



The effects of the economic crisis on public research: Spanish budgetary policies and research organizations



Laura Cruz-Castro, Luis Sanz-Menéndez *

Consejo Superior de Investigaciones Científicas (CSIC), Institute of Public Goods and Policies (IPP), C/ Albasanz 26–28, 28037 Madrid, Spain

ARTICLE INFO

Article history:

Received 28 July 2014

Received in revised form 26 June 2015

Accepted 3 August 2015

Available online 13 August 2015

Keywords:

Crisis impact

Public R&D budgets

GBAORD

R&D funding

Government spending

Research policies

Research organizations

Universities

Reforms

ABSTRACT

The economic crisis of recent years provides an extremely valuable context for the study of the effective role which R&D policies have had for governments, both as a potential tool for exiting from the crisis and as an object of fiscal consolidation. The discourse of governments and international organizations often connect actions to cope with the crisis with reforms and changes in many areas, such as R&D. However, in practice overarching fiscal consolidation policies could be damaging opportunities to establish government strategies to reform and improve the efficiency of the sector.

This paper analyses the impact of the crisis on Spanish R&D budgets and on a public research system characterised by low organizational autonomy and limited strategic capacity. We argue that the fiscal consolidation measures adopted have reduced the capacity of governments to direct the public R&D system. Budget cuts, together with regulations emphasizing administrative controls, have reduced the government's capacity to define spending priorities, limited the ability of research organizations to adapt to the new situation and increased the levels of uncertainty within the system and reduced trust among actors.

When the policy dilemma between control and reform is resolved in favour of the former, it is likely that public research organizations will lose autonomy as a collateral effect of the crisis. We argue that the Spanish public sector research system is poorly equipped to resist the crisis and adapt to an environment of shrinking resources. In this sense, the lesson to be learned may be that organizational attributes are apparently critical in the long term and that autonomy should not be undermined.

© 2015 Elsevier Inc. All rights reserved.

1. Introduction

The recent financial crisis has become an economic downturn that has significantly affected private investment in Research and Development (R&D). At the same time, in most countries it has also been transformed into a fiscal and public debt crisis leading to changes in budgets and regulations affecting R&D policies and impacting on the public research sector. Despite some worldwide trends, there is evidence that the slowdown and recession are affecting countries and R&D and innovation systems in very different ways.

In Southern and Eastern European countries the economic crisis has hit hardest and the negative impact of the crisis on the R&D systems has been more serious. The crisis has prompted a change in spending priorities together with a change in citizens' preferences regarding public expenditure. In recent years, academic journals such as *Science* and *Nature*, and even European newspapers, have regularly reported the negative

trends in research and science in these countries highlighting the existence of “budget cuts”¹, “shutdown of research institutions”², “financial collapse of research centres”³, “brain drain dynamics”⁴, “loss of trust”, etc.

The lagged effect of past R&D investment and the impact of budget cuts on R&D funds, have allowed governments in many countries to assert that output indicators are positive. However, it is becoming evident that despite several years of convergence dynamics among latecomer countries, the crisis has revealed structural deficits that are likely to widen the R&D gap and have negative long term consequences for those countries when recovery starts. Although the crisis appears in

¹ After some years of official denials, the issue was recognized by the new State Secretary for Research, Development and Innovation, Carmen Vela, in *Nature*, vol. 486, issue 7401, 6 June 2012, p. 7.

² For example, layoffs in research institutes reported in *Nature*, 1 November 2011, doi:10.1038/news.2011.623.

³ See, “Spain's Research Council Approaches Bankruptcy”, *Science* vol. 341, 19 July 2013, p. 225.

⁴ See “Research Cuts Will Cause ‘Exodus’ From Spain” *Science* vol. 336, 13 April 2012, p. 139–140.

* Corresponding author.

E-mail addresses: Laura.Cruz@csic.es, Luis.Sanz@csic.es (L. Sanz-Menéndez).

government discourses as an opportunity for reform in R&D policies and public sector research,⁵ real policy measures have tended to follow a homogeneous top-down approach determined by the Treasury and Financial Ministries, without much consideration of the specificities of the research policy area; they have focused on a core objective (the reduction of public expenditure) and a secondary one (the reduction of the political conflict and public salience of the issues at stake).

However, despite the visibility, relevance and importance of the public budget cuts in science, we lack systematic analyses of the impact of the crisis on the public R&D system in those countries most affected, with some partial exceptions. We even lack a descriptive picture of the budget cuts among countries. Although university dynamics in the context of the crisis have attracted some attention, very little is known about the institutional and organizational constraints of public research centres in coping with the crisis and preparing for the future.

The aim of the paper is twofold. Firstly, to analyse the effects of the economic crisis on the R&D system, placing the Spanish case in a broader international context and, secondly, to account for the budget dynamics and policy measures taken by Spanish governments and their implementation in the public research sector. We aim to undertake a comprehensive analysis of the changes in public resources available for R&D policy and a qualitative appraisal of the budgetary regulation and control measures implemented in public sector research organizations.

We argue that general fiscal consolidation measures, taken as a reaction to the economic crisis, have reduced the government's ability to manage the public R&D system, due to their lack of selectivity. Budget cuts, together with regulations emphasizing administrative controls, have reduced the government's capacity to define spending priorities, increased the levels of uncertainty within the system and reduced trust among actors. We further claim that Spanish public sector research organizations (PROs), due to their low levels of financial and strategic autonomy, are poorly equipped to overcome the crisis and adapt to the new environment of shrinking resources.

The paper is organized as follows. In *Section 2* we review some of the previous studies that have addressed the effects of the crisis on R&D systems. *Section 3* is devoted to the construction of the empirical case, presenting a comparative macro analysis in order to locate Spain in the broader European context, and an in-depth account of the Spanish public research budgets and some policy measures taken in the context of the crisis. In *Section 4* we advance some concluding remarks linking the evidence presented with the institutional features of the Spanish R&D system and public research organizations.

2. Previous studies

Most analyses have focused either on the macro level, monitoring the evolution of the figures on R&D expenditure, or on the understanding of firms' investment behaviour in relation to R&D; such studies are either very general analyses with modelling linked to abstract theory or descriptive analyses with basic indicators directly related to R&D activities.

Much of the literature in the area of understanding the effects of the ups and downs in economic growth refers to company behaviour and investment in R&D. Much of this work has been related to the literature on business cycles. For example, *Comin and Gertler (2006)* and *Barlevy (2007)* provide insights into the pro-cyclicality of R&D investments in recent decades. More recently the *OECD (2009)* has made it clear that private investments in innovation are mainly procyclical and decrease significantly during economic downturns. In the same vein, *Archibugi and colleagues (Archibugi and Filippetti, 2011; Filippetti and Archibugi,*

2011; Archibugi et al., 2013) have found evidence to support the notion that the 2008–2009 global crisis has negatively affected European companies' investment in innovation and reduced aggregate private investments in R&D. However some other evidence (*Cincera et al., 2012*) suggests the existence of different types of company responses, including a group of firms that increase their R&D investments in years of crisis with the expectation of gathering the benefits of the upswing to come. Similar types of findings are available for firms in Latin American countries (*Paunov, 2012*) or in Eastern Europe (*Correa and Iooty, 2011*). Additionally, some recent research has found evidence that location and regions matter in explaining the resilience of company R&D investments during the crisis (*Holl and Rama, submitted for publication; Cruz-Castro et al., 2015*).

International organizations (OECD, the World Bank) and the European Union have developed several normative arguments stating that, in periods of economic crisis, governments and countries should invest (and spend) more on research, development and innovation, as a way of creating solid foundations and to prepare for the next cycle of growth, and also as a way of compensating for the reduction of private investment. This countercyclical normative statement on the uses of government R&D budgets informs much of the public political discourse on the role of R&D in the competitive advantage of nations but, when confronted with reality, does not find much empirical support. The current management of the crisis reveals that most governments disassociate themselves from their own normative discourses. In fact, the empirical literature on the effects of the crisis on science policies, R&D government budgets and on public research organizations is less abundant than that analysing private investment in R&D.

A recent contribution from *Kim (2014)*, using data on the Gross Expenditure on R&D (GERD) funded by governments under the analytical framework of the varieties of capitalism (*Hall and Soskice, 2001*), argues that in the long term (1981–2009) the countries that fit in the “Coordinated Market Economies” type (Scandinavia, Germany, Japan, etc.) have used R&D funded by government in a countercyclical way, while this has not been the case in “Liberal Market Economies” (Anglo-Saxon) and “Mixed Market Economies” (France and Southern European countries). However the data used by Kim, while allowing the monitoring of the cycles in private investment and the public funding of private R&D, does not allow the monitoring of the budgetary effort of countries in support of the R&D system, which is in fact the most direct measurement of government behaviour.

In this vein, some descriptive analyses have addressed the impact of the recent economic downturn on governments' science and technology (S&T) budgets across the EU28 countries. For example, *Makkonen (2013)*, using Government Budget Appropriations and Outlays for R&D (GBAORD) data, shows that most EU countries follow pro-cyclical patterns in which S&T budgets diminish in the context of negative economic growth. Public budgets for R&D appear to increase in times of economic prosperity and decrease in years of recession or slowdown. However there is not a clear analysis of which areas of government R&D budgets are most affected, if money is directly transferred to public research organizations or instead that funding is discretionary and competitive, or if cuts affect resources for basic science or alternatively money supporting innovation, etc. On this point, it is important to note that a significant part of government spending is quite rigid and less responsive to the economic cycle (e.g. *Afonso and Tovar Jalles, 2013*).

We should also acknowledge the lack of a proper theory of the impact of economic downturns on the activity of the public research sector; several intervening economic and political factors tend to weaken causality claims. When analysing how governments deal with budget cuts and define spending priorities in the context of economic crises it is important to bear in mind that politics shape economic and fiscal policies. There is abundant literature on the factors shaping government preferences over budgets, but most of the empirical evidence refers to welfare policies (e.g. *Jacoby, 1994* or *Blekesaune and Quadagno, 2003*). The analyses regarding public R&D budgets are

⁵ See Carmen Vela's contributions, titled “Turn Spain's budget crisis into an opportunity” mentioned in footnote 1.

Download English Version:

<https://daneshyari.com/en/article/5036958>

Download Persian Version:

<https://daneshyari.com/article/5036958>

[Daneshyari.com](https://daneshyari.com)