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**RESEARCH EVALUATION IN TRANSITION:
INDIVIDUAL VERSUS ORGANISATIONAL
ASSESSMENT IN SPAIN**

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RESEARCH EVALUATION IN TRANSITION: INDIVIDUAL VERSUS ORGANISATIONAL ASSESSMENT IN SPAIN

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1. INTRODUCTION

Research evaluation has been an essential practice of the regular functioning of the research system (Zuckerman and Merton, 1971; Cole and Cole, 1973). Reputational competition (Merton, 1957; Ben-David, 1971, 1972; Whitley, 2000; Dasgupta and David, 1994) has been shaped by mechanisms of evaluation of research mostly identified with the practice of peer review for journals' publications (Campanario, 1998 a, b; Cole, 1998). Some of these practices for publishing papers or awarding prizes have been extended to the allocation of the funding for research from governments or intermediary organisations (Chubin and Hackett, 1991; Cole, Rubin and Cole, 1978).

More recently, state research evaluation systems (RES)¹ have been developed in a number of countries in the context of new public management practices, scarce public funds and increasing accountability requests (Georghiou, 1995), and the allocation of resources for organizations and programs has become more and more connected to the evaluation of research (Geuna and Martin, 2003; Liefner, 2003). Additionally, the dominant *ex ante* or project appraisal approaches have been complemented by the institutionalisation of retrospective *ex post* evaluations of research performance², as the papers by Kneller, Cozzens and others in this volume discuss.

¹ We understand research evaluation system as the ensemble of practices and institutional arrangements in a country mediating between scientific quality controls and research policies.

² For a recent review of different evaluation practices associated to R&D see the work by Luke Georghiou and Philippe Laredo for the OECD (2006).

In terms of the overall governance of the public research system, evaluation carries out two main functions. On the one hand, it can be considered as a “steering or management tool”, that is, as an instrument for organising and managing research activities (Callon, Laredo and Mustar, 1995). As such, evaluation may be directed to research related organisations (universities, research centres, and management institutions) in order to improve their functioning; or it can be oriented to policy making, through the evaluation of science and technology (S&T) programs, and to improve research policies.

On the other hand, along with the steering function, research evaluation can be used in a distributive way whereby it is used to allocate different kinds of rewards and resources among different types of actors - individuals, groups or organisations - to improve their research performance. These incentives may be economic (grants, salary bonuses) and/or symbolic (reputation and prestige). Research evaluation as a distributive instrument can, then, affect the funding of research organisations, research projects, or the allocation of rewards to individual researchers. In some countries, we find the combination and integration of both functions in single funding instruments, while in others they are separated.

The aim of this paper is to analyse the institutionalisation of the Spanish RES in the context of the transformation of the research organizational field³ (Cruz-Castro and Sanz-Menéndez, 2007) and the public research system (PRS). The co-evolution of the changing PRS and RES is particularly interesting in Spain because of the effects of increasing political decentralisation and the importance of individual evaluations rather than organisational ones. The limited financial resources for research of Spanish universities and their dependence on the success of individual researchers in obtaining research grants through competitive bidding has meant that they have weak strategic capabilities⁴, especially in comparison with those of Australian, British and US research organisations.

More specifically, we deal with the following questions:

- What explains the emergence in Spain of a RES focused on individuals rather than on organisations?
- Why is research evaluation at the level of organisation marginally connected with research funding?
- How has the decentralisation of science and technology policy affected the RES?
- How has the changing RES affected the organisation and functioning of the PRS?

³ We borrow the concept of “organisational field” from the institutional approaches of organisational theory (see for example DiMaggio and Powell, 1983).

⁴ We recall the issue because the negative consequences for performance of highly autonomous scientists in loosely coordinated organizational settings (Pelz and Andrews, 1966).

During the last decade, research evaluation has become seen as essential for the steering of the public research system and there has been considerable effort directed to the different actors across the system to encourage the adoption of evaluative habits and structures. Nevertheless, we suggest that the evaluation focus continues to be at the individual level of researchers and research groups with minor developments regarding organisational and program evaluation.

The chapter is organised as follows: the next section describes the basic institutional features of the Spanish academic system and its research funding regime. This is taken as a point of reference in order to analyse, in section 3, the institutionalisation process and characteristics of RES, including some of the explanatory factors that account for these developments. Section 4 present a summary of the arguments and deals with the feedback effects that new trends and institutional arrangements of the RES have had on the public research system.

2. THE ACADEMIC SYSTEM: GOVERNANCE AND FUNDING

For the purpose of this chapter we understand the Spanish academic system to be composed of two different subsystems: the universities (represented in the *Frascati Manual for R&D statistics* as “Higher Education”) and the *Consejo Superior de Investigaciones Cientificas* (CSIC), which is the largest the Public Research Centre (included in the R&D Statistics under the label of “Government”). In 2004, higher education represented 29,5% of the total R&D expenditures, meaning 0.32% of the Spanish GDP and 51% of the researchers (FTE) and 39% of the R&D personnel. The government sector as a whole represented 16% of the total R&D expenditures, meaning 0.17% of the Spanish GDP, 17% of the researchers (FTE) and 17% of the R&D personnel; and the CSIC represented approximately one third of the Government sector.

Two single words characterize the Spanish academic system over the last 25 years: Growth and change. On the one hand, numbers have more than doubled in the main variables of the system, such as the number of universities, professors, lecturers, students enrolled, graduate and doctoral degrees granted, etc. On the other hand, universities, and to a lesser extent public research centres, have significantly changed their way of governance and functioning.

2.1. Size and governance

In 2004 there were 69 universities in Spain, 21 of them private. However in terms of the number of students enrolled and the number of professors and lecturers, the public universities represent around 92%. The 48 public universities had almost 88,000 professors and lecturers, among them 50,500

with the condition of civil servants –permanent staff- engaged in research and teaching to 1.36 million enrolled students; the public universities produced around 182,000 graduates and 7,100 PhDs in 2003/2004.

Some historical figures provide a clear picture of the growth of the system. In 1983, the number of universities was 33 (3 of them private and owned by the church⁵), with almost 31,000 professors and lecturers, engaged in teaching to 700,000 enrolled students; the public universities produced almost 80,000 graduates and 1,900 PhDs per year.

However, transformation has not been just the result of the growing demand of the Spanish society for higher education and the increase of public budgets for education; changes were also the result of the transformation of the university in two important dimensions: Firstly, the universities have moved from “bureaucratic centralism” dominant at the Dictatorship times to a “self-regulation” mode of governance (Sánchez-Ferrer, 1997) and, secondly, from being just teaching universities, they have evolved into a model of the university that has, simultaneously, set up research and third mission activities (García and Sanz-Menéndez, 2003).

The Spanish 1978 Constitution recognised the autonomy of universities (Spanish Constitution, art 27.10), while the 1983 University Reform Act (LRU) defined the constitutional arrangements for university governance, management and functioning. Although universities were defined as self-governing bodies, they have been highly dependent on public funds; therefore, despite the high level of “autonomy” the universities were rather poor in financial terms and consequently quite dependent on the political authorities.⁶ Additionally, the legal reforms enabled the universities to recruit and select their own academic staff and to appoint, after an “examination procedure” managed by the university, new professors with civil servant status (Mora, 2001).

Apart from the academic staff recruitment procedures, the governance of universities has also followed quite autonomous mechanisms, developed under principles established by the 1983 Universities Act but implemented by the specific procedures in each university (through their own Statutes. University authorities (rectors, vice-rectors and deans) are elected by their own constituencies (that include permanent professors, temporary lecturers, administrative personnel and students) and their “responsiveness” to society depend basically on their will and the “financial pressure” that governments could exert.

Between 1985 and 1996, as part of the decentralization or federalization of Spain, supervision and control of the universities were transferred to the

⁵ Until the early 90s the only private universities existing in Spain were those related with the Church, a privilege that they got in the times of Francoist dictatorship.

⁶ Estimates of aggregated income of universities coming directly through regular transfers from public budgets (either regional or national) amount 78% of the total (Hernández Armenteros, 2004).

different regional governments.⁷ Additionally, some regional governments have created new public universities, either to transform former “colleges” located in some provinces into universities or from the scratch, in order to reduce the students’ enrolment pressure on the old universities. In any case, the growth of universities in provincial capitals has become strongly related to local and regional politics.

While most aspects of the governance arrangements of universities have been stable for almost two decades, some significant changes have taken place in their regulatory environment with the approval of a new Universities Act (LOU) in 2001. This Act represented a significant increase in the regulatory powers of regional governments and many regional governments have approved Regional Universities Acts since then. In fact, the 2001 Universities Act gave legal recognition to an emerging process of differentiation of relationships between the regional authorities and their universities. Given the diversity in the capabilities of regional governments to implement steering mechanisms, a broad variety of outcomes is likely to emerge.⁸

Under the new regulations, the Chancellors of universities are elected following universal democratic rules; and consequently the university management structure is often seeking re-election taking care of the interest and demands of their constituencies. Whereas this change represented a move towards increased university autonomy and increased internal accountability, the 2001 Universities Act also introduced a significant change in the mechanisms of access to the civil servant status for university professors or to get a university contract, namely, national *habilitation* and accreditation respectively. The reasons for this re-centralised quality control with respect to the recruitment of academic staff lies in one of the side effects of the decentralization of selection established in 1983 Universities Act, that is, a high degree of inbreeding and the consolidation of internal labour markets dynamics within university departments (Cruz-Castro and Sanz-Menéndez, 2006).

In addition to the universities, research is conducted by CSIC, which is the largest public research organisation. This is an umbrella organization – similar to the Max Planck Society in Germany or the CNRS in France - with more than a 100 institutes all over Spain, more than 10,000 employees and 2,500 tenured scientists (Sanz-Menéndez and Cruz-Castro, 2003). In contrast with the Universities, the CSIC has not been transferred to the

⁷ The national government only has direct control and supervision capabilities over the UNED (a distance learning university like the Open University in UK) and UIMP (a “summer courses university” that do not yet provide degrees).

⁸ There are 8 Regions (Basque Country, Balearic Islands, Asturias, Cantabria, Navarre, Castile-La Mancha, La Rioja, Extremadura) each of them supervising only one university; in those regions in many occasions, the Chancellor or Rector of the University is a more relevant person in the region than the President of the Regional Government. Bigger regions with more than one public university are Andalusia (10 universities), Catalonia (8 universities), Madrid (6 universities) and some others.

regional authorities. Despite the fact that CSIC authorities, appointed by the Minister of Education and Science, have a significant discretionary power of allocation of resources, they also try to get support and consensus from their researchers and institutes. The CSIC has been – until the seventies - the “reservoir” of public research in Spain (OECD, 1964), always in strong interaction with university. It is different from other public research centres (PRCs) for several reasons. Firstly, it is not mission-oriented; secondly, only researchers with a PhD can obtain tenure as an academic staff; and thirdly, CSIC researchers are involved in the competition for the same research funds, and they are also the only ones subjected to the same evaluation systems, as university professors.

2.2. Funding

In the context of the formal autonomy of universities and researchers to pursue their own research objectives, the way in which funding is organized is a critical element in evaluating the ability of governments to steer research activities (Braun, 1993; Whitley, 2003). The standard Anglo-Saxon literature on the relation between science and politics usually interprets the increasing relevance of competitive project-based funding for research as a signal of the demand of the authorities to the research community for more responsiveness to the programmatic research goals defined by the government. However, the Spanish situation does not fit this model because neither universities nor even the public research centres obtain significant amounts of stable block grant funding for research.

At the time of the transfer of the universities’ control from national Government to the regional ones, the funding system was relatively homogeneous. It followed an incremental line item budgeting, in which each single item of expenditure of the budget was increased with respect to the budget of the previous years, but a system based on a formula model was emerging, where the main criteria were teaching loads (number of registered students) and the numbers of teaching staff; with almost no block grant funding for research.

Today, university funding has been decentralised to the regional authorities, so the situation in each university varies depending on the strategies and priorities of regional government. The annual transfer for university funding is included in the Regional Government Annual Budget that the regional parliament approve at the end of each year. Due to the very different political priority assigned by the different regional authorities to the higher education institutions and research policy, the mechanisms used by governments to finance universities are quite diverse. Incremental line item budgeting has been replaced by two types of models, which in many cases go together: formula models and contractual arrangements (González

López, 2006). The first one is usually based on different combinations of students' enrolment, size of the staff and other numerical data. In contractual agreements (*Contratos Programa*) the funds are usually linked to the accomplishment of goals or requisites previously agreed.

CSIC funding from the government has traditionally followed an incremental line item budgeting. In the budgets of 2005 and 2006 a political decision to increase R&D budgets has meant a very significant increase of more than 20%. This increase has opened the possibility, along with new legal changes, of developing a model of relationship based on contractual agreements with performance indicators. In late 2005 and early 2006 the first steps in that direction have been taken (Fernandez de Labastida, 2005) and a legal change is on the way.

In the absence of any significant block grant funding for research activities, university professors and CSIC researchers need to obtain research funds through competition from funding institutions (national or regional) or through contracts with companies. In the mid eighties a national external funding system for research in universities and CSIC was established⁹ for the first time, in a model labelled as a "quasi research council" (García and Sanz-Menéndez, 2005). This model has distinctive characteristics as regards Research Councils as we know them. First, the majority of the funding bodies depend directly on Ministries, and the Heads of these bodies are normally political appointees. Secondly, these organisations lack major administrative capacities since they are weak bureaucracies with little permanent staff and broadly populated by the agents of the system: the researchers. Finally, and most importantly, the quasi-research councils operate in a context of unclear boundaries between principals and agents, but they can, nevertheless, enjoy a high degree of institutional stability along the years.

The primary mechanism for government implementation of Spanish R&D policy has been through the funding of research projects, and this has accounted for most of the non-specific objective funds earmarked for the public research system. These budget funds are awarded through an annual public call for proposals, usually for 3-year research projects. It is in this project-based context that the Spanish type of research evaluation has been strongly associated with the allocation of funds.

Additionally, the regionalisation of the country has produced a distinctive feature of the research funding system: multilevel dynamics (Sanz-Menéndez and Cruz-Castro, 2005). The increased involvement of regional authorities in providing competitive funding for research has increased the pluralism in the system with respect to the definition of research objectives, without reducing, however, the problems that Spanish research institutions

⁹ For a deep analysis of the institutional construction of the Spanish science and technology policy see Sanz-Menéndez (1997).

and organizations have in defining strategic behaviour and solving the collective action problems of their researchers.

Some tension and conflict between the scientific and political rationales of research resources distribution among research organisations can occur. Although the formal organisational autonomy of the universities with respect to the government and the political system has been reinforced over time in terms of self-governance, there is significant financial dependence of the universities on their regional authorities. When the research organisations and political arenas are too close, there is always a possibility of a kind of practice of allocation of resources based on interests groups' politics, rather than on the scientific logic of the best performance or on a more explicit managerial approach. The political distributive rationale at the regional level tends to be egalitarian rather than discriminating between research organizations, however the aggregate effect of the 17 different regional policies could produced differentiation.

3. INSTITUTIONALISATION PROCESSES AND CHARACTERISTICS OF THE SPANISH RES

In the mid-1980s, together with the dramatic growth in the budget earmarked for competitive R&D funding, there was a considerable increase in the use of peer review in funding allocation decisions. Research evaluation arrangements were institutionalised in 1986 by means of the Act for the Promotion and General Coordination of Scientific and Technical Research (Science Act). Under this Act and its developments, the funding of research activities was organised around a National R&D Plan including: (1) targeted research, articulated around priority programmes, and basic research articulated by the programme for the General Promotion of Knowledge (PGC)¹⁰; and (2) reliance on peer review as the legitimate selection mechanism prompted by the creation of the National Agency for Evaluation and Foresight (ANEP), managed by the research community.

Overall the existing funding regime is basically a project-based one, with some elements of a programmatic regime; however the influence of the academic research community in the selection of national priorities was and is quite determinant. In addition to high degree of competition, there is a significant degree of autonomy in pursuing research objectives, even in the context of national S&T priorities. The basic features of the Spanish research-funding regime and some interaction with the RES are summarised in table 1.

¹⁰ The structure of the National R&D Plan, organised in targeted and non-targeted programmes, was actually rhetorical. It did not have—*ex ante*—any resources assigned by areas, but waited for the demand for funding and the quality of the proposals.

Table 1. Basic features of the research-funding regime in Spain

- High university political autonomy but budgets largely determined externally and mainly dependent of teaching loads or students' enrolment
- Essentially, a peer review project-based funding regime, with elements of programmatic regime (Whitley, in this volume)
- University strategic management of research has limited impact on research groups, as compared to scientific peer's pressures and the steering of research towards priorities set up by funding bodies
- Increasing diversity of funding sources for research as result of the regional authorities involvement in science policy
- Public research centres have had historically less autonomy, and greater presence of block grant funding than universities, but this has changed over time
- High variance of evaluation standards across scientific fields, but with some trends towards convergence

3.1. Institutional arrangements of the research evaluation system (RES)

The 1983 Universities Act represented an almost complete transfer of the responsibilities of selection and access to the civil service of university professors to the universities themselves. In contrast, the arrangements of research evaluation set up with the 1986 Science Act were associated with a more centralised model of managing science and technology policy. In fact, analysing the underlying logic of both Acts one could say that University Reform Act was shaped by a liberal and self-organised model of responsibilities, while the Science Act had a much more planning oriented and interventionist model, even shaped by Bernalist models of science policy.

In the early times of the Spanish S&T policy in the eighties, the emerging academic elite associated to the new socialist government was very much concerned about the procedures of allocation competitive funding (Sanz-Menéndez, 1997), which in the past had been mainly based on the hierarchical approach of the senior professors in each field. The creation of an independent evaluation space, managed by scientists, as a first step into the project funding process, became a clear objective. The reforms that took place in the mid-80s considered the set-up of evaluation structures as a priority in order to build a coherent S&T policy in Spain. The main focus was in developing a peer-review system guaranteed by the State (Sanz-Menéndez, 1995) as a mechanism for research evaluation directed to the allocation of public research funds.

3.1.1. ANEP

A unique institutional arrangement was adopted in Spain with the establishment of the ANEP (National Agency for Evaluation and Foresight). The ANEP was created in the CICYT -the inter-ministerial political-planning body in charge of the R&D policy- but with autonomous scientific management. Its mission was concerned with “the scientific and technical evaluation of entities and research groups that participate in the implementation of programmes and projects of the National R&D Plan, the proposals of both R&D actors and operators, and the monitoring of results (outputs and outcomes) that could be produced in the development of those programmes and projects”.¹¹ The ANEP had also the mission of developing foresight activities in scientific research and technological development, but in practice the overload of work and its weak organisational capabilities precluded a serious development of any activity other than *ex ante* project appraisal. Already in 1995 the bulk of ANEP activity was scientific and technical evaluation for project selection and funding, general scientific and technical assessment and technical advice to political bodies, with single cases of evaluation of research organisations (Sanz-Menéndez, 1995).

The evaluation and selection of project applications is implemented as a two-stage process in which two or three individual peers, using a mail procedure, make a first assessment of the submissions; then, a panel of experts makes the final funding decisions. In fact, ANEP does not control the final approval of the projects reviewed because the ANEP reviews are just an input, a relevant one, in the process of selection. The overall project funding process was identified as “dual”, because after the individual peer reviews were done by the ANEP, the “priority”, adequacy to the research objectives and priorities of the National Plan, was stated by a panel from the funding body. Just to provide an idea of the effects of its activity we can mention that approximately 50% of R&D projects evaluated for the Directorate General for Research were rejected (García and Sanz-Menéndez, 2005).

The Spanish peer review model used for funding research has been based upon two critical “roles”, usually filled by academics in part-time jobs: (1) the coordinator of each scientific area, appointed by the ANEP; and (2) the manager of each scientific programme at the R&D funding units. Coordinators select the reviewers from a pool of academics; this selection is based on a mix of criteria such as scientific specialisation, research expertise, etc. . Programme managers are responsible for appointing the panel of experts (between 8 and 20) that will complement the assessment of each project, to which they assign scores. These new scores, together with those from ANEP, support the final decision on whether or not the proposal is funded. The evaluation criteria are the usual ones: contribution of the

¹¹ Decree RD 415/1987, 6th March, “Organic structure of the Permanent Commission of the CICYT”.

proposal, research design, quality of methodology and past performance of the principal investigator and research team.

The ANEP, fifteen years after its creation, continues to be an administrative unit of the Ministry of Education and Science, under the dependence of the State Secretary of Universities and Research, and organises its research evaluation activity autonomously from the management of the R&D funding programmes and bodies. Funding bodies, internal to the Ministry of Education and Science or external –other Ministerial funding or Regional governments-, often request the support of the ANEP in the evaluation of the project proposals or the approval of individual fellowships.

3.1.2. CNEAI

The second institutional element of the Spanish RES emerged in the late eighties: It was the establishment of *ex post* research performance evaluation procedures of individual researchers and the creation of the National Commission for the Evaluation of Research Activity (CNEAI). This move must be seen as part of the institutionalisation of individual incentives and rewards for research activities. The 1983 Universities Act (art. 11) approved the possibility for university professors (and latter on the Science Act did the same for the CSIC researchers) to get additional personal income (despite their civil service status) from contract research with private entities.

A response to the movement of many university professors into “contract research” was the attempt to increase the wages of those working mainly with publicly funded projects, and to reward their publications’ profile. In 1989 government approved a voluntary-based system of periodical (every six years) evaluation of individual research outcomes¹², and the construction of an institution dedicated to that task: the CNEAI.

The CNEAI was institutionalised as a mechanism for evaluating academic careers and the research performance of tenured researchers. It was organised as a way of providing incentives for research activities. The rewards were small salary increases for university professors and CSIC researchers in exchange for the recognition of good research performance (reflected in a positive evaluation). Once a year, tenured academics and researchers may submit five contributions to a panel of peers that examine their career on a six-year period base. The recognition of these six-year periods of research activity leads to an automatic increase in salary, and it more and more constitutes a reputational legitimising element for the researcher as well (Sanz-Menéndez, 1995).

¹² Amazingly a similar system of complementing the wages of the academics was established in Mexico in the same years, the National System of Researchers (*Sistema Nacional de Investigadores*) (see Schoijet and Worthington, 1993, despite their confusing interpretation of the system).

The original idea was simply to reward research performance, mainly based on the concept of “contributions”, and mostly reflected in the publication of papers in international journals. The evaluation procedure is organised in 11 large research domains and the examination of the contributions submitted is made by a small set of publicly appointed experts.

The institutional arrangement of the CNEAI is quite soft, as it involves experts appointed by the Minister of Education and Science and representatives of the Regional Governments. This evaluation mechanism is arranged by the national authorities, but the small increases of wages of university professors is paid by the regional governments, because of the institutional dependence of the universities at this level. The individual application for evaluation is voluntary and if the outcome is positive, the effect is a small permanent increase in the researcher salary (approx. 110 euros/month gross, meaning approximately 3% of the total annual income).

Other forms of institutional evaluation directed to the improvement of the management of R&D programs and research organisations had a marginal presence in mid-nineties. The CICYT did not include any formal or explicit decision to systematically perform program evaluation, and the same occurred with other R&D management bodies (Sanz-Menéndez, 1995). A final type of evaluation developed during the nineties might be termed as “evaluative studies of R&D policies”. These were studies and research projects not formally commissioned, and not integrated or associated with the policy-making process, although some of them achieved informal acceptance and collaboration of the policy-making bodies, but with no commitment to implement the results. They were more academic exercises than proper research evaluations; their design did not provide clear definitions of the purpose or clear evaluative criteria, nor methodologies were well suited to generate policy feedback.

In sum, formal research evaluation up to the mid-nineties was still developing. Peer review was the main method employed, which reflected the main role conferred to the “clients” of R&D policies. Additionally, evaluation was oriented mostly to *ex ante* evaluation for project funding purposes and individual research performance recognition linked to the provision of small salary increases for tenured researchers with significant reputational effects. On the other hand, organisational evaluation directed to strategic purposes constituted an exception in this context, where it appeared only under very exploratory actions with little practical consequences.

3.2. New developments in the Spanish RES

Two institutional developments have taken place over the last decade in the Spanish RES. In the first place, the emergence of systematic evaluations of

universities that focused on teaching quality rather than research, and did not have funding effects. The main instrument here has been the National Plan for Quality Assessment of Universities (PNECU). The PNECU was headed by the Council of Universities, an organisation composed of representatives of regional and national governments and the rectors of all universities. The process was managed by a Technical Committee, composed by Council's officials and experts.

The Plan started in 1996, following three more rounds (1998, 1999 and 2000) before the 2001 Universities Act, when this type of evaluation was institutionalised. The underlying rationale was to detach the process of organisational evaluation from funding and accreditation, letting each university develop their own quality policies to improve their products and services (Bricall Report, 2000). The main objectives of the PNECU were: a) To promote the institutional assessment of university quality; b) to draw up homogeneous methods of assessing university quality in line with the practices currently used in the European Union; and c) to provide objective information which may be used by the various organisations to aid decision making in their particular area of expertise.¹³ The Plan evaluated three main activities: a) teaching in degree programs; b) research in the departments to which the programs were assigned; and c) management in the services attached to the programs.

The methodology deployed by the PNECU consisted of a mixed system of self-assessment and external assessment, and, as a final step, the writing and publication of a final report. A major achievement of the Plan was to introduce and popularise the culture of evaluation among higher education agents. Almost all universities have participated in the Plan. Besides, the exercise also succeeded in establishing quality control units or departments in almost all universities, and significantly improved the information and statistical systems within the institutions. Although the Plan was more oriented to teaching activities than to research ones, research activities in universities were partially reviewed, paying attention to different institutional dimensions: scientific production, external relationships, human resources, support staff, economic resources, material resources and infrastructures, doctoral programs, research groups, university's internal support for research, promotion activities, internal communication and collaboration, and departments' internal promotion of research.

The second important development within the 2001 Universities Act has been the extension or stretching of individual performance evaluation, which put into motion new recruitment procedures and quality requirements (accreditation and *habilitation*). Regarding the early stages of the academic career in public universities, the Act introduced some significant changes. It created new forms of pre-tenure teaching and research positions, and in

¹³ Art. 1 of the Decree, RD 1947/1995 of 1st December, establishing the PNECU.

order to get access to some of these contracts, candidates must previously be accredited by the appropriate agency. In this accreditation process, a body of experts assesses the research and teaching merits of the candidates.

Additionally a quite complex system of national *habilitation* for getting the status of civil servant was established; once a year national *habilitation* exams were organized. The number of *habilitations* is determined by the demand of the universities. The universities set up access exams to their tenure positions and select among the candidates entitled. However, many universities do not issue the call until they have got their own temporary professors habilitated, maintaining some inbreeding practices.

Both developments, the one related with “quality assurance and improvement” and the “individual national accreditation” have been associated to the creation, in the 2001 Universities Act, of a National Agency for Quality Assessment and Accreditation (ANECA). This agency, in addition to going on with the institutional quality assessment initiated with the PNECU, started the accreditations and evaluations for university teaching staff. Most interestingly it has performed a significant task in developing methodologies and publishing evaluation procedure manuals.

Following this institutional innovation several regional similar agencies have been set up; any Spanish university can contract individuals accredited by the national agency, whereas individuals accredited by a regional agency can only be contracted by the universities located in the respective region. The consequences of this fragmentation and dualisation for the mobility and transparency of the academic labour market are still unclear. Nevertheless, *habilitation*, the official competitive evaluation required for university academic tenure, remains centralised as a reaction to the traditional high degree of inbreeding and low mobility of the research personnel.¹⁴

Many regional authorities, more empowered with the 2001 Universities Act, have created new accreditation and quality assurance agencies, leading to the multiplication of evaluation structures. In 2005, 9 out of 17 Regional authorities had set up university evaluation institutions.¹⁵ Two of them (Catalan and Andalusian) started to work in the context of the implementation of the PNECU, and the others in the context of the 2001 Universities Act. These “agencies” have diverse legal status, with a

¹⁴ At the time of revising the paper in July 2006, the Spanish government has sent to the Parliament a new Act on Universities that introduces changes in the *habilitation* procedure, mainly its transformation into a simple national accreditation.

¹⁵ These are: Andalusia (*Agencia Andaluza de Evaluación -AGAE*), Balearic Islands (*Agència de Qualitat Universitària de les Illes Balears -AQUIB*), Canary Islands (*Agencia Canaria de Evaluación de la Calidad y Acreditación Universitaria -ACECAU*), Castile-La Mancha (*Agencia de Calidad Universitaria de Castilla-La Mancha -ACUCLM*), Castile-León (*Agencia para la Calidad del Sistema Universitario de Castilla y León -ACSUCYL*), Catalonia (*L'Agència per a la Qualitat del Sistema Universitari a Catalunya -AQU*), Galicia (*Axencia para a Calidade do Sistema Universitario de Galicia -ACSUG*), Madrid (*Agencia de Calidad, Acreditación y Prospectiva de las Universidades de Madrid -ACAP*) and Valencia (*Comissió Valenciana d'Acreditació i Avaluació de la Qualitat -CVAEC*).

dominant form of “consortium” between the universities and the regional government.

Most of the agencies have been granted with broad competencies related to evaluation and quality assessment, and the most important are: 1) Institutional evaluation (which includes evaluation of academic programs, management and services, and academic and research functioning); 2) Accreditation and quality certification activities; 3) Individual evaluation (which includes teaching staff accreditation and research and academic teaching staff evaluation in order to get regional salary bonuses); 4) Assistance and advice related activities (including policy planning). However, in practice, most of the activities of the regional evaluation agencies have focused on just two missions: individual evaluation¹⁶ and some institutional assessment related with the quality of the teaching activities and services. An emerging field is the preparation of the changes associated to the implementation of the European Higher Education Space.

In accounting for these developments, two main factors are important. First, the expansion of undergraduate education has been the driver of the growth of universities in the last twenty years, and this explains partly the focus of the evaluation exercises on teaching quality rather than on research. Secondly, in explaining the multiplicity of evaluation structures, the most important factor has been the growth of the research system. This growth, in terms of research centres, laboratories and researchers, contributed to the overload of the national system for evaluation and to the conditions in which some regional authorities created regional evaluation structures in support of their local scientific policies. Regional governments have consolidated as active new actors in the system, contributing, very significantly, to R&D expenditures *vis a vis* the central state.

Compared with 1995, there are not only more researchers, but also more funds coming from national, regional, and supranational R&D institutions. Thus, the growth in demand has been sustained by the multiplication of financing sources. Funding models and evaluation practices have been diffused or imitated across levels and among regions. Accepted national practices have diffused quite widely, despite the fact that some experimentation and new developments have emerged in some regions.¹⁷ In a few cases, this has even led to the duplication of evaluation institutions, since, for example, some regions have set up their own research

¹⁶ The main activity of these agencies has been the individual evaluation of university teaching staff. This kind of evaluation has been oriented towards two main tasks: the recruitment of new teaching staff according to the new categories included in the 2001 Universities Act; and the allocation of regional salary bonuses. According to the available data, the evaluation and accreditation of teaching staff is the only activity performed by all the agencies. Moreover, the lack of common standards in the evaluation criteria threatens to jeopardize the meaning of accreditation itself.

¹⁷ For example, the Catalan Government has also promoted a non for profit institution ICREA that is playing a critical role in the improvement of the quality of the Catalan system with prizes and grants, but again the focus has been the selection of the best individuals, not the change of organizational practices.

performance based salary bonuses, applicable only to the academics in the universities located in their regions.

4. FEEDBACK EFFECTS BETWEEN EVALUATION AND RESEARCH SYSTEMS

Evaluation occupies a substantial part of the new discourse adopted by Spanish research actors, but assessment practices have not been fully consolidated, specially at the organizational level. Overall, the research evaluation activities performed by the ANEP and the CNEAI, mostly related to project and individual research performance evaluation, continue to be the key elements of the Spanish system. The balance of our analysis can be summarised as follows.

First, in the context of the increasing intervention of regional authorities in S&T policy, research funding schemes based on competitive project funding have proliferated in Spain. In this context, pluralism has increased. As a result of the regional governments support of their own centres and universities, we are probably moving from a public research system largely based on “competitive pluralism” to one more composed of “competitive hierarchies” (Whitley, 2003).

Due to the regionalisation of S&T policies, a major response from the part of the regional governments as actors in the system has been the setting up of parallel funding and evaluation structures. The result has been the diversification of external sources for project funding and *ex ante* evaluation structures. The outcome of this process has been the multiplication of evaluation standards and criteria for project funding.

The regional authorities' involvement in the S&T policy domain and the creation of regional research evaluation structures have resulted in an increased fragmentation of the RES considered as a whole. Regional governments have developed their own R&D policies autonomously from national authorities, and this has prompted the proliferation of several regional public research systems, each of them with the capacity to establish their own criteria for allocating funds or designing programs. The existence of regional evaluation structures parallel to national ones, using different standards and criteria, might create problems of dualisation of “markets” and legitimacy deficits. Due to the decentralisation processes and the multiplication of funding and evaluation structures, our prediction is that some of the regional subsystems will evolve into stronger RES and some of them will not, depending, largely, on the relative weight of academic elites into the policy decision-making processes.

Second, the consolidation and deepening of individual researchers' evaluations has become established as a core practice in the Spanish RES. The model developed in the late eighties and early nineties that focused on

rewarding the research performance and granting reputation to the researchers has become a “generalised practice” at national and regional levels. Most of the Regional Governments have created their own reward systems to provide some additional income to their researchers. Moreover, the requirements for accreditation for the entry phases of the academic career, and the *habilitation* for the consolidation of tenure, have become generalised across the system. Accordingly, the implementation of the accreditation has been duplicated by nine regions that have also created their own accreditation and quality assurance entities.

Third, although the activities of ANECA and the regional entities in the domain of institutional evaluation, certification, etc. have grown in the past years, in almost no Region has a “research performance evaluation” has been linked to the funding regime of universities and public research organizations. The models used for university core funding are slowly evolving into “contract agreement” types, but based on output indicators and not on research assessment.

This brief summary leads us to the exploration of the way in which those practices of research evaluation are affecting various dimensions of the organisational field of universities and similar organisations, and the public research system as a whole. Although the specific arrangements for RES in Spain are in transition, their processes and procedures have started to produce feedback effects in the public research system. For the sake of clarity we can distinguish between direct and indirect effects.

Direct effects are consequences that result from legal regulations, organizational procedures, norms and routines, mainly related to funding mechanisms and the functioning of the labour market for researchers. There are also indirect effects that result from the legitimation and reputation dynamics that increasing information and transparency over the system are producing. These types of mechanisms produce long term effects in the overall system.

Regarding direct effects, the most important one relates to funding distribution. Together with the financial weakness of Spanish universities, the research evaluation procedures embedded in the competitive project funding model, have both created a strong dependence of researchers and research groups on external funding sources and differentiated research groups in terms of resources and prestige. Additionally, the limited funds of universities and other research organisations reduces significantly the authority of the managers and academic authorities over researchers and research groups, who are highly autonomous in their decisions and in pursuing their research objectives. Universities and traditional public research organizations are more “confederations” based in distributive coalitions of individuals, departments, institutes or schools, rather than as unitary strategic actors.

The second relevant direct effect relates to staff recruitment and research career management. Before the 2001 reforms' universities had in their hands almost the complete control and autonomy for the selection and appointment of teaching and research staff. In parallel, a nation wide individual performance evaluation system (CNEAI) was established, providing some additional personal income and establishing a formal reputation system. A long debate in the nineties about the negative consequences of inbreeding for the quality control of the new university professors and lecturers created the conditions for the 2001 legal reforms. External evaluation of individual curricula has now become embedded in the new hiring and promotion procedures. The legal and normative changes in the requirements for contracting university pre-tenured and tenured staff have had an impact as regards quality control at the entry point of the academic labour market.

Some of these effects are contradictory to some extent because, on the one hand, the system has advanced into a more extensive and deeper development of the individual researchers evaluation, by means of accreditation and *habilitation* as legal requirements to be contracted or tenured by any university; but on the other hand, due to the proliferation of principals of research (regional authorities) and the available funding sources, scientists find less pressure for resource competition.

Finally another direct effect of the individual evaluation principles was built in the 2001 Universities Act that introduced a provision whereby only professors with positively evaluated research periods by CNEAI (1 or 2 depending on the categories) could be members of the selecting committees for the *habilitation* processes. This regulation has left out of the selection system more of the 40% of the tenured professors, with variations across scientific fields.

There are also some indirect effects at the aggregated level that result from the increasing information within the research system. In particular, the use of data from individual research performance evaluation (CNEAI) in aggregated form has begun to affect collective reputations. Since academics with rejections in their "CNEAI *sexenios*" are not well considered by their colleagues, individual information has become almost secret, private information, affecting the individual rights. However, the information has increasingly been aggregated by institutions and scientific fields, and some data about the quality or excellence of universities and CSIC, resulting from the evaluation of their tenured professors and researchers, have become available in some publications similar to rankings (MEC, 2004).

At the aggregated level the CNEAI system has had some further effects. The use of standard academic criteria, mainly based on international scientific publications, has produced a slow change –but clearly shaped- in the publications' pattern of Spanish academics. The impact of the CNEAI

system has been a significant and continuous growth, in the recent years, of the Spanish share of the ISI-Thomson databases (Jimenez-Contreras, et al. 2003); this processes are similar to those described in other countries that use formula funding associated to publications included in the ISI-Thomson database (Butler, 2003; Gläser and Laudel in this volume).

It is also interesting to note that bibliometric indicators, even if they were not developed in Spain in the context of direct evaluation exercises but more often in the context of bibliometric research, have had a strong indirect impact on the informal “reputational market” of academic science. In this direction some public agencies have recently promoted the systematic analysis of the Spanish bibliometric domain, by fields and institutions, to publish rankings (FECYT, 2005).

These dynamics are also related with the most significant process in the system: differentiation, which is increasing due to the project-based nature of the research-funding regime. These differentiation effects operate, on the one hand, among research groups by their relative levels of competitive external funding acquisition, and on the other hand, among the individual researchers by the relative recognition of positively evaluated research performance periods.

In contrast to the research group and individual researcher level, we find only a marginal degree of differentiation among the research organisational level, that is, among universities and research centres. The fact that organisational evaluation as it has been designed and performed is not linked to funding decisions is only part of the explanation. Research evaluation as a tool for strategic planning and management improvement, is advancing very slowly. Although there is a new emphasis on institutional assessment in universities, the national organisational evaluations set into motion during the period studied have not emphasised research activities and, at the sub-national level, regional institutions have followed a similar pattern.

Increasing the differentiation and specialization of universities and research organizations will require, in addition to the indirect reputational effects, a change in the funding system of research, creating mechanisms to assess the collective research performance and linking it to differentiated funding. Additionally the emergence of new types of research institutions in the organizational field, as reported in Cruz-Castro and Sanz-Menéndez (2007), could increase the level of competition between organizations favouring the differentiation and specialization process.

If new funding instruments are developed to shape the organisational behaviour, for instance by hiring people with research profiles, we could witness the emergence of more institutionally-oriented research performance evaluation. Alternatively the development or reinforcement of new models of funding based on contract agreements could help on the

development of institutionally focused soft type of research evaluation, as usually implied in the strategic plans models. Overall, though, the recent trends have reduced the ability of national R&D authorities to steer the system as a whole, because of the increasing pluralism in terms of funding sources.

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ACRONYMS

- ANECA - National Agency for Quality Assessment and Accreditation (*Agencia Nacional de Evaluación de la Calidad y Acreditación*).
- ANEP - National Agency for Evaluation and Foresight (*Agencia Nacional de Evaluación y Prospectiva*).
- CICYT – Inter-ministerial Commission for Science and Technology (*Comisión Interministerial de Ciencia y Tecnología*).
- CNEAI - National Commission for the Evaluation of Research Activity (*Comisión Nacional Evaluadora de la Actividad Investigadora*).
- CNRS –French National Research Centre (*Centre National de la Recherche Scientifique*)
- CSIC - Spanish National Research Council (*Consejo Superior de Investigaciones Científicas*).
- ICREA - Catalan Institution for Research and Advanced Studies (*Institució Catalana de Recerca i Estudis Avançats*).
- LOU - 2001 Universities Act (*Ley Orgánica de Universidades*).
- LRU - 1983 Universities Act (*Ley de Reforma Universitaria*).
- MEC - Ministry of Education and Science (*Ministerio de Educación y Ciencia*).
- PNECU - National Plan for Quality Assessment of Universities (*Plan Nacional de Evaluación de la Calidad de las Universidades*).
- PRC - Public Research Centres.
- PRS - Public Research System.
- RES - Research Evaluation System.
- UIMP – “Menéndez Pelayo” International University (*Universidad Internacional Menéndez Pelayo*).
- UNED – National University for Distance Education (*Universidad Nacional de Educación a Distancia*).

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