level of complexity.

At the time of the first OECD Ministerial Conference on Science in 1963, the intervention of Governments in science was not even consensual among its members. The reports on the organisation of the research systems and science policy prepared for the conference by member countries (OECD, 1963b) reveal that only five countries had even the seeds of a national science policy (Belgium, the United Kingdom, Germany, France, and The Netherlands). A number of countries expressed doubts about the components of a national policy, as outlined by the OECD in the structure of the report. The main criticism was around the need for a central authority responsible for coordinating national policy. Some reports were highly sceptical on the possibility to design and implement a national plan for scientific issues, and on the ability of Governments to set priorities. Positions were also taken in a number of countries both for and against the idea of a new organisation in charge of the allocation of resources beyond research councils. Although Germany already had a Federal Minister for Science, the German report expressed concerns on centralised coordination: "*With all these considerations the question must be raised whether an individual institution is at all able to draw up an 'overall plan' in a country of the size of the Federal Republic, in which the scientific sphere is of such great diversity. A question which should also not be disregarded is that whether such a central plan – even if prepared with the greatest expert knowledge – would be in the best interest of science*" (OECD, 1963b, German report: 5). The Dutch report, on the other hand, takes a clear position in favour of the central role of research councils: "*The view that the allocation of funds and establishment of priorities should be left to the scientists themselves*" (OECD, 1963b, Dutch report: 2). Furthermore, resistance to the idea of a national policy for science was expressed by the Dutch Minister of Education to the OECD Secretary General, who considered the idea of linking science to economic development as a "prostitution of science" (cited by King, 2001, p. 343).

Despite the widespread belief that American research policy and the recommendations of the Bush report were the archetype model for S&T policy-making, this was not the case in practice. The American system is a pluralistic one, with multiple visions and agencies combining research performance with allocation of resources. It is founded on mission-oriented agencies like the National Institutes of Health for public health or the Department of Energy for energy. In addition, it is a system chiefly driven by security planning and priority given to large defence programmes without a civilian counterpart (Hart, 1998). The National Science Foundation, a pillar in the Bush report, had the principal responsibility for sponsoring basic research in academia (Brooks, 1986). As Hart (1998) shows, in early times, the American Government intervened in science only through standardisation, patent protection and anti-trust policies. Historians of science policy in the United States also showed that in the last century all proposals for a centralised authority for S&T were rejected. The dominant ideas in the American system favoured private support and patronage over Government intervention and regulation. Analysts identify two main reasons for these repeated failures. The first, according to Smith (1990), is the American Constitution inspired by the principles of Frances Bacon transmitted to the founders by Joseph Priestley; and the second is the opposition of the Congress to any centralised and coordinated model (Hart, 1998). Although proposed many times (since 1880), a Department of Science does not exist in the United States. Most policy-making functions are also absent in the American model. The proposal in the Bush report that was institutionalised is the competitive allocation of resources through projects selected by the peer review system (Guston and Keniston, 1994).

3. OECD as a policy innovator in S&T

The OECD has always been recognised as an influential actor in most areas of public policy. This is also the case for science and technology policy (Elzinga and Jamison, 1995; Godin, 2009; Djelic and Sahlin-Andersson, 2006; Porter and Webb, 2008; Martens and Jakobi, 2010). However, the impact on S&T policies has been different from those applied in other policy areas. This specificity is linked to the role of OECD as a policy innovator enabling the creation, diffusion and institutionalisation of national S&T policies.