HIGHER EDUCATION RESEARCH IN THE 21ST CENTURY SERIES

Effects of Higher Education Reforms: Change Dynamics

Martina Vukasović, Peter Maassen,
Monika Nerland, Rómulo Pinheiro,
Bjørn Stensaker and Agnete Vabø (Eds.)

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Effects of Higher Education Reforms: Change Dynamics

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Effects of Higher Education Reforms: Change Dynamics

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1. CHANGE DYNAMICS AND HIGHER EDUCATION REFORMS

Effects in Education, Research, Governance and Academic Profession

Higher education institutions have become in practically every society the main institutionalized domains for handling advanced knowledge. They have survived since their origin in more or less the same organizational form (Kerr, 2001), which is all the more remarkable given the fundamental changes that have taken place in their environments. Their main organizational building blocks have always been the knowledge areas around which chairs, departments, faculties, schools and centres are positioned (Clark, 1983), and universities and colleges are populated by academic staff, students, and administrators, whose interactions determine the institutional day-to-day life. These relatively stable elements can still be found as basic organisational characteristics in any higher education institution in the world and are still used as reference points for legitimisation or quality assurance purposes.

Throughout their long institutional history universities and colleges regularly have faced demands for dramatic changes. As argued by Olsen (2007:28) this is also currently the case:

> ... an institution under serious attack re-examines its pact with society and its rationale, identity and foundations… Likewise, there may be public debates about what different institutions are supposed to accomplish for society, how each is to be justified and made accountable, what is to be core institutions and auxiliary institutions, and what kind of relationship government is supposed to have to different types of institutions. A possible outcome is the fall and rise of institutional structures and their associated systems of normative and causal beliefs and resources. Arguably, the University now faces this kind of situation…

While this is a worldwide phenomenon, what is particular about the reform pressures in Europe is that over the last decade they have increasingly come from the European level. This is caused by the growing importance of higher education in terms of its political, social and economic roles. As such, higher education is more and more regarded as a solution to problems in various policy areas (Elken, Gornitzka, Maassen, & Vukasović, 2011), such as economy, environment, welfare or even security. At the same time, higher education has become less special

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meaning that a growing number of actors, including other ministries than Education, involved at various levels in higher education governance expect that higher education is governed like other public and private organisations. In that vein, higher education institutions' claims of uniqueness justifying a special governance approach, are regarded less and less as legitimate (Olsen, 2007).

That there is a need for a new pact or social contract between higher education and society can be seen also in the fact that key socio-economic and political actors argue for far-reaching reforms and modernisation (European Commission, 2006; Maassen & Olsen, 2007) despite the fact that higher education systems in many countries in Europe have been under almost continuous reform in the last twenty years. Such perceived "performance failures", have led many countries to focus their reform efforts at strengthening the competitive basis of especially the universities, as expressed, amongst other, in performance based funding components, the use of performance contracts or agreements, the interest in university rankings, and the structural rearrangements of higher education systems through institutional mergers. In addition, knowledge economy related policy issues, such as the growing importance of human capital, the internationalisation of labour markets, and the policy links between research, education and innovation have made higher education a sector of major reform processes, on both the national and the European level.

Thus, one seems to be faced with a puzzle. Higher education is, on the one hand, seen as bottom-heavy and thus resistant to change, also capable of shielding its core functions from the pressures of the changing environment (Clark, 1998). On the other hand, it is also obviously capable of significant adaptation, otherwise it would not have survived in a largely similar form the political, social, economic and cultural changes that took place since its inception. From that perspective there is a need to clarify the conditions under which higher education change is a fairly autonomous internal process, and the conditions under which internal processes are overwhelmed by wider political processes and socio-economic mobilization. There is a need to distinguish between incremental change and reforms in higher education within fairly stable organizational and normative frames, and change and reforms where the legitimacy of higher education's mission, organization, public funding, functioning, and ways of operating are doubted and challenged (Olsen 2007). Furthermore, there is a need to address the process of change on all relevant governance levels alike, in order to better capture the dynamics of change, but perhaps even more importantly to be able to distinguish superficial change or allomorphisms (Vaira, 2004) from profound transformation of the basic characteristics of higher education.

With that in mind, the 2010 conference of CHER (the Consortium of Higher Education Researchers) invited participants to go beyond reform agendas as such and focus on the effects of reforms at all relevant levels in higher education systems. The aim was to 'take stock' of the growing knowledge basis with respect to higher education with a special focus on the influence of reforms on the internal life of higher education institutions. This volume does not come close to reflect the richness and quality of over 130 papers presented, but rather offers a glance of

interesting research problems, approaches and results. It is organised in four themes – education, research, governance, and academic profession – with a variety of levels of analysis, theoretical perspectives, methodological approaches and geographical focus. Each theme is introduced separately, through a short review of the main developments in the area, presentation of the related chapters and discussion of possible topics for further research.

EDUCATION

The responsibilities for teaching, learning and assessment in higher education institutions are in one sense rather stable. Today, as in previous times, higher education institutions are expected to provide good and relevant educational programs which foster skills and competencies needed for societal welfare and economic growth, as well as to secure the continuation of core academic disciplines and bodies of knowledge inherited from previous generations. At the same time, the organization and management of educational processes is subjected to substantive changes both where external and internal mechanisms are concerned. With changes in policies as well as in the social contract (Neave, 2006) new stakeholder relationships come to the fore, which alter the educational mission as well as how its realization is organized and performed.

First, policy processes and efforts to harmonize educational systems across national boundaries influence the structure of curriculum as well as the relationship between teaching, learning and assessment (Karseth, 2008; Keeling, 2006). In European countries, convergence in degree structures following from the Bologna process, as well as new qualification frameworks and assessment regimes represent core change drivers in this regard. Second, changes are also related to new and more dynamic relations between higher education and working life (Brennan, 2008; Tynjälä, Välimaa, & Sarja, 2003). Students' learning trajectories are getting more complex, as higher education is no longer restricted to the initial phase of preparing practitioners sufficiently for the world of work. Practitioners increasingly enrol in higher education in different phases of their life to update or advance their competencies. New partnership models emerge through which higher education institutions and employers or professional organizations collaborate in programme development. The professional orientation of many degree programmes makes work placements increasingly important sites for learning. At the same time, processes of academic drift in many professional education programmes create tensions and give rise to contesting discourses in curriculum development (Ensor, 2004; Kyvik, 2007). Third, and related to the former, the dynamics of knowledge development in different fields of expertise generate changes in the epistemic cultures and processes that constitute academic communities, their logics and their boundaries. One aspect in this regard is the emergence of new interdisciplinary fields of research which manifest themselves also in new educational programs (Neumann, 2009; Spelt, Biemans, Tobi, Luning, & Mulder, 2009). Another aspect is that disciplinary cultures change 'from within'

in their ways of organizing knowledge production, as well as in their social organization and logics of participation (Knorr Cetina, 2007).

These trends and their related change drivers call for research along a number of themes. Among these are the influence of the current changes on students' engagement and commitment to their areas of study, as well as the mechanisms through which students today become enrolled in expert cultures. While graduate and professional education historically have been regarded as processes of enculturation into academic disciplines or expert cultures, it is not given how these processes take place today. Knowledge and its expert communities are dispersed on a variety of sites; students may participate in multiple practices within and beyond formal educational practices; and the increased use of new technologies provides access to extended knowledge worlds. Curriculum structures and approaches to teaching are in this respect not only means for transmitting knowledge to the next generation, but also structures that mediate students' mobility and participation in wider areas of the knowledge domain (Nespor, 1994).

This extension of learning spaces and environments reflects new relations between knowledge production and distribution in academic disciplines and expert cultures. To understand conditions for education and learning today, we need to revisit the way disciplinary cultures are understood and examine their mechanisms for continuity as well as change. The general emphasis on inquiry-oriented activities and creative-constructive forms of engagement in educational programmes construct students as inquiry-oriented co-producers of knowledge (Simons & Elen, 2007) and invite more research on what research-based education may look like today.

The above issues also point to how notions of expertise may be in transition in ways that also influence higher education. Students are expected to develop skills and competencies not only for taking part in today's society and working life but also to engage actively in shaping the future of knowledge and work. This involves complex and often contradictory demands, including the handling of complex knowledge and practices and the ability to adjust to changes, to just mention a few (Nerland & Jensen, 2007). In this respect, the very notions of skilful practitioners need to be revisited.

This book includes three chapters which in various ways address the educational mission and the themes outlined above. The chapter by Marina Elias and her colleagues investigates how student engagement is influenced by new teaching methodologies that follow from the implementation of the Bologna Process. They take as a point of departure that the Bologna Process has brought forward an increased emphasis on continuous assessment, problem-based learning and more student-centred approaches to teaching. There are, however, few studies that examine students' learning in the context of changes introduced through the Bologna Process. Drawing on the work of Pascarella & Terinzini, Tinto and their associates, the authors have investigated this issue by interviewing students enrolled in 10 degree courses at four public universities in the Barcelona region. Their findings show that students now spend more time on their studies which lead to a stronger identification with the university. In addition, the social interaction

with teachers and peers seem to be increased, and may lead to a stronger social identification. Hence, this study shows that reforms implemented in the framework of the Bologna Process not only have effects on the organizational aspects of higher education programmes, but also influence the 'inner life' of students' and teachers' participation. There are, however, also differences in how students negotiate their identities and relationships. More research is needed to improve our knowledge about the identification processes students are involved in.

The chapter by Mark Kaulisch and Kalle Hauss investigates cultures of doctoral education in Germany. Previous research on doctoral education has often used the perspective of disciplinary cultures (Becher & Trowler, 2001) and found that doctoral education to a large extent is marked by disciplinary characteristics (Neumann, 2009; Parry, 2007). However, an emerging question is how disciplines are placed in wider groups based on their common characteristics. Kaulisch and Hauss take as a point of departure that the dominant ways in which disciplines are classified in disciplinary groupings may not have accounted sufficiently for the role of doctoral education as a linking pin between teaching, research and the labour market. They introduce the concept of role and identity cultures to examine how disciplines can be grouped in alternative ways that are meaningful for describing differences in doctoral education. However, their findings showed that role and identity cultures do not seem to be distinctive for differences in doctoral education. Although doctoral students differ in their norms, values and attitudes towards becoming a researcher, these aspects seem to be more influenced by the epistemic characteristics of the knowledge domain and by the organizational arrangements of teaching, learning and research.

In chapter four, Torill Strand and Karen Jensen take as a point of departure that the ways in which professional expertise is conceptualized and understood are tightly linked to shifting societal conditions, such as the character of social institutions and symbolic economies. However, a challenge for researchers is to develop analytical approaches which can give insight into these dynamics. By reviewing literature on professions and professional expertise, the authors identify three analytical positions which have influenced our understanding of the professions, their knowledge and competencies: (1) a classical sociological position which highlights the ethos or credibility of professions and their expertise; (2) a discursive position which highlights the pathos or public appeal; and (3) a semiotic position which highlights the logos or epistemic dimension of professional expertise. Using examples from a Norwegian study which followed graduates from four professional programmes over a span of eight years, the authors employ the three analytical outlooks to discuss changes in the social mission, recognition and knowledge dynamics of the respective professions. They show how multiple readings are needed to understand the complexity of change dynamics at play. At the same time, the third position seems especially relevant to reveal how professional expertise now is altered in the context of global knowledge economies.

Together the chapters show the need for looking across the research-teaching-learning divide to reconsider how academic and professional communities, their

expert practices and enrolment mechanisms are constituted in today's higher education. They reflect a renewed interest in the role of knowledge in the organization of educational programmes, activities and practices. In a wider perspective, they also point towards how higher education not only is embedded in, but also a continuous producer of, cultures of knowledge and expertise. This is not only the case where research activities are concerned, but also true for the educational mission.

RESEARCH

The emerging focus on the notion of a knowledge-based society in policy arenas around the world and the resulting objective in many countries of strengthening their global economic competitiveness has led to an increasing policy interest in the scientific quality and economic relevance of national research efforts, both within and beyond Europe. A central element in this concerns the expectations about higher education's contributions to economic development and innovation. The main assumption underlying this expectation, in a simplified form, is that more complex and competitive economic and technological global environments require rapid adaptation to changing opportunities and constraints. Higher education institutions are expected to play a central role in this adaptation, since as core knowledge institutions in any society they are assumed to link especially their research activities effectively to innovation. This expectation has been the underlying rationale for reforms aimed at stimulating higher education institutions to develop more focused and effective institutional strategies and a strong, unitary and professional leadership and management capacity that matches those of modern private enterprises. At the same time higher education policies have increasingly become coordinated with other policy areas, such as innovation and technology, as part of national (and supranational) knowledge and innovation policies (Braun, 2008; Gornitzka, 2010). In addition, other public and private actors have entered the higher education policy arena, demanding to have influence in policy matters. The underlying vision is the need to create higher education institutions that are dynamic and responsive to socio-economic agendas and that give priority to innovation, entrepreneurship and competitiveness.

Such macro-level dynamics are mirrored in the chapters focusing on research endeavours. Two specific aspects are highlighted: (a) supranational efforts aimed at enhancing the free movement of knowledge (Chou) and (b) the impact of policy instruments at the micro level (Primeri and Reale). In addition, a chapter that is part of the academic profession theme (Padilla-González et al.,) also touches upon research performance differences between male and female academics. Apart from presenting new methodological and conceptual insights, the above chapters discuss change dynamics at the macro, meso, and micro levels as grounded on recent empirical evidence.

By resorting to a comparative historical approach and the concept of 'layering', Chou demonstrates how changes in a given sector, the European Research Area (ERA), are intrinsically related to policy dynamics and incremental change outside

that specific field. As a starting point, the author poses the question of how are we to account for changes in a policy field (European research cooperation) that has long been considered to be change-resistant. The selection of ERA as a case is substantiated on the observation that researcher mobility across Europe resembles the rationale for ERA's formation, i.e. an internal market for researchers in which knowledge is to circulate freely. In her analysis, the author pays particular attention to the sets of instruments (last decade) designed to enhance scientific mobility. A conceptual distinction between three key dimensions is made; 'internal' (e.g. Charter and Code), 'external' (visa package), and 'distributive' (e.g. supplementary pensions). The analysis identifies both the necessary and sufficient conditions leading to incremental changes in policy which, in the long-haul, are likely to result into significant transformations or innovations. The paper's central conclusion is that, at the EU-level, 'area construction' (e.g. ERA) is characterised as a multidimensional endeavour encompassing various policy processes and layers that are not necessarily linked with the specific field under analysis. Amongst other aspects, Chou demonstrates that contingency and intention are major features underpinning such processes, with change emanating from exogenous as well as endogenous sources. The findings point to the unfinished nature of the European polity.

Primeri and Reale investigate the impact of specific policy instruments introduced in the EU's framework programmes (EUFPs) in the organisation of research activities at the departmental and research-group levels. They start their discussion with a review of the literature, highlighting that there are three main theoretical approaches which can be used to investigate micro-level changes brought by involvement with the above programmes. These are: (a) the importance attributed to privileged access to resource pools (people and money), also known as resource dependency approach (Pfeffer & Salancik, 2003); (b) the role of formal and informal rules (macro and micro level) constraining and/or enabling the behaviour of individuals at the unit level, or the institutional perspective (Powell & DiMaggio, 1991); and (c) studies on processes of adaptation centred on institutional innovation and the pro-active behaviour of certain change agents and their respective interactions (Etzkowitz & Leydesdorff, 2000). The study draws upon the concept of 'institutionalisation' in order to explain how changes driven by the EUFPs are translated into rules and practices at the micro level of analysis, by research units and individual researchers. The evidence shown supports the notion that the above programmes are not the main drivers of Europeanization processes as such, and that they lead to differentiated academic responses by the various scientific fields. Furthermore, the study suggests that, first and foremost, the EUFPs contribute to strengthening research units that are already competitive at the EU level. Two consequences emerge from this. First, that the supranational instruments help reinforce existing academic behaviours and practices at the level of the research group and/or departmental unit. Second, that they constrain rather than enhance competition by excluding less experienced participants. As for the effects on research activities, the study show that by acting as 'soft law' EUFPs

function as tools fostering the Europeanization of academic research, through changes in: (a) formal structure; (b) cultural norms, and (c) academic behaviour.

The above chapters touch upon an old dilemma facing higher education systems worldwide, namely; to find an adequate balance between equity and excellence (Arrow, 1993; Guri, 1986). Similarly, Primeri and Reale demonstrate how access to EU funding is a direct function of scientific expertise and well established international networks not easily available across the board, thus producing/replicating existing inequalities amongst those actively involved with international competition (EUFPs) and those that are excluded from it.

When it comes to the future research agenda, four key aspects are highlighted by the above contributions. Firstly, the importance of resorting to novel conceptual perspectives (Chou), and the micro-level of analysis (Primeri and Reale) whilst investigating processes of adaptation and/or change. Secondly, the direct/indirect effects resulting from on-going processes of Europeanization at the macro, meso and micro levels, an area that has received increasing attention in recent years (Amaral, 2009; Maassen & Olsen, 2007; Tomusk, 2006). Thirdly, the importance attributed in the existing literature to the dynamic interplay between structure, e.g. professional conditions (Enders, 2001), and agency, e.g. institutional entrepreneurs and prolific academics (Powell & Colyvas, 2008). Lastly, the above inquiries shed light on the importance of approaching processes of change in higher education, at all relevant levels, as an incremental and piecemeal rather than a disruptive process per se (Clark, 1983; Gornitzka, Kyvik, & Stensaker, 2005; Kyvik, 2009).

GOVERNANCE

Reforms in governance arrangements can in general be regarded as one of the main change drivers in higher education and the last twenty years do not form an exception to this 'rule'. Reforms in this area have different sources and drivers. Some reform ideas stem from national initiatives and characteristics, while others have originated in the international sphere. Hence, in the last two decades we have increasingly been familiarised with policy terms and concepts such as globalisation, Europeanization, new public management, modernization of higher education, Bologna, the Lisbon 2000 Agenda, the knowledge society and a wide variety of general "university models" (i.e. the entrepreneurial university, the knowledge enterprise, the service university, etc.).

Within the literature, much attention has been devoted to de-composing these terms and concepts, often by taking into account and analysing the underlying policy-documents and processes driving the reform attempts, and often accompanied by more or less rigorous studies on what the nature and possible implications of the reforms might be. Hence, there are a number of studies identifying attempts to reform European higher education at the meso-level, including reforms aimed at the establishment of new study structures in the sector, changes in governance arrangements and funding systems, and adaptations in the area of quality assurance (Maassen, 2009; Maassen & Stensaker, 2011; Musselin,

2005; Paradeise, Reale, Bleiklie, & Ferlie, 2009; Westerheijden, Stensaker, & Rosa, 2007).

Although one cannot claim that European higher education is comprehensively transformed as a consequence of all these reform initiatives, there is a growing understanding that the current era of dramatic reform perhaps still is coming to an end, and that consolidation and more incremental but continuous "modernization" is being prioritized. For example, the extension of the Bologna process in 2010 indicated that little effort will be devoted to identify new objectives and directions in the forthcoming decade. Rather the objectives attached to the "forthcoming" Bologna process are almost identical to those that were identified a decade ago (Maassen, 2011). Hence, it seems that Europe is concentrated on realizing the potential of earlier reforms, perhaps even in a more pragmatic and experimental way than in the past.

In line with this picture of consolidation and pragmatism, recent studies on the impact of reform do show that higher education indeed is changing (de Boer, Jongbloed, Enders, & File, 2010). The most noticeable changes that have taken place can be found at macro and meso-level. At macro-level, we can identify a more influential role of supra-national actors in the policy-making processes in general. Interest organizations of students, higher education institutions, business and professions have during the last decade been reorganized and mobilized. Of special interest here are, of course, the political structures attached to the EU, and the political processes organized by the European Union – a truly unique experiment in higher education throughout the world.

However, changes at the meso-level should not be underestimated. Recent reform studies have shown that higher education has witnessed substantial changes in how universities and colleges are organized, funded and evaluated (de Boer, et al., 2010; Huisman, 2009). Governance arrangements have been reformed opening up for more external representation and influence in the decision-making processes. Quality assurance has been systematically introduced, and in line with the changes in governance, is being opened up for more external influence. The latter may stem from newly established quality assurance agencies or qualification frameworks pointing to the need for the sector to produce outcomes that are seen as relevant for the society. However, external influence is also working from "within" the institutions as students, employers, professions and professional bodies increasingly are being involved in defining, assessing and evaluating how the sector is performing, and what sort of standards that should serve as the basis for evaluation. With respect to funding, the same tendency can again be noticed in which public funding is challenged and sought complemented by a variety of other resource providers – opening up for new possibilities, but also representing new limitations and dependencies for the sector.

Within this broader picture of change as a result of reform, it is still important to notice that not all domains of higher education have been equally exposed to reform attempts, and that much is yet to be done when it comes to understanding how specific governance arrangements and instruments actually function. Examples of areas where fewer reforms are visible include personnel management,

the regulations concerning the hiring and firing of academic staff, and how academic salaries and working conditions are determined (de Boer, et al., 2010), even though also in these areas far-reaching changes have been realised over the last two decades (Gornitzka & Maassen, 2011). In the areas of quality assurance and funding it seems that the number of reform initiatives has been larger and also the reforms have been more comprehensive (de Boer, et al., 2010; Stensaker, Harvey, & Amaral, 2011), although we are still short of having a more comprehensive account of the impact of these initiatives – both with respect to intended as well as un-intended effects. The high level of reform activity in these areas is still very interesting as it can be seen as a sign that governments and policy-makers are considering both the harder and the softer instruments that can be found within the governance tool-box (Ferlie, Musselin, & Andresani, 2009), and that perhaps a more pragmatic approach to governance is developing.

While quality assurance – at least historically – can be seen as a more academically oriented governance instrument, it has during the last twenty years been transformed including new dimensions, aims and purposes, and is an instrument that has been spread to every corner of the globe (Stensaker, et al., 2011). What quality assurance can be used for, by whom, and for what, are nevertheless questions still open for discussion since this is a governance instrument still under construction. In the chapter by Tina Hedmo quality assurance in Europe is seen as part of the development of more transnational governance arrangements – beyond the traditional control and command type of instruments. One reason why such instruments are beyond control and command is that transnational governance arrangements are developed through a process in which numerous actors are involved and where many tensions and potential conflicts must find their solution through negotiation and dialogue. In her article Hedmo provides a very interesting historical overview of how actors and stakeholders in Europe have used quality assurance as a way to strengthen their own influence in the sector, and how quality assurance as a specific governance instrument is becoming more "institutionalised" within higher education.

Another area in which many reform initiatives have been made is in the funding of higher education. In general, reforms in this area have involved the introduction of lump-sum budgeting as a way to strengthen institutional autonomy, but also to more strongly emphasise the link between funding and performance where the latter element to a greater extent is used to determine the level of resources that is made available to each of the higher education institutions. Although a stronger performance orientation can be found both within the area of education and research, it is in the research area we can find the most prominent examples of funding systems based on performance. The UK was an early innovator in this area with the Research Assessment Exercise (RAE), a procedure that later has been adopted by a number of other countries throughout the world. In the chapter by Gianfranco Rebora and Matteo Turri we learn more about how this instrument is functioning in Italy. A key finding in their chapter – very contrary to how the effects of the RAE at the institutional level in the UK have played out – is that the research assessment system in Italy actually has the potential to (further)

weakening the strategic positioning of the universities within the higher education landscape. In this way, the case study illustrates how travelling governance ideas can be implemented in very different ways at the national and institutional level, as well as how national characteristics and historical path-dependencies of higher education systems are still very powerful factors influencing the shaping of reforms and reform agendas.

Governance reforms are sometimes introduced in order to boost the contribution of higher education to economic and social development. Nico Cloete, in his chapter "Higher Education and Economic Development in Africa: The Academic Core" focuses on the academic core of eight African universities and discusses the importance of that academic core for the potential contribution of universities to regional development. The data used in the analysis come from research project on "Universities and economic development in Africa" undertaken by a newly established network (HERANA) coordinated by the Centre for Higher Education Transformation (CHET) from South Africa and gathering academic staff from Africa, Europe and the USA. The analysis focuses on knowledge production input (e.g. enrolments into science, engineering and technology (SET); academic staff to student ratio; research funding per academic etc.) and output variables (e.g. graduation rates from SET; research publications etc.) and leads Cloete to conclude that, with one exception (University of Cape Town), "the knowledge production output variables of the academic cores do not reflect the lofty ambitions expressed in their mission statements" (Cloete, this volume). It therefore points the attention to the limited effects of governance reforms, in particular in cases where there is a lack of coherence between policies and policy instruments (in particular various incentive structures).

The significance of the nation state also comes to the fore in the chapter by Akiiki Babyesiza dealing with the re-structuring of the higher education in Sudan since the military revolution and the dramatic policy changes experienced after 1989. This chapter illustrates in a very detailed manner how "modern" reform ideas linked to developing the economy, increase the recruitment to higher education, introducing more private providers and more corporate institutional management practices, are translated to fit specific national agendas of arabicisation and islamisation. Hence, despite the overwhelming attention given to internationalisation and globalisation, we should not forget that most of the hard instruments regulating the sector are found within the nation state.

The latter insight is not least underlined in the chapter by Ray Franke and William Purdy in which they analyse a number of measures concerning student financing of higher education in the US. In their comprehensive review of various initiatives in this area at federal, state and institutional level, it is demonstrated how un-intended effects of well-intended schemes is created when they are ill-designed, but also not coordinated with other existing schemes. In their chapter the authors point out some of the potential risks identified when introducing tuition fees, grant, loans or tax credit/deduction as ways to finance student participation in higher education. As Europe seems to move in the direction where such measures are seen as more relevant, it is perhaps of special interest to note that the authors argue

strongly for developing measures that can counteract the tendencies for localism and protectionism which we currently witness in Europe.

For the studies of governance arrangements in higher education these five chapters – although in very in different ways and with very different focus areas – provide promising hints on the future of the research in this area. First, and demonstrated in the chapters by Hedmo and Babyesiza we are moving towards analysis of governance arrangements that are much more inclusive and aware of the influence of actors and processes outside strict instruments and formal structures. Second, as demonstrated by the chapters of Cloete, Rebora & Turri and by Franke & Purdy, we are currently seeing more studies in the area of governance that are trying to provide more substantial evidence of the impact of such arrangements.

ACADEMIC PROFESSION

Despite being divided by membership to different disciplines and institutions, and despite operating within different national traditions, the academic "profession" is united as a social group by their shared task of developing new knowledge and combining their role as researchers with teaching, writing and publishing (Teichler, 1996; Välimaa, 1995). As a professional group, responsible for conducting these core activities, it is of no doubt that academics have been significantly affected by recent changes and reforms in higher education. Expansion of higher education systems has been followed by changing modes of governance, a growing emphasis on social importance and the quest for relevance and internationalization and global competition. All of these changes are significant in understanding the changing working conditions of academics and they have not only affected academic autonomy, but have also gradually changed the nature of academic work and career structures (Henkel, 2000; Schuster & Finkelstein, 2006).

Against this backdrop the international project the Changing Academic Profession (CAP) was launched in 2007, to survey the features of the academic profession in 20 countries, spanning Asia, America and European continent, as well as South Africa (Locke & Teichler, 2007). In his contribution "Aspects of Academic profession's Internationalisation beyond Physical Mobility" Michele Rostan investigates the changing nature of academic work due to the increasing emphasis on internationalization within higher education. Comparing results from all the 19 countries surveyed in the CAP study, he finds that the academic profession is highly internationalized in regards to both teaching and research. The international dimension is integrated in the content of teaching and most academics characterize their primary research as international in orientation. However, Rostan's study also reveals that other important aspects of internationalization, namely international collaboration and international funding, are less widespread, a pattern that can partly be explained by differences between fields of science; while academics from the disciplines in the humanities and social sciences appear to be most internationalized "at home", academics from the STEM disciplines are more involved in international networks and knowledge transfer. Another important axis

of differentiation is the country where academics work: at the extremes are Japan and USA which appear to be the least internationalized and Australia, Norway and the UK which appear to be the most internationalized.

In many countries, over the course of the expansion of the HE systems, women have come to compromise the majority of the student body. Parallel to this development the question of how to raise women's participation in science has gained increased importance in public policy debates. Arguments for increased participation have developed over time, from a focus on human rights and social justice to utilitarian arguments emphasizing the importance of a gender balance for achieving quality and efficiency in research (EC, 2008). Despite such structural developments and pro-active policies, achieving gender equality seems to be challenging, as women still tend to be scarce among top level positions, due to the continuous reproduction of gender segregation among disciplines and positional hierarchies. Two chapters address how this gender gap might be related to family and work related variables.

The first one focuses on the differences in research productivity between men and women faculty in North America, Mexico, Canada and the US (Padilla-González et al.) and finds that domestic as well as international research collaboration is a strong predictor of research productivity in all three samples. Furthermore, having a Ph.D. and belonging to the STEM disciplines are important for explaining why women faculty publish less than their male counterparts. The study builds on the CAP dataset in terms of inclusion of social background variables by paying attention to the different personal characteristics of male and female faculty – amongst other that male faculty are more likely to be married, and that women faculty are more likely to be single.

The other (Carvalho et al.) focuses on gender segregation found in universities in north and southern Europe, namely Norway and Portugal. Despite Norway receiving the top ranking on the global gender gap index, and having a comprehensive set of pro-active policies for gender equality in science, the gender ratio among staff is, as demonstrated, even more "skewed" than in Portugal. The facts that women are more likely to interrupt their career to take care of family, and that men are more extensively involved in decision making in research, have more access to resources, international networks and academic authority, all serve as part of a general explanation for the limited realization of gender equality policies. However, the academic profession in Portugal seems to be more stratified internally, as women faculty tend to be significantly less involved in research and other activities important for promoting a scientific career, than they are in Norway. In line with Padilla-Gonzáles et al., Carvalho et al. also emphasizes social background variables by paying attention to the different personal characteristics of male and female faculty – amongst others that in many countries male faculty are more likely to be married, and that women faculty are more likely to be single or that women faculty are holders of more cultural capital. The gender differences found in social background variables indicate national differences and cross-national similarities regarding the gendered character of the academic profession's social identity.

The feminization of the academic profession and academia becoming an arena populated by dual-career couples are both shifts that illustrate a changing academic profession, in terms of a new sociological generation with new demographic and social characteristics. The academic profession as a whole has also been subject to increasing diversification and changing career trajectories. This is the topic that Elke Park's contribution focuses on, in "The Transformation of the Academic Profession", offering an international perspective on tenure by comparing the working of this system in the US with Germany, Italy, France and the UK. By revealing the various national and institutional approaches taken to tenure, Park breaks with the often misleading standard interpretation of tenure; in practice it spans harder and softer forms, ranging between high and low job security. The higher education system in the UK might be said to represents the soft extreme of tenure, given that despite providing permanent employment, the system also allows permanent academic staff to be dismissed due to financial considerations. A striking finding of Park's contribution is that, in all countries analysed, the increase in the student population over the last two decades has corresponded with in an increasing number of non-tenure and part-time faculty as well as an increase in full-time non-tenure track positions.

All four contributions show the value of comparative studies. They reveal how different national conditions and HE policies provide distinct results regarding aspects such as academic demographics (e.g. gender composition of the faculty), academic practice (such as publishing and international cooperation) and working conditions (e.g. the use of different job categories and the extent of temporary employment in academia). There is a need to further develop comparative studies of the academic profession with emphasis on different types of national systems, also in order to achieve robust significant analytical results. It is however difficult to implement different analysis of the academic profession at this level. Given the importance of memberships in various disciplines and the diversity of job categories across countries, it is therefore important that comparative based analysis is supplemented with more qualitative and /or national and institutional case studies.

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PART 1

EDUCATION

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2. SIGNS OF REENGAGEMENT?

Changes in Teaching Methodology in the Framework of the Bologna Process[2]

INTRODUCTION: CONTEXT

Spanish universities have carried out a number of changes derived from the largest social changes that have occurred in recent years. In this article, we shall only highlight two of these that may have had some influence on the new processes of integration and the generation of identity at university.

Firstly, there was the demographic growth of the 1970s, which tripled the number of students entering university; nowadays almost fifty per cent of young people go into higher education. This generalised access to university has led to an increase in heterogeneity, a diversity of origins, profiles, cultural capital, competences and motivations among students. The new composition implies a diversification of student expectations and needs and, therefore, of their demands of the institution (Consell Social UAB, 1989; Masjuan, 2004; Troiano, 2005).

Secondly, in consideration of the changes to the profiles of students as a result of university expansion the entry of Spain and other countries in the EHEA has led to changes in teaching methods, which have centred learning on the student. This has led to an increase in teaching methodologies related with continuous assessment, problem-based learning, the active participation of students, working in groups etc. As shown below, the analysis of the implementation of the Bologna Process to different degree courses has not been uniform either in time or in the specific types of pedagogic practices. However, in general, it has meant that the old profile of a student who was able to collect the program for a subject at the start of the year and not reappear in class until examination day is far less viable these days.

THEORETICAL BACKGROUND

The University Experience

Following the separation into academic and social aspects made by other authors (Tinto, 1997; Weidman et al., 2001), the article focuses on students' university experiences, taking into account both aspects but particularly highlights the social ones. The consequences of the teaching innovations related with the implementation of the Bologna Process are analysed, which are an incentive for

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student autonomy. These changes promoted on the basis of introducing new teaching methodologies have an effect on academic aspects, on student learning and on social aspects, i.e. the way in which students relate to their colleagues. As the literature on the subject states, both areas are strongly related, such that the effects on academic aspects also have indirect effects on social aspects (Pascarella & Terenzini, 2005; Eggens et al., 2007).

In terms of academic aspects, there is a need to study what the effects are of the Bologna Process on student learning. On the basis of previous studies of the implementation of pedagogical innovations at universities in the Spanish context (Elias, in press; Masjuan & Troiano, 2009a) it can be concluded that students need certain aspects (such as the organisation of timetables, appropriate evaluation strategies, information and guidance from teaching staff) to reach a minimum threshold of quality in order to be able to study and learn[3]. In other words, despite the good intentions associated to these innovations, the students they are aimed at need to sense a minimum control of these opportunities in order to perceive the positive effects of the changes (Creyer & Elton, 1986; Elton, 1996; Prescott & Simpson, 2004).

A fundamental factor that has a direct effect on academic aspects is the motivation to choose a career, although this is not considered in this article. The fact that a student has an expressive or instrumental motivation to study has a direct effect on the type and intensity of a student's university experience (Bernstein, 1971; Masjuan & Troiano, 2009b).

An analysis of the present-day context involves focussing attention on the changes in teaching methodology brought about by the Bologna Process, and their consequences. So, for all of the pedagogical innovations that have been introduced to improve learning, there is also a need to analyse the conditions for their implantation and the perception that students have of the new context. So, the institution may take actions to encourage academic identification (normally expressive), such as, for example, group work, consolidating a quality university, guidance services and assistance with studies, etc., or social identification, such as improving sports services, organising parties, promoting professional social networks, etc.[4]

Within this framework, the analysis also includes the academic aspects of the type of relations that students especially establish with their work group, which has been widely promoted by the Bologna Process, and the consequences of these types of relations on social aspects, namely in the creation of new groups of friends (or peer groups) at university.

Along similar lines, in terms of the social aspects, the contributions made by the relations developed at university are considered important elements for understanding the learning processes of university students (Brennan & Jary, 2005; Vermetten et al., 2002; Villar & Albertín, 2010; Ethington, 2000; Smith & Bath, 2006; Hadji et al., 2005; Masjuan & Troiano, 2009b; Elias, 2009; and others).

Classical research into the subject by Pascarella & Terenzini (1991, 2005) and Astin (1984) concludes that engagement is the most important factor in students' learning and their personal development at university, because students that are

more integrated in the university put more effort into their work and their university lives in general. Meanwhile, Tinto (1997), another of the prominent authors on this subject, has stressed the importance of student engagement for persistence with studies.

Bearing in mind the relationship between the academic and social aspects, this area of research has found that students' relationships with the institution involve two-way benefits. Students state that their marks improve, as does their personal development (Volkwein et al., 1986), while the institution obtains other benefits in terms of efficiency and efficacy, such as for example a reduction in dropout rates (Coulon, 2005; Felouzis, 2000). In this sense, the more integrated students are with the institution, with a higher number of contacts and more social support (members of a network of relations), the greater probability they have of obtaining good academic results (Eggens et al., 2007).

Informal relationships that are not strictly academic have also been the source of research and articles. These are considered to be an important element of student integration in the institution, and can help improve students' academic performance and persistence. Research was conducted into this subject in the United States (Weidman et al., 2001; Tinto 1997), where college characteristics contribute to interactions between their members. Similar conclusions have been reached in the United Kingdom (Houston & Lebeau, 2006). In fact, these issues have emerged in what are known as 'college experiences', studies mainly in the United States and later in the UK, which analyse how attending a certain college has an impact on a student's learning.

The research presented here is close in nature to that done in the framework of informal networks and the concept of social capital, whereby relationships within a group involve such resources as information, friendship, favours etc., to which certain individuals or groups have access through being members and holding a position in a certain social network (Coleman, 1990; Croll, 2004).

Recent empirical research notes this utility when analysing the basic positions adopted by students to deal with social relations and social capital. Indeed, Villar and Albertín (2010) identify three main positions; the first is the socio-affective, in which the value of friendship is essential; the second is a pragmatic position, where individualism, strategy and competitiveness are important; and the third is a contextually contingent position in which people have different identities and use different spheres, depending on the context, which enables different ways of establishing relations. The maintenance of one or other position determines the type of relationship that is established with peers. For a more in-depth analysis of the issue of group work, see the article Masjuan et al. (2010).

The Problem of Student Identity

In this regard, it is indispensable to also make a separation between cultural aspects (beliefs, standards and values) and 'participation', in reference to social behaviour and conduct, which is useful for understanding the complex process of integrating students in the institution. Here we should introduce McInnis' comments with

respect to the effects of the mass university both on behaviour and on the beliefs, standards and values of university students.

The well-known article by McInnis (2002) showed how the university students of the time (who had a new profile due to educational expansion and universities of the masses) felt less integrated in the institution in terms of expressive belonging and showed an apparent lack of commitment. The author's research focuses on this aspect in first year students, and draws attention to the evident increase in signs of disengagement; from here he concludes that students spend less time on campus and more time working or doing other activities (McInnis, 2002; McInnis & James, 1995). Students currently have other priorities than the academic demands of university. He therefore notes a major impact of students that do paid work during their time at university, given that they have increasingly less need to dedicate time to university study, or to access learning resources. His analyses also conclude that students have an increasingly greater expectation that it is the university that should adapt to their own lives, and not the other way round. In this regard, students do a certain amount of self-selection when it comes to picking a specific degree or university, with students seeking those which fit best with the their own values and norms, and thus seeking to reduce the difficulties of the process of adapting to university.

Many other research studies in various different countries have detected the same disengagement process. This line of research has led to the development of three basic ideas. First, universities have different values and norms, and these different characteristics also vary depending on the relations between their members (Kuh & Love, 2000; Read et al., 2003; Weidman et al., 2001). Second, engagement can signify different phenomena, for example, depending on whether students are in their first or final year, which can involve different forms of academic success (Pascarella & Terenzini, 1991, 2005). Finally, in order to feel integrated, students must sense that certain objectives, visions and norms, and the methods used to achieve them, are congruent with academic culture (Braxton and Hirschy in Villar, 2006).

Our research also forms part of this line of research into the conditions of student engagement, but the conceptual framework of this subject is broad and sometimes confusing, as the different authors use the same terms to define different situations or use different concepts to explain very similar phenomena (integration, involvement, engagement, socialization, belonging, enrolment …). This article maintains the need to conceptually clarify this phenomenon, and so has decided to use the term identity in order to understand the student's perception of the global integration process. The term identity therefore approaches the concept of engagement but also includes the actions carried out by the individual (and how these affect cultural aspects).

The concept of identification used in this article is the set of characteristics that are common to a group of individuals and which enable them to be defined as a group. In the words of De Francisco & Aguiar (2003), identity can be reduced to the interests, values and norms with which individuals identify, and so the role of the group with which students identify and the expectations that others have of

them as individuals are fundamental. In this regard, the complexity of interests, preferences, norms and values with which individuals identify constitute their own social identities[5]. The need to separate the academic from the social aspects and the cultural angle (feeling or perception of students) from the behavioural angle (action) is considered.

In relation with the academic identification with university, the student is considered to be identified as such when he or she shares the values to a great or lesser extent and/or acts by respecting the acceptable parameters of the university institution's norms, which is how identifications of different degrees are generated, in the construction of which the individual plays a major role. In this case, the institution's values and norms are to value knowledge, to consider the profession to be applied knowledge, ethics, to attend lectures, behave properly in lectures, do the work required properly, treat lecturers respectfully, etc., and thus the institution rewards applied and participative students.

The academic identification can be expressive, i.e. sharing the values and norms that the institution rewards, or instrumental, i.e. being aware of the institution's values and norms and doing the acceptable minimum to appear to be assuming them, while being clear that the real objective is to pass subjects and obtain the certificate. The institution's values and norms can vary between universities or, as is particularly common in Catalonia, between courses: some reward expressive identification with the institution, i.e. with the content, while others reward more vocational aspects.

Therefore, if a student participates and is committed to the institution, he or she has a student identity (Brennan et al., 2009). There are evidently different degrees of integration, and therefore, degrees of identity[6].

Once an individual feels identified, they participate in the institution, either academically (by attending class, doing the work asked of them, working cooperatively in groups, passing exams, participating in the course council, etc., or socially (spending time with classmates, doing voluntary work, etc.). We should also remember that there is also a feedback effect, i.e. identification can also increase participation in the institution, and thus the individual's conduct (doing work, attending class) is made stronger and/or more and more clearly constructs identification as a university student.

So it is necessary to distinguish between intellectual and emotional acceptance of the institution's basic values: value of knowledge, value of study, etc., and the process of accepting norms (institutional regulations), because these are partly imposed by the institution and enable a certain amount of negotiation in the relation between the agents of the university, students and teaching staff. Therefore, in this context of differing values and negotiable norms it is possible to construct different student identities and find places both for students with eminently expressive objectives and those with basically instrumental objectives. In this regard, we depart from the idea of the institution completely determining individuals' identities and forming their roles (Boudon, 1981).

On the other hand, social identification includes both the effect of sharing standards and values with the university peer group (for this is the individual's reference group), and the way the individual participates in the institution's social activities, for example going to the university cinema or sports clubs, attending university parties…).

With respect to the first aspect, there is a need to distinguish between those students that have an academically identified group of friends and those who do not. When a student feels academically identified and also has a group of friends that shares the same standards and values, then their identification process is intensified. But there are students whose reference group is not academically identified with the university institution (they skip lectures, they do not take their studies seriously, etc.), which can have negative effects on the academic environment.

The student also has parallel peer communities outside of the university and it is necessary to analyse whether these are academically identified or not, as these also have repercussions on the individual and ultimately on their academic performance. The comments by Merton (1964) on relative privation that were revised by Gambetta (1998) are relevant here. The individual compares their own situation with that of their peer group. The important point is that individuals compare themselves with the peer group of reference and not the one to which they belong, in other words, they compare themselves with the group they want to belong to (Lizón, 2007). If there is a wide distance between one's own situation and that of the reference group, then the individual will be highly frustrated, while if one's own situation and that of the reference group is similar, then individuals do not feel frustrated and can cope with the situation better (Christie et al., 2004). Therefore, the influence of the peer group is important both for one's own competence and for the relative evaluation of the process itself, given that one sees oneself in relation to others.

METHODOLOGY

This article presents the results of the first phase of a research study that is currently in progress[7] into the factors that influence university students' learning. Of all of the factors dealt with by the research, selected here are the ones related to aspects of academic and social integration, identity, participation, reference peer groups and elements of the most directly related contexts to these.

The research on which the results of this article are based focused on an analysis of 10 degree courses at four public universities in the metropolitan region of Barcelona, through 8 interviews with students on each of the 10 courses (80 interviews in total). Considering that the institution plays an important role in providing an incentive for students to identify themselves with the university, we also analysed the context of each of the 10 courses studied through interviews with the people in charge of them and by obtaining secondary data. Table 1 shows the five areas of knowledge, using the criterion of the hard-soft division (Health, Engineering and Sciences as hard and Social sciences and Arts as soft). In each

area, we selected one course with a more defined professional profile and one with a less defined one, along the same lines of applied rather than non-applied criteria used by Becher (2001). The courses are distributed among the four universities in the metropolitan region of Barcelona: UAB, Universitat Autònoma de Barcelona; UB, University of Barcelona; UPF, Pompeu Fabra University; UPC, Polytechnic University of Catalonia.

Table 1.

Areas of knowledge		*Definition of the professional profile*	
		More defined	*Less defined*
Hard	Health	Nursing	Pharmacy
	Engineering	Architecture	Telecommunications Engineering
	Sciences	Biosciences	Chemistry
Soft	Social sciences	Social Education	Business Studies
	Arts	Translation and Interpretation	Humanities

We should explain that some of the courses had already been using more active pedagogical practices for many years, pedagogic renewal movements began in our context more than three decades ago and have been gradually entering the university system. These pedagogic changes have sought to consider the new profile of students now coming into the university system and their demands, although it is true that some students are declaring that they are not fully satisfied with the way that some of these innovations have been implemented. There have therefore been different scales in terms of the introduction of the Bologna Process to the ten degree courses analysed. For example, in Translation and Interpretation the implementation of Bologna has simply involved continuing along the same pedagogical lines that have been followed for some time (language learning by nature requires continuous learning and interaction with others). In contrast, there are the cases of Business Studies and Chemistry, courses that have not yet officially entered the Bologna Plan, and where the pedagogical innovations have only affected some subjects or groups of students. Also, all of the courses that this study analysed contain elements that could be considered to be in line with Bologna's pedagogical reform, some with a clear intention to change and others through imitation of what was happening on other courses.

Nevertheless, in the results developed below, citations can be found from all ten of the courses we analysed, and despite the clear differences between them, the analysis has shown us that there are enough common elements for a primary vision of the whole to be of considerable interest.

On the basis of the results obtained up to now (both those presented in this article in relation to integration process and other results related with other aspects of the research) and taking contributions from other authors and questionnaires in

other contexts into account, we are creating a questionnaire that will be given to the students in November 2010 in order to obtain statistically significant results. Notwithstanding, the results presented speak for themselves and mean a significant scientific step forward.

Below is a description of the initial research questions that were posed and which have contributed to demonstrating how institutional changes have brought about changes (not previously anticipated) in the relationships between the students and the institution, and between different members of the University. This in turn has led to modifications in their identification.

Questions:

- Have the changes introduced through the Bologna Process meant changes in student learning?
- Have the changes introduced through the Bologna Process meant changes in the quality and quantity of relations between the students and the different members of the university institution?
- Does the increase in relations at university produce changes in the reference peer group and therefore, in identification with the institution?

RESULTS

The qualitative results presented here are based on the 80 interviews conducted, while similar results have also been obtained in other research studies in recent years on the experiences of university students at the institution (Masjuan & Troiano, 2009b; Masjuan et al., 2009; Elias, 2009).

We shall now present the most representative citations.[8] The aim of the qualitative research is not to quantify the number of individuals that make a certain statement, but to make a general appraisal of the different opinions and contributions with respect to a given issue. The 80 interviews reveal the different comments made by the students and the results of the questionnaire can be used to differentiate the number of students in each position. The information presented has been obtained from interviews carried out with students, accordingly explanations that they have given for their perception of the phenomena. In any case, it should be pointed out that the data have been triangulated, interviews have been carried out with people holding positions at the university (deans and coordinators) and the secondary data have been analysed. All the results point in the same direction as the perception shown by the students.

We should also state that it is necessary and conceptually useful to make an analytical distinction between the academic and social dimensions and between cultural behaviour and aspects. Nevertheless, in student discourses this distinction is, logically, not always reflected as the different aspects are interrelated. Firstly, the results relating to the behaviour and actions of the students are presented (behavioural aspects), these being the most visible and conscious. Further on, there are also some quotes from students who claim to be aware of their internal process of identification (cultural aspects).

This reiterates that there are differences between subjects with respect to the implementation of the Bologna Process. Nevertheless, a global analysis of the ten courses has shown us that there are similar general tendencies with respect to student identification in all of them and it is therefore useful to begin the analysis by describing the results in conjunction.

Question 1: Have the Changes Introduced Through the Bologna Process Meant Changes in Student Learning?

By analysing the interviews, it has been found that the changes that the Bologna Process made to pedagogic methodology have had consequences for students' experiences as they go through university. In terms of the academic factors, it has implied an increase in workload and, consequently, in the time students dedicate to their studies. We should say that it has been detected a considerable increase in work as continuous evaluation is increased, and students sometimes declare a certain displeasure regarding the large amount of work they have to do. This increase in time spent studying has consequences for their identification with the institution. The longer the time spent at university and time spent studying, the greater their participation and therefore their identification with the university (remember that this is related to sharing the rules and values of the institution and this may be instrumental or expressive). In the same line, there is a need for a certain academic identification (instrumental or expressive) with the institution in order to achieve good academic results.

> When I first came to university, I expected...well, they'd told me a lot of stuff about university, most of all that at public ones you don't do anything, that you go there to spend the day, nobody controls you, it's not like school... until they set up the Bologna Plan it was a bit like that, I mean, I went to lectures or didn't, I just borrowed notes, and then did what I had to pass the exam or studied at the last moment. (Student Business Studies.64)

> Crikey, I have days when there's loads, what with work experience and all that... and finishing essays, we get up at half eight nearly every day and then we've got two hours, half an hour's break and you get some breakfast, three more hours, then you might have time for lunch from one to two, then you've got practical and that's until, well, seven, and then we're here till eight. (Student Biology.18)

> (No! With this course and with that Bologna Plan, well, of course, there's more practical work, more stuff and you're at university more, and on this course the times aren't all in the morning or the afternoon, no, they change." Student Biology.21)

> S: No, I mean, from the very start, it's not like school wasn't hard as well, I met people from the very start and there's a lot of work to do every day, I mean, it's like at school in that you have to bring your homework done, I mean, they don't let you stay here to the end just doing nothing, no, here,

well, it's like the Bologna Plan, you have to get certain tasks done and from there you...
I: They examine or evaluate you, right.
S: But of course if you haven't done that they don't evaluate you and that means you learn more, because if you don't, if you leave it all to the last minute you come to... I mean, there is something in your head and you don't even know what it is and then you forget it, I think that's why I haven't noticed much change.(Student Architecture.38)

We also detect a positive effect on learning that is related to social aspects, social identification is also reinforced. Also the fact that students have contact with their colleagues indirectly affects their learning. The effect of social relations at the institution is dealt with more broadly in the following section but it is important to bear in mind that these have an indirect effect on academic aspects, and more specifically on learning.

I mean the report was on what you had done in practical sessions, but of course if you had done the same you'd say "I understand that, I understand that" but asking questions to each other helps, I don't know, I learned more. (Student Chemistry. 70)

Yes, it's like the undergraduate course and I was considering a whole lot of things [dropping out] and then my friends [said to me] "don't do it, come on! (Student Social Education.11)

When it comes to studying... I mean, the people at uni we do help each other a lot because, I mean, as they're studying the same as you, it's easier. (Student Pharmacy.79)

So they're really on your backs here and they make you do a lot of projects, you have to follow the course day by day, and that's perhaps what people don't like about Bologna, but that's what it is, it's the best way of learning! (Student Telecomunications.41)

I: OK, but in this case you'd say they motivate you, wouldn't you? But do you think these friendships have helped you make progress?
S: Yes, yes.
I: Why?
S: Yes, to stop me skiving, and oversleeping at eight in the morning, you do that and they tell you off.
I: It's like going to the gym, if you're going, then I'll come too.
S: Exactly, it's more or less the same "are you going tomorrow? No, I don't feel like it, me neither, but if you go, then I'll go" so I say: what the hell, let's go! We motivate each other because if we didn't this year really would be... (Student Business Studies.60)

Astin (1999) stated that all institutional policies and practices –whether aimed at academic or non-academic aspects- could be evaluated in terms of the extent to which they increase or reduce student participation. In the case of Spanish university, the implementation of the Bologna Process has involved the incorporation of new teaching methodologies aimed at, among other things, encouraging students' autonomy and prioritising more active participation. These statements show how the changes that occurred in the teaching methodologies have led to students being physically at university for more hours. So, through contact with colleagues, it seems that they feel more involved in university life. In general, the innovations implemented as a result of the Bologna Process have become agglutinating elements that have led to greater integration of students in the institution.

The interrelation of the academic and social aspects that different authors have mentioned (Pascarella & Terenzini, 2005; Eggens et al., 2007) is fundamental for understanding the experience of university students. Therefore, the increased amount of hours that students dedicate to academic demands and have to be in the institution has translated to an increase in the contact with their colleagues and, consequently, in changes in the way they identify with the institution. In the same way, social identification has affected the way in which young people experience university; affecting, indirectly, their staying in the university and their learning.[9]

Question 2: Have the Changes Introduced Through the Bologna Process Meant Changes in the Quality and Quantity of Relations between the Students and the Different Members of the University Institution?

As for the social dimension, the changes generated by the Bologna Process and the subsequent increase in workload have meant that students spend more time at university. In this regard, in some cases these changes have led to an increase in relations between students, lecturers and the university. In relation to coursemates some students state:

> Yes, yes, there always are... as we have practical on so many afternoons, some of us stay for lunch whenever (...) Yes, even people in halls, because of course we finish lectures at 12:30, and start practical at 15:00, if you go home for lunch and come back, you've missed two wonderful hours! Then you finish practical at 7 pm and you're not going to start studying straight away so we always go for supper and then go to the library for a bit… (Student Pharmacy. 50)

> No, I think you meet up most with people from university, the people you spend most time with, practical work also helps you to get to know your coursemates better because you spend four hours together every day, every day and because you spend so much time with someone, you chat with them more, you make friends with them and all that, I think the people I see the most are my university friends. (Student Chemistry.65)

> Yes, yes, I mean, if, if, if you're getting lost it does you good [working together], but if you don't understand something yourself, I don't know, it's almost always good to have somebody because you're always going to have doubts and questions and the other person knows how to explain it to you. (Student Pharmacy. 74)

With respect to relations with teaching staff, the new methodologies also involve a closer relationship between students and lecturers. Continuous evaluation and group work mean that students do not see their lecturers as distant figures and make daily contact with them. However, differences have been detected between courses. The proximity between students and lecturers is closer on some courses than on others. We are not claiming that relationships between students and lecturers have radically changed since the Bologna Process came into force, for this change has been taking place for many years at some universities and the impulse of Bologna inspired pedagogical methodologies has consolidated that tendency. The closeness of these relationships is increasingly more accentuated these days, and has departed from many students' preconception of distant relationships and the non-direct implication of university lecturers in student learning.

> I feel that if I have problems, most of the lecturers are very willing to help solve any doubts asked to them and the course is more or less how I expected it to be. (Student Pharmacy. 79)

> But I'm learning an awful lot. I didn't expect that either, I thought that at universities there was a big distance between the lecturers and students, as if you're just a number, see? They give you a mark and that's that, but not here, here the lecturers know you, in fact if you get a good mark they sometimes send you an email to congratulate you! (…) They are very friendly and I didn't except that either, it's great! (Student Humanities. 25)

> I think so, I mean, lecturers I don't know, the School in general neither, but I find it pretty personal and the lecturers are here quite a lot, I mean that, I do think that the lecturer-student thing is taken quite into account because I've never heard any friend say "I going to see a lecturer because I don't understand something" but I have done it a lot. (Student Architecture. 33)

The same thing evidently doesn't happen to all students, some comment that they have very few relations with the institution and only go to campus for a few lectures. In that sense, focussing on academic aspects, it can be seen how there are degrees of identity. In the following statements students show less participation with the institution. They only go to university to fulfil their academic duties, and not to participate in university life.

> "I come here for my lectures and nothing else. (Student Translation and Interpretation.2)

> I- So as well as coming here to university, you do other activities apart from your course?

S- No. (Student Social Education. 11)

I suppose that because of my age I find it very easy to talk to the lecturers, well you see, I've not made friends and gone for coffees, but it's easy and I just come here to do the work and study and then I have to go and work for my job. (Student Translation and Interpretation.1)

I: OK. And what about the services you have found and the resources you can access, don't you think there's a wide selection?
S: Well, me, there isn't much missing … But the thing is...
E: Do you take part in the complementary activities they offer or...?
S: No
E: You come to study, then leave, and that's all.
S: Yes. (Student Business Studies.58)

Most of the students interviewed commented on an increase in the academic contact between students for solving problems or for doing group work, which has led to the creation of new friendships and changes in relations with the reference peer group. There is therefore an increase in social identification.

I- In relation to the atmosphere on the course, you said you made friends straight away.
S- Yes, I still have the same friends I made on the first day.
I- There's a good atmosphere in class.
S- Yes, we all know each other, there are lots of us, but we know each other and well. (Student Translation and Interpretation. 6)

(...) here everybody is themselves and we all go away for weekends together, we go off to a youth hostel, that's something we students organise ourselves, there are lots of contacts between courses, not just for note-taking, but for partying together and you go out with people from other courses and it's clearly like, well, like a family, isn't it? It's called the biofamily, we call it that, and it helps a lot, if you're going to be here perhaps eight hours a day, you either make friends, or you die. (Student Biosciences. 17)

Yes, of course, but you might have friends that say: "what do mean go to museums!?" But there are others that would love the idea! (...) Yes, yes, the nice thing is that we like the same things and you can talk about everything and well, well and it's... (Student Humanities.29)

Villar & Albertín (2010) stated that upholding different understandings regarding the type of social relations in the university and the social capital determined the type of contact established between colleagues. As regards our analyses, in the majority of cases, we found that students uphold a socio-emotional understanding which developed into friendships with the peer group. These have involved obtaining resources such as information, favours and friendships that have had a positive effect on the social and academic identification of the students with the university.

Question 3: Does the increase in relations at university produce changes in the reference peer group and therefore, in identification with the institution?

On the one hand, on many occasions these new friendships can lead to a progressive change in the reference peer group, which becomes the peer community formed at university. On the other hand, the process of identifying with the new university peer group can sometimes involve a gradual loss of contact with friends from outside of university that have not gone into higher education (external group/belonging). The distancing is sometimes due to different leisure pursuits, consumer capacities or different interests and values. The following quotations reveal how students change their relationships; they increase their social identification with classmates and lose part of the social identification with former friends.

> Well some no, no, some... it's because what I like is having friends that share a lot of my interests and most of my friends from school are at the ESADE[10] and they're fantastic, wonderful, they are very good friends but there comes a time when I'm not, I mean, all they ever talk about is the ESADE and the same old stuff... and perhaps they don't read a single book or you ask them who a certain painter is and they haven't got a clue and you say "bloody hell" and at the end of the day it's not just "going clubbing" there has to be more, doesn't there? And so I have stuck with the friends that have the most in common with me and then those friends introduce you to friends of their own and it turns out that you get on better with her friend than you do with her and things like that. (Student Humanities.31)

> S- With the people here it's more similar, they more or less want the same thing, or if not think the same, it's like there's dialogues, but then again there are people that aren't interested in studying or politics, economics, whatever it is that I'm interested in, and they're, like, more superficial, what are you doing today? It's another type of relationship and here it's all more profound, much more.
> I- And does that cause distance?
> S- Yes, in my case it does because I like conversations about my interests, all that what are you doing today, how's it going stuff is okay as well, but I also like people to offer me something, and so then I do put some distance between us because I haven't found what I want or what I feel like. (Student Translation and Interpretation.6)

> Well, one thing leads to another, I mean, you don't have the time to see them and in the end you lose contact and they've been lost … we don't have the same relationship we had before. (...) I see them very much "now and again", there are some I see more because one is my bike mechanic and another is my hairdresser, or whatever, I still see them, but there are others that are harder to see, but I know that they are there if I need them. (Student Telecommunications.42)

It should be noted that this phenomenon of the creation of friendships at university and a change of reference peer group does not occur in all cases. Students continue considering their peer community outside of the university to be their real friends. The absence of the construction of friendships at university, and therefore the lack of bonding with coursemates and the institution, is most of all a phenomenon that is found among the students at large institutions, in which relationships are harder to consolidate. Also, focussing on social aspects, it can also be seen that there are different degrees of identity.

> Yes, well me, most of my friends are from outside, eh? I mean most of the people I go out with are from outside, here now and again; we go out for dinner, see. But I don't really consider them my friends. They are university colleagues with whom I might go out or whatever, but not friends... (Student Nursing.53)

> I: You don't go out with people from the faculty, from the School?
> S: Yes, but not as much. Less because of course I'm used to seeing my friends every day at school and now I just see them once a week when I can go out because I spend a lot of time at university, well it's not that I wouldn't like to, but I don't get to see my friends from before. So I do go out with them, but not much. (Student Architecture.33)

> I: Have you made a group of friends at University?
> S: Group, group of friends, no, I've got colleagues that I have known since the day I first came here, who I see in the library, we go for dinner together and all that but like friends, friends, I have that. But I mean no, not a group of friends. (Student Telecomunications.45)

> For me, to be sincere, the people with whom... we're not... I mean I don't like the people here, no... I don't think much of them... we don't have much in common, you know? I don't know if it's the way they dress but the way I see it all the girls dress the same, you know? As for the guys... I don't like them at all, you know? The first year I made friends with three people, you know? And those three people told me that there are people you get on with and that are fun but that you have to search a lot among the people. I mean, to be honest, I have little to do with the people in my class. But as the years have gone by I've got to know more people because… you know? (Student Business Studies.58)

As other research has pointed out (Hughes, 2009) it is clear that the social aspect of university holds least importance for university students, and the academic aspects are fundamental to engagement and learning. Moreover, academic identification is necessary to succeed at university, and social identification is a bonus, but not necessary for all students. The intermediate point would seem to be the students that despite making friends at university, still have no problem maintaining their relationships with groups of people from before made of people that did not go into higher education.

I: And are you more friends with your boyfriends and girlfriends from here or those from outside or... do you also go out with them like friends?
S: Yes, yes. With all of them, it's always good.
I: Without mixing?
S: No, we also mix them, I mean that as well… very well. (Student Nursing.54)

I: Would you say that if you have made friends at university, you have formed a gang of friends?
S: Yes, I've gone on holiday with them to Rome, Berlin, so yes, great.
I: Do you keep your friends from outside of university?
S: Yes, yes. (Student Architecture.38)

I: These friends you have outside, apart from studying, are they friends you share other things with, like leisure, going for walks?
S: Yes, yes.
I: But not the ones at uni?
S: No, with them as well...
I: As well?
S: Well, I have a group, not from my year but the third year, but we are always going...
I: Going out together.
S: Yes, yes.
I: For fun, so, as much here as outside, they're mixed?
S: Yes, yes. (Student Biociences.21)

On this point, some quotes by students who have consciously reflected on their feelings and their perception (cultural aspects) are presented. For the students that create friendships, and that lead to a change in the reference peer group, the process of identification with the university is clear. Students mention that they feel that they form part the university student collective with which they share norms, values and interests.

I: In values as well. What you like, studies, the type of leisure you prefer?
S: Yes, yes, all of that, I mean, what we talk about, while other people might ask what club you went to the other day, with us it's what's the last book you read? We do humanities, what are we expected to do! And yes, it shows that we're humanities students because well … (Student Humanities.25)

I: And in relation with your school friends... do you feel more friends with your school friends or your university friends?
S: Well, it's a different kind of friendship, because you can't speak about certain things to friends from school but with them I can speak about them for three hours, well, it's another way of doing things. What I've found at university is that my friends are people that have tastes and interests very like mine, and whether you like it or not that's important, but also the way people are, at school we were friends because we came from the same place but the

> same way of being, no? I mean, they're people that give you different things. (Student Humanities.26)

As we explain in theoretical background part, social identification includes both the effect of sharing standards and values with the university peer group and the way the individual participates in the institution's social activities. As has been seen, not all students increase their contact with university colleagues, and there are also cases of students that develop no identification with their university. In this sense, it can be concluded how it is possible to negotiate the identity and to construct different student identities. The institution not determined individuals' identities and forming their roles. In following quotations we can see who some students do not feel an active part of the institution.

> I: Do you feel that you form an active part of the School, as a student?
> S: No, no, well perhaps because I haven't got involved, I mean there are things, some organisations, but I don't.
> I: For students perhaps, are they?
> S: Yes, yes, but I haven't approached them either. (Student Architecture.33)

> I: Do you feel, do you form part, I mean, when you're at university is it because you like studying or because you feel you play an active role, you feel that it's a university with a certain name, don't you? Because they do things well and, does that count for you?
> S: Well, it doesn't count for me.
> I: That doesn't count?
> S: No.
> I: The most important thing for you is that your studies are going well and that's all, right?
> S: I am happy with the studies, to be precise, not the university, for me the [Name of University], well... (Student Biociences.18)

> I: Would you say that you feel part in any way, that you form an active part of the centre? More than the students that come here, go to lectures, and then leave, or...?
> S: I don't feel an active part of the university.
> I: Of the faculty itself?
> S.: No!
> I: The fact that you work at the centre means you get access to more information, to...
> S: Yes, yes, but apart from that, I mean, regardless of that I don't feel that I'm part of a family, if that's what you're asking.
> I: Is there not the feeling, I mean to say, is there not a belonging? A feeling of belonging to a faculty, to a course, to a...
> S: No, no. (Student Business Studies.60)

The heterogeneity of the profile of students attending university as a result of the educational expansion and the mass university has led to a series of changes in the way in which young people tend to understand their time in university. McInnis (2002), in his analysis of Australian universities, showed how first year students felt less integrated and declared a lack of commitment to the institution. The fact that they spent less time on campus and that they prioritised other activities –e.g. paid work- over university demands represented what the author called signs of disengagement.

These signs, in the case of Catalan universities, may have changed with the incorporation of new teaching methodologies such as continuous assessment or group work. As has been observed, these changes have affected the increase in the workload that has had an impact on the time students spend in university and the contact they have with their colleagues. The formation of friendships between colleagues and the identification process with the new university group lead to a feeling of belonging, and, therefore, identification with the university. In short, the innovative measures implemented as a result of the Bologna Process have become elements which bring about new ways of understanding and behaving at university which can become new signs, in this case, of reengagement.

DISCUSSION OF THE RESULTS AND CONCLUSIONS

As we have seen from the students' answer to the first question in this qualitative section of the research, the pedagogical methodologies related with the Bologna Process require the students to perform many tasks and more physical presence at the university. It has been seen that this brings a greater degree of academic and social identification by students with the institution given that they participate more and therefore shares the rules and values of the institution. It is therefore considered that the proposed terminology, related to identification and which maintains the need to separate academic aspects from social ones and the cultural angle from the behavioural one, is useful and necessary for making an exhaustive analysis of the process.

For the second and third questions in the research, we have found that the Bologna Process' changes to pedagogic methodology have led to changes in how students identify with the institution. In terms of academic aspects, students spend more time at the institution and have more contact with the institution, teaching staff and colleagues. This also affects their social identification, both with the institution and with their peer group. The creation of new friendships with university colleagues involves, in some cases, a change in reference peer group and a departure from the group to which one belonged previously. All of these relationships increase social and academic identification with the university as an institution, and can help to improve learning.

This leads us to certain provisional descriptive conclusions that can serve as a working hypothesis for the quantitative part of the research, which can examine the extent of each profile, the relations between them and the specific contexts of each university and course.

On the basis of the results presented it can be stated that:

- The introduction of the Bologna Process to the four studied universities has caused students to spend more time at university because the pedagogic methodologies require that.
- The increase in physical presence seems to lead to more academic identification with the university among students.
- The increase in physical presence tends to increase the interactions between colleagues and lecturers.
- The increase in interactions contributes to an increase in social identification with the university among students through the constitution of university reference peer groups.
- The increase in social identification with a university reference peer group seems to have a positive effect on the students' academic identification.
- There is need for a certain academic identification (instrumental or expressive) with the institution in order to achieve good academic results.
- Students negotiate their identities as they make transitions between different forms of being at university, both academically and socially.
- Social identification seems to be a value added to academic identification, if a student feels academically and at the same time socially identified with the institution, he or she is more likely to get even better academic results.
- Certain signs of the reengagement of students with the institution have been observed. In some cases, there seems to be a departure from the previous tendency that led to disengagement and distancing between students and the institution.
- We need to see what exactly happens to the students with employment or that feel overloaded by the amount of work that the new methodology generates.

In terms of future research different elements have been proposed for consideration[11]:

- Firstly, although there are no results in this respect, a large number of students have been found that have problems combining their studies and jobs, because the pedagogic methodologies related with Bologna require more tasks to be done and for more time to be spent at university. It should not be forgotten that the type of student that studies and works at the same time is increasingly more common at universities and that the implementation of methodologies that do not enable students to work many hours elsewhere may leave such students without opportunities. The policies could be implemented without the need to lower levels, such as an increase in the use of NICTs and the adjustment of timetables. The introduction of the variable of social class is also therefore necessary in the analyses.
- Second is the need to carry out more exhaustive analysis of the context of the different qualifications to be able to decide whether there are significant differences between then, both in terms of identification and other processes that university students are involved in (Daza, in press).
- Finally, a careful analysis should be made of the process that emerges when students do not feel identified with the institution (they do not share the rules

and values of the institution) and therefore risk dropping out or holding back other students, as in the example of the free riders in the working groups (Masjuan & Elias, in press).

NOTES

[1] The authors form part of the GRET, Grup de Recerca Educació i Treball at the Universitat Autònoma de Barcelona. The written version of this article has been redrafted and discussed with the other members of the GRET (http://grupsderecerca.uab.cat/gret) that participated in this research: Lidia Daza and Helena Troiano.

[2] Part of this report was presented at the 23rd CHER Conference, Oslo 10–12 June 2010.

[3] This was also analysed by Herzberg in the field of employment (1969) through his two-factor theory (motivational and hygiene), and applied to the field of education by Cryer & Elton (1986) and Elton (1996).

[4] The effect can evidently occur in the negative, whereby the institution implements such incoherent and damaging actions for its students that their expressive identification is reduced, and they thus prioritise the instrumental objective in order to pass the course. The case may even arise whereby there is a student that prioritises instrumental identification with studies but that maintains a professional expressive identification, for he or she is clear about what job to do in the future and therefore wants to get the certificate.

[5] Following these authors, there are also intentional and instrumentally rational explanations for the reasons for identity. Therefore, reasons for identity and instrumental rationality are not exclusive; rationality towards ends and rationality towards values are both present in social actions.

[6] In this sense, we are also approaching the vision of the last project to be developed on this subject. The SOMUL project (What is learned at university: the social and organisational mediation at university) carried out by a team at the Open University showed that different identification processes occur in universities today, where the bond between students and institution can involve different characteristics and is typified by an imperative individualisation process.

[7] This research forms part of the "Plan Nacional de investigación científica, desarrollo e investigación tecnológica" (CSO2008–02812) financed by the Spanish Ministry of Science and Innovation, under the title "Los estudiantes ante la nueva reforma universitaria".

[8] In the citations, the letter I refers to the interviewer and S to the student being interviewed.

[9] There are clearly differences between courses with respect to the implementation of the Bologna Process and the effects it generates upon student learning, which we will be referring to later throughout the article.

[10] ESADE is the name of a private business school.

[11] On the basis of an analysis of the interviews we are now completing a questionnaire to present to third year students in 2010. In producing this questionnaire, we are also considering internationally recognised indicators and instruments (Questionnaire Universitarie Internations -QUISS-, Course Experience Questionnaire –CEQ- Learning Community Scale –LCE, Weidman questionnaire, National Student Survey Engagement –NSSE-, SOMUL project questionnaire); as well as other questionnaires that have been used by our own research group. Using this questionnaire we aim to compare and quantify the qualitative results and/or improve our conceptualisation.

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3. CULTURES OF DOCTORAL EDUCATION IN GERMANY

Beyond Disciplines and Disciplinary Groupings?

INTRODUCTION

Concepts of disciplinary culture are largely used in research on doctoral education to construct the selection of disciplinary cases (e.g. Becher, Henkel, & Kogan, 1994; Enders & Bornmann, 2001; Enders & Kottmann, 2009; Gardner, 2009; Nerad, 1997; Nerad & Cerny, 1999; Parry, 2007). Disciplinary variations in the organisation of doctoral education and in the consequences of a doctorate on career prospects within and outside academe are unquestionable. But a necessary next step is to prove how far research findings for a particular discipline can be used to characterize a wider group of disciplines. Otherwise, we would not learn what research results from certain disciplines mean for the broader higher education landscape. Additionally, proving a possible generalisation of results is even more important because the criteria used for grouping disciplines differ among studies on doctoral education. An often used solution is to refer to Becher's (1989) taxonomies hard/soft, pure/applied (e.g. Parry, 2007). Another solution is to use disciplines that represent the range of larger disciplinary groupings such as humanities, social sciences, life sciences, natural sciences and engineering sciences (e.g. Enders & Bornmann, 2001; Enders & Kottmann, 2009). But do disciplines in larger disciplinary groupings really share the same properties such as identity and organisational culture that are leading into similar results?

The answer to this question might differ depending on the concept of identity and culture used in a study. But in general, research suggests that larger disciplinary groupings do not necessarily do justice to their internal variety (e.g. Bargel, 1988; Becher, 1990; Gläser, 2006; Huber, 1990; Multrus, 2005). The doubt on the usage of larger disciplinary groupings increases if, for example, groupings created by statistical offices are used. In the German context, the statistical office groups law, business studies/ economics and social sciences into one *Fächergruppe*[1], although these three groups represent distinct cultures (Bargel, 1988). Another example is that psychology is put into the group of humanities. Using psychology as a prime example for humanities would undoubtedly result in furious comments.

Nonetheless, larger disciplinary groupings are useful if they allow researchers to reduce the complexity in observing scholarly activities in universities (Becher,

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
Effects of Higher Education Reforms: Change Dynamics, 43–58.

1990; Huber, 1990). But it is also necessary to ask on which foundation disciplines are classified in these groupings and if they are meaningful for the analysis done. Stuck between "Two Cultures" (Snow, [1959] 1998) and "Multiversity" (Kerr, [1966] 2001), an investigation is overdue in research on doctoral education that tries to find larger disciplinary groupings that are more meaningful for analysis of doctoral education than those put together by statistical offices or other agencies. Groupings from statistical offices have a right on their own. This paper wants to encourage a debate in research on doctoral education about case-selection and generalisation of results.

Classifications of disciplinary cultures based on student surveys (Bargel, 1988; Multrus, 2005) or types of knowledge production (Becher, 1989) might not necessarily be appropriate for research on doctoral education. Reasons for this are doctoral education's gateway function between teaching, research and the labour market (Enders, 2002).

Motivated by a lack of research in this area, we ask if we can identify cultures and groups of disciplines with a similar culture that are more meaningful for the analysis of doctoral education than analyses of single disciplines and the *Fächergruppen*, a standard grouping of the German statistical office.

Some Words about Doctoral Education in Germany

In Germany, the doctorate is an entrance qualification to the high ranks in academe but also administration, jurisdiction, business and industry (Hartmann, 2002). Far more doctorates are granted than needed for academe and the motivation to obtain a doctorate is also due to an opportunity to increase ones' career with it outside academe (see our results section). In Germany, one out of ten graduates obtains a doctorate (Janson, Schomburg, & Teichler, 2007).

In Germany, a system of various co-existing forms of *Promotion* is developing. The traditional *Promotion* still represents the most common form of graduate training (Gerhardt, Briede, & Mues, 2005). This traditional model largely sees the dissertation as a piece of independent research written in agreement with the doctoral supervisor (*Doktorvater* or *Doktormutter*). From the mid 1980s, around one decade before the Bologna Process started, the need to restructure graduate training emerged. This reform was shaped by the aim to promote systematic supervision and group work during and after the *Promotion* phase (Wissenschaftsrat, 1980, 1988, 1996).

In practice, however, traditional and structured paths to a doctorate (*Promotion*) represent alternatives that do not necessarily rule each other out. Rather, hybrid forms are developing through "associated memberships" of Research Training Groups and Graduate Schools as well as visiting student statuses. These appear to make it impossible to clearly differentiate between purely traditional and structured *Promotion* processes.

Structure of the Article

In the next section we present our approach to identify role and identity cultures in German doctoral education. Our approach is inspired by Bargels' concept (1988) to distinguish between role and identity cultures and work and organisation cultures. In the data and methods section we describe the data from the longitudinal doctoral candidates panel "ProFile" conducted by the Institute for Research Information and Quality Assurance (iFQ), Germany. In the results section the disciplinary cultures and disciplinary groups identified are presented. Further on, a comparison is done between the cultures, disciplinary groups, *Fächergruppen* and disciplines in their strength of association with respondents' socio-biographical background, structures of the doctoral education and respondents' opinions and evaluations of the doctoral education. Last but not least the results are discussed regarding their impact on further case-selection in doctoral education.

APPROACH OF THIS STUDY

Research on disciplinary groups within universities has used the vague term culture to express different identities among scholars and students (Välimaa, 1998). Encouraged by Snow's "The Two Cultures" ([1959] 1998), in the past decades scholars tried to conceptualise disciplines into distinct disciplinary cultures by a wide range of concepts and criteria. Disciplinary cultures are constructions based on academics' and students' norms, values, beliefs, attitudes, epistemological characteristics of the domains of knowledge and organisational arrangements regarding teaching, learning and research as well as the way how students are socialized into an academic community (e.g. Becher, 1989; Biglan, 1973; Bourdieu, 1988; Huber, 1990; Lepenies, 1988; Multrus, 2005). A common working assumption is that these disciplinary cultures help to explain differences within universities or, in general, science and research.

In this analysis, culture is used as a term capturing common life styles represented in values, preferences, conventions, standards behaviour and relationships among doctoral candidates (Becher, 1987). A crucial point in identifying cultures is the selection of criteria used to search for common life styles. Our approach is based on a concept introduced by Bargel (1988). Bargel distinguishes between role and identity cultures as well as work and organisational cultures. With this approach it is possible to distinguish between organisational aspects of doctoral education as well as norms, values, beliefs and attitudes of doctoral candidates.

This distinction between role and identity cultures and work and organisation cultures takes up Huber's (1990) argument that epistemological characteristics of domains of knowledge are only one part of the differentiation between disciplines. The second part according to Huber (1990) is social factors such as attitudes to social and political issues, cultural practices and preferences in the private lives and the social background.

At this point our analysis focuses on the role and identity cultures in order to see how far norms, values, beliefs and attitudes of doctoral candidates are distinct within and between disciplines and how far these cultures are meaningful for the analysis of doctoral education. An analysis of work and organisational cultures will appear at another occasion.

Concept to Construct Role and Identity Cultures

We use the approaches developed by Bargel (1988) and Multrus (2005) as starting points of our own analyses on doctoral education. Both used a national student[2] survey to construct their disciplinary cultures. Their empirical analyses are based on disciplines as study objects. Disciplinary cultures are results of the comparison of disciplinary means. Whereas Bargel (1988) developed both role and identity cultures and work and organisation cultures, Multrus (2005) did not differentiate between both.

The set of items differ in both studies as well. Whereas Bargel (1988) used a reduced set of items, Multrus (2005) used 235 items. Bargel (1988) constructed his role and identity cultures based on students' preferences of life domains such as "science and research", "arts and cultures", "work and employment" and "politics and public life". Work and organisation cultures are based on a set of variables representing work life in students' studies, elements of performance expectations in the studies and structuredness of the studies. Multrus' (2005) items encompass motives and expectations, requirements and output, situation of teaching, organisation of studies, personal situation, stresses and strains, wishes and demands, general opinions and orientations.

Our approach to construct role and identity cultures in doctoral education differs slightly from the two studies described above. The major difference is that cultures are identified by the respondents as unit of analysis. This approach allows us to identify overall cultures that are based on all respondents and not on disciplines.
Disciplinary groups with similar cultures are identified using disciplines as unit of analysis. This change in the method is done because all disciplines incorporate the role and identity cultures identified. This result leads to an insufficient variance between disciplines to group them based on the representation of cultures within the disciplines. Using disciplines' means in the items used (see below) is a much clearer approach to group them.

The construction of the cultures is based on data from an ongoing longitudinal panel survey "ProFile" conducted by the Institute for Research Information and Quality Assurance (iFQ) in Germany. The ProFile survey is not designed to capture a specified large list of items[3] characterising opinions and attitudes of doctoral candidates as the Student Survey used by Bargel (1988) and Multrus (2005) does. Thus we concentrate on four items to construct the role and identity cultures.
Role and identity cultures describe doctoral candidates' norms, values, opinions and attitudes. We use the following four items to construct role and identity cultures:

– Career opportunities beyond science and research[4]
– Arts as part of future career[5]
– Being a researcher is a job as any other[6]
– Doctoral education not intended, taken by chance[7]

An approval of the item "The doctorate enables me to improve my career opportunities beyond science and research" shows that doctoral education is rather seen as instrumental for the future career and doing a dissertation is less driven by scholarly interests. An approval of the item "arts as part of future career" indicates that a person might welcome creative work tasks and expects work to be more in line with creative thinking. An approval of "Being a researcher is a job just like any other" shows a demystified view on academic work implying indifference about academic work. An approval of "I had not originally intended to work on a doctorate" indicates that a person does a dissertation rather by chance and less by planning.

To some degree the approval or disapproval of these items shows preferences towards the life domains "science and research", "arts and cultures" and "work and employment"[8]. The "unintended" doctoral education shows rather an attitude and not a preference for a life domain.

DATA AND METHODS

For this analysis, we will use a dataset comprising of more than 4500 doctoral candidates and doctorate holders (dataset from 6th August 2010; see table 1). The "ProFile" survey focuses on certain institutions who participate in the project. Due to data limitations about doctoral candidates in German universities, the project has started with a few universities that are willing to collect data on nearly all of their doctoral candidates. In the dataset analysed doctoral candidates from the following institutions answered our questionnaire: Freie Universität Berlin, Humboldt-Universität zu Berlin, Leibniz University Hannover, Heidelberg University, University of Kassel, Research Training Groups funded by the Deutsche Forschungsgemeinschaft (DFG), Collaborative Research Centres funded the DFG and Studienstiftung des deutschen Volkes. Due to the country-wide focus of the DFG and the Studienstiftung, survey participants earn their doctorate at more than 80 higher education institutions in Germany. But this dataset is not representative for doctoral candidates in Germany! Instead of being nationally representative the dataset is representative regarding the distribution of gender and disciplines within each participating institution.

The cultures and disciplinary groups are identified by using a hierarchical cluster method. The Ward's method of hierarchical cluster analyses is used. This method implies that similarity and dissimilarity measures are calculated by a squared Euclidean distance and that groups are identified by an error-sum-of-squares objective. The decision about the number of cultures is inspired by the value of the Calinski/Harabasz pseudo-F. In this paper all statistical analyses are done with Stata 11.1 (born 4th November 2010).

Table 1. Brief summary of the distribution of institutions, gender and Fächergruppen[9]

Category	*n*	*Percent*
Total doctoral candidates	3957	100%
Total doctorate holders	610	--
Participating institutions		
Freie Universität Berlin	298	7.5
Humboldt-Universität zu Berlin	663	16.7
Leibniz University Hannover	60	1.5
Heidelberg University	601	15.2
University of Kassel	149	3.8
Research Training Groups	999	25.3
Collaborative Research Centres	600	15.2
Studienstiftung des deutschen Volkes	588	14.9
Gender		
Male	1962	49,6
Female	1994	50,4
Fächergruppen		
Language and cultural studies	1065	26,9
Sports	10	0,3
Legal, economics and social sciences	611	15,5
Mathematics, natural sciences	1533	38.8
Medicine/health sciences	207	5.2
Veterinary medicine	21	0,2
Agriculture, forestry, nutrition	126	3.2
Engineering	291	7.4
Art and art studies	87	2,2

The four items used for the role and identity cultures are based on a five-point-scale. Due to missing values the role and identity cultures are calculated using 2750 cases in 23 disciplines that are represented by more than 40 respondents.

In general, the doctoral candidates approve that they want to do a doctoral thesis because it extends their career opportunities beyond science and research (see table 2). Doctoral candidates do not intend that arts are part of their later work. Candidates are undecided if "being researcher is a job as any other". Most candidates planned the doctoral education and where not dragged into it by chance.

Table 2. Summary over items used in cluster analysis

Item	*Scale*	*Valid cases*	*Mean*	*SD*	*Respondents with values 4 and 5*
Career opportunities beyond science and research	1–5[10]	3815	3,60	1,29	58,9%
Arts as part of future career	1–5[11]	3692	2,11	1,22	16,4%
Being a researcher is a job as any other	1–5[12]	3904	3,08	1,32	40,4%
Doctoral education not intended, taken by chance	1–5[13]	3781	1,77	1,17	12,2%

RESULTS

Role and Identity Cultures

Four role and identity cultures are identified within the group of doctoral candidates. These cultures differ at least in one item substantially from the others (see table 3). The first culture (see below) includes more than a third of all candidates surveyed. The other three cultures are represented to similar degree in the dataset.

With this four culture construction, none of the cultures includes a group of respondents articulating "Arts as part of the future career". Thus, respondents that want to have "arts as part of their future career" are included in all four cultures; also indicated by the mean and standard deviations of this item shown in table 3.

The largest and first culture is the "non-academic candidates" representing 36% of the respondents. They state that their motivation to start a doctoral project is due to "career opportunities beyond science and research". Additionally, they agree upon the statement that "being a researcher is a job as any other". The "non-academic candidates" did not start their doctoral education by chance.

The second culture includes the "academic candidates" representing 22% of the respondents. They state that their motivation to start a doctoral project is due to "career opportunities beyond science and research". In contrast to the first group they deny both that "being a researcher is a job as any other" and that they began doctoral education by chance.

The third culture contents the "indifferent academics" representing 19% of the respondents. They agree upon the statement that "being a researcher is a job as any other" but deny both that "career opportunities beyond science and research" motivated them to start doctoral education and that they began doctoral education by chance.

The fourth culture includes "candidates by chance" representing 24% of the respondents. They state that they started doctoral education by chance and not by planning. They agree on the statement that their motivation to obtain a doctorate was due to "career opportunities beyond science and research". They are undecided on the statement if "being a researcher is a job as any other".

Disciplines encompass all four cultures but to a different degree. This implies that characterising a discipline with a certain typology describes only one part of the story. Almost none of the cultures have a majority within a discipline (see figure 1).

Table 3. Role and identity cultures

Culture	*N /%*		*Career opportunities*	*Arts as part of career*	*Being researcher is a job*	*Candidature by chance*
1 Non-academic candidates	975 / 35,5		Yes	No	Yes	No
		Mean	4,2	2,2	4,0	1,3
		SD	0,9	1,2	0,9	0,5
		% 4+5	79,5	16,5	69,0	0,2
2 Academic candidates	591 / 21,5		Yes	No	No	No
		Mean	4,2	2,3	1,7	1,2
		SD	0,8	1,3	0,6	0,5
		% 4+5	76,8	20,6	0,3	0,0
3 Indifferent academics	529 / 19,2		No	No	Neutral	No
		Mean	1,9	1,9	3,0	1,3
		SD	0,7	1,2	1,3	0,5
		% 4+5	0	15,6	34,6	0,0
4 Candidates by chance	655 / 23,8		Yes	No	Neutral	Yes
		Mean	3,6	2,1	3,1	3,5
		SD	1,3	1,2	1,2	1,0
		% 4+5	57,7	14,2	37,5	50,4

Disciplinary Groups

Six different disciplinary groups are identified (see table 4). All in all, these disciplinary groups are less distinctive in their item means than the role and identity cultures. This is due to the representation of all cultures within the disciplines. The disciplinary groups differ largely due to their motivation to

obtain a doctorate as an uplift of their career opportunities beyond science and research. One group stands out by its comparatively high approval of "arts as part of future career". All groups show a similar rather neutral statement on the item "being a researcher is a job as any other". Finally, we can differentiate between two sets of groups on the item "doctoral education was taken by chance"; one set expresses a slightly stronger attitude towards planning than the other.

The first group includes Language and cultural studies, History, Psychology, Education, Social Science, Geology and Geography. In total, this group expresses a neutral opinion on the items "career opportunities beyond science and research" and "researcher is a job as any other". Respondents in this group deny both an interest in "arts as part of future career" and that their doctoral education was taken by chance.

The second group includes only Philosophy. Doctoral candidates from Philosophy are very much oriented to academe because most of them deny all four statements. They planned doctoral education, consider it to be not a job as any other and do not seek career opportunities beyond science and research.

The third group includes German studies, Literature and language studies and Art and art studies. This group differs from the first group mainly in their higher aspiration to include "arts as part of their future career".

The fourth group includes Political science, Mathematics, Physics and Electrical engineering. The means of this group look similar to those of the Philosophers but they articulate to a far greater degree that they seek career opportunities beyond science and research as the Philosophers.

The fifth group includes Economics/business studies, Informatics, Agriculture and Mechanical Engineering. Compared to the first group they express more often that they seek career opportunities beyond science and research.

The sixth group includes Law, Chemistry, Biology and Human medicine. This group expresses the highest motivation to obtain a doctorate because it increases career opportunities beyond science and research. In the other items they show a common opinion with the other groups.

Disciplines from different *Fächergruppen* are integrated within four of the six groups. In the first group, geology and geography, normally seen as natural sciences, stand aside of disciplines from humanities and social sciences. The fourth and fifth group include social sciences, natural sciences and engineering sciences. The sixth group is particular as it includes not only three very similar[14] disciplines (biology, chemistry and human medicine) but also law. Law does not seem to fit in this group but the high social prestige of a doctorate in Germany and greater career opportunities beyond science and research with a law doctorate make this discipline a plausible candidate for this group.

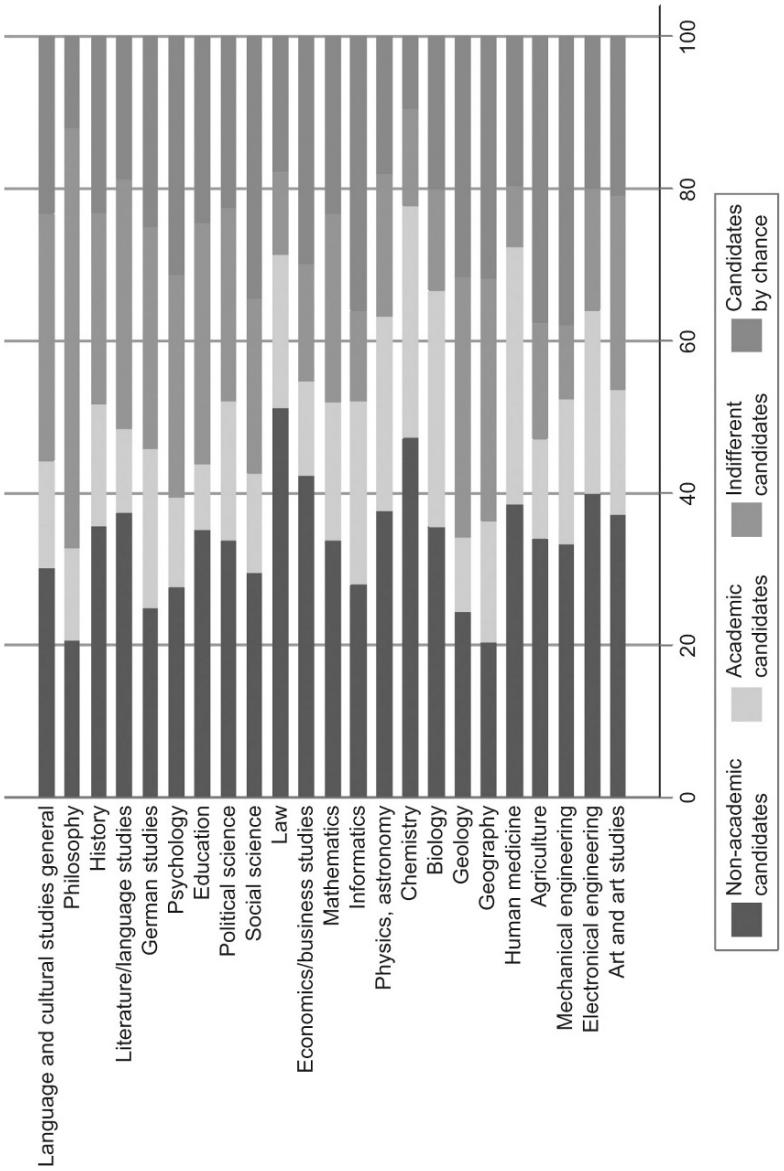

Figure 1. Distribution of role and identity cultures in disciplines.

Table 4. Disciplinary groups

Group	*Disciplines*		*Career opportunities*	*Arts as part of career*	*Being researcher is a job*	*Candidature by chance*
1	Language and cultural studies History Psychology Education Social Science Geology Geography		Neutral	No	Neutral	No
		Mean	3,2	2,2	3,3	2,0
		SD	1,3	1,3	1,3	1,3
		% 4+5	41,4	20,1	45,4	17,3
2	Philosophy		No	No	No	No
		Mean	2,4	2,2	2,7	1,4
		SD	1,3	1,4	1,3	0,8
		% 4+5	20,7	22,4	22,4	6,9
3	German studies Literature and language studies Art and art studies		Neutral	Neutral	Neutral	No
		Mean	3,1	2,8	3,2	1,8
		SD	1,2	1,4	1,3	1,2
		% 4+5	41,9	39,7	43,0	12,3
4	Political science Mathematics Physics Elec. Engineering		Yes	No	Neutral	No
		Mean	3,5	1,9	3,0	1,6
		SD	1,2	1,1	1,3	1,0
		% 4+5	54,7	11,3	36,6	8,0
5	Economics/business studies Informatics Agriculture Mech. Engineering		Yes	No	Neutral	No
		Mean	3,7	1,9	3,1	2,1
		SD	1,2	1,1	1,3	1,3
		% 4+5	64,3	9,0	39,5	16,5
6	Law Chemistry Biology Human medicine		Yes	No	Neutral	No
		Mean	4,1	2,0	3,0	1,5
		SD	1,1	1,1	1,3	1,0
		% 4+5	75,4	11,6	37,9	7,6

Cultures, Disciplinary Groupings and Disciplines in the Light of the Doctoral Process

The identification of cultures and disciplinary groupings are only useful if they allow researchers to receive more meaningful results and if these groupings explain differences in doctoral education better than the disciplines themselves. Our working assumption is that cultures do affect the doctoral candidature. Thus, the cultures and disciplinary groups identified should be associated far stronger with certain elements of doctoral education than disciplines and *Fächergruppen*, disciplines grouped for administrative usage.

We decided to test the association between cultures, disciplinary groupings and disciplines with selected elements of doctoral education. These elements encompass items representing candidates' socio-biographic background, the structural setting of doctoral education and respondents' opinion and personal evaluations (results see table 5). The stronger the association between our study objects (cultures, disciplinary groups and disciplines) and the elements selected, more variance between respondents is explained.

The results show that the disciplines are stronger associated with nearly all elements selected than the disciplinary groupings and the cultures. Although the cultures do show stronger differences in the four role and identity items than the disciplinary groups, they show the lowest association with the elements of doctoral education selected among the study objects. The two disciplinary groupings, disciplinary groups identified and *Fächergruppen*, show similar strong associations with the elements of doctoral education selected.

Table 5. Bivariate associations between survey items and cultures, disciplinary groups, Fächergruppen and disciplines. Cramer's V and likelihood-ratio χ2

Item	*Cultures*	*Grouping based on items*	*Fächergruppen*	*Disciplines*
Socio-demographic background				
Gender	0,08 / 0,001	0,31 / 0,000	0,23 / 0,000	0,36 / 0,000
Foreigner	0,01 / 0,985	0,05 / 0,215	0,08 / 0,022	0,13 / 0,001
Being parent	0,07 / 0,009	0,14 / 0,000	0,14 / 0,000	0,17 / 0,000
Educational background of parents	0,05 / 0,459	0,06 / 0,212	0,07 / 0,000	0,11 / 0,000
Structural setting of doctoral education				
Membership in doctoral programme	0,05 / 0,040	0,16 / 0,000	0,21 / 0,000	0,35 / 0,000
Type of Funding at survey date	0,06 / 0,005	0,13 / 0,000	0,18 / 0,000	0,21 / 0,000
Number of supervisors	0,06 / 0,001	0,12 / 0,000	0,11 / 0,000	0,20 / 0,000
Process of topic choice	0,08 / 0,000	0,21 / 0,000	0,25 / 0,000	0,28 / 0,000
Opinions and personal evaluations				
Satisfaction with supervision	0,06 / 0,001	0,06 / 0,014	0,09 / 0,000	0,13 / 0,000
Satisfaction with courses	0,06 / 0,047	0,04 / 0,598	0,04 / 0,603	0,10 / 0,257
Feeling being prepared for future job	0,08 / 0,000	0,09 / 0,000	0,07 / 0,005	0,14 / 0,000
Interest in working in research and teaching	0,12 / 0,000	0,21 / 0,000	0,21 / 0,000	0,25 / 0,000
Internal control belief	0,10 / 0,000	0,09 / 0,000	0,10 / 0,000	0,11 / 0,000

DISCUSSION

Disciplines differ in many respects in their organisation of doctoral education, epistemological characteristics and actors' beliefs and attitudes. In higher education research it is often assumed that certain disciplines share similar characteristics enabling meaningful disciplinary groupings. Until now most disciplinary groupings are developed for administrative reasons, are based on research on students or types of knowledge production. Although these disciplinary groupings are used to construct case studies in research on doctoral education, a test remained to be done how far disciplinary groupings are more meaningful in explaining differences in doctoral education than disciplines do. Based on the idea that role and identity cultures are important (Bargel, 1988; Becher, 1987; Huber, 1990), two groupings are constructed: role and identity cultures and disciplinary groupings based on similarity in these role and identity cultures.

As a rule of thumb, disciplines explain differences in doctoral education far better than disciplinary groupings or role and identity cultures. Additionally, role and identity cultures do not explain differences in doctoral education. Or said differently, doctoral candidates with different role and identity cultures share similar doctoral education, also within a discipline.

Our findings suggest that Kerr's ([1966] 2001) identification of a multiversity seems to be appropriate in doctoral education in Germany. At this point of analysis, we emphasise scepticism towards single disciplines as representative for a larger group of disciplines. Thus, we would not recommend using a certain discipline as a prime example of a certain group of disciplines. If done so, disciplines should be selected with care and well-grounded reasons that are rooted in the doctoral education itself and doctorates' status in labour markets.

Doctoral candidates differ in their norms, values, beliefs and attitudes but these cultural factors do not explain characteristics of their doctoral education. As such role and identity cultures seem to be inappropriate as distinctive categories in research on doctoral education. Doctoral education as an important asset in the "academic research enterprise" (Dill & Van Vught, 2010) is likely to be more affected by epistemological characteristics of the domains of knowledge and organisational arrangements regarding teaching, learning and research as well as the way how students are socialized into an academic community than by roles and identities. The failure to identify cultures and groups of disciplines with a similar culture that are more meaningful for the analysis of doctoral education than analyses of single disciplines and *Fächergruppen* may also be attributed to the restricted set of variables used. An adjusted methodology may falsify our claim about role and identity cultures' meaningfulness in research on doctoral education.

Before we know better, this study suggests the usage of disciplines as unit of comparison in research on doctoral education. Nonetheless we still recommend a search for meaningful disciplinary groupings. The ability to project results from one discipline to a group of disciplines would enhance research on doctoral education, because it would allow researchers to find appropriate case studies to

investigate certain aspects of doctoral education more thoroughly as survey research can do. Furthermore, generalizable results generate opportunities to transport them into a wider audience.

NOTES

[1] *Fächergruppe* is a grouping of disciplines used by the Federal Statistical office in Germany. The major groups are humanities (Sprach- und Kulturwissenschaften), law, business studies/economics and social science (Rechts-, Wirtschafts- und Sozialwissenschaften) and Mathematics/Natural sciences (Mathematik/Naturwissenschaften). For details see: http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Klassifikationen/BildungKultur/StudentenPruefungsstatistik,property=file.pdf.

[2] For more information about this survey please see http://cms.uni-konstanz.de/en/ag-hochschulforschung/student-survey-in-germany/.

[3] http://www.research-information.de/Projekte/ProFile/projekte_profile.asp.

[4] The question: If you think back on your decision to work on a dissertation, how accurately do the following reasons apply for this decision? 5-point scale from Applied fully to Did not apply at all.
The item: The doctorate enables me to improve my career opportunities beyond science and research

[5] The question: How closely would you like your future career to be connected with the following areas? 5-point scale from Very close to Not at all.
The item: Arts

[6] The question: The following statements present different opinions on the responsibilities of science and research. Please tell us to what extent you agree or disagree with these statements. 5-point scale from Fully agree to Do not agree at all.
The item: Being a researcher is a job just like any other

[7] The question: s. footnote 2
The item: I had not originally intended to work on a doctorate

[8] The life domain "politics and public life" is left out here because our survey does not contain a question indicating a preference for this life domain.

[9] For this brief overview the *Fächergruppen* are used. All other analyses are based on the 55 disciplines used by the statistical office.

[10] The scale ranges from 1 does not apply to 5 applies fully.

[11] The scale ranges from 1 not at all to 5 very close.

[12] The scale ranges from 1 do not agree at all to 5 fully agree.

[13] The scale ranges from 1 does not apply to 5 applies fully.

[14] The similarity between biology, chemistry and human medicine might not only be epistemologically driven but they are also similar in their doctorate intensity, measured by the number of doctorates granted compared to study degrees granted. In all three disciplines more than four out of ten graduates obtain a doctorate.

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4. RESEARCHING THE CURRENT DYNAMICS OF PROFESSIONAL EXPERTISE

Three Analytic Discourses[1]

INTRODUCTION

Professional expertise is a relational and constantly shifting entity, generated, justified, shaped and reshaped according to the altering dynamics of social institutions, changing societies, and symbolic economies. But in what ways does professional expertise now undergo transformations? And how should we read the alterations? In this chapter, we explore three ways of reading these dynamics. Our ambition is to provide a better understanding of the dynamics of professional expertise in relation to changing societies and altering symbolic economies.

Worldwide economic crisis and current alterations of global symbolic economies have led many countries to reconsider their educational priorities, particular in regards to higher education. At this phase of the global "knowledge economy," there is not only a question whether higher education offers value for money. There is also a question about the purpose and priorities of educational institutions. The most pressing issue is not how to help economic recovery. The most pressing issue rather concerns ways of conceptualizing and promoting robust and dynamic knowledge cultures (OECD, 2010). Thus, a debate on how to conceptualize and build professional expertise is now re-evoked.

In general, "expertise" denotes some trustworthy faculties for judging, deciding and acting rightly, justly or wisely; some jointly defined and acquired capabilities given public authority and status according to a specific domain; and a set of productive procedures, techniques, and skills. However, such expertise is not here considered as some identifiable features of an individual specialist. Contrary, in this chapter we perceive professional expertise as some emergent characteristics of the epistemic culture of a professional group.

While reviewing the current literature on the dynamics of professional expertise (with an explicit focus on professional knowledge), we identified three discourses that frequently inform contemporary research: (1) A classic sociological outlook helps to explore the social construction of professional expertise while highlighting how the credibility (ethos) of such expertise is constantly being renegotiated in the intersection of social structures and forces and the altering social missions of the professions. (2) A discursive outlook puts the contemporary and distributed power struggles to the forefront while highlighting the public appeal (pathos) of

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Effects of Higher Education Reforms: Change Dynamics, 59–76.

professional expertise. This outlook helps to explore discursive configurations in relation to the social recognition of such expertise. (3) A semiotic outlook, by contrast, highlights the epistemic principles2 (logos) of professional expertise, and the ways in which these principles are being renewed in the intersection of generative symbolic economies and the knowledge ties of the professions. These three models, however, should be seen as ideal types, not mirroring any on-going "epistemic war" or "historic progress", as their different ways of picturing professional expertise seems to be equally recognized and their uses somewhat overlap within the current literature (Evetts, Mieg & Felt, 2006).

Table 1. Researching the dynamics of professional expertise

Outlook	Classic sociological	Discursive[3]	Semiotic
Object of study	Social division of epistemic labour *vs.* The social mission of professional expertise	Discursive configurations *vs.* The social recognition of professional expertise	The generative logic of symbolic economies *vs.* The knowledge ties of a profession
Conceptual apparatus	Social structures Social forces Social facts	Discourse Distributed power struggles	Epistemic culture Epistemic practice Semiosis (flows of signs)
Highlighting	The credibility of professional expertise	The public appeal of professional expertise	The epistemic dimension of professional expertise
	-	-	-
	Ethos	*Pathos*	*Logos*

Consequently, the three discourses on professional expertise should not be taken to mirror hegemonic definitions. By contrast, since they offer somewhat distinct outlooks, conceptual apparatus and analytical tools to the study of the dynamics on professional expertise in changing societies, together they inform a "thick" reading of these dynamics. To illustrate, we use examples from an extensive theoretical and empirical study on the shifting expertise of Norwegian nurses, teachers, auditors and computer engineers – ten from each group – over a span of eight years (2003–2010). In the initial years of the study, we followed these nurses, teachers, auditors and computer engineers in their transition from pre-service training to work[4].

In the first part of this chapter we present a sociological outlook, which helps to emphasize the movable ethos – credibility – of the expertise of the Norwegian nurses, teachers, auditors and computer engineers. We here compare and contrast ways in which the social missions of these four professions now seem to be renegotiated according to the new divisions of epistemic labour in society. In the second part of the chapter we adopt a discursive outlook that highlights the

movable pathos – public appeal – of the tangible work of Norwegian nurses, teachers, auditors and computer engineers. In the third part of the chapter we adopt a semiotic model that highlights the logos – epistemic dimension – of the productive expertise of Norwegian nurses, teachers, auditors and computer engineers. The principles of this epistemic dimension are here seen as mediated and generated by flows of signs (semiosis). A semiotic analysis thus helps to reveal how the knowledge ties within each of the four professions studied carry a symbolic logic that guide the ways in which the epistemic principles of their expertise alter when confronted with the new and generic symbolic economies of today.

In summing up we again ask: In what ways does professional expertise now undergo transformations? And how should we read the alterations? But first of all, let us briefly portray the current situation.

RECENT STUDIES

A great many recent studies document how professional expertise, including the theoretical representations of such expertise, now undergo deep-seated transformations (Dahl, 2005; Dent & Whitehead, 2002; Evetts, Mieg, & Felt, 2006; Kirkpatrick, Ackroyd, & Walker, 2005; Kuhlman, 2004; Nerland & Jensen, 2007; Nerland, 2010). Despite the many-faceted perspectives, focuses and ambitions of these studies, on the whole they signify a common disruption of the field generated by a new and globalized symbolic economy.

First, recent studies point to how the tools and technologies of a networked knowledge society have made knowledge and information vital components of public life. Conventional divisions of epistemic labour thus seem contested: On the one hand, some authors speak of an emerging 'epistemification' of everyday life (Paavola & Hakkarainen, 2005; Nerland & Jensen, 2010). Such 'epistemification' is parallel to the new mode of knowledge production, which implies that scientific productions now diffuse into other sectors of modern societies and opens up for multiple participations (Gibbons et al., 1994; Knorr-Cetina, 2007a; Nowothny, Scott & Gibbons, 2001). On the other hand, active participation in contemporary knowledge societies call for a new type of 'epistemic citizenship'; a form of public epistemic literacy that implies competencies in how to engage with, confront and produce flows of knowledge and information. In short, we are now experiencing the materialization of a new social contract between knowledge and society that implies "a new type of collectivity which define and delimits itself more completely by its capacity to produce and mobilize knowledge" (Elam & Bertilson, 2003, p. 234). These changes imply a new context for professional work. But in what ways may the new division of epistemic labour affect the missions, and thus the required expertise, of the professions? Do the new divisions of epistemic labour call for a renewed professional ethos?

Recent studies also point to how the fast flows of knowledge, information and resources seem to trouble the very architecture of professional cultures and their expertise (Evetts, 2006; Jensen & Lahn, 2005; Nerland, 2010; Nordengraaf, 2007;

Strand, 2010; Sajor, 2005; Tynjälä, Välimaa & Sarjo, 2003). Most studies tend to focus on the output of the flows of information. By contrast, Sassen (2001; 2006) calls attention to the tangible work of those producing the flows, while exploring ways in which the global era of informationalism is dependent on locally rooted work cultures. In fact, transnational flows of knowledge, information and resources are dependent on the "capabilities" of the rooted work cultures "for servicing, managing, and financing the global operations of firms and markets" (Sassen, 2001, p. 359). Thus, location matters to sophisticated flows of information. But even more important seems the "capabilities" of these locations to collectively produce, process, and handle information and resources. Such capabilities are "collective productions whose development entails time, making, competition, and conflicts, and whose utilities are, in principle, multivalent because they are conditioned on the character of the relational systems within which they function" (Sassen, 2006, p. 7, our emphasis). But in what ways and to what degree may this common call for communal and rooted "capabilities" affect the very architecture of professional cultures and their expertise? Does this new situation provide some scaffolds for the professions? Or will the current situation, by contrast, undermine the public appeal of the professions and their expertise?

Third, several authors underline that a vital characteristic of the new era is the ways in which global/local epistemologies now interact and convert (Burawoy, 2000; Castells, 2001; 2004; Urry, 2000, 2002). Marginson, Murphy and Peters point to how the emerging "image of the world as a single sphere" (2010:9) is generated by an extraordinary dynamism of the current symbolic economies: on the one hand, global synchrony and convergence have been changing the conditions for ways of imagining, producing and sharing productive work in different spheres; global, transnational and local. On the other hand, the new and emerging global dimension– in terms of its communication, culture, and productive knowledge – is itself a human product, continuously in the making. So, as flows of knowledge, information and resources are no longer constrained by geographical proximities or institutionalized boundaries, they "intimately connect the local and the global" (Becher & Trowler, 2001:2) by offering new incentives, opportunities and openings (along with new disincentives, dangers and limitations). Furthermore, these flows are themselves generated by and generating a symbolic logic that not only opens possibilities of innovative ways of retrieving, sharing, and archiving knowledge and information, but also of creative images, aspirations, and epistemic forms of practice marked by a new era in the making. So what happens to professional expertise in this situation?

To find out, let us take a closer look at the three discourses, their theoretical models, conceptual apparatus and analytic tools, as they may help to reveal different aspects of the emergent transformations of professional expertise.

ETHOS: THE CREDIBILITY OF PROFESSIONAL EXPERTISE

Classic sociological analyses draw attention to the ethos – or credibility – of professional expertise. Here, the attributions of professional knowledge and skills

(*phronesis*) are combined with their trustworthiness (*arête*) and perceived goodwill *(evnoia*) (Hartelius, 2008). Consequently, this discourse on professional expertise offers a fruitful framework and some analytical tools for exploring ways in which the expertise of a profession is interconnected with its social mission, and the ways in which this mission is generated, upheld, adjusted and renegotiated in relation to the divisions of epistemic labour in society. Taking a sociological outlook, it is thus pertinent to ask in what ways, and to what degree, the new divisions of epistemic labour affect the missions, and thus the required expertise of the four Norwegian professions studied. Do the new division of epistemic labour call for a renewed professional ethos?

In our study, the group of Norwegian nurses now speak of an "evidence-based practice"; the Norwegian teachers embrace the rhetoric of public education as "knowledge promotion"; the auditors speak of a renewal of their methodology; and the computer engineers seems to be shifting focus from how to process to how to produce knowledge. Such shifts may be signs of a new type of collectivity "which defines and delimits itself more completely by its capacity to produce and mobilize knowledge" (Elam & Bertilson, 2003:234). Moreover, these shifts may also signify how the four professions now renegotiate their expertise in the intersection of the traditions versus the new. If so, the very missions of the four Norwegian professions and the credibility of their conventional expertise seem to be at stake.

Durkheim (1957) saw the expertise of a profession as a social fact, constituted by and constituting the collective ways of thinking and acting of a profession (or guild). Social facts are produced by and productive of the social, and thus the "fundamental condition" for the existence of social groups. In other words, the very existence of a profession is based on and justified through its expertise, which again is socially structured. A somewhat naïve example is the group of auditors, which very existence and professional status is based on and justified through the trustworthiness of their faculties, techniques and skills in performing their mission, namely auditing.

Since social facts "consist of manners of acting, thinking and feeling external to the individual" (Durkheim, 1901/1982:52), Durkheim's way of conceptualizing expertise gave access to revealing the professions' social visions and missions, how these visions and missions are generated and justified socially, and next producing and justifying certain ways of thinking and forms of practice: To Durkheim social facts are "invested with a coercive power by virtue of which they exercise control over him [the individual]" (Durkheim, 1901/1982:52). Such "coercive power" operates as a social force, shaping the conscience collective of a profession and its members.

> Now this adherence to something that goes beyond the individual, and to the interests of the group he belongs to, is the very source of all moral activity. That sense of this whole becomes acute, and then, as it is applied to affairs of communal life – the most ordinary as well as the most important – it is translated into formulas, some more defined than others. It is at this point we

> have a corpus of moral rules already well on the way to being founded (Durkheim, 1957, p. 24).

Durkheim thus contained that a professional group can be seen as a "moral sphere" and its expertise as a form of civic moral.

In short, Durkheim first of all stressed the social formations, functions and credibility of institutionalized expertise. And by implication how the tradition of a profession is vital to its ethos: A profession always "carries the mark of the social conditions that brought it into being" (Durkheim, 1957, p. 24). Comparing and contrasting the altering ethos of the four Norwegian professions studied, it is thus significant how their traditional ethos are marked by quite different social conditions, and by implication different and somewhat contrasting social visions and missions5. When meeting the new ways of the symbolic economies of today, their ways of renegotiating and renewing their expertise inevitably happen quite differently according to their distinct tasks, traditions and missions.

One example is the altering expertise of the group of Norwegian computer engineers: Nerland (2010) holds that computer engineering is a domain of expertise that not only mirrors the fast flows of knowledge and information, but also how these flows shape the computer engineers' particular visions of knowledge and ways of engaging with it: "computer engineering illustrates how expert groups of today attempt to reorganise themselves in line with a professional model that corresponds to a more globalised world" (Nerland, 2010:184). Nerland identifies three dominant discourses of knowledge and learning that not only mirror processes of globalisation, but also generate the professional ethos of the computer engineers: first, a vision of professional knowledge as closely linked to advancements within global, technological markets: Thus, market orientation is a vital aspect of computer engineering. Second, a vision of knowledge as information allocated on the Internet: flows of information, structured and distributed by global networks, thus shape the expertise of the profession, while this type of information is recognized by the engineers as a vital and reliable epistemic resource. Third, a vision of professional knowledge as closely linked to standards and procedures: Such standards and procedures are interrelated with the technical rationality characterizing this profession, and also a way of managing the fast flows of new information and risk. However, when interviewed in 2009, the computer engineers portrayed an emerging agile work-style, which contrasts their earlier "torrent" style that demanded specific skills in the fast flows of problem-solving procedures. They now tend to stress the importance of sharing their expertise with colleagues in and beyond their workplace; they have access to, and use daily, a multitude of knowledge resources, databases, and centres, which seems to have improved considerably the last few years. More than previously they also stress the importance of an oral exchange of ideas; they attend more international forums and conferences than before; and they cooperate continuously with international research centres. These are signs of the fact that the individual computer engineers we interviewed have now acquired skills and competencies that demonstrate their progress from "advanced beginners" (as when interviewed in 2005) to "proficient"

experts (e.g. Dreyfus & Dreyfus, 1986). However, when taking into consideration that professional expertise should be read as some emergent characteristics of the epistemic culture of a professional group, these are also signs of the epistemic development of a profession as young as the ICT industry itself: The group of Norwegian computer engineers now seems to be experiencing a shift from a focus on how to process information over to a focus on how to produce knowledge.

However, compared to the other groups, such an emerging ethos of knowledge creation seems parallel to the ways in which the Norwegian nurses now speak of an "evidence-based practice"; the Norwegian teachers of "knowledge promotion"; and the auditors of a renewal of their methodology. In this way, the movable ethos of the four professions studied may relate to the emergent "epistemification" of everyday life in knowledge-intensive societies, which not only imply a new division of epistemic labour. It also implies a form of public epistemic literacy that involves competencies in how to engage with, confront and produce knowledge and information. Hence, the traditional gap between professional expertise and common knowledge is being radically narrowed. To the present-day professions, the conventional mantra of 'knowledge on knowledge' (mirroring an epistemic reflectivity) may seem insufficient: To gain credibility within a knowledge-intensive society, a profession should also comprise knowledge (and skills) on how to produce and mobilize knowledge.

In sum, this classical sociological approach highlights the movable ethos of professional expertise and its normative function in a social order. The above examples illustrate how this discourse on professional expertise offers a fruitful framework and some analytical tools for exploring how the expertise of a profession is interconnected with its social mission, and the ways in which this mission is generated, upheld, adjusted and renegotiated in relation to the divisions of epistemic labor in society. This outlook thus proposes a model on professional expertise in changing societies that puts the adjusted mission of the professions into focus. However, this way of conceptualizing the expertise of a profession may be in danger of overlooking the implications of the tangible work of a profession.

PATHOS: THE PUBLIC APPEAL OF PROFESSIONAL EXPERTISE

A discursive[6] outlook draws attention to the movable *pathos* – or public appeal – of professional expertise. Here, the social recognition of the tangible work of a profession is conceived as a vital vehicle in the discursive configurations and reconfigurations of such expertise: On the one hand, the social recognition of the substantial, skilled work of a profession is at the very heart of the social power, position and legitimacy of this professional group. On the other hand, the call for social recognition is vital to the discursive configurations of the expertise of a profession, since this call generates images of appropriate work identities and performances. Thus, while focusing on the distributed power relations within social interactions, institutions and bodies of knowledge, this outlook helps to reveal how discursive configured and social recognized images of professional expertise

contribute to the shaping, reshaping and justifying of the expertise of a profession, both from within and at a distance.

Consequently, taking a discursive outlook, it is pertinent to ask in what ways and to what degree the current situation trouble the very architecture of professional cultures and their expertise. In what ways, for example, may the fact that advanced economies are now totally dependent on the "capabilities" of rooted work cultures "for servicing, managing, and financing the global operations of firms and markets" (Sassen, 2001:359) affect the images of appropriate work identities and performances? Is there now an emergent public appeal of the tangible work of professional groups? And if so, what kind of expertise seems to be recognized? Let us look to the Norwegian teachers:

When interviewed in 2005, the group of Norwegian teachers7 came forward as a unified group of professional workers, carrying a distinct collective teacher identity. But when interviewed again in 2009, their individual professional identities seemed more manifest. More than earlier they now emphasized the importance and value of testing school results; they portrayed some systematic routines for developing, updating, and evaluating their teaching skills; moreover, all teachers depicted the World Wide Web as a vital arena for retrieving, sharing, and updating their knowledge. Overall, the teachers – when interviewed in 2009 – expressed a higher confidence in collective standards and procedures and a more transparent teacher role (as most of them now invited external evaluators into their classrooms). They justify their work in accordance with the new national curriculum (the "knowledge promotion") which was implemented in 2006, embracing the government's aim to "promote Norway as a leading knowledge based and innovative society" (Norwegian Ministry of Education and Research, 2008). Overall, the Norwegian teachers now adopt the rhetoric of public education as "knowledge promotion". Moreover, the group now seems to outsource some vital aspects of their long-established expertise, since they welcome, adopt, and expose confidence in educational policies, directives, instructions and ready-made lesson plans handed over to them by the school management, local municipalities, and the government. But are these signs of an altered public appeal of the expertise of Norwegian teachers?

Emphasizing the relative autonomy of professional expertise, Fournier (1999) explores the ways in which the public appeal of such expertise "potentially allows for control at a distance through the construction of 'appropriate' work identities and conducts" (Fournier 1999:281). Next, she argues that the common appeal to "professionalism" should be seen as a disciplinary logic, a "conduct of conduct", made intelligible and practicable by the professionals themselves. Evetts (2003a, 2003b, 2006) further elaborates on Fournier's perspective, pointing to the gap between the myth and reality: The myth is that professionalism includes exclusive ownership of an area of expertise and knowledge, the power to define the nature of the problems within that area, as well as the control of access to potential solutions. The reality, however, is "very different" as the discourse of professionalism – meaning "the ways in which occupational and professional workers themselves are accepting, incorporating and accommodating the idea of 'profession' and

particularly 'professionalism' in their work" – is generated by and generating occupational change and social control at both macro- and micro-levels (Evetts, 2006:139). Thus, to the Norwegian teachers, the current situation is of importance, since local, national, and transnational educational policies inevitably generate altered images of teaching expertise, both within and beyond the profession itself. However, to understand the discursive reconfigurations of the expertise of the Norwegian teachers, it is pertinent to explore the ways in which the teachers themselves portray their tangible work.

Abbott (1988) holds it impossible to understand the altering expertise of a profession without understanding the qualities and mechanisms of professional work itself. To Abbott professional work – with its practical and academic aspects – is about constructing "tasks into known professional problems that are potential objects of action and further research" (Abbott, 1988:59). He asserts that the main task of a profession is to solve a problem, which often has both fixed ("objective") and movable ("subjective") qualities. The objective and fixed qualities of the problem seem to be given by natural and technological imperatives. The movable qualities, however, are matters of interpretation and thus amenable to cultural work. Nevertheless, it is often hard to distinguish between the two:

> On the one hand, a task's basis in a technology, organization, natural fact, or even cultural fact provides a strong defining core. On the other hand, the profession reshapes this core as it pulls the task apart into constituent problems, identifies them for clients, reasons about them, and then generates solutions shaped to client and case. Through this reshaping of objective facts by subjective means there emerges a fully defined task, irreducibly mixing the real and the constructed (Abbott, 1988:57).

Such reinterpretations are, according to Abbott, part of jurisdiction claims, which are claims "not only to classify and reason about a problem, but also to take effective action towards it" (Abbott, 1988:40). These distinctive modes of professional work – diagnosing, reasoning about and treating a problem – constitute the ties that connect a profession to its task. Hence, the Norwegian teachers' higher confidence in collective standards and procedures may be a consequence of the profession's reinterpretation of the movable qualities of its work, and thus part of altering jurisdiction claims. The final test, however, is the practical results, considering that "the greater deviation from objective qualities, the more necessary are measurable results" (Abbott, 1988:38). So, the group of Norwegian teachers' renewed and strengthened emphasis on the importance and value of testing school results may relate to the impermanent qualities of ways of teaching and learning within contemporary knowledge-intensive societies.

To Abbott, the tangible work of a profession consists of diagnosing, reasoning about, and treating a problem. "But to hold skilled acts and justify them cognitively is not yet to hold jurisdiction. In claiming jurisdiction, a profession asks society to recognize its cognitive structure through exclusive rights; jurisdiction has not only a culture, but also a structure" (Abbott, 1988:59, our emphasis). Consequently, images and practices of professional expertise are embedded in discursive

configurations, making the expertise of a profession a relational and constantly shifting entity that is qualified by its public appeal.

Moreover, the expertise of the Norwegian teachers is now closely related to, inscribed in, and dependents on a network of cooperate functions and accountabilities. This is illustrated by the ways in which the group of Norwegian teachers now embrace the rhetoric of "knowledge promotion" while simultaneously "outsourcing" vital aspects of their work. "Knowledge promotion" designates a comprehensive curriculum reform, implemented in 2006. This reform carries a rationale for teaching and learning that sharply contrasts the rationale that lies at the heart of Norwegian teachers' long-established ways of teaching. The "knowledge promotion" rationale focuses on basic skills and outcome-based learning, while the earlier rationale came close to the idea of liberal education and the methods of reform pedagogy. When interviewed in 2009, most teachers mentioned this contrast and pointed to the fact that their pre-service teacher training had not qualified them for the new ways of teaching. To reduce complexity and to cope with the new and unknown, they welcome, adopt, and expose confidence in educational policies, directives, instructions and ready-made lesson plans handed over to them by the school management, local municipalities, and the government.

Most teachers also invite external evaluators into their classrooms. So, as the qualities of teaching and learning are becoming increasingly complex, the group of Norwegian teachers seem to admit some shortcomings of their long-established expertise. Hence, it seems smart to outsource some tasks, since the public appeal of the teachers' expertise may rather be strengthened than weakened by the fact that the group now acknowledges the new situation and the relative autonomy of their conventional expertise.

In sum, while emphasizing the pathos – public appeal – of professional expertise, the discursive outlook sees the social recognition of professional work as a vehicle in the cultural machineries of the altering expertise of the professions. On the one hand, the social recognition of the tangible, skilled work of a profession is at the very heart of the social power, position and legitimacy – and thus the very existence – of this profession. On the other hand, the call for social recognition is a vital aspect of a profession's expertise, as it contributes to the construction of "appropriate work identities and conducts" (Fournier, 1999:281). In analysing the connections between "discursive practices" and the wider sets of "non-discursive" activities and institutions, the underlying material resources that make discourses possible needs to be taken into account. The aim is to reveal ways in which and to what degree a particular discourse reproduce or transform the material world. Consequently, this outlook offers a fruitful perspective on the altering expertise of contemporary professions, including the ways in which these alterations relate to other social objects, such as the state, transnational policies, or economic processes. A particular strength is demonstrated by Fournier (1999) when she reveals how different notions of professional expertise without difficulty travel between macro- and micro-levels, and easily translates into professional work and learning. However, this way of conceptualizing the current dynamics of

professional expertise may be in danger of overlooking a crucial matter, namely the vital dynamics of knowledge itself.

LOGOS: THE EPISTEMIC DIMENSION OF PROFESSIONAL EXPERTISE

A semiotic outlook draws attention to the epistemic dimension and movable *logos* – epistemic principles – of professional expertise. However, we already by now want to underline that when speaking of the epistemic principles of such expertise, such principles are not associated with a foundational epistemology promoting rigid schemes and procedures of knowledge production and validation. By contrast, the epistemic principles of professional expertise should be perceived as complex and fluid since the symbolic economies within the new era of knowledge intensive societies invite a rejection of rigid schemes in favour of complex, processual and creative models. Such a perspective on the current dynamics of professional expertise goes well with the semiotic outlook.

In short, semiotics is the study of the action of signs and sign-systems. It is an interdisciplinary field of study, containing several branches that offer theories on the generative logic of signs and analytic tools to reveal the ontological and epistemic shifts generated. Since semiotics takes a non-psychologistic perspective of the generative action of the flows of signs, the subjects of semeiotics are not human subjects, but rather semiotic entities. In this way, the dynamic qualities of the epistemic dimension of professional expertise come to the forefront. The semiotics of C. S. Peirce (1904, 1907) offers a fruitful way of modelling these dynamics.

Peirce conceives knowledge as "a living historic entity", acquired through experience, mediated through signs, clarified by the pragmatic maxim, and validated by the final consensus. Professional expertise is a verb and the flows of signs (semiosis) the very generative principles of the alteration and creative powers of such expertise. Focus is the "the action of signs", which happens through everyday lived experience, and the ways in which these actions generate a deep-seated remaking of common sense. To Peirce, "common sense" is a notion used to tress the sociality of knowledge, as it denotes a universe of discourse, having community as a product and common understanding as an effect (Lizka, 1996:81). Thus, a remaking of common sense does not only promote a reorientation, but also deep-seated transformations that restructure and remake worldviews, experiences, and habits of thought and action (Strand, 2010, 2011). Consequently, the dynamic flows of signs (semiosis) may contribute to a reconstruction of our ways of seeing the world, and thus ways of making the world, and by implication the ways of the world themselves.

To Peirce, semiosis – the creative acts of the flows of signs – does not happen as an action between two, for example between an agent and a phenomenon or between a phenomenon and a representation of that phenomenon. "By semiosis I mean, on the contrary, an action, or influence, which is, or involves, a cooperation of three subjects, such as a sign, its object, and its interpretant, this thri-relative influence not being in any way resolvable into actions between pairs"

(Peirce, 1907:411). In other words, flows of signs do not mediate, represent, or carry external phenomena. On the contrary, these flows are nothing but the very phenomena themselves. Thus, expertise does by no way mirror an external reality. Rather, the dynamics of expertise are in the very flows of signs, which are flows of experience, thought, action and creation. Thus, when – for example – the Norwegian nurses speak of their "evidence-based practice", "systematic investigation", and ways of relating to knowledge and information at "the research frontier", they do not only speak of how they observe external phenomena. Contrary, they portray an engagement with the very phenomena themselves. Knorr Cetina (1999, 2002, 2009) helps to further explore these dynamics.

Following Knorr Cetina, a profession can be seen as an epistemic culture. An epistemic culture is a culture producing and safeguarding knowledge. Accordingly, a profession can be studied as "those sets of practices, arrangements and mechanisms bound together by necessity, affinity and historical coincidence which, in a given area of professional expertise, make up how we know what we know" (Knorr Cetina, 2007a:363, our emphasis). Next, Knorr Cetina conceptualizes expertise in terms of an "epistementality", which appears first, as the particular forms of epistemic practice, meaning the ways of knowledge use, distribution, validation and production characteristic for that profession. Second, the epistementality of a profession becomes visible through the knowledge ties relating to that profession's object of knowledge. Consequently, Knorr Cetina goes beyond the vision of professional expertise as an aim or a mean as she portraits expertise as a relational and dynamic entity constantly in the making. Her notions of "epistemic objects" and "knowledge ties" portray these dynamics:

An epistemic culture – or profession – relates to so called "epistemic objects". Epistemic objects are objects used in the everyday life of the professionals, such as the problems they need to solve, the models they create, the tasks they have to fulfil, the reports they write, or the information systems they employ. However, epistemic objects are "processes and projections, rather than definite things" because they are open and question-generating: The more they are explored, the more they increase their complexity. Consequently, a profession's relationship to its epistemic objects – or that profession's "knowledge ties" – is defined "through the notion of a lack and a corresponding structure of wanting" (Knorr Cetina, 1997:12). The quality and nature of these knowledge ties generate the epistemic culture's specific forms of practice, mediate and facilitate the exploratory characteristics of these forms of practice, and serve as a driving force for learning loops, processes of inquiry, and the knowledge production of that culture. Consequently, the quality and nature of the knowledge ties of a profession are vital to that profession's characteristic expertise. However, the emergence of new and globalised symbolic economies now seems to contest conventional "object-relation regimes", and thus the knowledge ties and the very design of the expertise in question. As flows of knowledge, information and resources are no longer constrained by geographical proximities or institutionalized boundaries, these flows offer new incentives, opportunities and openings (along with new disincentives, dangers and limitations) in regards to the epistemic dimension of

professional expertise. Furthermore, since these flows are themselves generated by and generating a symbolic logic, they open possibilities of innovative ways of retrieving, sharing, and archiving knowledge and information. Moreover, they generate creative images, aspirations, and epistemic forms of practice marked by a new era in the making. The group of Norwegian nurses can help to illustrate this case.

Norwegian nurses make a highly specialized and differentiated professional group. When interviewed in 2009 the nurses revealed some exceedingly focused and short-lived epistementalities of a professional field of "fast knowledge", picturing themselves as concurrently observers to and participants in the fast-moving changes now happening. They all described epistemic forms of practices characterized by some highly developed and consistent routines for a systematic inquiry, for sharing their expertise, developing and updating their procedures, and for an uninterrupted and systematic validation of their labour, their disciplined inquiry, and their ways of evaluation. When describing the epistemic cultures and practices at their workplaces, they used the rhetoric of science, not only speaking of an "evidence-based practice", but also of "systematic investigation", "the research frontier", and "research tools". Overall, the nurses portrayed their epistementalities as based on a research interest and carried out through a highly focused and orderly set of systematic routines. This kind of epistementality seems to be generated by the urgency of their work: When one of the interviewees was asked "what if you do a mistake?" she promptly responded: "No, no. No, I can never do any mistakes. If I do, the patient will die". In short, the group of Norwegian nurses depict a work culture permeated by the orderly, systematic and productive logic of science.

In sum, the sociology of Knorr Cetina and the late semiotics of Peirce draw attention to the logos – or epistemic principles – of professional expertise. Such a semiotic outlook highlights the movable principles of professional expertise and the ways in which these principles are now being transformed in the intersection of generative symbolic economies and the knowledge ties of the professions. Knorr Cetina conceives of these principles as embedded in the epistementalities of the profession, which appears as the particular forms of epistemic practice, knowledge ties and interests relating to that profession's particular object of knowledge. Peirce, however, moves beyond a vision of the logos of the particular epistemic cultures, practices and knowledge ties, as he sees semiosis as the very generative principle of such cultures, practices and knowledge ties. Both invite a study on the tangible epistemic practices in their irreducible heterogeneity from below, as they both goes back to the rough ground when portraying the epistemic principles of professional expertise as inextricably intertwined with the epistemic cultures, epistemic forms of practices and knowledge ties of that profession. Consequently, they both reject a perspective on the new and globalised symbolic economy as a tidal wave of knowledge, information and resources spilling over the professions. By contrast, they offer an outlook sensitive to the complex and fluid processes of interaction and mutual reconstruction between, on the one hand, global flows of information, values, practices and resources and, on the other hand, local

epistementalities, shared representations and tangible forms of epistemic practice. The combination of Knorr Cetina and Peirce may thus offer a fruitful perspective on how professional expertise now undergo transformations, and to what degree these alterations may be generated by the ways in which global/local epistemologies now unavoidably interact, converge and convert.

SUMMARY AND CONCLUSION

So in what ways does professional expertise now undergo transformations? And how should we read the alterations? Overall, the three discourses on professional expertise presented here point to how the expertise of a profession is never given. Rather, professional expertise is a relational and constantly shifting entity, generated, justified, shaped and reshaped according to the altering dynamics of social institutions, changing societies, and symbolic economies. The three discourses – emphasizing respectively the *ethos*, *pathos* and *logos* of such expertise – mirror these dynamics.

The sociological outlook emphasizes the movable ethos – credibility – of the expertise of the Norwegian nurses, teachers, auditors and computer engineers. Here, we pointed to some ways in which the professions now seem to be renegotiating their missions according to the new divisions of epistemic labour in society: The group of Norwegian nurses interviewed speak of an "evidence-based practice"; the Norwegian teachers have adopted the rhetoric of public education as "knowledge promotion"; the auditors speak of a renewal of their methodology; and the computer engineers seem to be shifting focus from how to process to how to produce knowledge. Are these shifts signs of an emerging ethos of knowledge creation? If so, the movable ethos of the four professions may signify the insufficiency of the conventional mantra of 'knowledge on knowledge' (mirroring an epistemic reflectivity): To gain credibility, professions operating in a knowledge-intensive society should also comprise knowledge (and skills) on how to produce and mobilize knowledge.

The discursive outlook highlights the movable pathos – public appeal – of the tangible work of Norwegian nurses, teachers, auditors and computer engineers. On the one hand, the social recognition of the substantial, skilled work of the professions is at the very heart of their social power, position and legitimacy. On the other hand, the call for social recognition is vital to the discursive configurations and reconfigurations of professional expertise, since this call generates images of appropriate work identities and performances. In this part of the paper we thus focused on how social recognized images of professional expertise seem to be shaping, reshaping and justifying the expertise of the four professions studied, both from within and at a distance. One example is the Norwegian teachers' emphasis on the importance and value of testing school results and their ways of outsourcing vital aspects of their professional expertise to external agents and institution. But strangely enough, when admitting the shortcomings of their conventional expertise and acknowledging the relative

autonomy of their profession, the group of Norwegian teachers may strengthen, rather than weaken, the public appeal of their professional expertise.

The semiotic model highlights the logos – epistemic dimension – of the productive expertise of Norwegian nurses, teachers, auditors and computer engineers. The epistemic dimension of their expertise are here seen as mediated and generated by flows of signs (semiosis): 'Semiosis' designates the very generative logic mediating, moving and altering the very intersection of the symbolic economies of today and the knowledge ties of the professions. A semiotic outlook therefore helps to highlight the epistemic dimension of professional expertise and the ways in which the epistemic principles of a profession are being transformed in the intersection of generative symbolic economies and the knowledge ties of this profession. The quality and nature of such knowledge ties generate the epistemic culture's specific forms of practice, mediate and facilitate the exploratory characteristics of these forms of practice, and serve as a driving force for learning loops, processes of inquiry, and the knowledge production of that culture. However, the emergence of new and globalised symbolic economies now seems to contest the professions' conventional knowledge ties and thus the very design of the expertise in question.

So, in order to gain further knowledge of the current dynamics of professional expertise, and the ways in which the epistemic dimensions of such expertise are now being renewed, it seems pertinent to move beyond a traditional sociological and discursive outlook. A sociological outlook helps to identify ways in which professional expertise is now being re-structured according to altering social structures and forces. A discursive outlook helps to reveal discursive reconfiguration of such expertise in today's knowledge-intensive societes. But neither a sociological or a discursive outlook carry tools to identify the epistemic principles that guide the ways in which professional expertise is being produced and validated in the intersection of altering symbolic economies and the knowledge ties of the professions. However, to strengthen educational institutions in their vital efforts to prepare the students for an even more complex workplace and to offer professionals tools to build robust and dynamic knowledge cultures, such knowledge is needed.

NOTES

[1] "Discourse" here denotes an outlook or framework, laden with particular assumptions about the nature of the social world and how we attain knowledge of it. This broad concept of "discourse" highlights the fact that to portray the proper "grammar" of the notion of professional expertise, it is pertinent to be sensitive to the discourse in which it is embedded.

[2] We want to underline that when speaking of the epistemic principles of professional expertise, such principles cannot be associated with a foundational epistemology promoting rigid schemes and procedures of knowledge production and validation. By contrast, rigid schemes should be rejected in favour of complex, processual and creative models.

[3] Here, the notion of "discourse" differs from the broader notion (depicted in Note 1). "A discursive outlook" here refers to a realist notion of "discourse", meaning that "discourse" is seen as a particular object with its own properties and powers, which should be studied in relation to other social objects, such as the state, transnational policies, or economic processes.

[4] The data material consists of questionnaires, learning logs, individual interviews and focus groups. The questionnaires were answered by all participants in the first and the final years of their initial professional education, as well as 2.5 and 5.5 years after graduation; the learning logs were written during the first year of the participants' professional life; individual interviews were performed in 2005 and 2009; and the focus groups the early autumn of 2006. Here, we first of all read the individual interviews of 2005 and 2009.

[5] To the Norwegian nurses, it seems significant that the healthcare profession was first defined by Florence Nightingale (1820 – 1910); to the teachers it is probably influential that their profession received certification with the establishment of a Norwegian teacher training program already in 1826; the ethos of the auditors is possibly marked by the fact that Norwegian auditing was professionalized as late as in 1951; and to the ethos of the Norwegian computer engineers it is relevant that their profession is as young as the ICT industry itself (their very first educational training program was established in USA in 1971).

[6] "A discursive outlook" here refers to a realist notion of "discourse": "Discourse" here denotes a particular object with its own properties and powers, which should be studied in relation to other social objects, such as the state, transnational policies, or economic processes. The aim is to reveal the connections between "discursive practices" and the wider sets of "non-discursive" activities and institutions. It is thus important to take into account the underlying material resources that make discourses possible, and the fact that a discourse carries a potential power to reproduce and transform the material world.

[7] All teachers interviewed were primary school teachers (teaching grades 1 – 7). To read the interviews, it is pertinent to take into account some important characteristics of the Norwegian school system: In Norway, public education is seen as a vital pillar in the welfare state, and thus compulsory from the age of six up to sixteen. Primary and lower secondary education in Norway is based on the principle of a unified school system that provides equal and adapted education for all on the basis of a single national curriculum.

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PART 2

RESEARCH

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5. TRANSFORMATION THROUGH LAYERING(S)?

The case of Researcher Mobility in the Construction of the European Research area

PUZZLES OF EUROPEAN RESEARCH POLICY COOPERATION: CHANGE-RESISTANT OR TRANSFORMING?

Casting the minimal progress of European Union (EU) research policy cooperation since the 1960s as a puzzle, Banchoff (2002) argues that there are three paths of institutional resistance: normative, formal rule-based, and in practice. To start, he contributes the reluctance of national authorities to cede competence to the European-level as explanatory for the lack of successful reform. Continuing, and building on new institutionalist insights, Banchoff maintains that the implementation of successive Framework Programmes (FPs) since the mid-1980s generated an institutional inertia hindering possible changes. He singles out the FPs' main beneficiaries as particularly resistant against altering the function of European research policy from being a distributive mechanism (funding) to a coordinative one (policy). Concluding his analysis with the then European Research Area (ERA) initiative, Banchoff projects that its 'concrete shape' would likely embody the change-resistant features associated with this sector.

Nearly a decade after his analysis, we observe EU research policy cooperation as undergoing transformation. For instance, discursively, we find the European actors speaking of a 'fifth freedom' – free movement of knowledge – that anchors the ERA project in the Single Market model (i.e. removing barriers against the 'four freedoms'). In policy terms, the adoption of the 'scientific visa package' in 2005 to fast-track the admission of foreign researchers signals that the Commission is assuming, with support of FP's main recipients, a more coordinative role. Organisationally, we notice innovations such as the European Research Council that, whilst officially part of FP7, distributes grants departing from established FP-logic. Finally, the entry into force of the Lisbon Treaty in December 2009 gave ERA construction a legal base – a lack of which has been argued to hinder EU integration in this field (de Elera, 2006). Interestingly, these changes did not dismantle the FP-structure, which remains the central pillar of European research policy; they co-exist. This new empirical puzzle raises the reverse question than the one that Banchoff answered: How do we conceptually account for changes in a policy sector long considered to be in a state of inertia? To put it differently: If EU research cooperation is, indeed, resistant to reforms that could alter its function as a supranational 'funding mechanism', what accounts for these developments?

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Effects of Higher Education Reforms: Change Dynamics, 79–96.

Whilst to various extents most scholars have struggled to analytically account for change, this challenge has been acute for those working within the historical institutionalist (HI) tradition, which considers change-resistance to be a key feature of the phenomenon under examination (Pierson, 1998; Thelen, 1999). Indeed, one could even argue that the above questions very much encapsulate the new HI research agenda (Streeck & Thelen, 2005). Efforts to move *Beyond Continuity* (ibid) have generated insights into how and the mechanisms through which gradual changes may trigger transformation. For instance, Mahoney and Thelen (2010) even advanced a 'theory of gradual institutional change' in which the political and institutional contexts, the change-agents, and their coalitional strategies associated with particular modes of incremental institutional change (i.e. layering, displacement, conversion, and drift) are elaborated. Some of the analytical insights from this HI research agenda have been used to study *inter alia* EU research policy cooperation (c.f. Béland, 2007). For instance, Gornitzka (2009) argues, and provides substantive empirical evidence to support the claims, that the evolution of EU research policy cooperation has been a process of gradual change through adjustments, which retain the main sectoral features, and 'layering'.

Layering refers to the addition of new rules or measures on top of existing ones and it occurs, Streeck and Thelen (2005:23) explain, when reformers succeed in circumventing 'elements of an institution that have become unchangeable'. These actors tend to work on the margins of institutions and would promote the amendments 'as refinements or correctives' to the current arrangement (ibid). Once adopted, the new elements may contribute to altering the established logic and/or practice through the mechanism of 'differential growth'. According to Gornitzka (2009:55), European research policy could thus be seen as a 'set of sediments' consisting of existing and newer measures and set-ups, which 'over time...can start to take precedence'. Yet one aspect regarding layering in the EU and ERA contexts remains to be addressed: How did these reformers succeed in navigating around the permanent features of the European research policy sector? After all, as Banchoff (2002) had argued, these pathways of resistance were not merely rooted in formal rules and practice, but also normatively. In this chapter, I set out to address this research question in two ways: analytically and empirically.

Using insights from the organisational studies of political life, I first analytically specify two different strategies effecting layered measures to EU research policy coordination. It is argued that the main institutional change-agent – the EU Commission – enabled adoption of reforms by simultaneously pursuing a *sectoral* strategy (intensifying coordinative efforts in the research policy field) and a *lateral* strategy (shifting research targets to another sector). In so doing, I operationalise layering to account for how EU integration occurs in a policy sector in which supranational competence is delimited and its expansion contested. The propositions are then brought to life using three instruments proposed or adopted for facilitating researcher mobility in ERA. Researcher mobility is chosen as the case study because it is one of the under-studied aspects of ERA developments (see McGuinness & O'Carroll, 2010) that is, as the Europe 2020 Strategy proclaims, essential for transforming the EU into an Innovation Union. The chapter concludes

by discussing the general applicability of the two approaches and the implications of this research for studies of contemporary European polity-building.

EUROPEAN RESEARCH AREA AND LAYERING

The Commission formally launched the European Research Area in January 2000 to shore up what it argued to be a declining state of 'research in Europe' (Commission, 2000:4). Citing figures comparing Europe with the United States and Japan, it concluded that *inter alia* EU-wide research efforts, levels of public and private expenditure on research, and proportion of employed researchers were 'worrying' (ibid). The remedy, it proposed, was to abandon the '15+1' approach – the source of fragmentation – that had characterised European cooperation in this field and establish an internal market for research (ibid). Whilst both the diagnosis and solution were not new (André, 2006), the March 2000 Lisbon European Council situated ERA at the heart of its ambitious undertaking to transform the Union into the 'most competitive and dynamic knowledge-based economy in the world' (European Council, 2000), and, in so doing, it gave the idea of a common scientific space the strong political support it never had.

The 2000 Commission communication 'Towards a European research area' identified seven[2] broad themes for action ranging from developing an area of 'shared values' to ensuring more abundant mobile human resources (Commission, 2000:Annex I). To do so, it called for the 'full panoply of instruments' to be activated, including practical instruments (database and information systems), networks (information exchange), financial instruments (FPs), legal (regulations and directives) and 'policy coordination instruments' (ibid:22). The FP was to be merely one instrument for realising ERA and this particular formulation, Banchoff (2002) and de Elera (2006) asserted, became a point of contention that would lead to its loss of political support. According to de Elera (2006:564), national research centres and administrative units firmly opposed changes to the FP required for ERA formation; this was the case even though FP6 (2002–2006) had been approved for this explicit purpose. 'The confronted difficulties', he concludes, 'consumed the political impulse of the Commission' (ibid).

Aiming to regain political support, the Commission circulated 'The European research area: Providing new momentum'. This 2002 communication emphasised that ERA 'cannot be seen solely in terms of [FP-driven activities] and must by definition create a momentum of its own within a wider framework which draws on separate initiatives' (Commission, 2002:7). It stressed that the full usage of all instruments – notably those with integration potential – should be made (ibid: 19). The member states, which are the main decision-makers, rejected the Commission's vision; but they did uphold the notion of ERA when they confirmed that the 'open method of coordination' (OMC) would be its *modus operandi* (de Elera, 2006:565). Contextualising ERA developments suggests that, as Banchoff had correctly observed, veto points are in place to block reforms. Should the Commission wish to pursue the ERA agenda, as its communication had clearly

suggested, it had to circumvent these immovable features. To conceptually identify some ways in which it may do so, we now discuss layering.

Layering is a mode of gradual institutional change that is, as Mahoney and Thelen (2010:25–26) proposed, closely associated with the activities of a change-agent they call 'subversives'. These actors often 'effectively disguise the extent of their preference for institutional change' as 'they bid their time, waiting for the moment when they can actively move toward a stance of opposition' (ibid). Reflecting their namesake, Mahoney and Thelen (2010:26) argued that 'As [subversives] wait, they may encourage institutional changes by promoting new rules on the edges of old ones, thus siphoning off support for the previous arrangements'. This is due to the political and institutional contexts (existence of veto points preventing reforms and few rule interpretation) within which the change-agents, lacking actual decision-making capacity to effect binding reforms then, are active (ibid:17, 29). Regarding the coalitional strategy of 'subversives', Mahoney and Thelen (2010:30–31) remarked that they would neither ally with the supporters nor challengers of the institution, preferring to work alone during this period.

So how can the Commission, working alone[3], introduce and gain support for reform measures that would implement ERA when its earlier attempts had not succeeded to the extent it aimed? Mahoney and Thelen (2010:17) stressed that 'While defenders of the status quo may be able to preserve the original rules, they are unable to prevent the introduction of amendments and modifications'. Indeed, this may be particularly the case when these reforms are disguised as serving the defenders' agenda. For example, in a study on the transformation of the Brazilian health care system, Falleti (2010:49) finds that, after having infiltrated the new 'bureaucratic apparatus', reformers of the *movimento sanitário* succeeded in selling their proposals because the military regime accepted them as 'inexpensive solutions to the increasing demands for health and sanitation services'. It follows that one of several strategies the Commission could pursue would be, quite simply, to 'sell' the ERA agenda within the confines of the research policy sector (i.e. the *sectoral* strategy).

More specifically, the Commission could do so by working with the OMC rules and practices in addition to the FP. The Lisbon European Council conclusions stated that the OMC template would contain these four aspects: (1) adopting guidelines and timetables for reaching common objectives; (2) developing indicators and benchmarks to assess best practices; (3) translating European guidelines into national and regional policies; (4) carrying out periodic monitoring for the purposes of mutual learning. Within the OMC structure, the Commission could thus, in theory, assume the roles of an agenda-setter, developer of indicators, and/or coordinator. In practice, however, the options had been far more circumscribed. In its 2002 'Providing new momentum' communication, the Commission had already expressed concern that EU research policy coordination did not follow two OMC stages, namely, establishing common objectives and translating them into specific national targets (Commission, 2002:19).

This would suggest that the integration effects of pursuing a sectoral strategy are more limited than the simple non-usage of binding legal measures, but the case of the Brazilian health care reforms shows that widespread effects of policy change may be observable only decades after the instruments have been introduced (Falleti, 2010:40). Thus, it is proposed that the effects of pursuing a sectoral strategy based largely on the OMC are more likely to become apparent in the medium- to long-run. Initially, the outcome may be the preservation of the reformist agenda; in the case of ERA, this may occur through its reformulation as FP-compatible. Integration effects are more likely to materialise only after reforms are adopted, implemented and, quite importantly, become progressively used by its target audience; the variable speed with which this process unfolds constitutes, one could argue, the rate of institutionalisation. If the Commission had solely pursued the sectoral strategy with its rather limited visible effects in the short-term, how then can we account for some of the more recently observed changes in EU research policy?

The remark that 'subversives' prefer to 'work alone' offers a clue to a second strategy, and we may identify this other approach by considering how the Commission is *organised*. Whereas Council membership is determined largely by territorial affiliation (for instance, Portugal) and the Parliament is grouped by political party families (e.g. Social Democrats), the Commission is organised along sectoral lines (Egeberg, 2004). What this suggests is that, like other central institutions, the Commission is not a monolithic construct and the departments (Directorates-General, DGs) to which its officials belong constitute the main reference for their daily work (Trondal, 2010:36). Since issues can be cross-cutting, it is proposed that the Commission may also navigate around the stable features of one policy sector and effect reforms by 'moving' to another policy area where the sectoral dynamics may be broadly more favourable to achieving the stipulated targets. This *lateral* strategy is characterised by an internal transfer of policy tasks in which certain research policy objectives are addressed by another DG; analytically, it approximates 'subversive' actions more closely than the sectoral approach. We know that the lateral strategy is theoretically feasible given the existing 'inter-service consultation', which is a formal procedure that enables cross-DG interaction (Hartlapp, Metz, & Rauh, 2010:9–13).

It is important to emphasise that these two strategies or approaches should not be construed to indicate determinism in outcomes, nor should they suggest that the actors involved have fixed, or even coherent, objectives. To do so would dismiss the ambiguity and uncertainty present in complex political interaction and confine change-agents to a single mode of operation. Rather, the sectoral and lateral strategies constitute an analytical device to illuminate three – arguably, less examined or taken-for-granted – aspects of the European policy process. First, commonly known to observers and practitioners, this process is non-linear (i.e. there is no formulaic way to achieve goal *x* through *y* means). It is assumed that actors may pursue one or both strategies to reach their objectives through, for instance, deliberation, the logic of instrumentality and/or appropriateness. Second, this process can also experience gridlock in which the outcomes are not

forthcoming or may embody the 'lowest common denominator' to signal greatly reduced ambition. The sectoral and lateral strategies represent, analytically, two ways through which actors could instigate reforms that may usher in transformation even when others, in decision-making positions, have initially resisted change (c.f. Hartlapp, forthcoming).

Third, the relationship between the actors in the European policy process can be characterised as cooperative as much as competitive. Yet the conditions generating collaborative behaviour have received scant scholarly attention (for exception, see Lewis, 2010). Indeed, for example, the existing literature on the internal dynamics of the Commission tends to highlight how the DGs are more likely to engage in 'turf battles' than to collaborate (Christiansen, 1997, 2001; Simpson, 2000). Whilst the Commission hierarchy ensures that sectoral interaction need not occur at the administrative-level and can take place solely at the political-level (i.e. within the College of Commissioners),[4] the proposed lateral strategy shifts our analytical focus towards identifying the conditions that may trigger cooperation between DGs. Certainly, we may find more competitive behaviour than cooperative ones, but examining cross-sectoral interactions may reveal another set of dynamics underpinning EU integration. In the following section, we empirically consider the sectoral and lateral approaches in light of three instruments proposed or adopted for researcher mobility. The data used include publicly available documents, and 26 off-the-record interviews carried out in May-September 2009 and May-July 2010 with the Council and Commission officials involved in preparing, debating and implementing them.

INSTRUMENTS FOR SCIENTIFIC MOBILITY (2000–2010)

The main FP instrument for promoting researcher mobility is the Marie Curie actions (MCA). Officially introduced as 'Training and mobility of researchers' under FP4 (1994–1998), MCA has evolved in budget size (from €792 million to €4.7 billion) and thematic priorities. Whilst the proportion of its financial allocation is linked to the sum agreed for the FP, DG Research has been responsible for the annual work programme that determines how the budget will be used. Programmatic adjustments are made to address the difference between the expected and actual grant applications received. For instance, according to the MCA desk officer, the word 'essential' was inserted into recent calls for Initial Training Network in an attempt to increase participation from industry; it was considered successful (INTV22, 12 May 2010).

Several notable changes have also been introduced to MCA content and administration under FP7. First, a new scheme was added to establish the Commission as the co-funder of existing fellowship programmes (CO-FUND) (Commission, 2009:20). Second, the Research Executive Agency (REA) assumed daily MCA management since 2009. Third, DG Research transferred the MCA dossier to DG Education in 2010. Interviewees and official Commission documents stressed that these changes were made to increase efficiency and effectiveness. For example, CO-FUND partners are responsible for administering the fellowships

following Commission-insisted standards (INTV22). Similarly, the REA had been established so as 'to achieve more efficiently the objectives set' (Commission, 2008a:3). Likewise, the officer now in charge of the MCA portfolio explained that the transfer had been made because DG Research had quite simply 'became too big' (INTV23, 12 May 2010); it is implied that moving the MCA to DG Education was merely an attempt to streamline.

What is interesting about changes to the primary FP instrument for researcher mobility is that they constitute 'adjustments' in EU research cooperation since the core feature of the FP – i.e. funding distribution – is retained. It emerged from the interviews that the Commission ensures continuity in another way. Responding to whether handing MCA to DG Education could have any effect on the functioning of the FP, the same Commission official insisted that this should not be seen as 'significant' because the 'same people' are in charge of its policy-planning, and that DG Research is still politically responsible (INTV23). This brief analysis reveals that EU research policy cooperation may be far more fluid than previously perceived, and the analysis below on three non-FP instruments for researcher mobility also confirms this impression.

Charter, Code and the Human Resource Strategy

In March 2005 the Commission adopted the 'European Charter for Researchers' (Charter) and 'Code of Conduct for the Recruitment of Researchers' (Code) to address the career-specific barriers 'A Mobility Strategy for the European Research Area' has identified (Commission, 2001). The Charter contains two sets of principles that detail the 'roles, responsibilities and entitlements' of the researchers and their employers (Commission, 2005a:Annex, Section 1). For example, researchers are entitled to 'freedom of thought and expression', 'methods by which problems are solved' and career advancement; they should, however, ensure that these findings follow acknowledged ethical and professional principles. In return, employers are expected *inter alia* to recognise the profession from postgraduate stage onwards. The Code sets out the 'general principles and requirements' for hiring researchers and, thus, applicable only to employers (Section 2). By 2011, over 150 European and international organisations, representing over a thousand research institutions, are signatories.

Following the OMC structure (Gornitzka, 2006), DG Research drafted the Charter and Code in 2003 and carried out a wide stakeholder consultation throughout 2004 before their adoption as a Commission recommendation (INTV10, 16 June 2009). Whilst discussions for a researcher charter and code had been on-going within the Commission since the 1980s, one DG Research interviewee stressed that it was not until the late 1990s that this idea was able to crystallise in its current form (INTV17, 6 May 2010). Examining this process would show how the sectoral strategy works in practice. According to this Commission interviewee, the effort to reform the MCA and prepare for FP6 at the time was considered in light of how 'Europe can open up to the world' (ibid). The 'opening up Europe' discourse was significant because the Charter and Code, quite

interestingly, was formulated initially and primarily for *European*, rather than all, researchers (Commission, 2003:23). Therefore, when adjustments to the MCA under FP6 were made to signal this 'opening up' (such as removing age-limits), it became evident that retaining their original framing would have been incompatible with the permanent features of European research policy cooperation and the Commission's own discourse.

Yet reformulating the Charter and the Code as FP-compatible does not imply that they are not contentious. Indeed, during the consultation process, the principles of 'research freedom' and 'recognition of the profession' emerged as highly controversial. According to a DG Research official who coordinated the consultation, senior German academics were, and still are, unable to endorse the 'research freedom' principle because it requires them to recognise its limitation (INTV08, 11 September 2009). This interviewee attributed the source of this opposition to an understanding of what is appropriate. Elaborating, he noted that the so-called 'cultural shadow of Nazism' encourages German academics to challenge any limitation aiming to restrict their research freedom (ibid). By contrast, the resistance towards the 'recognition of the profession' had been, and remains, comparatively widespread due to the likely increase in social security and financial costs if implemented. This particular principle, the same interviewee explained, seeks to address the practice of designating researchers as 'fellows' instead of as 'employees', who ordinarily have more rights in national social security and pension schemes (ibid). Whilst compliance is voluntary, initial debates on this 'soft' instrument point to the intrinsic challenges ahead for European research policy coordination.

To assist in implementing the Charter and the Code, in 2008 the Commission launched the so-called 'Human Resource Strategy for Researchers (HRS4R)'. A five-step process, the HRS4R is, as the Commission claims, a 'light mechanism' through which a research institution, which has adopted the Charter and the Code, self-evaluates their implementation. What is interesting for a discussion of their 'integration effects' is how this procedure involves primarily two sets of actors: DG Research and the implementing research institutions. In so doing, as elaborated below, the procedure allows for bypassing national ministries and contributes to consolidating the Commission as a 'node' through which most interactions generally flow. For instance, DG Research has devised the evaluation template and insisted on the same indicators if a similar process is on-going (Step 1). The results, along with a list of further 'actions required', must be published on Euraxess (e-portal of Commission) and on the website of the complying research institution (Step 2). DG Research examines the report and, if satisfied, formally acknowledges the institution as 'HRS4R compliant' (Step 3). A DG Research official explained that, at this point, the research institute may freely use the 'HRS4R logo' (INTV17). To retain this status and logo usage, the research institute must self re-evaluate every two years and be open to an external evaluation every four years (Steps 4, 5).

At the time of writing, the extent to which the on-going implementation of the Charter and the Code has transformed European research policy cooperation

remains inconclusive; yet the observable trends and initial reflections from a DG Research official in charge of the HRS4R are informative. To begin, when asked to identify the Commission's 'role' in this process, this DG Research interviewee clarified that the Commission has a 'supporting role' that 'provides guidance' to the institutions wanting to be 'visible' as 'HRS4R compliant' (INTV17). Yet as this interlocutor elaborated, the continuous 'strong interactions' between the Commission and the research institutions have gradually biased the Commission's role towards an 'instructor' and 'interpreter' of the Charter and Code rather than as a mere 'supporter' (ibid). Indeed, this interviewee remarked that the representatives from research institutions were 'enthusiastic to learn' from the Commission regarding whether 'what they have been doing is right or wrong' (ibid). In brief, what the interview indicates is that in pursuing a sectoral strategy based on the OMC the Commission's own role in EU research policy coordination has been transformed: it is no longer the change-agent with a reformist agenda occupying its margins. In the following section, we consider how the adoption of a set of provisions regulating admission of non-EU researchers contributed to edging the ERA agenda towards centre stage.

Scientific Visa Package

Formally adopted in October 2005, the 'scientific visa package' consists of three instruments: two recommendations (on a uniform short-stay visa and admission of foreign researchers) and one Council directive on a specific procedure for admitting researchers who are third-country nationals (TCNs) (Official Journal of the EU, 2005a, 2005b, 2005c). The preambles confirmed that their objectives are exactly the same: to give structure to ERA as the 'most competitive dynamic knowledge-based economy in the world by the year 2010' (*broad* objective), and to attract a sufficient number of foreign researchers to fulfil the quota of 700,000 (*specific* goal). Whilst overlapping, these instruments go about it in different ways. Due to space limitation, the following focuses on the Council directive, which is binding on member states[5] in terms of the results to be achieved and enforceable under EU law.

The directive contains seven chapters specifying the roles of national authorities, the research organisations and non-EU researchers during admissions, and the benefits that those admitted may expect in return (Official Journal of the EU, 2005a). The research institution (public or private) emerged as key intermediary in this process because it issues the 'hosting agreement' that would result in the extension of a residence permit (valid for one year and renewable) (Articles 7, 8). Once admitted, the researcher is entitled to *family reunification* (residence permits of similar duration and not conditional on the researcher completing a minimum residence period); *career development*; *same treatment as EU nationals* in the recognition of qualification, social security, working conditions, access to public services and tax benefits; and *free movement* within the EU for visits of less than three months (Articles 9, 11–13).

At the time of writing, the Council directive is the only *legislative* measure for regulating researcher mobility even though it is not a research instrument, but one of migration control. The internal coordination within the Commission leading up to the proposal of this directive indicates that it is an instance of the lateral strategy, and examining these developments would uncover factors that had contributed to the Commission successfully navigating around the permanent features of the European research policy sector. Whilst DG Research had already stressed the importance of attracting foreign researchers in the 'Mobility Strategy for ERA', it was not until DG Justice, Freedom and Security (JLS) circulated a proposal on the admission of TCN researchers for inter-service consultation that joint policy elaboration was undertaken (INTV08). The two services agreed that DG JLS would take the lead since, as a DG Research interviewee who assisted in finalising the proposal had put it, 'It is an admission instrument, thus migration, thus DG JLS' (ibid). Working throughout 2003, two policy-officers from JLS and one from Research jointly prepared the Council directive (ibid).

Decisions to engage in cooperative collaboration, as this DG Research interlocutor explained, reflected sectoral priorities (INTV08). At the time, DG Research was considering how to meet the 'frequent concerns' of TCN researchers on the admission barriers enforced throughout the EU, and DG JLS was searching for another measure to replicate the success with the proposal for a Council directive on admitting TCN students and unpaid trainees (ibid; Council, 2004a). This interviewee suggests that decisions to jointly prepare the proposal were made following an instrumental logic. If that were truly the case, then the *raison d'être* for its adoption reveals that another logic dominated the interaction: the emphasis placed on ERA construction, rather than on the Area of Freedom, Security and Justice, distinguishes the researcher directive from then existing, and even current, migration instruments. For instance, the stipulation to give EU nationals preference (i.e. 'Community preference') is explicitly removed from the researcher directive, but is kept in the 'Blue Card' scheme for highly-skilled TCNs (Council, 2009). This indicates DG Research input, and that the proposal is more likely to be a deliberative outcome than one from 'hard bargaining'; turning to Council debates would support this observation by revealing the distinct concern of the migration sector.

The Working Party on Migration and Expulsion in the Justice and Home Affairs Council received the Commission proposal for a researcher directive on 2 April 2004 and finished its second reading within a fortnight.[6] The issues singled out for debate ranged from the levels of qualification required to enter as researchers to which indicators to be used for acknowledging research organisations (Council, 2004b). Only one issue remained unresolved in the final two months of negotiation: the free movement of family members who are TCNs (Council, 2004d, 2004f). The source of contention was the placement of the provision: in the recital (supported by a majority of the delegates) or in the actual text (insisted by the Belgian official) (Council, 2004e). To unpack the implication, it is useful to recall that, whereas a provision in the recital is guiding, it becomes binding in the main text. Thus, the Belgian representative was in effect asking other member states to

commit themselves – an obligation enforceable under EU law – to ensuring that no migratory controls are placed on researchers' family members. Whilst the ministers politically resolved the issue by favouring the recital (Council, 2004g), this debate shows that migration officials were primarily concerned with border control.

The Council debates on the researcher directive tell us that the sectoral context is important in framing the *problematique*, and we conclude with its relevance for the outcome of pursuing a lateral strategy by noting the time it took to finish its negotiations: 8 months. Given that most migration measures required the Council 2–4 years to complete the negotiation, this is remarkable. Indeed, it could only be understood if we place the negotiations along the EU migration policy timeline. The researcher directive was proposed a month prior to the scheduled transition of the policy-making procedure from consultation to co-decision, which would establish the Parliament as a co-legislator. Whilst the transition was only formalised after the Council had voted[7] to do so, delaying the adoption of the researcher directive may subject it to debates, and even changes, over which the Council has little control. As we shall see next, discerning the sectoral context also contributes to accounting for how the success of a lateral strategy attempted needs more than the convergence of sectoral interests and objectives.

Portability of Supplementary Pensions

To reduce obstacles against the free movement of workers, in October 2005 the Commission presented the proposal for a directive on 'improving the portability of supplementary pension rights' (Commission, 2005b). The draft directive introduced a set of conditions addressing the *acquisition* of pension rights, *preservation* of dormant pension rights, *transferability*, and the *information* to be given to workers regarding pension rights at the termination of employment (Articles 4–7). The DG Research official responsible for the social security dossier stated that researchers, as highly mobile workers, are especially vulnerable to the effects of differentiated European occupational pension schemes (INTV12, 5 May 2010). Whilst 'job opportunities for spouse' far outweighs 'second pillar pension' in decisions to be mobile (Commission, 2008b), this interviewee insisted that the Commission views a near lack of coordination across Europe as a fundamental barrier against realising the 'fifth freedom' (INTV12). Similar to the case of the researcher directive, and according to an interlocutor (ibid), internal exchanges between DGs suggest that it is also an instance of the lateral strategy in praxis; albeit with strikingly different outcomes.

Completing its first legislative reading of the draft pension portability directive in June 2007, the Parliament had 34 amendments that would lead to the Commission submitting an entirely different proposal (Commission, 2007). Concerning researcher mobility, the most significant change was a replacement of the transferability of supplementary pension rights as legislative subject with acquisition and preservation. According to the policy-officer who prepared these proposals in DG Employment (the lead and only service), this shift in focus sought to reflect priorities of the Parliament and the Council; it was a political compromise

(INTV24, 12 May 2010). Whilst the amended proposal remains under negotiation in the Council and unanimity is required for its adoption, this DG Employment interviewee confirmed that it is unlikely that the Commission will re-introduce the transferability issue in the foreseeable future (ibid). By contrast, the DG Research official emphasised that the Commission is 'still very interested in putting the transfer issue back on the agenda' (INTV12). At the time (May 2010), this official indicated that the immediate step was to ensure that the term 'researcher' was inserted into the forthcoming Green Paper on European pension systems (ibid). Situating this in the context of the way forward reveals how the Commission as change-agent responds to the likelihood that an attempted lateral strategy may not effect the reforms pursued.

In the Green Paper on pensions, the term 'researcher' is explicitly mentioned twice as 'highly mobile workers' within the context of providing 'fresh impetus' to the pension mobility issue (Commission, 2010b:3, 12). Here, the feasibility study on setting up a cross-border European pension fund for researchers is specifically indicated as an example of one potential solution. Completed in May 2010, the feasibility study investigated the 'legal, technical and financial terms and requirements' for creating a pan-European occupational pension framework; it found that there is a demand for this scheme amongst surveyed organisations, two potential 'legal vehicles' and three 'locations of choice' (Belgium, Ireland, Luxembourg) (Commission, 2010a). The DG Research official currently overseeing the formation of the 'Task Force' that would bring together researchers' employers to debate where and how to set up this pension fund stated that this is very much the way forward (INTV26, 26 July 2010).

Relevant for our discussion is how preparations to establish a researcher pension fund gained momentum shortly after the Parliament adopted its amendments for the proposed directive on pension portability (FP7 People Programme Advisory Group, 2007, p. 8). Certainly, it could not have foreseen the (supportive) findings from the feasibility study, but the very preparations at the time to establish a pan-European researcher pension fund clearly show that DG Research constantly sought ways of preserving – and advancing – the ERA agenda. In this instance, we observe DG Research turning to the well-established financial resources (FP) at its disposal to devise 'Plan B'. Indeed, its interchangeable usage of the sectoral and lateral strategies ensures that European research policy cooperation is much more likely to undergo transformation than remain change-resistant.

DYNAMICS OF EUROPEAN RESEARCH AREA CONSTRUCTION: TRANSFORMATION THROUGH LAYERING(S)?

Transformative changes may manifest instantaneously or, as we now know, incrementally. Whilst scholars have analytically distinguished ways through which gradual changes may effect transformation, our knowledge of how actors, lacking actual decision-making powers, acquire support for reforms when similar attempts were dismissed earlier is less profound. This chapter contributes to improving our understanding of approaches these change-agents used to advance their reformist

agenda. I first analytically specified two 'layering' strategies that could allow actors to circumvent features of a policy sector that have become change-resistant; these propositions were brought to life using the case of researcher mobility. In this concluding section, I will first summarise the main findings before discussing the general applicability of the approaches.

In the case of the Charter and the Code, we observe the *sectoral* strategy in praxis that follows the OMC structure. Whilst the integration effects are less discernable now, initial reflections from the DG Research official overseeing their implementation suggests potential transformative effects via learning. Turning to the 'scientific visa package' and the proposal for portable supplementary pensions, we observe the *lateral* strategy in practice that, whilst more prevalent, led to dissimilar results. In the case of the foreign researcher directive, interviews indicated that the decision to engage in joint policy preparation generally followed an instrumental logic: whereas DG JLS wanted to replicate the ad hoc success of TCN students' directive, DG Research was looking for ways to achieve the mobility target. Examining the Commission proposal, however, revealed that it was more likely a deliberative outcome since the migration control concern of the lead service yielded to the 'knowledge-economy' discourse of ERA when it came to specifying a rationale for the 'scientific visa package'.

The case of the portable supplementary pensions was an instance of DG Research attempting to achieve its researcher mobility targets in another policy sector. Interestingly, even though their respective sectoral objectives converged on the transferability of worker pensions, DGs Research and Employment have not formally joined forces in the preparation of one common proposal. Developments since the publication of the Green Paper on pensions have shown that both DGs are currently pursuing different outlets. What the two cases have revealed is that the dynamics stemming from cross-sectoral interactions constitute another source of momentum in EU 'area formation' that remains hidden if not explicitly investigated. By simply widening the conceptual scope beyond the immediate sectoral boundary, the lateral strategy analytically enables one to undertake this examination.

To consider the general applicability of the sectoral and lateral approaches, it is useful to first discuss what this analytical device does not address. As mentioned earlier, we know that the Commission does not work alone in the EU policy process, which involves a constellation of other actors. Hence, the sectoral and lateral strategies as elaborated do not account for how inter-institutional dynamics affect EU 'area formation', nor do they elaborate on the role(s) of stakeholders in these developments other than acknowledge their presence. This may lead one to challenge the assumption that the Commission could even fit the profile of the 'subversive' change-agent as conceptualised by Mahoney and Thelen. Admittedly, the EU institutional and policy context is comparatively far more open to external inputs than the authoritarian regime that gave rise to this part of their theory-building exercise. It is worth stressing, however, that the features associated with 'change-resistance' were observed in both.

Several options could be taken to improve the general applicability of the two strategies. For example, the sectoral and lateral strategies could be incorporated into a larger analytical tool-box that investigates *inter alia* negotiation tactics of political actors. Here, these approaches would merely capture two 'moves' to which actors theoretically have access. Alternatively, one may focus on elaborating the roles, if any, that other actors (institutional and stakeholders alike) have in affecting how the two strategies unfold. This option is more demanding because it requires a mapping out of the actor-constellation in the respective sectors before considering how and to what extent they may have impacted the outcome (see Grande & Peschke, 1999). In short, whilst the sectoral and lateral strategies illuminate two ways in which reformers may navigate around the stable features of a policy sector, improvements could only sharpen their analytical utility.

To conclude this analysis on researcher mobility in ERA construction, it is essential to at least raise this question: What is the relationship between sectorally or laterally 'layered' measures and transformation? Two general observations can be offered. First, successful adoption of an instrument – either through the sectoral or lateral strategies – does not result in transformation even in the longer-run if the 'differential growth' mechanism is not activated and maintained. Second, the sustainability of the mechanism of 'differential growth' is contingent on multiple elements that are difficult to foresee. Take the example of observed transformative effects via learning in the case of implementing the Charter and the Code. The extent to which we would be able to confirm this would depend not only on how this interaction continues to evolve and the general availability of resources, but also how the Commission reads the Lisbon Treaty. If read expansively, we could expect the Commission to press for 'harder' measures to construct ERA and devote resources to this. In this scenario, the sectoral strategy that triggered learning could operate according to new rules that may, indeed, suggest its very own transformation.

NOTES

[1] This study is part of the larger project 'The transformation and sustainability of the European political order' funded by the Norwegian Research Council and based at ARENA – Centre for European Studies, University of Oslo. I would like to acknowledge mobility support from the Aurora programme funded by the Norwegian Research Council. The data used have been presented at the 2010 ISA conference (New Orleans) and the 2010 ECPR Joint Sessions (Münster), whilst an earlier version has been presented at the 2010 CHER conference (Oslo). Detailed comments from Åse Gornitzka and two anonymous reviewers have improved the chapter, but all errors remain mine.

[2] 'The international dimension of ERA' theme was added in 2001 (Commission, 2002, p. 15).

[3] I acknowledge that empirically the Commission does not generally work 'alone' and will return to this aspect in the concluding section.

[4] I thank Morten Egeberg and Jarle Trondal for pointing this out.

[5] Due to their differentiated participation in migration cooperation, Britain and Denmark are not bound by the directive; Ireland has opted-in (Council, 2005).

[6] New EU members joined from third reading onwards. Whilst voicing similar concerns in the main, they initially questioned its premise (Council, 2004c, p. 9).

[7] When it delayed this, the Parliament circulated a recommendation urging the Council to do so on grounds of 'effectiveness' and 'legitimacy' (Parliament, 2004).

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6. HOW EUROPE IMPACTS ON ACADEMIC RESEARCH

The Transformative Potential of the European Framework Programmes

INTRODUCTION

Our study frames changes driven by the EU Framework Programmes (EUFPs) in an institutional perspective and exploits the concept of institutionalization to explain how these are translated into rules and practices by research units and researchers. Evidences support the idea that EUFPs lead, within academic institutions, to very diversified institutional responses by scientific fields rather than to undifferentiated ones. They strengthen leading research groups and Departments, already competitive at the EU level, enhancing existing international behaviours and practices, holding steady or tailing off competition opportunities for less experienced participants, without affecting new groups participation. Moreover, the absence of relevant organizational changes at the University level and the lack of incentives for the participation to EUFPs, seem to strengthen observed tendencies.

BACKGROUND

In the last twenty years the higher education institutions (HEIs) have been invested by an increasing movement toward enhancing the performance-based accountability, which has had a special impact on the HE funding and planning (Alexander, 2000). As to the funding, the emergence of the market as a central issue in the political discourse on higher education (Dill, 1997; Bok, 2003, Amaral, Dill, & Teixeira, 2011) affected the financing of HEIs, with strong and visible effects on resource generation and allocation, institutional steering and mechanisms for control and evaluation (Weiler, 2000). Changes were produced at both the University macro level and at the individual behavior micro level, generating intended and unintended effects (Geuna, 1999), and in no way a robust best approach for resource generation and allocation can be identified (Liefner, 2003; Jongbloed & Vossensteyn, 2001, Jongbloed, 2004).

It is also true that the importance of external competitive funding arrangements for research grew up in the last decades, with different external actors, beyond the national government, starting to influence HEIs activities. Among the external

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actors the EU played a major role, contributing to the de-nationalization of the academic institutions (Teichler, 2008). Thus, a process of Europeanization of educational systems can be observed with respect to the harmonization and convergence, at least cognitive, of education policies (Ravinet, 2009; Soderqvist, 2007), to the development, at the level of academic institutions, of joint programs and agreements to improve collaborations at EU level or with respect to the changes at the level of management, services and human resources impacting on academics institutional settings and organization (Enders, 2004; Gornitzka, 1999).

Focusing on EU policies for scientific research, since the '90, these were addressed at overcoming the differentiations among European national research systems and at facilitating the creation of a European Research Area (Luukkonen & Hakikka, 2000) pushing forward new rules for academic institutions, new ways of doing research and collaborations schemes, and weakening the influence of national models on universities organization (Musselin, 2006). According to these goals the EUFPs aims have broadened from the support of European research competitiveness to the setting up of a critical mass of researchers and the establishment of a European space for research, through the creation of competitive networks, the improvement of international and mobility agreements, the strengthening of public-private collaborations, the funding of mainly interdisciplinary, precompetitive and applicative research projects (Feron & Crowley, 2002; Banchoff, 2002; Luukkonen, 2001; Bressan, Reale, & Primeri, 2008). Funding coming from the participation to EUFPs, then, has been supposed to impact on HEIs in a very special way, as for their organization, the scientific collaborations and mobility schemes, the patterns of knowledge production, the research themes.

Our study intends to discuss the extent to which EUFPs have a transformative potential for the HEIs, through the control of changes they produced for the case study of the University La Sapienza in Rome (Feron, and Crowley, 2002; Teichler, 2004; van der Meulen, 2002). The questions we try to answer are: what intended effects of EUFPs can be observed at the level of Departments and of researchers? Do changes observed at the level of academic institutions support the hypothesis of differentiated paths towards the Europeanization of research?

We expect EUFPs to be effective tools transforming academic institutions internal organization, the human resources management, and the setting of research priorities as well as their collaboration patterns. We also assume effects to be diversified among disciplinary areas, although invested by the process of Europeanization.

We focus on changes triggered by EUFPS at the meso and micro levels of academic institutions, thus at Department and research groups level[1], with respect to:

– the organization and activities of Departments, in order to improve structures and services, to professionalize the research management, to motivate the participation to EUFPs through incentives policies, evaluation activities and resources allocation (Arnold, Clark, & Muscio, 2005; Hakala et al., 2002; Niskanen, 2001),

– the knowledge production, with expected effects on human resources, Ph.Ds. and the training of young researchers. We also consider the effects on scientific production as the increase of co-authored publications at the EU level and of scientific outputs commercially exploitable as patents and spin-off (Arnold, Clark, & Muscio, 2005; Henriques, 2009),
– the ways of doing research, impacting on the design of the research agenda (Arnold, Clark, & Muscio, 2005) through a capacity to "redirect" the research units scientific priorities, alerting them on new problems relevant at EU level.

Finally, we consider the shift from a purely academic way to a more project and internationally oriented way of working of research groups and the improvement of their networking capacities (Luukkonen, 2001; Arnold, Clark, & Muscio, 2005).

The effects of EUFPs participation are discussed across scientific areas, considering also differences in the participation, as for the assiduity, the factors which pull the decision to participate, the benefits, as identified by the participants, and the human resources committed in EUFPs projects.

The paper is organized as follows. The first section introduces the main theoretical issues used to address questions related to the effects of external competitive funding arrangements where EUFP are considered from the perspective of the resource dependency theory and the institutional approach. The second section presents the methodology, and the third the potential transformative elements of the EUFPs at Department level. In the fourth and fifth sections the case study of the University La Sapienza is presented and discussed. Some conclusive remarks are drawn in the final section.

THEORETICAL ISSUES AND MAIN ASSUMPTIONS

Two main theoretical approaches can be used to investigate changes on academic institutions brought about the transformation of funding arrangements: the resources dependency approach (Pfeffer & Salancik, 1978), and the institutional perspective (Oliver, 1991; Di Maggio & Powell, 1991).

The first approach insists on the capacity of organizations to strategically response to environmental specific contingencies with the aim of maintaining their autonomy and of limiting their resources dependency. This perspective considers resources constraints, or the perception institutions have with respect to their dependency from external environment resources, as main factors driving institutions choices about changes. According to this view, changes are the outcome of rational processes carried out by organizations instead of progressive transformations face to different environmental and social pressures.

Scott defines institutions as "*multifaceted, durable social structures, made up of symbolic elements, social activities and material resources*" underlining that although the notion of institution connotes stability and order, they also undergo changes that can be produced both by endogenous and exogenous factors. Endogenous factors are related to perceived gaps between existing situations (e.g level of performance) and expected ones and can refer to differences perceived with respect to local systems, circumstances, activities (Scott, 2008). Exogenous

factors are those political, economic or social factors, which destabilize existing rules and understandings and can produce new institutional logics.

They constitute the external environment organizations are embedded in which is defined by institutional scientists as the system of rules, norms, contracts, agreements values and rational myths which indicates what can be considered a correct behaviour, appropriate and acceptable for academic institutions. Then institutions, in order to comply with their external environment, carry out changes that they consider compatible, so that they fit with institutional settings, norms and rules, and profitable, whether they produce some advantages for the institutions (Radaelli, 2000; March & Olsen, 1984, 1998).

Main criticism to early works on institutionalism and to this view stressed the "homogenizing pressures" and the "isomorphic processes" triggered by the external environment, emphasizing the predictive character and conservative results of the external pressures on organizations. More recent studies have developed a less deterministic view pointing out how institutions responses to changes in their environment can be rather diversified as for the types and the depth (Oliver, 1991; Scott, 2008; Di Maggio & Powell, 1991; Maassen & Gornitzka, 1999), thus incorporating many elements of the resource dependency approach. Organizations, in response to external demands, can adopt paradigmatic transformations, or limited and superficial changes, carrying out what is called a ceremonial conformity, or decoupling innovations from real day to day practices, activities and norms giving rise to separate paths of implementations (at example through reshaping roles or existing structures). The process of decoupling of innovations should not be considered as an institutional effect itself, but one of the possible responses of institutions to changes pressures and the extent and type of decoupling processes depend on how early or late the innovations are adopted, early adopters being more likely to implement changes.

In our analysis, we do not intend institutional environment as imperative or constraining for academic institutions. Moreover we consider universities as organizations with specific characteristics and features, because of their core tasks, research and training, which cannot be easily standardized, and which characterize them as loosely instead of tightly coupled systems (Weick, 1976; Krucken et al., 2006). Thus, internal units, offices, groups (i.e all those elements which constitute an organization) within educational institutions are often weakly linked and mutual effects of one's action on the other are rarely observed. Universities can develop flexible and adaptive organizational responses, limited to specific activities and tasks, in order to face environmental external pressures (Enders, 2004). These piecemeal changes, although not paradigmatic, in the long time can produce considerable effects at the institutional level. As a consequence environmental pressures can lead for academic institutions to very diversified and not predictable organizational responses.

We frame changes produced by EUFPs on academic institutions in terms of transformation of rules, values, behaviours and norms which regulate academic activities. We conceptualize the effects from an institutional perspective, assuming that EUFPs give raise to different organizational responses or adaptation

processes in order to face them (Radaelli, 2000). We expect effects of EUFPs on academic institutions to be very diversified as for their depth and characteristics encompassing in depth transformations of academic core activities, adaptations processes or inertial behaviours and refusal of changes (Gornitzka, 1999; Banchoff, 2002). The formers would represent two positive answers of academic institutions to changes introduced by EU policies. A transformation process, in fact, leads up to paradigmatic changes involving also fundamental logic of political behaviour.

Adaptation means that institutions do not carry out a real changing process, so they absorb-adapt to certain non-fundamental changes, but maintain their 'core'. The latter would represent, instead, two possible negative answers of HEIs to EUFPs shifts: inertia or retrenchment, both indicating a separation between the two possible arenas for research activities, the national and the international one. Inertial answer, in fact, means lack of changes as domestic and international practices are too dissimilar, while retrenchment consists of a complete refusal of changes and the reinforcement of domestic practices (Radaelli, 2000; Banchoff, 2002).

Exploiting the concept of institutionalization, the study attempts to explain how changes triggered by the participation of research units and researcher to EUFPs are translated and incorporated into rules and practices, giving them stability and ensuring their continuity (March & Olsen, 1984, 1998; Ravinet, 2008, 2009).

METHODOLOGY

In this work, changes fostered by the Framework Programmes are controlled through the case study of the University La Sapienza in Rome, Italy. We analyse the participation to EUFP6, across different disciplinary areas, focusing on the Departments and research groups as main units of analysis.

The aim of the paper supports the choice to conduct an in-depth study of a single academic institution, using the single-case study methodology.

According to Yin's recommendations (Yin, 2002), single case study allows to carry out exploratory researches which can provide evidences of some theories and can reveal aspects of realities that have to be observed and which are not easily represented, at example, through the exploitation of quantitative data.

A limit can arise as far as the possibility to generalize observed results is concerned. Yet, empirical results from the case study are not statistically robust but can be discussed as evidences of theories and assumptions about the impact of EUFPs observed at the level of research units of academic institutions.

The University La Sapienza is a large generalist university, among top research universities in Europe, with an outstanding national and international reputation, as it emerges from international rankings (i.e the Shanghai Ranking, the Times Higher Education Supplement and the Leiden Ranking) and bibliometric studies, with a heavy involvement in EUFPs[2] and in the core of European networks (Henriques et al., 2009). Departments represent the main

units in charge for research: their chief have decisional power in the participation to research programmes, for signing national and international collaborations agreements and, to a limited extent, for managing funds assigned by the Research Commission. Moreover, they can develop strategic decision to improve research efforts, besides the general indications addressed by the academic central institutions, also relying on stakeholders, collaboration networks and human resources to produce new knowledge (professors, researchers, doctoral students).

Documents internal to the University La Sapienza, as the strategic plan for 2007–2012, underline the importance of the international standing and reputation, to be improved through joint programs with foreign universities, agreements for joint curricula, student's exchanges and visiting professors. The recently established University Council for Cooperation and International Relations, collaborating with the Office of International relations of the University[3], established in 2004, aims at improving internal and external visibility of the University international activities, through the collection and diffusion of information about Departments international collaborations, at supporting project and management activities as well as at simplifying the financial management of international financial resources.

In order to gather information about the University participation to EUFP6, the CORDIS[4] database has been used and information about ninety-one projects were extracted (see Appendix A). This allowed identifying fifty-six professors with responsibilities in EUFPs funded activities belonging to ten scientific areas, among which twenty-six professors have been selected for interviews. Also Departments directors and the responsible of the International Relations Office were interviewed.

Finally it was decided to consider also a group of control, to highlight eventual barriers to EUFPs participation, including professors with non-continued participation or no experience in EUFPs.

Some limits in the selection of the sample for the case study have to be underlined. First, the lack of data about non-successful projects (presented but not funded), so that the success rate of professors or the disciplinary area was not possible to be assessed. Then, human resources involved are not specified as for their academic position (i.e. researchers, research fellows, doctoral students) and their commitment thus limiting a broad overview of the involvement of department human resources in EUFPs activities. Finally, scientific outputs of EUFP6 projects are not specified in the descriptive files available in CORDIS so that impact on scientific production was surveyed through the interviews but was not a selection criterion.

Four models of interview were realized, tailored according to the group they were addressed to and the information we aimed to be gathered.

The interview to professors with responsibilities in EUFP6 projects focused on three main items: type of participation and initiative (episodic or continuous, individual initiative or Department strategy), effects on Departments organization (coordination and setup of new activities, resources allocation

decisions, incentives for participation), and effects on human resources (effects on Ph.D. schools, Ph.D. students trained an involved, new skills and knowledge produced).

The directors were mainly asked questions concerning two items: the effects of EUFPs on Department research agenda and the measures adopted to strengthen the participation. The interview to the International relations Office focused on the University involvement and role in the promotion of participation to EU funded research programs.

Finally, the interviews to the control group aimed at pointing out limits to the participation to EUFPs and opportunities of EU collaboration as identified by the respondents.

THE TRANSFORMATIVE POTENTIAL OF EUFPS

The Framework Programmes represent new funding arenas for universities as they fund, on a competitive base, mainly pre-competitive research projects, integrating the efforts of public and private organizations (universities, enterprises, public and private research organizations) and different disciplinary communities.

Scientific literature underlines changes in the EUFPs rationale since their launch at the beginning of the eighties and the more and more evident shift from distributive logics, mainly aimed at granting financial facilitations for research activities, to regulative logics, aimed at the construction of the European Research Area, mobilizing national research systems, supporting the development of a critical mass of researchers and improving the cooperation and the coordination of research activities according to common priorities at the EU level (Ormala & Vonortas, 2005).

ERA economic and social aims gained increasing importance in the definition of EUFP priorities and new financial instruments were also introduced. The new key action Improving (Improving the socio economic knowledge base) in the EUFP5, which addressed mainly economic and societal issues, and the Network of Excellence in the EUFP6, which aimed at creating large research networks at the EU level, are an example of the EUFP shift from a "science push to social pull" (Ormala & Vonortas, 2005). In so far, scientific literature accounts EUFPs of structurizing effects which can be both tangible – embodied elements (products, process and services) and intangible (collaborations, new ways of knowledge production and human capital).

As for the tangible elements, recent studies argue that the EUFPs seem to improve the scientific production of academic institutions, according to bibliometric criteria and the analysis of number of publications of top ranked European Universities, and co-authorships (Henriques et al., 2009; Luukkonen, 2001; Beerkens, 2008). Despite this, scientific literature argues that increased co-authorships are a results of international collaborations fostered by the EUFPs and the access to new sources of expertise they provide through collaborative projects, rather than an intended effect of EUFPs. Moreover, scientific literature

underlines that top ranked universities are often best performers in the EUFPs competition but no causal relationship can be identified between their participation in EU competitive activities and the scientific productivity (Arnold, Clark, & Muscio, 2005).

The establishment of new offices, as the "European project units", and the implementation of new services are also presented as an effect of EUFPs on academic institutions. Nevertheless the extent of organizational changes carried out by academic institutions can be very diversified and they can encompass profound changes at the level of central academic institutions administration and organization or rather they can foster "piecemeal changes" consisting in the improvement of services and limited changes at the level of research units and groups (Van Der Wende, Beerkens, & Teichler, 1999; Reichert, 2006).

As for the intangible effects, these are often recognized by the literature as having major "structurizing potential" (Laredo 1995, 1998; van der Meulen, 2002). Quoted literature underlines that EUFPs contribute to the creation of a new scenario at the European level characterized by competitive networks of researchers and research institutions, consistently with the goal of mobilizing a critical mass of researchers at the EU level and of improving scientific cooperation. (Pohoryles, 2002; Arnold, Clark, & Muscio, 2005). Networking capacity of EUFPs seems to be related to the characteristics of projects they fund: highly competitive and long term projects, joining together scientific competences of public and private institutions, academic and non-academic institutions as well as those of other stakeholders, from different European and non-European countries. Thus EUFPs are supposed to foster collaborations and networking between heterogeneous actors as for the typology – public and private research laboratories, large firms and SMEs, Universities- the expertise and the countries involved. Some structural features of the networks promoted by the Framework programmes are then identified: heterogeneity, strengths of connections and durability (Luukkonen & Halikka, 2000; Breschi & Cusmano, 2004). Although composed by heterogeneous participants, networks are not completely new but rather they are often grounded on preexisting relations or are created around a bulk of more frequent and experienced participants. This ensures the stability in time of the networks and their continuity along different EUFPs. Nevertheless, networking capacity of EUFPs is questioned by the scientific literature which underlines how EUFPs do not produce new networks but mainly reinforce existing ones (Pohoryles, 2002, Breschi & Cusmano, 2004; Laredo, 1995, 1998). Rules for participation to the EUFPs, which favor more experienced participants, and lock in effects which characterize the networks created by the EUFPs with respect to new participants, seem to reinforce existing networks instead of promoting new collaborations. In so far it is questioned whether observed stability and strength of networks are mainly determined by the fact that the cost and risk of forming new linkages is considered by EUFPs participants too high.

Finally, scientific literature enhances the capacity of EUFPs to foster new ways of knowledge production, promoting interdisciplinary research and introducing

new research priorities in the European scientific landscape (Bruce, Lyall, Tait, & William, 2004) which are at the forefront of scientific research. The same holds true for the EUFPs capacity to introduce new ways of doing research, more applied and project oriented, as well as to provide opportunities for improving human resources skills and training of Ph.D. students.

With this respect, part of the scientific literature argues that EUFPs capacity to promote new ways of doing research and the development of skills of human resources are related to the collaborative and competitive characteristics of EUFPs projects, while their impact on the ways of knowledge production is limited as interdisciplinary mainly occurs among similar scientific fields (van der Meulen, 2002).

In so far, EUFPs seem to be characterized by some inbuilt characteristics which show a potential transformative capacity on academic institutions, their activities, the collaboration patters and their organizational settings. However, it could be questioned whether changes triggered by the participation to the EUFPs are mainly related to the potential transformative of EUFPs or rather their structurising effects are limited and other factors do emerge.

CHANGES TRIGGERED BY EUFPS AND DIFFERENCES IN PARTICIPATION AMONG SCIENTIFIC AREAS: WHAT RESULTS

According to the quoted literature we can assume that the influence of EUFPs on academic institutions can occur in a number of rather diffuse ways, as the University management, the research units and, finally, the research groups.

We present here the effects of EUFPs observed with respect to the Departments structure and services, the production of scientific outputs, the ways of knowledge production, the ways of doing research and the definition of research priorities, the human resources, as well as on the networking capabilities of researchers and research groups.

Almost all scientific areas show limited effects on the Department structures and services. None have developed new offices and structures dedicated to facilitate the participation to EUFPs. Major changes are observed in the case of Engineering and Physics and they consist in the improvement of already existing offices, the training of staff members on administrative and financial rules of European projects or in the recruitment of non-scientific staff with previous experience in EUFPs, in order to support research groups in the management of EUFPs projects

These changes, carried out at the beginning in order to comply with EU rules and to improve participation to EUFPs, are now considered as substantial.

> At the beginning we adapted to innovations introduced by EUFPs, then changes became substantial for our Department" (Interview Engineering)

> EUFPs participation is a priority for us, an example is the fact that we are recruiting, although the shortage of staff, a graduated professional with experience in the financial management of EUFPs (Interview Physics)

Earth Sciences have improved the competences, through training activities, of young researchers to ensure the management of activities and the monitoring of EU opportunities, but they show limited efforts towards the development of Department structures and services, being the participation to EUFPs still considered not a priority issue and involving few research groups.

Other disciplines, as Biology, Chemistry, Psychology and Medical Sciences, which have mainly an occasional participation to EUFPs, show limited changes in their organization which mainly concern training activities for administrator in order to improve their skills for the management of the EUFPs projects. No effects on the organization of Departments can be observed for disciplines as Economics and Sociology.

No incentives are observed to foster changes neither through the introduction of success and participation in EUFPs as evaluation criteria of research. Only Engineering, Physics, Biology acknowledge limited effects of EUFPs participation on resources allocation decisions.

Effects on the production of scientific outputs emerge in almost all scientific areas. Publications are the main scientific outputs of EUFPs activities for almost all scientific areas, and the improvement of co-authorships is stated as the result of the enhanced international collaborations. Limited are the effects on the production of commercially exploitable results, especially patents and software which can be observed only for Engineering, Physics, Chemistry and Earth Sciences.

As for the type of research carried out, interdisciplinary research is strengthen to a limited extent by EUFPS for scientific fields as Engineering, Psychology and Earth Sciences which show to fit with the characteristics required by EUFPs projects of interdisciplinary although collaborations mainly involve closed or related scientific fields (for instance Psychology and Sociology). Limited is the capacity of EUFPs to foster interdisciplinary research accounted by other scientific areas, which often consider it not central for their research.

> Engineering of transports is an interdisciplinary filed of science itself. It joins several competences and Engineering which brings together researchers with different backgrounds (Interview Engineering)

> Usually we have interdisciplinary collaborations in our researches. It is more evident in these European projects than it was although interdisciplinary is quite difficult to be carried out. It is very important, for instance in our field of science, but it makes research more complex, it asks for a commitment which finally is not paid off (Interview Psychology)

The way of doing research is shaped by EUFPs participation for Engineering, and to some extent, for Physics, Earth Sciences, Biology and Psychology, with respect to the introduction of working by project criteria. This consists in the organization and the development of research activities according to duties, tasks and times for delivering research results. So far participants of these areas underline how EUFPs

are contributing to the improvement of management besides scientific skills. No effects emerge for other areas.

> Main effects concern research methods: they are oriented towards the organization of work in work packages and tasks, the deadlines and milestones which regulate research activities, the duration of the project (Interview Engineering)

> Young researchers have changed to some extent their way of doing research; in particular they learned to collaborate with other foreign researchers and to merge experiences and competences. Changes do not concern theme, but time and methods which are linked to the project (Interview Psychology)

Almost all scientific areas, especially Engineering, Physics, Chemistry, Biology, state the capacity of EUFPs to "redirect" research agendas of the scientific groups, facilitating the development of new scientific interests almost consistent with research priorities identified at EU level. These fit with research priorities of Engineering and Physics, and to a limited extent of the Earth Sciences. Moreover EUFPs introduce innovative and stimulating new research lines to be explored by researchers for Chemistry, Medical Sciences, Biology and Psychology, while Economics and Sociology consider their research priorities not fully addressed by EUFPs.

> …What is promoted by the EU Programmes is consistent with our work, with the research that we have to do in our fields and that is needed. Maybe it depends on the sector (Interview Engineering)

> EUFPs as other programmes can address our research priorities as they represent what are the main interests for scientific community. Sometimes, by the way, to follow these opportunities, new perspectives come into our research. Although risky, we could not do anything different, also far from our competences (Interview Psychology)

Effects on human resources are considered relevant by Physics, Engineering and Earth Sciences. EUFPs allow research groups to employ, with temporary contracts, young researchers and to pay for doctoral scholarships, for the participation to international conferences and seminars, as well as to be involved in research activities carried out jointly with foreign research institutions. EUFPs also improve outgoing and incoming mobility, this last despite some structural difficulties as the absence of accommodations for foreign students. For these fields effect on doctoral schools, developed according to European thematic priorities, can be also observed. Effects on human resources, mobility and doctoral schools are important, to a more limited extent, for Biology, Chemistry, Psychology and Medical Sciences and no effect emerge for Economics and Sociology.

> EUFPs represent main funding sources for human resources, as it emerged from the results after ERC competitions which allowed us, after

> modifications approved by the Academic Senate, to recruit temporary researchers (Interview Physics)

> Research groups who do not participate to European research cannot easily plan their research activities also as far as human resources, young researchers, Ph.Ds., research fellows, although not structured, are concerned (Interview Biology)

The capacity of EUFPs to strengthen the collaboration among heterogeneous actors, supporting public-private collaborations and stakeholders involvement, is judge relevant by the Medical Sciences, while none or very limited effects are acknowledged for fields as Engineering, whose research already involve different actors, or Economics and Psychology.

The effects of EUFPs on networking capacities are considered limited for all scientific areas. Physics, Engineering and Earth Sciences are already highly embedded in "core" international collaborative networks, highly competitive and with sounding scientific reputation. For Biology, Medical Sciences, Chemistry and Psychologies, although EUFPs have improved the access of researchers to new technologies, laboratories and data, the possibility to join to international networks seems to be mainly related to research groups competence, instead of the consolidated position into research networks. For other scientific areas, Economics and Sociology, EUFPs seem to strengthen existing collaborations despite improving their involvement in new research networks. Two main aspects are generally recognized as limiting the openness of research networks to new participants: the importance of the economic goal, thus the possibility to be competitive in the international competition and to be funded, and the achievement of scientific results. Both are reported to be related to the experience and the reputation of participants, which, in turn, depends on EUFPs frequent and successful participation.

> Usually new participants can join to the core group which constitutes the bulk of the network and which tends to repeat successful collaborations (Interview Engineering)

> I am not surprised that networks tend to be more and more rigid in their constitution. They are more and more closed instead of open, but the system requires this. Experienced groups obtain many funds and for them participation is less expensive in term of learning how to compete (Interview Psychology)

Professors with no experience in EUFPs, or who would not participate again, show different attitudes towards the EUFPs. Those with limited experience in the EUFPs projects previous to EUFP6 and consider them too bureaucratic, limiting research initiatives, whose profitability is very limited if compared to the efforts needed to participate, and mainly focused on applied research which suit more enterprises than academic needs.

Some groups took part in few other EU activities, mainly training and students' mobility programmes, and consider the participation to EUFPs as a great opportunity they are missing. Other does not trust EUFPs and state they would never participate.

Former groups of respondents, which include professors of Economics and Humanities, indicate the lack of organizational changes at the level of Department, as the improvement of structures to support and to keep researchers informed about EUFPs, as the main obstacle to their participation. They claim the need for organizational changes at the level of the University or of Departments in order to allow them to overcome barriers to the participation in EUFPs.

Other respondents, especially in the Medical Sciences and to some extent the Humanities, recognize as main constraints to participation the limited availability of human resources (i.e. young researchers, doctoral students) to be involved in EU activities. Both consider the exclusion from international networks a limiting factor. Humanities respondents also underline the lack of EUFPs research themes consistent with their research agenda which pushes them towards national funds, which are considered preferable, although very limited.

Those who wish to participate to EUFPs consider them an important opportunity for researchers with respect to the improvement of international collaborations and joint activities, the development of new research themes, the increase of students mobility, the possibility to generate new human resources (PhDs, young researchers), while no effect is expected on doctoral schools and on scientific productivity.

Finally, mainly for the Humanities, it emerges those respondents who do not trust EUFPs consider them as research activities distinct from national ones and which enhance competitiveness instead of the quality of research.

DISCUSSION

The intended effects of EUFPs at the level of Departments and of researchers seem to be limited and they emerge to be highly diversified among scientific areas rather than diffused, showing the existence of differentiated paths towards the Europeanization of research.

We observed few changes affecting the more internationalized fields, Engineering, Physics and Earth Sciences as the improvement of structures internal to the Departments to support research groups in the management of funded activities through the recruitment of researchers and staff with experience in international collaborations. EUFPs participation has been introduced as Department evaluation criteria and researchers also acknowledge limited effects on resources allocation decisions. Effects on scientific outputs production, in particular publications and to a limited extent patents, are considered relevant as well as effects on human resources (PhD's training and mobility opportunities). Their networking capacity is not reinforced by the EUFPs as these groups already hold a competitive position within successful research networks. For

these scientific fields changes have been almost institutionalized in term of continuity and stability and seem to be translated, into academics life, according to existing rules and practices. At example the research agenda is almost consistent with EUFPs priorities and the support to research groups is ensured permanently.

A second group of disciplines, which include Biology, Chemistry, Psychology and Medical Sciences, show mainly episodic participation and they are characterized by very limited changes at the level of department organization.

The effects of EUFPs on their capacity to move in the core of research networks are limited, although they enhance public-private collaborations and researchers mobility. Despite the limited changes observed, positive effects of EUFPs on co-authorships do emerge, while commercially exploitable results are still very limited.

This group of disciplines recognizes that EUFPs can impact on research priorities by defining new research lines which are not always fully consistent with their scientific activities. Then a preference of these groups towards attracting national research funds from government and other funding organizations (i.e. national foundations), are observed as they seem to better address their research priorities.

In this case changes fostered by EUFPs do not represent a priority issue, and they form a practice diffused only to a limited extent and not yet stabilized.

A third group can be identified, with infrequent participation in EUFPs activities, including Economics and Sociology, which are characterized by the absence of organizational changes, very limited impact on human resources, mobility opportunities and knowledge production. Although research activities promoted by the EUFPs are judge of good scientific quality, their capacity to address important societal and economic research issues is perceived as limited by researchers, so that a national approach is preferred. The effects on their networking capacity are almost negligible while the efforts needed to comply with EUFPs requirements are considered relevant against the narrow financial incomes they seem to provide.

Finally, control group respondents provided insights which reinforce some of the previous observations. Firstly they show how barriers to EUFPs participation are not related to the scientific field but to the experience in the participation. This emerges especially as far as the involvement in research networks is concerned. Also expected benefits from participation are considered important and they concern mainly human resources, the broadening of research activities and themes, the increase of Ph.D. and researchers mobility.

Retrenchment behaviours are observed too in researchers of different disciplinary areas, with negative experiences in EUFPs which consider that the efforts for the participation and the management of the funded project are too relevant if compared to returns in term of financial resources and of quality of research. Inertial behaviours emerge only for those research groups which consider EUFPs activities completely separated from their research priorities.

In sum, EUFPs have produced no substantial changes at the level of Departments and research units. Those groups which are already highly internationalized have accomplished different adaptation processes in order to comply with EUFPs requirements and to improve and to reinforce their participation in the international competition. EUFPs have produced very limited or no effects with respect to less internationalized groups which experience difficulties in entering the EU competition.

CONCLUDING REMARKS

The paper provides a first attempt for investigating how academic institutions can answer differently to changes fostered by EUFPs, giving rise to in depth transformations of academic core activities or adaptations processes, changing only marginal activities and regulations, or with inertial behaviours and refusal of changes. The transformative potential they show is strongly related to the existing level of internationalization and networking of the HEIs. Differences among scientific areas emerge with respect to the analysed effects of participation to EUFPs. The absence of relevant organizational changes and the lack of incentives do not motivate the participation to EUFPs, especially for those groups who consider costs for changes too elevated.

This supports the idea that the Frameworks Programs, can lead to very diversified situations at the level of academic research units and researchers, giving rise to different institutional responses and adaptation processes, seeming to confirm that " the potential impact of European integration on the University is conditioned by institutional realities and characteristics of the University's internal dynamics" (Olsen, 2001).

Results also show that EUFPs have improved the development of some leading groups and Departments, which were already involved in themes considered by the EUFPs priorities and can rely upon very diversified resources for their research activities, enhancing existing international behaviours and practices, holding steady or tailing off the competition opportunities of less experienced groups and creating barriers to the access of new groups.

EUFPs could then contribute to the improvement of academic research while strengthening internal differentiation and heterogeneity, sometimes producing inequalities between those involved and those excluded by the international competition.

So far the participation to EUFPs should be supported by decisions at the University level and the use of EUFPs participation as evaluation criteria should be used carefully and taking into account scientific fields different patterns of participation.

APPENDIX A

Case study Description: Sources, Selection Process, Characteristics of the Sample

Sources. Multiple sources of data have been used to describe the international performance and efforts of La Sapienza: international rankings, statistics and studies about the participation to European projects, data about international agreements, the University internal strategic plan for years 2007–2012, approved by the Academic Senate and the Administration Council on September 2007, which includes observations and suggestions of the University evaluation committee, internal administrative and financial documents issued to regulate the participation to foreign collaborations and to the EUFPs.

In order to gather information about the involvement of the University in EUFPs, the EU database CORDIS has been used, because no internal databases with data on participation, at a centralized level, was available. The CORDIS database contains information about projects funded under all EU programmes and thematic areas, and is freely available.

Selection of interviews. The focus was on EUFP6 and the Cordis database was questioned according to the following criteria: projects in which the University La Sapienza was partner or coordinator, completed or on-going, funded by IP-Integrated Projects, NOE-Network of Excellence, STREP-Specific targeted research and innovation projects, CA and SA-Coordination and support actions, including all thematic areas, except for the EURATOM programme and the Marie Curies actions[5].

Ninety-one projects and fifty-six professors with responsibilities in EUFPs funded activities, of twenty-nine Departments in ten scientific areas, were extracted from the Cordis database[6].

Variables in each project description have been organized in three broad issues: institutional participation information (which included the Department name, the professor responsible for the project, the role of the Italian group in the project, the nationality of the coordinator, the number of Italian partner organizations besides La Sapienza), network characteristics (the number of partners in the consortium, distinguishing enterprises and private research organizations), project characteristics (status of the project, funding scheme, EUFP thematic area).

Characterization and composition of the sample. We aimed at interviewing about half of the whole professors turned out from the Cordis selection, according to the following criteria: 1) representation of all disciplinary fields, in order to allow comparisons among different disciplinary areas, in particular the so called Hard Sciences and the Social Sciences and Humanities, and within them; 2) differentiation of the interviewees based on the level of experience in the EUFPs, in order to highlight motivations and constraints driving limited or frequent and successful participation; 3) differentiation according to the role in EUFP6 projects-coordinator or participants- and the type of financial instrument used; 4) differentiation according to their academic position (full professors, associated, researcher).

As for the first point, we clustered all Departments resulting from Cordis according to the disciplinary areas and selected at least a professor for each Department. In few cases the Department coincided with the scientific field (e.g. Chemistry, Physics). Departments participating in EUFPS turned out to be, generally, a narrow percentage of the whole research units in La Sapienza, with few differences between Hard and Soft disciplines. At example, only ten out of thirty-five Departments for Medical Sciences turned out to have participated in EUFP6, five out of twenty-eight for Social Sciences and Humanities, four out of thirteen for Economics and Statistics, whereas the exception is represented by Engineering with ten Departments out of thirteen. Moreover the participation to EUFPs was concentrated in few research groups, as it emerged from interviews, if compared to the whole number of researchers and groups of the Departments.

The experience was measured considering the Departments and professors participation to EUFP5 and previous EU programmes. It emerged a decrease in the number of projects funded in the FP6 compared to those funded under the FP5, with some differences among scientific areas.

Participation held almost steady for the Hard sciences group, in particular for Engineering, Hearth Sciences, Physics, Chemistry, and for Economics and Statistics, although very limited, whereas a decrease turned out for the Medical Sciences and Biology and especially for the Social Sciences and Humanities.

The analysis of the financial instruments was also used to further investigate the participant's level of experience. As indicated by the literature, new financial instruments introduced by the EUFP6, as the Integrated project and the Network of Excellence, fit more experienced groups, already structured in wide international networks and able to carry out long term, complex and mainly applied collaborative projects, whereas more traditional instruments, as the STREP and the Coordination and support actions, already in the EUFP5, are more suitable for less experienced or less internationalized groups. Our analysis highlighted a quite balanced use of all types of financial instruments although "new" instruments have been exploited almost exclusively by hard disciplines and "traditional" ones by soft disciples.

However it is worth to observe that the financial instrument is often consistent with the EUFP thematic area and the type of research to be developed (i.e. IST and Aerospace priorities for Engineering, Life Science –Health for Medical Sciences, Citizens for Social sciences). As for the role in the EUFPs projects, almost all professors participated as partner in the project instead of coordinator, with the exception of Engineering so that we retained in the sample, for this area, professors with both types of roles and participation. Finally, referring to the academic position, all interviewees were full professors, except for a researcher.

Twenty-six interviews were realized. A group of control was also selected. It included a) professors of La Sapienza, among those resulting from CORDIS analysis of participation to EUFP5, who did not participate to EUFP6, b) Departments with no participation registered in the Cordis database, which already existed at least in 1989 when the EUFP5 started and whose research activities would have been consistent with its thematic priorities. Few professors belonging

to the Departments resulting from the selection were selected randomly, and their CVs were controlled through the University web pages to check their affiliation date with the University La Sapienza, the research topics they worked on and the experience in other international activities. This group also included few professors who were involved in EUFP6, contacted for the interview, who stated they would not participate again.

Finally, also Departments directors and the responsible of the International Relations Office were interviewed. Table 1 summarizes the interviews realized by scientific area.

Table 1. Overview of interviews realized for the case study

Scientific fields	*Interviews to professors with responsibilities in EUFP6 projects*	*Interviews to Departments directors*	*Interviews to non-participants*	*International Relation Office responsible*
Humanities	-		2	
Psychology	2			
Economics/Sociology	2	1	3	
Engineering	8	3	1	
Physics	3	1		
Chemistry	3	1		
Biology	2			
Medical Sciences	4	2	3	
Earth Sciences	2	1		
Total	26	9	9	1

NOTES

[1] Although the scientific literature underlines as dynamics at the micro an meso levels of academic institutions can produce effects, in the long term, on the whole performance of the Universities, these levels of analysis have been often neglected by studies on Europeanization of higher education and research, mainly focused on the macro and the policy levels (Enders, 2004; van der Meulen, 2002).

[2] In the EUFP6 La Sapienza is among the first ten Italian Universities for project funded especially for research concerning Health, ICT and Energy priorities (Henriques et al., 2009).

[3] The realization of a European Research Office is foreseen, but it was not implemented yet.

[4] http://cordis.europa.eu

[5] The financial instruments described in the text are considered relevant to universities as research performers, tackling the creation or coordination of knowledge, its application and diffusion, and they cover the majority of funds assigned to the universities. Euratom programme and Marie Curie actions were not retained in the analysis as too subject specific the former and addressing only researchers mobility issues the latter.

[6] Three projects belonging to three Research Centres of the University La Sapienza were also extracted from CORDIS selection but they are not retained for the analysis in this work. Five more projects were not considered as the name of the responsible or the Department were not indicated.

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PART 3

GOVERNANCE

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7. HIGHER EDUCATION REFORM DURING AND AFTER ARMED CONFLICT

The case of Sudan

INTRODUCTION

Since its independence the political situation in the Republic of Sudan is characterised by instability and constant armed conflicts between the central government and different peripheral regions. The longest civil war in Sudan was the one between the central government and rebel groups in Southern Sudan. The first civil war between North and South started on the eve of independence in 1956 and ended in 1972 with the Addis Ababa Peace agreement. As part of the peace agreement, a regional government and a university were established in Southern Sudan. However, only eleven years later, due to the abrogation of the agreement by the central government, a new civil war erupted between the central government and the Sudan People's Liberation Movement (SPLM). This second civil war ended in January 2005 with the Comprehensive Peace Agreement (CPA) between the ruling National Congress Party (NCP) and the SPLM. The CPA was followed by elections in April 2010 and a referendum on independence in 2011. After the Southern Sudanese overwhelmingly opted for independence in January 2011, Southern Sudan has become the 54th state in Africa in July 2011.

Based on data gathered during field research in 2008 – halfway through the transitional period after the peace agreement – this chapter aims to describe and analyse the effects of reforms implemented by the Sudanese military regime during and after the civil war between North and South using the governance concept as an analytical framework.

The two reforms discussed in this chapter are the so called Higher Education Revolution of 1990 – the higher education reform of the then new Islamist military regime of Omar Hassan al-Bashir – which marks the beginning of Islamist governance in higher education. The second major reform is connected to the abovementioned Comprehensive Peace Agreement of 2005 which was to facilitate a transition from central Islamist governance to secular democratic and federal governance in higher education and the society at large. The first section is a short literature review on the most relevant models in higher education governance, followed by a presentation of the five dimensions of higher education governance developed by Uwe Schimank. After an introduction to the Sudanese higher education system and a presentation of the two reforms, Schimank's model will be

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
Effects of Higher Education Reforms: Change Dynamics, 121–136.

used to describe the effects of the reforms and the subsequent shifts in higher education governance in Sudan. Finally, the governance regime in higher education will be discussed.

GOVERNANCE

The term governance was first used by Williamson. He used the term for describing steering and coordination mechanisms of economic processes in his transaction theory (Williamson, 1979). In political science the term became virulent due to changes in global politics, the transformations of inter-state relations and an increasingly important role of non-state actors from the science system, the private sector and civil society in decision-making processes. While nation states are still the main actors in the international arena, decision making processes are more and more characterised by the involvement of non-state actors and a shift of responsibilities to multilateral organisations. So the term governance was first used in the field of international relations to describe governing without government (cf. Benz, 2004:2; Van Kersbergen & Van Waarden, 2004:145).

In political science, the term governance on the one hand stands for non-state non-hierarchical decision making, i.e. societal self-regulation and public-private cooperation. On the other hand it is used as a superordinate concept for basic forms of social order or modes of coordinating individual actions. Hence the governance perspective encompasses, in addition to the role of the state, the role of societal actors like representatives of the private sector, civil society, churches and non-governmental organisations that are institutionalised and part of the political process (Brunnengräber et al., 2004:7). The analytical perspective used in this study is based on the definition by Renate Mayntz and encompasses all forms of collective regulation of societal circumstances; therefore governance of, with and without government (Mayntz, 2004:66).

Models of Higher Education Governance

The term higher education governance, which was mainly used in American higher education, presupposed a high level of institutional autonomy with respect to funding, personnel and academic matters (Neave, 2001:53). However, this is a model that European higher education systems strived towards since the 1980s. Higher education in continental Europe used to be autonomous from interventions from the state and the market in spite of legal and administrative regulations. In the course of governance and funding reforms, the administration of funding, personnel and property was partly delegated back to the individual institution and therefore created a necessity for more institutional governance (Scott, 2001:130). The new meaning of governance used in higher education research these days includes non-state actors as part of the governing process (Scott, 2001:125). The governance perspective is holistic in that it encompasses issues of power and authority in the system, the institutional and the sub-institutional level.

Burton Clark's triangle of coordination (Clark, 1983:143) is still the basis for the analysis of coordination and governance models in higher education research**.** This model shows different dimensions in higher education and the relation they have to each other; namely: the state through political and bureaucratic coordination, academic oligarchy (the professoriate) and markets. These three modes of coordination – state, academic oligarchy and market – are ideal types that can appear in a combination. The architecture of a higher education system is characterised by the relation of the three modes to each other. Clark later on added the mode organisation (hierarchical self-guidance by the university leadership) to the triangle (Clark, 1997; Braun & Merrien, 1999:20).

Van Vught (1994) uses a model substantiated around the dichotomy of state control and state supervision and omits market as a mode of coordination**.** The state control model stands for the strong authority of bureaucracy that regulates access, curriculum, the appointment and remuneration of staff, complemented by a strong academic oligarchy that regulates the content of education and research. The institutional management of a university in this model is rather weak and limited by the authority of state bureaucrats and academics (Braun & Merrien, 1999:17). In the state supervising model, a strong academic oligarchy and a strong administration and management of the university (deans, president, administration and board of trustees) are supervised with respect to issues of quality and accountability by weak bureaucratic authorities (Braun & Merrien, 1999:18). While the latter model is more prevalent in the United States and Great Britain, the former one was more prevalent in continental European higher education until the 1980s before the implementation of reforms that were inspired by new public management.

Braun and Merrien (1999) criticise Van Vught's model because it reduces governance to the role of the state in higher education and does not grasp the shift in governance arrangements since the beginning of new public management reforms. They developed a model that takes into account: the degree of state control with respect to educational matters (substantial autonomy), matters of institutional management (procedural autonomy) and the national belief system of higher education in which universities are either seen as cultural institutions exclusively devoted to knowledge creation and independent from social demands or as service institutions with the responsibility to advance the social and economic development of the nation. Based on these three aspects Braun and Merrien developed a three-dimensional governance cube that represents three opposing models: within the cultural belief system the *bureaucratic-etatist model* with tight substantial and procedural control, the *bureaucratic-oligarchic model* with tight state procedural control and a high level of substantive autonomy and the *collegium model* with a high level of procedural and substantive autonomy. With the service belief system there is the *corporate-statist model* with tight substantial and procedural control, the *new managerialism* with tight state substantive control and a high level of procedural autonomy and the *market model* with a high level of procedural and substantive autonomy (Braun & Merrien, 1999:22).

If one wanted to assign the higher education systems in developing countries like Sudan to the mentioned models, one could say that they are clearly systems dominated by bureaucratic and political coordination (Clark), state control (Van Vught) or a corporatist-statist model where higher education institutions lack substantive and procedural autonomy and are expected to serve national development (Braun & Merrien). What the abovementioned models lack is a more in depths focus on the constellation of actors and their different governance modes.

Uwe Schimank developed five dimensions of higher education governance. External regulation of universities by the state through laws is defined by loose or tight legal control of finance, organisation, personnel, teaching and research. External guidance is executed through contract management by the state, the involvement of external actors, (e.g., with respect to the allocation of third party funding), the number of external actors in the university council and their authority and external influence on study programmes (e.g. accreditation). Competition pressure takes place within institutions (internal resource allocation based on performance indicators, decisions based on profile development) and between institutions (public funding related to performance indicators, the level of third party funding). The level of academic self-governance by collegial bodies is based on the degree of authority of collegial bodies with respect to finance, organisation and personnel issues, i.e., if the academic senate is a decision-making or supervisory body, and the significance of peer review. Another indicator is the autonomy of individual scholars based on their job contracts and privileges, e.g. whether professors are civil servants with the right to life long employment or not. Managerial self-governance depends on the competences of the executive team, the deans and heads of department with respect to finance, organisation and personnel. The organisational culture is another indicator of managerial self-governance: is it a corporate culture or culture of consensus, duration of tenure and possibility of voting out incumbents? (Schimank, 2007:247–253). The model Schimank developed is the most adequate one to describe the changes in governance that occurred in Sudanese higher education.

Kehm and Lanzendorf point to the fact that "[T]he particular strength or weakness of the individual mechanisms of coordination in a specific system of rules can be imagined as a power parallelogram. The term ‚governance regime' describes such a specific power parallelogram."(Kehm & Lanzendorf, 2006:15). In the following, a governance regime of Sudanese higher education will be developed. First, a brief description of the Sudanese higher education system as context information will be provided, followed by a presentation of the relevant reforms.

HIGHER EDUCATION REFORMS IN SUDAN

As of 2006/2007 there are 27 public universities, seven public technical colleges, seven private universities, and 40 private institutes and colleges in Sudan. Concerning the student population, there are 77, 482 students in diploma programmes, 384,338 Bachelor students and 24, 623 postgraduate students; the

intake in the year 2006/2007 was 44, 675 students in diploma programmes and 94, 722 students in Bachelor programmes. There are 5, 114 faculty with Ph.D. degrees and 4,696 with Master's degrees (MoHESR, 2008). The types of higher education institutions in Sudan include universities, institutes and technical and professional colleges. Access to higher education is granted based on the Sudan School Certificate Examination that is administered nationwide. The results of the students who pass are ranked by the central admission board. Students are then allocated to universities and faculties according to their examination results and the ranking of universities. There are also post-secondary specialised vocational training institutes, e.g. for Music, Hygiene, Nursing and Mechanical Engineering.

Western oriented higher education was "imported" to Sudan during colonialism. Due to the transfer of the British higher education model, higher education – as in other former British colonies – at first adapted the state supervising model (Neave & Van Vught, 1994:12). Sudan's oldest institution – the University of Khartoum – was established as the Gordon Memorial College in 1902 (Gasim, 2010:50), started offering post-secondary courses in 1939 and was affiliated with the University of London from 1945 onwards. The Gordon Memorial College was turned into the University College of Khartoum in 1951 and upgraded by a parliamentary act to a university in the year of independence 1956 (El Tom, 2003:564). The bi-cameral governance system of the university was modelled after the British civic university and has not changed since. The University of Khartoum and each university since were established by an act that defines the role and objectives of the university, its executive personnel, its governing bodies and their members and functions. From independence until today, the University of Khartoum act was amended seven times (Ibrahim, 2007). This reflects Sudan's post-colonial history of instability with regular changes between democratically elected governments and military coups. Popular uprisings that toppled the military governments usually originated in the University of Khartoum and its student and staff unions. Therefore military governments have been the most active in higher education policy with the attempt to constrain academic freedom and institutional autonomy (Africa Watch, 1992: 1–2, El Tom, 2003:569). Since the first military coup in 1958 under General Abboud, the president of the republic is the chancellor of all Sudanese universities (El Tom, 2003:565). During Colonel Nimeiri's reign from 1969 to 1985 the first higher education law was issued (1975), the Ministry for Higher Education and Scientific Research and the National Council for Higher Education and Scientific Research were established in addition to two new universities – the University of Juba and the University of Gezira. The establishment of the University of Juba in 1978 marked the beginning of higher education in Southern Sudan (Bakheit, 2004:1). The University was established as part of the Addis Ababa Peace Agreement between North and South, which Nimeiri negotiated with the Southern rebels. When Nimeiri abrogated the peace agreement in 1983, it marked the beginning of the second civil war between North and South. His reign ended in 1985 with a popular uprising and followed by a democratic coalition government. At that time there were only five public Sudanese universities: University of Khartoum, Omdurman Islamic University, University of Cairo – Khartoum

Branch, University of Juba, University of Gezira and one private university – Ahfad University for Women – (El Tom, 2003:565) and a few public colleges with about 5,000 enrolled students (Gasim, 2010:51). Three fifths of all students were studying abroad, partly with government scholarships. The number of students enrolled at the University of Cairo in Egypt and the Khartoum branch made the University of Cairo the largest Sudanese university (Bowles, 1980:684). The students that remained in the country received full financial support for housing and food as well as free healthcare and some pocket money for personal use (Gasim, 2010:51). Student support was a responsibility of each university and amounted to about 25% of the institutions budget (Ismail, 1991). The general budgeting system in the public service in general and in the higher education system was based on line item budgets.

The Higher Education Revolution

In June 1989, members of the military staged a coup and toppled the coalition government. Political parties were abandoned and the government was substituted by the Revolutionary Command Council for National Salvation and its chairman, Omar Hassan al-Bashir, who was the prime minister, defence minister and commander-in-chief of the armed forces simultaneously. The first policy move of the new government was the introduction of a comprehensive higher education reform – called the higher education revolution (El Tom, 2003:566). The higher education revolution was part of a government programme called Economic Salvation (El Tom, 2006), a domestic structural adjustment programme that was modelled after similar programmes that were implemented all over the African continent by the World Bank (Musa, n.d:2). Within that framework the higher education reform was aimed at expanding the higher education system in order to enhance economic development and productivity, cutting back public funding, securing the connection of students with their heritage and islamising knowledge.

The policies implemented within the scope of the revolution were: a massive proliferation of public higher education institutions from five higher education institutions to nowadays 27 (among them two additional universities in war-torn Southern Sudan), the doubling of student intake at the existing institutions, the expansion of the private higher education sector, the arabicisation and islamisation of teaching and learning, a decrease of public higher education funding and finally, the adoption Organisation of Higher Education and Scientific Research Act which enhanced the influence of the president's role in decision-making processes (El Tom, 2006:28; Gasim, 2010:50). Furthermore, the university acts of the five existing institutions were repealed and revised in 1990 and in 1995 accordingly. During the 1990s the grip of the military government became looser. The Revolutionary Command Council was abolished in 1993 followed by elections in 1996. Only in 1998 were political parties allowed to form again. At the same time the ruling National Islamic Front renamed itself to National Congress Party. The period of easing of political tensions was followed by the next major reform which this time only concerned higher education institutions located in Southern Sudan.

The Comprehensive Peace Agreement

The second reform is connected to the peace process that ended the second civil war (1983 to 2005) between the Northern government and Southern Sudanese rebels. The peace process between the central government under Omar Hassan al Bashir and the Sudan People's Liberation Army/Movement (SPLA/M) gained traction in 2002 after a first ceasefire. It ended in January 2005 with the signing of the Comprehensive Peace Agreement (CPA). The objective of the CPA was to facilitate the transition of Sudan on three levels: from war to peace, from authoritarianism to democracy, and from a unitary system to federalism. The National Congress Party (NCP) and the SPLM formed a Government of National Unity and a semi-autonomous Government of Southern Sudan. While the Government of National Unity ceded its powers in most sectors in Southern Sudan, the higher education sector and scientific research were an exception. Tertiary education and scientific research were part of the concurrent powers of the Government of National Unity, the Government of Southern Sudan and the governments of the ten states in Southern Sudan (CPA, 2005:29). At the same time the CPA confirmed the central governments prerogative concerning student admission and the South's right to include English and vernacular languages as languages of instruction (CPA, 2005:16).

The Comprehensive Peace Agreement has led to a multiplication of public actors involved in higher education decision making. Besides the national actors, (i.e., the Presidency, Ministry of Higher Education and Scientific Research, the Minister of Finance, National Council for Higher Education), the new institutions of the Government of Southern Sudan are also involved, in particular the Directorate for Higher and Tertiary Education of the Ministry of Education, Science and Technology which is among other things responsible for managing the admission of returnee students in cooperation with the central admission board. The Ministry cooperates with three types of partners to implement the policies made by the government: (a) UN-agencies (UNICEF) and the World Bank, (b) international non-governmental organisations and (c) churches. There is a government sponsored coordinating mechanism facilitated by UNICEF called the Education Reconstruction and Development Forum (ERDF). Participants are the ministers of education of the 10 Southern states, representatives from the Government of Southern Sudan, international donors, and non-governmental organisations. The ERDF serves as a forum for discussion and coordination with the thematic working group on higher education as a preparatory mechanism. The working group meets twice a year and acts as a type of think tank that advises the ministry in policy development. It issues resolutions which are to be implemented by the ministry and which are closely monitored. Its members are representatives of the directorate general for higher and tertiary education of the ministry, experts from the neighbouring Kenya and Uganda, representatives of international donors and lecturers, and administrators of the three universities. The function and objectives of the working group are to raise awareness concerning the transfer of the three universities to the South, to help establish a council for higher education

in Southern Sudan, and to assist intellectually in developing an institutional and policy framework for higher education in the Ministry of Education, Science and Technology. Another coordinating mechanism is the education budget sector working group which discusses the government's budget proposal for two year periods with respect to education.

The following section focuses on the shifts in governance caused by the two reforms and their effects on higher education governance in Sudan.

THE SUDANESE GOVERNANCE REGIME

State Regulation

The governance and organisational structure of each university is restricted by university acts. Each act specifies the objectives of the university, its governing boards and the membership of the governing boards, as well as the founding colleges. The university acts can only be changed by political actors. This has happened several times in Sudanese history corresponding to changes in government, especially when these changes implied changes from democracy to a military regime. With the new Organisation of Higher Education and Scientific Research Act the role of the government – and specifically of the presidency of the Republic – was enhanced. The president of the republic can intervene with decrees concerning the establishment of a university, its location, tuition fees and other issues. The new Islamist government considered higher education to be westernised and imperialist, therefore the revised higher education act prescribes that the content of teaching and research has to be in accordance with Arabic and Islamic values and responsive to social and economic development. This had consequences for personnel, teaching and research. In the course of the higher education revolution about 84 academic staff were dismissed and/or detained (Africa Watch, 1992:4). Faculty members were banned from travelling abroad. Female academic staff were not allowed to attend international conferences without the chaperonage of their husbands or fathers (Africa Watch, 1992:7). Under the heading "Authentication of Knowledge", Arabic was introduced as a language of instruction in all sectors of education and the attendance of courses in religion (Christian/Islamic) was made compulsory.

The Comprehensive Peace Agreement (CPA) did not alter or reverse the changes of the higher education revolution, but did lead to competing legislations with consequences for personnel and teaching. Academic, administrative staff and workers are public employees and are paid according to the public salary structure with clear regulations concerning minimum requirement and promotions. The new Government of Southern Sudan has, however, developed its own salary structure for public employees. The competing public service regulations have led to a brain drain of Southern Sudanese academic staff. According to the CPA, English and local languages can be used as languages of instruction in the education system and the public sector in general. Southern universities with campuses in Khartoum and Southern Sudan therefore had to comply with both regulations, and while

English was language of instruction at the campuses in the South, Arabic continued to be the language of instruction in the North.

Governing in developing countries – as in Sudan – is characterised by a combination of rigidity and arbitrariness (Peters, 2001:175). Universities are restricted by laws and regulations, but those laws are sometimes ignored by public actors to favour political or ethnic allies.

External Guidance

Since 1960, the President is the chancellor of all universities (El Tom, 2003:565); now in addition the first Vice-President is the guardian of higher education. The minister of higher education is at the same time the chairman of the national council for higher education. The authority of the council – which was a coordinating body of academic self-governance – was expanded as well, as its membership now includes several politicians (Africa Watch, 1992:3). The executive team of the university is appointed by the head of state and the minister for higher education. The minister advises the President concerning the appointment of the chairman of the university council and the vice-chancellor, who in turn appoint the deans and heads of department.

Universities in Sudan are modelled after the civic university – what Scott called balanced institutions – where laymen and academic staff are both represented in the governing bodies specifically in the university council (Scott, 2001:136) which is responsible for the institutional policy, the approval of new faculties and programmes, and the approval of the yearly budget. During colonialism, politicians and representatives of the colonial government were members of the council. In the course of the higher education revolution the membership of the university council was expanded to 40 people. The 20 internal members consist of the executive team, a selection of deans, members of academic and non-academic staff and the student union. The 20 external members in the aftermath of the revolution were national and local politicians as well as police officers and representatives of the military. With the beginning of the peace process the composition of the external members partly changed. Nowadays, external members are national and local government ministers, private businessmen connected to the regime and regional academics. The chairman of the council is usually a politician. Due to the significant decrease in public funding the role of the university council has been diminished. Since the higher education revolution, one of the roles of external actors in university councils has been to raise funds from the private sector and to attract donors.

The responsibility for student housing and lodging was shifted from the individual institution to a semi-governmental body – the national students' welfare fund. The fund's objective is to support the higher education revolution through providing housing, food, healthcare and financial support for more students and to reduce public funding at the same time. The funding is partially provided by the national government and local governments, and is complemented with private contributions. These contributions consist of an obligatory toll of one pound from each member of the workers' association, zakat (Islamic charity tax) for poor

students and donations by private companies. An additional objective of the fund is "to supervise the social life and cultural activities of students" (NSF, 2005:11), to "cement good values" (NSF, 2005:21) and to "connect students with the values of Islam" (NSF, 205:50). The admission to all higher education institutions in Sudan is steered by the central admission board on a competitive basis including special admission regulations for students from marginalised groups. The new government introduced special admission that favours children of university employees and mujahideen, i.e. students who fought in one of the government-led wars. Male students and faculty were obliged to attend military training under penalty of dismissal (Africa Watch, 1992:4).

After the CPA, public actors from the South and international actors are now involved in higher education governance through the working group on higher education and the education budget sector group. The working group, representatives of the Southern universities, and the Government of Southern Sudan are also involved in changing the system of student support in the South in conjunction with the local representatives of the national students' welfare fund. The admission of students who after the peace agreement returned to Southern Sudan is administered by the Ministry of Education, Science and Technology in negotiations with the central admission board. International actors are involved in developing new programmes and faculties through development projects. This includes the evaluation and auditing of programmes.

Managerial Self-Governance

Due to the change in budgeting system the executive team of institutions and the deans' board have significantly more influence. The deans' board is mainly an administrative body, although it also deals with academic issues before they are referred to the university senate. It was not originally intended to be a governing body and only supposed to be convened in emergencies. Due to the dire funding situation the deans' board has, in times of crisis management, become the body that is responsible for the daily running of the university. Its members are: vice-chancellor, deputy vice-chancellor, principal, dean of students, academic secretary, and all the deans of colleges and directors of centres and the executive director of the vice-chancellor's office. While the deans in larger universities like the University of Juba have financial responsibility and can administer 70% of the tuition fees they receive, financial management in the other two universities is highly centralised. The deans have no financial power and need to apply for funds in the principal's office for any kind of additional funding.

In general, institutions have more financial autonomy since the higher education revolution. However, this is marred by the sharp reduction in public funding since the government is still the biggest financier of higher education in Sudan. The budgeting system was changed from line item budgeting to lump sum budgeting. The grant that institutions receive is based on the number of employees. Therefore the overall public funding was substantially decreased, which obliged the universities to attract their own funds. Higher education institutions henceforth

charged moderate tuition fees. They were further on allowed to admit up to 25% private students, (i.e., students who did not fulfil all the requirements and were charged substantially more) per cohort to their programmes. They are free to start their own investments, to generate income and to allocate it independently. Overall, the managerial power of institutions is influenced by the system of appointments. The vice-chancellor and the deans are political appointees and are therefore not independent from the government.

Academic Self-Governance

The two most important bodies of academic self-governance are the national council for higher education and the university senate. The national council is a body comprising the vice-chancellors of all Sudanese universities whether public or private, politicians and individuals well versed in Sudanese higher education. The authority and the membership of the council, which was a mere coordinating body before the higher education revolution, were expanded. Among its members are now several cabinet ministers. The National Council consists of various specialised scientific committees that have to approve new programmes and faculties proposed by the universities. They are also responsible for reviewing proposals for the national fund for research.

The highest collegial body concerning academic issues is the university senate. Its members are: vice-chancellor, deputy vice-chancellor, principal, all professors of the university, dean of libraries, dean of students, deans of all colleges, directors of institutes and centres of the university, deputy deans of all colleges, heads of departments and centres, secretary for academic affairs. The senate is responsible for discussing examinations, new programmes or any other academic issue.

Competition Pressure

The pressure to raise external funds has intensified due to the revolution. Because of the decrease in funding and a shortage in qualified staff competition between universities for third party funding, research funding and staff has developed. This happened to the disadvantage of Southern universities that are not well established to compete due to their location in a war torn area and an environment characterised by subsistence farming and illiteracy. In order to generate additional revenue universities engage in academic and non-academic activities. They offer labour market oriented diploma courses and vocational study programmes, and create their own small businesses and agricultural schemes to generate income. Furthermore, the massive expansion of the system has led to a shortage in qualified staff. The tense political situation characterised by the dismissal and detainment of academic staff has triggered an emigration of faculty to other countries. Institutions are now employing part-time staff who usually work at several universities at the same time.

Since the CPA, universities in Southern Sudan have been competing with local government institutions for staff and real estate. This goes back to a shortage in real estate in Southern Sudan and a different salary structure of the public sector in the South which attracts academic staff.

CONCLUDING REMARKS

There have been two major higher education reforms in Sudan in the last twenty years: the higher education revolution in 1990 and the introduction of concurrent powers in higher education due to the Comprehensive Peace Agreement in 2005. The results of these reforms were (a) a sharp decrease in public funding and a proliferation of public and private institutions during the higher education revolution and (b) the introduction of federal structures in an authoritarian system after the Comprehensive Peace Agreement. The effects of the reforms were particularly severe for the institutions based in war-torn Southern Sudan due to the difficulty to diversify the funding base and the introduction of Arabic and Islamic values into the curriculum. Universities in Southern Sudan, where the population in its majority is neither Arabic nor Muslim, were therefore economically and culturally marginalised. Since the higher education revolution Sudanese universities are lacking substantive and procedural autonomy with the exception of internal resource allocation. The organisational structure and the curriculum are regulated by the government. On the institutional level universities are also steered hierarchically by the vice-chancellor and his executive team and the deans of faculties who are all political appointees and therefore accountable to the government and not to staff, students and external stakeholders. Furthermore, cabinet ministers, commissioners and businessmen connected to the government are members of the university council. Universities are therefore administered like government agencies and the leadership is merely perceived as politicians or implementers of governmental policies, especially since the Sudanese higher education system now operates within a service belief system. Universities are obliged to offer academic programmes that serve the spiritual, social and economic development of the nation. The role of academic self-governance is not as relevant as it was before the higher education revolution. Since then, the chairman of the national council of higher education is the minister of higher education and members include cabinet ministers who can thwart decisions made by the specialised committees which are not in line with the wishes of the government. The higher education revolution combined global trends and local policies: on the one hand the expansion of higher education to provide more access and equity and the diversifying of institutions' funding base in order to curb public spending and on the other hand the introduction of islamist ideology in teaching and research and authoritarian rule in institutional management. The reform simultaneously constrained institutional autonomy and academic freedom and facilitated entrepreneurialism: universities in Sudan have become actors in the marketplace, creating businesses or producing and selling non-academic items like agricultural produce as an additional source of income. The main objective of the

Comprehensive Peace Agreement was to facilitate self-determination of marginalised groups through decentralisation. This led to the vertical differentiation of public levels. However, the implementation of the CPA neither led to the repeal of aspects of the higher education revolution for the South nor were decisions subsequently coordinated between levels as could be expected in a federal state. Instead, two parallel systems in one country developed. The Ministry of Higher Education and Scientific Research in Khartoum and the Ministry of Education, Science and Technology in Juba are only related by targeting the same public sector "without explicit coordination between them" (Mayntz, 2009:96). Universities in Southern Sudan have to abide by the laws of the Government of National Unity, while the Government of Southern Sudan has, in cooperation with international actors, developed coordinating bodies for a regional multi-level governance system. During the transitional period – after the CPA in 2005 and before independence in 2011 – universities in the South were under tutelage of an Islamist regime, the guidance of a secular government still in its early stages of development and faced with fierce competition for funding.

The higher education reforms by military regimes and the higher education revolution in particular have shifted the governance regime of the Sudanese higher education system from academic self-governance to a system shaped by state regulation, external guidance by public actors, managerial self-governance and competition. The application of the five dimensions of coordination on the Sudanese case shows the limitations of the model.

According to Schimank, a combination of state regulation, external guidance by public actors, managerial self-governance and competition is a governance regime under tension that is either unlikely or transitional (Schimank, 2007:244). In the Sudanese case this governance regime has now been in place for twenty years, although it has led to the deterioration of quality in staff and teaching content, the infringement of institutional autonomy and academic freedom and the financial crisis of higher education. In a democratic society these issues would trigger a public debate and a re-evaluation and a possible subsequent change of policies and governance structures. Schimank's typology of likely and unlikely governance regimes shows the democracy and problem solving bias of the governance approach (cf. Mayntz, 2009). In the Sudanese case current policies and the governance regime serve to ensure compliance with the government's ideology, therefore a public challenge is not feasible and universities have to adapt.

If we now take a closer look at the governance regime, i.e. a dominance of state regulation, external guidance by public actors, managerial self-governance and competition, it shows that in fact public actors hierarchically steer the higher education system on different levels and with different tools: by laws and decrees (state regulation), by membership in the university council (external guidance), through politically affiliated vice-chancellors and deans (managerial self-governance), and by exerting influence in the national council (academic self-governance). This means that there is no "power parallelogram" (Kehm & Lanzendorf, 2006), but one dominant actor – the state.

In summary, the model of five dimensions can be used to describe and analyse changes in governance, but it falls short of grasping the complexities of postcolonial post-conflict states like Sudan due to its underlying assumptions, i.e. a democratic political system, a problem solving bias and a separation of the public and the private sphere. A governance model to be used for analysing developments in development and crisis states would have to tackle these three aspects.

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NICO CLOETE

8. HIGHER EDUCATION AND ECONOMIC DEVELOPMENT IN AFRICA

The Academic core

INTRODUCTION

Throughout the post-independence period, every African country has struggled with the problematic role of higher education in development. Until the mid-1990s the role of higher education in development programmes and policies in Africa was to some extent an anomaly, with the majority of education development projects focusing on the primary school level. International donors and partners regarded universities, for the most part, as institutional enclaves without deep penetration into the development needs of African communities. As such, higher education was seen as a non-focal sector or even as a 'luxury ancillary'. The latter view was for many years propagated, for example, by the World Bank (Brock-Utne, 2002; Hayward, 2004; Mamdami, 2008; Maassen et al., 2007; Psacharopoulos, 1986; Sawyerr, 2004)

Dramatic declines in expenditure on higher education were associated with these policies: spending per student fell from US$ 6 800 in 1980, to US$ 1 200 in 2002, and more recently to below US$ 1000 in 33 low-income sub-Saharan African countries. Lack of investment in higher education delinked universities from development, led to development policies that had negative consequences for African nations, and caused the decline, and in some cases closure of institutions and areas of higher education that are critical to development (Hayward 2004).

During the 1990s and early 2000s some influential voices, including the World Bank (1999, 2007, 2009), started calling for the revitalisation of African universities and for linking higher education more directly to development. At a Kuala Lumpur World Bank seminar Manuel Castells argued that in an information or knowledge economy, the core knowledge institution (university) can be expected to function as 'the engine of development' (Castells, 1991).

Research during the last decade has suggested a strong association between higher education participation rates and levels of development, and considerable theoretical and empirical evidence has emerged about the importance of the university in producing high-level generic, or what Castells calls "programmable'', skills, and research and innovation (Castells, 2002; Carnoy, 1993).

Many rapidly developing countries, such as South Korea, China, and India have put higher education central in their knowledge and innovation policies, and at the core of their development strategies. This is based on the assumption that the

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
Effects of Higher Education Reforms: Change Dynamics, 137–152.

ability to absorb, use and modify technology developed mainly in high-income countries will drive a more rapid transition to higher levels of development and standards of living (Pillay, 2010).

For Africa the change in direction was clearly signalled when the then secretary general of the United Nations, Kofi Annan, strongly promoted the importance of universities for development in Africa, stating that: "The university must become a primary tool for Africa's development in the new century" (quoted in Bloom et al., 2006:2). This was endorsed when ahead of the UNESCO World Conference on Higher Education in 2009, a group of African education ministers called for improved financing of universities and a support fund to strengthen training and research in key areas (MacGregor, 2009).

An important empirical question concerns the extent to which African universities in practice are going through a change process aimed at strengthening their contributions to the development of their country. In this chapter this question will be discussed on the basis of a research project on "Universities and economic development in Africa" undertaken by a newly established network (HERANA). In the next section HERANA and its research activities will be presented, followed by a presentation of the main outcomes of the research project on "Universities and economic development in Africa".

HERANA

The Higher Education Research and Advocacy Network in Africa (HERANA) was established in 2008 with funding support from the US Foundation Partnership (Ford, Carnegie, Rockefeller and Kresge) and the Norwegian Agency for Research and Development (NORAD). The network is managed by the Centre for Higher Education Transformation (CHET) in South Africa and currently includes more than 50 participating academics from Africa, Europe and the USA.[1] Its activities consist of three components, i.e. an education, research and advocacy component. With respect to research the three main projects undertaken since 2008 are:

- Higher education and democratic development.
- Knowledge use in higher education policy-making.
- Higher education and economic development.

This chapter is based on the last project. The broad aim of the project was to investigate the complex relationships between higher education and economic development in selected African countries with a focus on the context in which universities operate, the internal structure and dynamics of the universities, and the interaction between the national and institutional contexts. It also aimed to identify factors and conditions that facilitate or inhibit universities' ability to make a sustainable contribution to economic development.

The project began with a review of the international literature on the relationship between higher education and economic development. This was followed by case

studies of three systems that have effectively linked their economic development and higher education policy and planning – Finland, South Korea and North Carolina (Pillay, 2010).

The next phase of the project involved the collection of data at both the national and institutional levels in eight African countries and universities included in the study. These were: Botswana – University of Botswana; Ghana – University of Ghana; Kenya – University of Nairobi; Mauritius – University of Mauritius; Mozambique – Eduardo Mondlane University; South Africa – Nelson Mandela Metropolitan University; Tanzania – University of Dar es Salaam and Uganda – Makerere University. The countries included in the study were selected primarily on the basis of previous collaboration, and on the basis of World Economic Forum (WEF) ratings regarding location in the knowledge economy. In addition, all countries included have experienced a (relative) stabilization of their political and socio-economic infrastructure, and are going through a period of economic growth.

HERANA has produced some 20 reports including its culminating volume Universities and Economic Development in Africa (Cloete et al., 2011). In exploring the relationships between higher education and economic development, the research uncovered three urgent needs – for a social 'pact' on the key role of higher education in emerging knowledge economies, strengthening the 'academic core' in universities, and greater coordination among higher education stakeholders including governments, universities, the private sector and society.[2]

THE ACADEMIC CORE OF EIGHT AFRICAN UNIVERSITIES

The university's unique contribution to development is via knowledge – transmitting knowledge to individuals who will go out into the labour market and contribute to society in a variety of ways (teaching), and producing and disseminating knowledge that can lead to innovation or be applied to the problems of society and economy (research, engagement). Part of what impacts on a university's ability to make a sustainable contribution to development therefore focuses on the nature and strength of its knowledge activities.

According to Burton Clark (1998), when an enterprising university evolves a stronger steering core and develops an outreach structure, its heartland is still in the traditional academic departments, formed around disciplines and some interdisciplinary fields. The heartland is where traditional academic values and activities such as teaching, research and training of the next generation of academics occur. Instead of 'heartland', this study used the concept 'academic core' – it is this core that needs to be strong and relevant if flagship universities – such as those included in this study – as key knowledge institutions, are to contribute to development.

While most universities also engage in knowledge activities in the area of community service or outreach, a key assumption is that the backbone or the foundation of the university's business is its academic core – that is, the basic handling of knowledge through teaching via academic degree programmes, research output, and the production of doctoral level graduates (those who, in the future, will be responsible for carrying out the core knowledge activities).

As mentioned, the eight African universities included in the study are Botswana, Dar es Salaam, Eduardo Mondlane, Ghana, Makerere, Mauritius, Nairobi and Nelson Mandela Metropolitan University. With the exception of NMMU, which was selected for its comparability in terms of size and profile to the other seven institutions, all of the universities are considered flagship universities and are rated number one in their respective countries. Given that the South African university (NMMU) does not have flagship status as such, and in order to provide an 'African benchmark', the University of Cape Town was included as a ninth institution: Cape Town is the number one ranked university in South Africa and in Africa. The institutions in the sample are the leading knowledge-producing institutions expected to make a contribution to research and development. This is, for example, expressed in the University of Botswana's research strategy (2008:3) as follows:

> The university has the largest concentration of research-qualified staff and research facilities in the country and has an obligation to develop the full potential of these resources. By doing so, it can play a central part in the multiple strategies for promoting research, development and innovation that are now on the national agenda.

A review of the vision and mission statements of the selected universities reveals a number of common aims relating to both the nature and strength of their academic cores, as well as their contribution to development. These aims might be summarised as follows:

- To have high academic ratings, making them leading or premier universities – not only in their respective countries but also in Africa.
- To be centres of academic excellence which are engaged in high quality research and scholarship.
- To contribute to sustainable national and regional social and economic development.

The question is: does the evidence support these ambitious aims for academic excellence? In other words, is there evidence that these universities have strong academic cores or, at the very least, are moving in that direction?

METHODOLOGY

In 2007 a start was made with compiling data on a group of African universities as part of a project called Cross-National Higher Education Performance (Efficiency) Indicators.[3] The data collected was discussed at a workshop in March 2009, where it emerged that although a basic data set had been compiled from institutional representatives and planners, most of the universities had experienced difficulties in completing the 2007 data templates. Suffice to say that the first finding about the academic core is that there is a need to improve and strengthen the definition of key performance indicators, as well as the systematic, institution-wide capturing and processing (institutionalisation) of key performance indicator data.

In order to rate the strength of the academic core of the universities in the study, the following eight indicators were identified, all of which refer to characteristics or activities that reflect the production of high quality scholarship which, in turn, forms the basis of each university's potential contribution to development. The eight indicators, and the rationale for their inclusion, are outlined below. They are divided into five input and three output indicators. Some of these indicators are based on traditional notions of the role of flagship universities, e.g. the production of new knowledge and the next generation of academics, while others, e.g. science, engineering and technology enrolments and student–staff ratios, are pertinent to the African context.

Input Indicators

- Increased enrolments in science, engineering and technology (SET): In African governments and foreign development agencies alike, there is a strong emphasis on SET as important drivers of development (Juma, 2005). Included in SET are the agricultural sciences, architecture and urban and regional planning, computer and information science, health sciences and veterinary sciences, life sciences and physical sciences.
- Increased postgraduate enrolments: The knowledge economy and universities are demanding increasing numbers of people with postgraduate qualifications.
- A favourable academic staff to student ratio: The academic workload should allow for the possibility of research and Ph.D. supervision.
- A high proportion of academic staff with doctoral degrees: Research (CHET 2010) shows that there is high correlation between staff with doctorates, on the one hand, and research output and the training of Ph.D. students, on the other.
- Adequate research funding per academic: Research requires government and institutional funding and 'third-stream' funding from external sources such as industry and foreign donors.

Output Indicators

- High graduation rates in SET fields: Not only is it important to increase SET enrolments, it is crucial that universities achieve high graduation rates in order to respond to the skills shortages in the African labour market in these fields.
- Increased knowledge production in the form of doctoral graduates: There is a need for an increase in doctoral graduates for two reasons. Firstly, doctoral graduates form the backbone of academia and are therefore critical for the future reproduction of the academic core. Secondly, there is growing demand for people with doctoral degrees outside of academia (e.g. in research organisations and other organisations such as financial institutions).
- Knowledge production in the form of research publications in recognised ISI journals: Academics need to be producing peer-reviewed research publications in order for the university to participate in the global knowledge community and to contribute to new knowledge and innovation.

Below is a summary of data and ratings for the institutions included in the sample, as well as a discussion of the findings.

ACADEMIC CORE DATA

Table 1 presents the basic academic core data for the universities in the sample, indicating the changes between 2001 and 2007.[4] Table 2 presents an overview of the ratings (or scores) per university for each of the academic core indicators. The values of the input and output indicators in Table 2 are given ratings on a scale of 1 to 3. The first three input and the three output data elements are averages for the seven-year period 2001–2007. The remaining two input indicators are based on data which were available only for 2007. Table 3 provides the average annual growth rates over the period 2001–2007.[5]

This data set (Tables 1, 2 and 3) provides comparative data for the universities in our sample. In addition, it could be used by institutions in the eight countries as a benchmark for their own performance.

The data indicates that, apart from NMMU and Ghana, each of the universities had at least one 'strong' rating. Cape Town was rated 'strong' for all eight indicators, Mauritius for four of the eight, Dar es Salaam and Nairobi for three of the eight, and Botswana, Eduardo and Makerere for two of the eight indicators.

A large number of 'weak' ratings appear in the scores of different universities. Eduardo was rated as 'weak' on six of the eight indicators; Botswana and Ghana on five of the eight indicators. Makerere and Nairobi were rated as 'weak' on four of the eight indicators, and Mauritius on three of the eight indicators. NMMU had two 'weak' ratings and Cape Town none.

On the input side, Cape Town's overall rating was 'strong', and those of Dar es Salaam, Mauritius and Nairobi were about mid-way between 'strong' and 'medium'. Two universities, Makerere and NMMU, had overall input ratings which were close to the average 'medium' rating. Three universities – Botswana, Eduardo and Ghana – had overall input ratings mid-way between 'weak' and 'medium'. On the output side, Cape Town's average rating was 'strong', and no other university had output ratings of above 'medium', except NMMU had a 'medium' rating. The remaining seven universities had overall output ratings below the 'medium' rating.

From these scores the institutions can be broadly categorised into the following groups:

- Group 1 contains Cape Town which is the only university which was 'strong' on all input and output ratings.
- Group 2 contains Mauritius, Makerere and NMMU which had 'medium' or 'strong' ratings on both the input and the output sides.
- Group 3 contains Dar es Salaam, Nairobi and Botswana which had overall 'medium' and 'strong' ratings on the input side, but which were 'weak' on the output side.
- Group 4 contains Ghana and Eduardo Mondlane which had 'weak' ratings on both the input and the output side.

Table 1. Academic core indicators: Scores and changes (2001–2007)

University	*% SET enrolments*		*Masters enrolments*		*Doctoral enrolments*		*Student–staff ratios*		*Student–staff ratios 2007*		*Doctoral graduates*		*Research publications*		*Research publication per academic*	
	2001	*2007*	*2001*	*2007*	*2001*	*2007*	*2001*	*2007*	*SET*	*BUS*	*2001*	*2007*	*2001*	*2007*	*2001*	*2007*
Cape Town	40%	42%	2 788	2 906	706	1 002	12	15	22	42	86	102	700	1 017	0.92	1.14
Botswana	22%	22%	493	951	8	41	14	27	10	59	3	4	69	106	0.1	0.14
Dar es Salaam	52%	36%	609	2 165	54	190	11	14	14	22	10	20	49	70	0.12	0.07
Eduardo Mondlane*	61%	48%	0	420	0	3	10	13	12	51	0	0	0	11	0.03	0.03
Ghana	22%	18%	1 344	1 580	69	102	12	31	9	68	2	20	77	61	0.12	0.08
Makerere	16%	32%	1 167	2 767	28	32	15	18	11	96	11	23	72	139	0.07	0.2
Mauritius	51%	43%	350	859	114	193	24	16	12	34	7	10	23	36	0.12	0.13
Nairobi	33%	31%	3 937	6 145	190	62	12	18	8	42	26	32	143	136	0.12	0.11
NMMU	18%	31%	1 100	1 332	175	327	31	28	26	54	27	35	154	180	0.3	0.34

Table 2. Academic core indicators: Ratings per university

	Input indicators					Output indicators		
Period >>	Average for 2001–2007			2007 only		Average for 2001–2007		
Indicator>>	% SET enrolments	% Masters and doctoral enrolments	Student-staff ratios	% Academics with doctoral degrees	Research income / permanent academic (ppp$)	SET graduation rate	Doctoral graduates as % of permanent academics	Ratio of research publications / permanent academic
Rating >>	Strong: >39% Medium: 30–39% Weak: <30%	Strong: >9% Medium: 5–9% Weak: <5%	Strong: <20 Medium: 20–30 Weak: >30	Strong: >49% Medium: 30–49% Weak: <30%	Strong: >20 000 Medium: 10 000–20 000 Weak: <10 000	Strong: >20% Medium: 17–20% Weak: <17%	Strong: >10% Medium: 5–10% Weak: <5%	Strong: >0.5 Medium: 0.25–0.5 Weak: <0.25
Cape Town	41%	19%	13	58%	47 700	21%	15.00%	0.95
Botswana	22%	5%	15	31%	2 000	20%	0.66%	0.11
Dar es Salaam	43%	9%	14	50%	6 400	19%	2.18%	0.08
Eduardo Mondlane	54%	2%	12	24%	0	6%	0.00%	0.03
Ghana	19%	7%	22	47%	3 400	18%	0.17%	0.11
Makerere	24%	5%	16	31%	4 900	22%	1.63%	0.09
Mauritius	48%	13%	17	45%	3 000	26%	2.80%	0.13
Nairobi	31%	16%	14	71%	5 300	17%	1.87%	0.09
NMMU	25%	6%	30	34%	12 300	18%	5.50%	0.31

Table 3. Academic core indicators: Average annual growth rates (2001–2007)

University	*SET enrolments*	*Masters enrolments*	*Doctoral enrolments*	*Doctoral graduates*	*Research publications*
Cape Town	3.10%	0.70%	6.00%	2.90%	6.40%
Botswana	5.30%	11.60%	31.30%	4.90%	7.40%
Dar es Salaam	8.30%	23.50%	23.30%	12.20%	6.10%
Eduardo Mondlane	6.60%	n/a	n/a	n/a	n/a
Ghana	12.90%	2.70%	6.70%	46.80%	-3.80%
Makerere	16.30%	15.50%	2.30%	13.10%	11.60%
Mauritius	2.20%	16.10%	9.20%	6.10%	7.80%
Nairobi	7.60%	7.70%	-17.00%	3.50%	-0.80%
NMMU	3.70%	3.20%	11.00%	4.40%	2.60%

THE STRENGTH AND CHANGES IN THE ACADEMIC CORES

The data indicate that with the exception of Cape Town, the other universities do not have academic cores that live up to the high expectations contained in their mission statements. However, the data show considerable variance amongst the institutions in terms of input indicators, and some convergence regarding output indicators, with the exception of Cape Town.

Two input indicators with considerable variation are student-staff ratios and permanent academics with doctorates. With regard to student-staff ratios, two institutions managed to decrease the instruction loads of their academic staff (Mauritius: ratio of 24:1 in 2001 to 16:1 in 2007; NMMU: 31:1 down to 28:1) (Table 3). The student-to-academic staff ratio at Ghana increased substantially from 12:1 in 2001 to 31:1 in 2007, as did that of Botswana from 14:1 in 2001 to 27:1 in 2007 (Table 3). The ratios at other institutions increased, but not dramatically: Nairobi (12–18), Makerere (15–18), Eduardo (10–13), Dar es Salaam (11–14) and Cape Town (12–15) (Table 3).

These ratios do not support the stereotype of 'mass overcrowding' in African higher education; certainly not at the flagship universities. While one institution (Ghana) had a ratio of over 30:1, six institutions were under 20:1 (Table 3). But, these gross figures obscure substantial variations within the fields of study offered by institutions (Table 3). For example, at Nairobi, the student-staff ratio in 2007 in SET was 8:1 while it was 42:1 in business. More unfavourable examples were Ghana where the 2007 SET ratio was 9:1 and the business ratio was 68:1, and Makerere where the 2007 SET ratio was 11:1 and the business ratio 96:1. More 'normal' variations were at Cape Town which, in 2007, had a 22:1 ratio for SET and 42:1 for business, and Dar es Salaam which had 14:1 for SET and 22:1 for business.

A recent study by CHET (2010) on higher education differentiation showed that in South Africa there is a highly significant correlation of 0.82 between the proportion of the academic staff of a university that has a doctorate as their highest qualification and the research publications produced at that university. This implies that it is only in exceptional cases that academics without a doctorate publish in internationally-recognised research-reviewed journals or books.

The data in Table 4 show that in 2007 three universities had proportions of permanent academics with doctorates of 50% or higher. They were Nairobi (71%), Cape Town (58%) and Dar es Salaam (50%). This is very strong capacity – in South Africa, only three of 23 universities in 2007 had a proportion of 50% or higher of permanent academic staff with doctorates. Ghana, Makerere, Mauritius and NMMU had, in 2007, proportions of permanent academic staff with doctorates in the band 30% to 49%. Unfortunately, we do not have trend data for this indicator so we cannot comment on whether the percentages of staff with doctorates are increasing or decreasing.

The three output indicators in this study are SET graduation rates, doctoral graduates and publications in ISI-recognised journals. Starting with SET graduation rates, an average annual ratio of 25% SET graduates to SET enrolments

is roughly equivalent to a cohort graduation rate of 75%, a ratio of 20% is equivalent to a cohort graduation rate of 60%, and a ratio of 15% is equivalent to a cohort graduation rate of 45%. The SET graduation rates (Table 4) show that Botswana, Makerere, Mauritius and Cape Town all have rates of at least 60% of the cohort of students graduating, while Dar es Salaam's is just under 60%. The rest are under 50%. Eduardo Mondlane, which had the highest proportion of enrolments in SET (54% of its enrolments during 2001–2007), had the poorest graduation rate.

Doctoral output is very low. Five of the universities (Botswana, Dar es Salaam, Ghana, Mauritius and Eduardo) produced 20 or fewer doctorates in 2007, while three (Makerere, Nairobi and NMMU) produced between 20 and 40, and Cape Town over 100 (Table 3). Most worrisome is that amongst all the institutions, the growth in doctoral graduations is below 10%, with the exceptions of Ghana, Dar es Salaam and Makerere, which grew from a very low base (Table 5). At the University of Nairobi, doctoral enrolments declined by 17%.

The slow growth in doctoral enrolments is in sharp contrast to the 'explosion' of masters enrolments (Table 5). At Dar es Salaam, enrolment of masters increased by 23.5% (from 609 in 2001 to 2 165 in 2007). Three other universities (Mauritius, Makerere and Botswana) had average annual increases of higher than 10% between 2001 and 2007. At the other universities growth was below 10%, with Cape Town growing less than 1% (Table 5).

As was indicated above, the fast growth in masters enrolment was not matched by a commensurate expansion in doctoral studies. For example, at Nairobi, masters enrolment between 2001 and 2007 grew at an average annual rate of 7.7% while doctoral enrolments declined. At Makerere, masters enrolments grew at an annual rate of 15.5%, while doctoral enrolments grew at only 2.3% (Table 5). The continuation rates from masters to doctoral studies seem absurdly low in certain cases. An ideal ratio of masters to doctoral enrolments should be at least 5:1, which is an indication that masters graduates flow into doctoral research programmes. In 2007, Cape Town, Mauritius and NMMU all had ratios of masters to doctoral students below 4:1. Botswana, Dar es Salaam and Ghana all had ratios between 10:1 to 23:1, while the other three – Eduardo Mondlane, Makerere and Nairobi – had ratios above 50:1.[6]

Regarding research publications, it is assumed that a flagship knowledge producer must produce research-based academic articles that can be published in internationally peer-reviewed journals and/or books. The target for permanent academics was set at one research article to be published every two years, which translates into an annual ratio of 0.50 research publications per academic. In our sample, which deals with average ratios for the period 2001–2007, only Cape Town (with an average of 0.95) met this requirement (Table 4). With the exceptions of NMMU (0.31) and Mauritius (0.13), the ratios of the other universities imply that on average each of their permanent academics is likely to publish only one research article every 10 or more years.

From the above it is evident that particularly the output variables of the universities are not strong enough to make a sustainable knowledge production

contribution to development. Nevertheless, there are some positive trends in this worrisome picture. The majority of universities have strong input performance in academics with doctorates, student-staff ratios, and an increase in enrolments at the masters level. On the output side, the graduation rate of SET is quite strong for most of the institutions. There is also an increase in research output, albeit from a very low base. In 2007, Makerere produced the third highest total of research publications (139) in the sample, after Cape Town with 1 017 and NMMU with 180. Makerere showed an 11.6% growth in publication output over the seven-year period, Mauritius 7.8%, Botswana 7.4% and Dar 6.1% (Table 5). At Ghana and Nairobi, the output of ISI-accredited publications declined.

However, it should also be noted that even though the research productivity in terms of academic articles produced is increasing at the universities included, since the productivity in the rest of the world is increasing much faster, the relative position of Africa as knowledge producer is decreasing gradually. Sub-Saharan Africa contributes around 0.7% to world scientific output, and this figure has decreased over the last 15 to 20 years (French Academy of Sciences 2006).

DISJUNCTURES BETWEEN CAPACITY AND PRODUCTIVITY

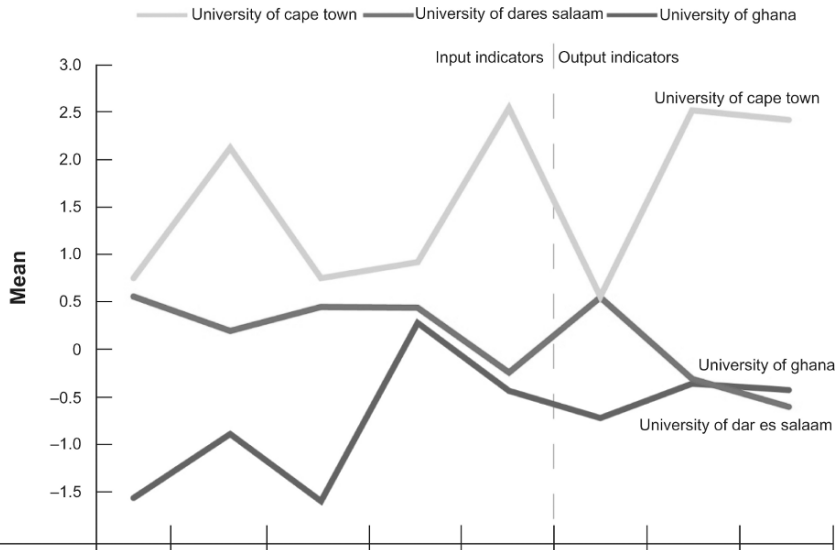
There is a long-held common-sense view that the lack of research output in African universities is simply a lack of capacity and resources. However, a closer inspection of the input-output indicators raises some interesting questions about this assumption. In order to explore this further, we selected Cape Town from group 1, Dar es Salaam from group 3 and Ghana from group 4 as representatives of these groups and plotted a comparative graph based on standardised scores (Figure 1).

The data shows that there are surprising similarities between Dar es Salaam and Cape Town in terms of input indicators such as SET enrolments (Cape Town 41%, Dar es Salaam 40%), student-staff ratio (Cape Town 13:1, Dar es Salaam 14:1) and academics with Ph.Ds. (Cape Town 58%, Dar es Salaam 50%). Ghana, on the other hand, is only similar to the other two in terms of staff qualifications. On the input side, the big difference between Cape Town, on the one hand, and Dar es Salaam and Ghana on the other, is in percentage of postgraduate students (Cape Town 19% versus Dar es Salaam 9% and Ghana 7%) and research income per permanent staff member (Cape Town USD 47 700 versus Dar es Salaam USD 6 400 and Ghana USD 3 400).

With regard to output indicators, Cape Town and Dar es Salaam have similar SET graduation rates (21% and 19%, respectively). The dramatic difference is in doctoral graduates (average for 2001–2007): Cape Town 15% of academic staff, and Dar es Salaam and Ghana less than 3% per academic staff member (Figure 2), and ISI publications (2007): Cape Town 1 017, Ghana 61 and Dar es Salaam 70 (Table 3).

This data poses some intriguing issues for higher education in Africa. Cape Town and Dar es Salaam have remarkably similar profiles in terms of SET (input and output), student–staff ratios and staff with doctorates, but are incomparable

regarding the production of doctorates and publications. What distinguishes Cape Town from the other institutions is much higher proportions of postgraduates, research income and knowledge production outputs.



University	% SET majors	% Masters + doctorates	Student–staff ratio*	% Academics with doctorates	Research income per permanent academic ppp$	SET graduation rate	Doctoral graduates as % of peramanent academics	Research publications per academic
Cape town	41%	19%	13	58%	47700	21%	15.00%	0.95
Dar es salaam	40%	9%	14	50%	6400	19%	2.18%	0.08
Ghana	19%	7%	22	47%	3400	16%	0.17%	0.11

* In the data table the student–staff ratio is given, whilst the inverse of the student–staff ration has been used in the graph representing the results of the k–mean clustering. This was done because a high student–staff value is unfavourable and should thus reflect a low value in the k–means clustering. The university of ghana has a high value for student–staff value in the table but the inverse shows a low value in the graph of the means for the clustering.

Figure 1. Academic core indicators (standardised data): Three selected universities.

In terms of input capacity, Cape Town and Dar es Salaam are surprisingly similar, with the exception of research income (resources). Does that mean that research income is the only factor that prevents Dar es Salaam from achieving the same level of outputs as Cape Town?

During interviews with senior academics, three factors emerged that raise questions and warrant further research. The first is the problem of research funding. Not only is there very limited research funding, but the cumbersome application procedures and the restrictions on what the research funds can be used for makes consultancy money much more attractive; in other words, consultancy money directly supplements academics' income, and the researchers also have

much more discretion about how it is used. The negative side of consultancy funds is that there is no pressure or expectation to publish, nor to train postgraduate students. It thus affects negatively both aspects of knowledge production, that is, postgraduate training and publishing.

Incentives to publish, as is the case in many countries, are a problem. After obtaining the professorship, publishing in international journals is not directly rewarded, but is rather a matter of prestige or 'institutional culture'. In order to incentivise this activity, universities in Africa might have to start exploring incentive systems. In South Africa, the national government subsidises each institution to the tune of about USD 45 000 per Ph.D. graduate and USD 15 000 per accredited publication. But this is not simple correlation. Two of the universities with the highest publication rates per permanent academic (Cape Town and Rhodes) do not pass a portion of the subsidy directly to the academic or the department, but put it in a pool where everybody can compete for it.

Another dimension that certainly warrants further exploration is the relationship between research and consultancy. A Ph.D. study by Langa (2010) suggests that having a strong academic network link, with publications, is an entry for getting consultancies. So it is not that academics choose research or consultancy; some do a balancing act between research and consultancy, while others seem to 'drift off' into consultancy and foreign aid networks.

A second problem that is affecting the production of doctorates, and associated research training and publication, is the huge increase in taught masters courses which do not lead to doctoral study. For example, the University of Cape Town had 2 906 masters enrolments and 1 002 doctoral enrolments in 2007. In contrast, in 2007 Dar es Salaam had 2 165 masters students and only 190 doctoral enrolments (Table 3). This means that there is a serious 'pipeline' problem at universities like Dar es Salaam. This could be because the masters degree does not inspire sufficient confidence in students to enrol for the Ph.D., or because there are no incentives to do so, or because individuals are pursuing their Ph.D. degrees abroad. Whatever the reason, the effect is a serious curtailing of Ph.D. numbers and hence of an essential ingredient in the knowledge production process.

According to the discussions with interview respondents, the third factor that distracts academics from knowledge production is supplementary teaching. On the one hand, the new method of raising third-stream income – namely, the innovation of private and public students in the same institution, with additional remuneration for teaching the private students – has the result that within the university, academics are teaching more to supplement their incomes. On the other hand, the proliferation of private higher education institutions, some literally within walking distance of public institutions, means that large numbers of senior academics are 'triple teaching'.

Ph.D. supervision, in a context where the candidate in all likelihood does not have funds for full-time study and where there are no extrinsic (only intrinsic) institutional rewards, is a poor competitor for the time of the triple-teaching academic. The same applies to rigorous research required for international peer-reviewed publication: it is much easier and far more rewarding to triple teach and do consultancies.

The implication of the above is that the lack of knowledge production at Africa's flagship universities is not a simple lack of capacity and resources, but a complex set of capacities and contradictory rewards within a scarce-resource situation. This results in a fundamental lack of a strong output-oriented research culture at these universities.

CONCLUSIONS

The main conclusion is that the knowledge production output variables of the academic cores do not reflect the lofty ambitions expressed in their mission statements. With the exception of the University of Cape Town, none of the universities included in the project seem to be moving significantly from their traditional undergraduate teaching role to a strong academic core that can contribute to new knowledge production and, by implication, to development.

Amongst the universities there is considerable diversity regarding input variables. The weakest indicators are the low proportion of postgraduate enrolments and the inadequate research funds for permanent staff, with the strongest input indicators in manageable student-staff ratios and well- qualified staff.

On the output side, SET graduation rates are generally positive. But there is a convergence around low knowledge production, particularly doctoral graduation rates and ISI-cited publications. The most serious challenges to strengthening the academic core seems to be the lack of research funds and low knowledge production (Ph.D. graduates and peer-reviewed publications). The study also suggests that the low knowledge production cannot be blamed solely on low capacity and resources; the problematic incentive structure at these universities requires further study.

In terms of further research, there is a clearly identified need to improve and strengthen the definition of key performance indicators, as well as the systematic, institution-wide capturing and processing (institutionalisation) of key performance indicator data.

NOTES

[1] For more details see: http://www.chet.org.za/programmes/herana/. HERANA Phase Two commenced during late 2011; for more details see http://www.chet.org.za/programmes/herana/.

[2] For a more detailed overview by a range of commentators, see http://www.chet.org.za/content/responses-herana-project

[3] Website: http://www.chet.org.za/programmes/indicators/

[4] 2001 figures for Eduardo Mondlane for masters and doctoral enrolments, and doctoral graduates and research publications, were not provided by the institution.

[5] Annual growth rates for Eduardo Mondlane are not available in the table above for masters and doctoral enrolments, and doctoral graduates and research publications, because the institution could not provide us with this information for 2001.

[6] These masters-to-doctoral enrolment and graduation ratios are contained in the individual case study reports for the respective universities. Chet website http://www.chet.org.za/programmes/herana/

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9. STUDENT FINANCIAL AID IN THE UNITED STATES

Instruments, Effects, and Policy Implications

INTRODUCTION

At first glance, the United States appears to have overcome price as a barrier for access to postsecondary education. In 2008–09, all student aid programs (federal, state, and institutional) totalled more than $168 billion with an average award of $10,185 (College Board, 2009b). Despite this remarkable investment, however, access to higher education and college completion rates still vary widely among different groups. In the U.S., about 34 of every 100 white students obtain a bachelor's degree by age 25–29, compared to only 17 of 100 African Americans and 11 of 100 Latina/os. Only 36 per cent of college-qualified low-income students complete a bachelor's degree within nine years, compared to 81% of their high-income peers (U.S. Department of Education, 2006). Worse, gaps in college participation and degree attainment have widened in recent years (Astin & Oseguera, 2004; Heller & Rogers, 2006). This worrisome trend is viewed with alarm in some states more than others: in California, for example, today 35% of 55 to 59 year-olds are college graduates, compared to only 26% of 25 to 29 year-olds (Johnson, 2010). The younger generations are the first in the history of the state (and the country) to be less educated than their elders.

Significant changes in student aid have been witnessed in the U.S. in the past thirty years. A historic leap in tuition prices – only partially offset by increases in aid – has shifted to students the financing of college (Hearn & Holdsworth, 2004; Heller & Rogers, 2006). The federal government, states, and institutions have implemented new aid programs mostly without coordination. As a result, the Commission for the Future of Higher Education complained: "the entire financial aid system [in the US] is confusing, complex, inefficient, duplicative, and frequently does not direct aid to students who truly need it" (U.S. Department of Education, 2006:11). Nevertheless, the American system's great variety of programs has also produced a great variety of outcomes; the more positive of these ought to be examined, as they may prove useful for higher education reformers outside the U.S.

Such efforts are vital for American researchers as well. As Clark (1983) explained, "Cross-national comparison is particularly advantageous in uncovering the unique features and unconscious assumptions that possess our

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Effects of Higher Education Reforms: Focus on change dynamics, 153–184.

vision when we study only a single country, generally our own. The 'hometown' view has been particularly damaging in the study of higher education, since a larger share of the literature has been written by Americans, and the U.S. system, in its fundaments, is a deviant case." This "deviant case" nevertheless can offer valuable insights into student financial aid issues for policymakers and researchers in other nations.

In several countries, reformers are considering changes in tuition fees and student aid policies including the creation of grant and loan programs and augmentation of those already in place (Jongbloed, de Boer, Enders, & File, 2010). In this paper, we will discuss the experiences of the United States that offer guidance on the most effective uses of public funds for student aid. First we discuss the growing demand for higher education across the world, which will lead inevitably to future policy debates on the costs of higher education. We will then review and provide recent data on federal, state, and institutional student aid programs in the United States, showcasing which practices seem the most promising in regard to expanding student access and improving student success. We particularly focus on federal, state, and institutional grants (merit and need-based), federal educational tax credits, and the role of information and complexity in the financial aid process.

THE INCREASING DEMAND FOR HIGHER EDUCATION

In the world of higher education there is both good news and some not so good. Looking at enrolment trends worldwide, data show that access to tertiary education almost tripled since 1980 with a total enrolment of nearly 140 million students in 2006 (Table 1). Europe has followed North America in its historical development from elite to mass and then universal higher education and indeed is now approaching parity in enrolments (OECD, 2008). However, it is some of the developing countries and economies that show the most impressive growth, with Eastern Asia/Oceania more than doubling enrolments between 1995 and 2006. There is even more good news: practically all forecasts from UNESCO and OECD predict that during the coming decade worldwide enrolment in higher education will continue to increase, thus benefiting more people than ever (Glen, 2009).

As displayed in Table 2, growing enrolment has also boosted educational attainment, particularly among OECD countries. However, overall attainment rates still vary widely, with Turkey and Portugal showing the lowest rates of 10 and 12%, respectively, and Canada, Japan, and the United States the highest with 46, 40, and 38%, respectively.

Table 1. Students enrolled in tertiary education, 1980–2006 (in millions). Source: OECD (2008)

Region	*1980*	*1985*	*1990*	*1995*	*2006*	*Increase*
World Total	51.2	60.3	68.7	81.7	139.4	172%
North America	13.5	13.9	15.6	16.6	18.8	39%
Asia/Oceania	2.9	2.9	3.5	5.3	5.3	83%
Europe	6.9	8.2	9.9	12.6	14.8	114%
Sub-Sahara Africa	0.6	0.9	1.4	1.9	3.2	433%
Arab States	1.5	2.0	2.4	3.1	6.0	300%
Latin America/Caribbean	4.9	6.3	7.3	8.1	15.6	218%
Eastern Asia/Oceania	5.2	9.1	10.6	14.3	36.7	606%
Southern Asia	4.0	5.5	6.4	8.0	17.2	330%

Despite this progress in higher education enrolment and attainment, there is also reason for concern, as not everyone is benefitting to the same extent. Research shows that participation and degree completion gaps between many countries are in fact widening and that, even more worrisome, within countries—the U.S. just being one of them—gaps between the well-off and the less fortunate are also widening (Astin & Oseguera, 2004; Glen, 2009; Kane, 2004). For instance, in Mexico, only 1% of the 15–24-year-olds from the lowest income quartile attend higher education, compared to 32% for those in the highest income quartile. In France, chances to attend one of the prestigious Grande Écoles are 11 times higher for children whose parents are white-collar workers than those with blue-collar parents (Glen, 2009).

It is exactly on the matter of equality where politicians, education policy makers and administrators have to collaborate to set the course for the future. As Eva Egron-Polak, Secretary General of the International Association of Universities said it so tellingly:

> On the successful and sustainable expansion of who can enrol and graduate from higher education rests the future of all knowledge-based economies and the future of social stability and cohesion in all nations and internationally. Making sure that our higher education systems serve our increasingly diverse populations is also an essential step towards building a society that understands and appreciates cultural differences and is based on the rule of law, justice, and democracy. (Marmolejo, 2010).

Table 2. Trends in educational attainment: Rate of 25–64-year-olds having attained tertiary education in selected OECD countries, 1992–2005. Source: OECD (2008)

Nation	*1992*	*2005*	*Increase*
Austria	7	18	157%
Belgium	20	31	55%
Denmark	19	33	74%
Finland	18	34	89%
France	16	24	50%
Germany	22	23	5%
Greece	13	21	62%
Ireland	17	29	71%
Italy	6	12	100%
Netherlands	21	29	38%
Norway	25	32	28%
Portugal	7	12	71%
Spain	13	28	115%
Sweden	24	30	25%
Switzerland	21	26	24%
Turkey	5	10	100%
United Kingdom	19	23	21%
Australia	23	32	39%
Canada	41	46	12%
Japan	N/A	40	
United States	31	38	23%

Whether the goal is mass or universal participation, or whether the area discussed is North America, the Americas, Europe, Africa, Asia, or Oceania decisions on the general finance of higher education and student financial aid must be made. Experiences of other countries and national education systems may be used to better inform these pivotal decisions. As countries in the European Union and elsewhere are contemplating to introduce new or alter existing student financial aid systems they can build on a solid foundation of research to inform these decisions.

THE COST OF COLLEGE IN THE UNITED STATES

It is difficult to compare the higher education systems of the United States and other nations; for example, there are entirely different institutional types

prevalent in the U.S. (such as the community college) that have few parallels elsewhere. Further, higher education, especially with regard to the undergraduate years, is simply not the same socio-cultural product in Europe, for instance, as it is in the United States. In fact, it may be easier to refer here to its catch-all American term: college, which covers all postsecondary education, whether students sit in a portable classroom at a community college in rural Louisiana, or stroll across Harvard Yard. College may have the same economic and educational purposes and effects in many lands, but Americans attend at different ages, live in different environments, and pay different prices for quite different experiences.

Americans are perhaps willing to pay a premium to attend small liberal arts colleges or large universities because they are socialized to view these four or five years as the best of their lives, or at minimum, an important rite of passage (Kett, 1977). In the United States, 22% of college students are under the age of 20, and it is their experience that dominates the culture's views of undergraduate student life. If we consider a country in Europe, college may appear quite different; in Norway, for example, only four % of college students are under the age of 20. The other 96% are working, traveling, performing community service, serving in the military, or engaging in other activities (OECD, 2009). Going to campus, moving into a dormitory, and finding oneself must not seem as deeply ingrained cultural practices for Norwegians. These are all social functions for which Americans may be pleased to pay, but which have little value among Norwegian teenagers.

However great their appetite for higher education is, Americans are paying an increasingly steep price for attending college and this precious rite of passage. Over the last decades and regardless of which institutional type is examined in the U.S., the cost of postsecondary education has risen substantially, greatly outpacing the rate of inflation. Figure 1 displays cumulative increases in public 4-year and 2-year institutions, private 4-year not-for-profit colleges, and the Consumer Price Index (CPI) for all urban consumers since 1979–801. While the CPI rose 156% over this 30-year period, public 4-year tuition soared by 852%, private 4-year tuition increased 715%, and tuition at public 2-year community colleges rose 617%. This shows that college tuition and fees significantly outpaced general price developments and median household income over the last three decades, leaving many students and families in the U.S. worrying about the affordability of attending college or university.

Despite a remarkable expansion of financial aid over the last decades, general financial aid appropriations per student or full-time equivalent (FTE) declined (Callan, 2002; Ehrenberg, Zhang, & Levin, 2006; Kane, 2001). As Kane (2001) notes in his review of the literature, spending per FTE of the 50 federal states in the U.S. eroded since the 1980s along with the purchasing power of the Pell Grant – the largest federal grant program, specifically targeted at low- and moderate-income students. As shown in Figure 2, the%age of tuition and fees, and room and board (TFRB) covered by the maximum Pell Grant, declined from 50% in 1987–88 to only 32% in 2006–07 at public 4-year institutions. Only in recent years, with approved changes in federal financial aid, the maximum TFRB covered by

Pell increased slightly to 35% in 2009–10. Also, at private 4-year institutions, the proportion of all direct costs of attending a college or university that is covered by the maximum Pell award declined over time, from 20% in 1987–88 to 13% in 2006–07. The lessened purchasing power of the Pell Grant is a good illustration of what is perceived as a growing problem of college affordability in the United States. Perceptions that college is unaffordable may depress enrolments even as the United States, similar to other nations, desperately needs to produce more college graduates.

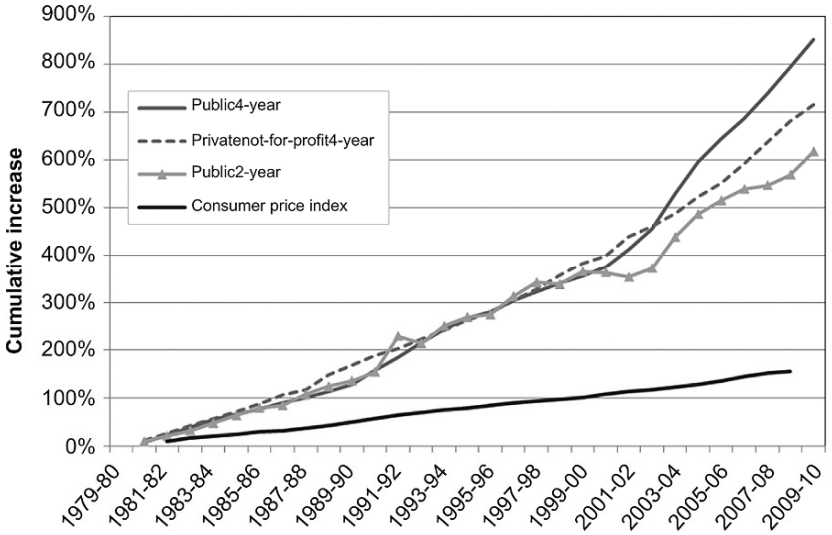

Figure 1. Cumulative increases in public 4-year, public 2-year, and private not-for-profit 4-year tuition, and consumer prices. Source: own calculation, based on data from the College Board (2009b).

Affordability is only marginally addressed by the reforms presently being considered in Europe[2], for instance, yet it is an important issue underlying much of what is generally called the Bologna Process. Indeed, alongside the Bologna Process have come "halting and deeply-contested steps throughout Europe toward tuition fees" (Johnstone, 2008). Mastering issues of finance and the student aid programs that often prove necessary is an essential part of achieving universal participation in higher education in Europe, the U.S., and other regions of the world. Money matters.

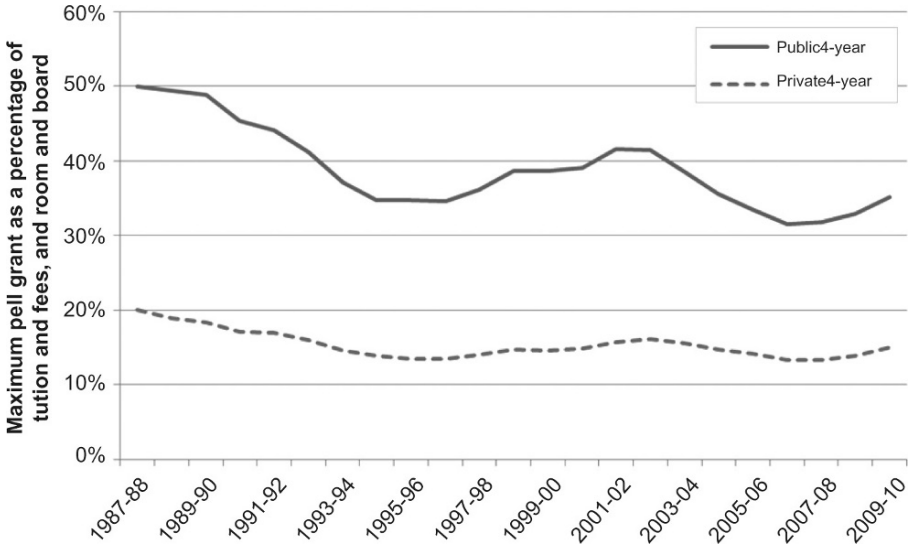

Figure 2. Maximum Pell Grant as % age of tuition and fees, and room and board (TFRB). Source: College Board (2009a).

FEDERAL FINANCIAL AID

In contrast to many other countries, American colleges and universities have a long-standing tradition of charging tuition and fees to students. This practice, however, has repeatedly been the focus of public and private concern, particularly in light of steep tuition and fee increases in most recent years and decades. Many of these concerns have been directed towards the impact of price on the college plans and enrolment rates, particularly for low-income, minority, and other groups of potential students with restricted college-going opportunities.

These concerns have led the federal government to increasingly provide financial support to students in order to reduce the net price of postsecondary education. Historically, these programs focused on providing help directly to students. In 1944, the Servicemen's Readjustment Act (GI Bill) set the stage, authorizing grants that reduced the price of college for returning veterans. The Higher Education Act of 1965 created the Educational Opportunity Grant and subsidized loan programs, thus establishing the framework for most of the currently existing federal aid components. A few years later, in 1972, the Pell Grant Program was authorized to provide direct grants to low- and moderate-income students. Programs were expended over the next decades, however, the focus of federal aid shifted over time. It was in the late 1990's, when Congress voted for the implementation of tax incentives and college savings plans, hence moving away from direct funding towards a more indirect approach of federal financial support. Also, since the 1990's, federal subsidized and unsubsidized loan

programs were remarkably expanded, resulting in a widely discussed shift from grants to loans (Hearn & Holdsworth, 2004; Heller & Rogers, 2006; Kane, 1999).

The following section will examine federal financial aid components and summarize the literature in regard to their effectiveness on expanding postsecondary access and contributing to student success.

FEDERAL GRANT PROGRAMS

Grants, or aid that does not need to be repaid, have long played an important role in financing postsecondary education and, therefore, tend to be the focus in most research on financial aid. In general, grants can be awarded on the basis of need, merit, or a combination thereof. As McPherson and Shapiro (1998) note, from the earliest days, financial aid in U.S. higher education was aimed to serve *needy and deserving* students. This dual purpose leads to the main differentiation between need-based grants which are given to students who otherwise do not have sufficient financial resources to attend college, and merit-based grants which are given to meritorious students in recognition of particular talents or abilities. The distinction between need-based and merit-based grants is at times less than clear and the discussion regarding which type of grant supports higher education in the U.S. best continues to spur scholarly interest (Mundel, 2008).

In the U.S., the federal government provides various types of grants. Historically, there has been only need-based aid, most importantly the Pell Grant and the Federal Supplemental Educational Opportunity Grant (FSEOG). Amounts students receive are calculated based on financial need, cost of attendance, and enrolment status. However, grants to students who attend military academies always contained a merit-component. In 2006, the federal government shifted its focus and established two more grant programs that are based on students' financial need, but also contain student performance (merit) measures. The Federal Academic Competitiveness Grants (ACG) are awarded to undergraduate students in their first or second year of study who qualify for a Pell Grant and have completed a rigorous high school curriculum and maintain a 3.0 cumulative grade point average (GPA). Federal SMART Grants are awarded to undergraduate student in their third or fourth year who also qualify for a Pell Grant and are majoring in specific, eligible fields (mostly Science, Technology, Engineering, and Mathematics) and maintain a 3.0 GPA.

In total, the U.S. government increased spending on grants for postsecondary education from $13.6 billion to $24.8 billion (82% increase) between 1998 and 2008, in constant (2008) dollars. The Pell Grant program, which is targeted primarily to low- and moderate-income students, also grew significantly from $9.7 billion to $18.2 billion (87% increase) in constant (2008) dollars over the most recent decade (College Board, 2009b). However, as research has shown, the combination of constantly rising college tuition and fees and an increase in the number of recipients from 3.9 million to 6.1 million has significantly diluted the value, or purchasing power, of the Pell Grant to students over time (Kane, 2001). In other words, despite these remarkable increases in federal grant aid,

students were left with less money in their pockets when taking tuition increases at colleges and universities into account.

The Impact of Grants

The literature on financial aid provides a host of studies that examined the impact of grants in general and need-based grants in particular on college access and student success. In 1987, Leslie and Brinkman (1987) provided the first comprehensive meta-analysis on the impact of grant aid. They found that without this form of aid the enrolment of low-income students would be reduced by 20 to 40%. They also estimated the effect for middle-income students to be much smaller (7.4 to 19.5%) and they found that the magnitude of the effect varies by type of aid, sex, race/ethnicity, and level of achievement. Kane (1995), among others, examined between-state differences and within-state changes in public tuition prices and found that states with higher public tuition had lower college entry rates and within-state tuition increases led to lower enrolment rates. Kane's and similar studies, however, were criticized mainly for two reasons: First, omitted state factors in the analysis could mask the true effect of financial aid on enrolment. Second, the level of aggregation and focus on state averages in many studies can mask the vast heterogeneity in college prices across different sectors and selectivity.

Long (2004) addresses several of these methodological problems by using a conditional logistic model and observing the impact of the particular price each college would charge the individual student. She also finds that tuition subsidies are influential in students' decision of whether to attend college and which school to enrol in. In recent years, more rigorous studies have used "natural experiments" to assess the impact of financial aid, mostly taking advantage of the introduction of a new or cancelation of existing programs and before-after examinations. As Dynarski (2002) summarizes, these studies underscore that subsidies, or financial aid, increase college attendance rates, educational degree attainment, and institutional choice.

Fewer studies have examined the effects of specific grant programs. In general, studies that focus on the Pell program and its impact on college participation have either been inconclusive or have not found that the program increased college-going among targeted lower- and middle-income students. Some researchers attribute this mostly to methodological difficulties. The Pell is a national program and therefore does not create consistent or measurable state-by-state variations that would enable researchers to measure the impact of net-price differences (Long, 2008). Other scholars, explain the lack of response among low-income students with low program visibility, the complexity of the application process, and intimidating audit procedures, not the actual program itself (Long, 2008). However, a recent analysis by Mundel (2005) uses a natural experiment that occurred between 1996 and 2005 to examine the Pell program. The author confirms that by reducing the net prices of public two-year and four-year colleges facing low-income high school graduates, contributed to both increasing college

participation and a narrowing gap in the enrolment rates of these students and their middle-income peers.

Dynarski (2002) took a different approach; instead of studying the introduction of a new federal program, she examines the elimination of the Social Security Student Benefit (SSSB) program. The SSSB program provided grant aid to student of deceased, disabled, or retired Social Security beneficiaries and was discontinued in 1982. She estimates that terminating the program reduced college access and attainment by 25% between treatment and control groups. This would translate into $1,000 (1997 dollar) of grant aid increasing education attainment by 0.20 years and the likelihood of attending college by 5%age points (Dynarski, 2002).

While the federal government has largely refrained from providing aid using merit criteria, the creation of the ACG and SMART grant programs in 2006 signals a distinct new direction. Although research regarding possible effects is not yet available, particular attention should be paid to the criteria used in awarding aid and possible negative effects that have been found with other merit-based aid programs (see section on state aid).

FEDERAL LOAN PROGRAMMES

The federal government is also the primary source of education loans. This form of financial aid is offered in five main types. The Perkins Loan, like the FSEOG, is only available on some college campuses and is directly controlled by the institution. The much larger, more generally available student loans called Stafford Loans, comes in four varieties. The first distinction depends on who provides the loan funds. Under the William D. Ford Direct Loan Program, the federal government, starting from 1994, made loans directly available to students. In contrast, the Federal Family Education Loan Program, which until now relied on private lenders, makes most guaranteed student loans. The second distinction involves the interest subsidy, which means that some student loans have subsidized interest rates and others do not. This leads to four different types of federal student loans in addition to Perkins loans: subsidized Ford Direct Loans, unsubsidized Ford Direct Loans, subsidized Federal Family Education Loans, and unsubsidized Federal Family Education Loans. One additional federal loan program is the Parent Loans for Undergraduate Students program (PLUS). It provides loans to parents, not to students, and these loans are typically used when a student's eligibility for Stafford Loans has been exhausted in a year (Archibald, 2002).

In general, loans have become the most prominent form of student funding for postsecondary education in the U.S. Total federal loan amounts doubled between 1998–99 and 2008–09, increasing from $42.3 billion to $83.9 billion. Between 1989–90 and 2008–09, the proportion of full-time students taking out loans rose from approximately one-third (36%) to half the student population (50%) (College Board, 2009b). Of those enrolled in for-profit institutions, 88% used Stafford Loans to finance their education, compared to 55% at private not-for-profit institutions, and 42% at public four-year colleges and universities. Moreover, average annual loan amounts between 1989–90 and 2003–04 grew 38% (constant

2003 dollars), from $4,486 to $6,200 (Long & Riley, 2007). Among all 2007–08 bachelor's degree recipients, only 34% graduated with no education debt, while 10% borrowed $40,000 or more. Median debt for all undergraduate students in 2007–08 was $11,000; among those two-thirds who borrowed, median debt was about $20,000. However, amounts borrowed vary widely by sector: while median debt among bachelor's degree recipients at public four-year institutions was $17,700, students at private not-for-profit borrowed $22,380, and $32,650 at private for-profit institutions, respectively.

The Impact of Student Loans

The increasing use of loans among students in postsecondary education suggests that they have grown in importance. However, the growing reliance on loans, which have to be repaid at some point, may have different impact on college access and persistence than grants. Research focuses primarily on two aspects in regard to student borrowing. First, how loans may or may not impact college attendance and second, concerns about the long-term repercussions of student debt (American Council on Education, 2004; Long, 2008; Swarthout, 2006).

One aspect that has been surmised to influence college going behaviour, particularly for students from traditionally disadvantaged backgrounds, is the inclination to incur debt to finance postsecondary education. However, only little empirical proof can be found in support. Long and Riley (2007), for instance, find that minority students utilize loans at equal if not higher rates than others, although borrowing smaller amounts on average. Sjorgren (1999) examines differences by gender, using different national dataset and also does not find significant differences in borrowing behaviour between men and women.

Other researchers focus on the availability of loans and how they affect college access. Dynarski (2003) examines whether the availability of government loans affect schooling decisions, using a variation in loan eligibility after the Higher Education Amendments of 1992, in which home equity was removed from the list of assets being used in the federal financial aid formula. She finds that loan eligibility had a positive effect on college attendance and also shifts students towards attending four-year colleges. Savoca (1991) examines whether the composition of aid and the shift away from grants towards loans adversely affect college enrolments. She finds that the probability of attending college significantly falls when loans replace grants in the financial aid package offered. In regard to retention and degree completion, several studies found that loans can negatively impact time-to-degree and degree completion, particularly for low-income students (DeAngelo, Franke, Hurtado, & Tran, forthcoming; DesJardins, Ahlburg, & McCall, 2002; Glocker, 2011; Herzog, 2008).

In regard to long-term repercussions of student debt, scholars are worried about implications on various aspects, such as choice of profession, home-buying, and the decision to start a family. Baum (2003) presents survey evidence in which approximately half of the respondents report feeling burdened by their debt payments. The American Council on Education (ACE) reports in 2004 that one-

third of all borrowers face debt burdens above 8% of their monthly income after college, a level that is considered to be unmanageable by financial aid researchers (American Council on Education, 2004). A few studies focus on loan defaults in the current system. Choy and Li (2006) find that one-fifth (20%) of the 1992–93 borrowers with more than $15,000 in Stafford loans defaulted over a ten year period. However, differences seem apparent depending on completion status, thus underscoring the importance of helping students to graduate. Podgursky et al. (2002), for instance, find that students who are continuously enrolled or who complete their program are far less likely to default than students who drop out of college. Similarly, Gladieux and Perna (2005) find that almost one in five (22%) of borrowers who dropped out of their degree programs defaulted on at least one loan within six years of originally enrolling in college, compared to only 2% of college graduates.

Another set of concerns revolves around unintended consequences of debt burden on students' life decisions. Increasing levels of student debt have been surmised to affect, for instance, students' choice of major, deterring students from public service fields, such as teaching and social work (Long, 2008). Swarthout (2006) calculates that 23% of graduates from public institutions and 38% of graduates from private colleges and universities would face unmanageable debt burdens, based on average starting salaries, if they entered teaching positions after college. This finding has been an alarming sign for many policymakers. Furthermore, loans could also impact life decisions after college, such as buying a house, getting married or having children. Research is inconclusive in this regard; most studies failed to detect significant relationships between debt burden and various outcomes of interest (Long, 2008). However, Baum and O'Malley (2003) did detect a significant relationship in regard to homeownership. They conclude that for every additional $5,000 accumulated student debt, the likelihood of owning a home for the borrower decreases by 1%.

FEDERAL TAX CREDITS AND COLLEGE SAVINGS PLANS

In 1997, in addition to grants and loans, the federal government also turned to the tax system to provide financial aid. With the creation of the Hope and Lifetime Learning Tax Credits and the establishment of tax incentives for college savings plans, the federal government dramatically altered the way in which it allocates financial aid. The tax credits provide benefits to families who pay tuition expenses and incur tax liability. In comparison to other programs, they have exceptionally broad eligibility requirements and there is a significant delay between a recipients' enrolment in college and the time benefits are received. As Long (2008) argues, this limits the ability of tax credits to help students and their families with their immediate liquidity constrains to fund their higher education. The federal government also established a number of tax benefits for families who save for college, such as 529 Plans and Coverdell Savings Accounts. Gains in these accounts are not taxed as long as they are used to pay for tuition expenses.

In 2008–09, the federal government spent 5.8% of its entire aid budget on education tax benefits (tax credits and savings plans combined). Over the most recent decade, spending also significantly increased from $4.0 billion in 1998–99 to $6.82 billion in 2008–09, an increase of 71% (College Board, 2009b). College savings plans, or Section 529 plans, are often also state-sponsored and exempt from federal and state taxes. Total assets in these savings plans grew at an average annual rate of 39% from 2001 through 2007 and reached $140.5 billion in constant (2009) dollars. The total number of Section 529 accounts increased from approximately 500,000 in 1996 to 11.2 million in 2008, with an average value of $13,313 for the individual account at the peak in 2007. However, due to the worldwide financial crisis, the number of accounts remained stagnant from 2008 to 2009 and average and overall values declined remarkably (33% for individual accounts between 2007 and March 2009).

The Impact of Tax Credits and College Savings Plans

Based on the analysis of the overall design of the credits, many researchers have predicted that these aid vehicles would do little to increase enrolment in higher education, particularly among most needy students (Cronin, 1997; McPherson & Schapiro, 1997). Particularly, Kane (1997) highlights the poor targeting of the tax credits to students on the margin of attending college as the primary weakness of the credits. Concerns have mostly been confirmed since enactment of the credits. Long (2004) used data from the Census Bureau's Current Population Survey to determine whether individuals eligible for the tax credits were more likely to attend institutions of higher education, but finds no significant effects. Using a large micro-simulation, Burman et al. (2005) provide a detailed analysis of the distribution of the tax benefits by income class. Their results confirm that individuals with low incomes receive very little benefit from these credits. In 2005, only 4.1% of Hope credits and 4.6% of Lifetime Learning credits benefited students and families with incomes of less than $20,000, according to their estimates. About 60% of all Hope and 52% of all Lifetime credits go to tax units with incomes over $50,000. Given the overall distribution, Burman et al. estimate that the largest share of both credits accrues to individuals and families with cash incomes between $50,000 and $75,000.

Research on the effects of college savings plans is rather limited. Being one of the few studies, Dynarski (2004) explores the incentives created by the federal savings instruments. She finds that the advantages of the 529 and Coverdell rise sharply with income levels. Those with the highest marginal tax rates benefit the most from sheltering income. She also finds that those in the top two tax brackets benefit more from using these savings instruments for non-educational purposes – despite penalty – than those in the bottom bracket gain from its intended educational use. Ma (2003) examines the effects of college saving incentives on the level of private saving per household. In her study, she finds that the median income among users of these savings vehicles was $100,000, far higher than the median income and median wealth in the U.S. Therefore, she concludes, it seems

that these savings plans are more helpful to families with higher incomes that can afford to save, whereas they have not shown to be effective in supporting students from lower-income families to attend higher education.

FEDERAL AID POLICY UNDER THE OBAMA ADMINISTRATION

Although largely overshadowed by the discussion on the health-care legislation, Congress enacted another of President Obama's legislative priorities in March 2010 – a bill that overhauls the federal loan system and focuses on key aspects in financial aid. It is to be seen what mid-term and long-term effects this legislature generates. However, some elements appear very promising to increase access to and success in higher education for low-income students. The student loan bill practically ends the bank-based system of distributing federally subsidized loans, and moves towards a direct-lending approach, in which the Education Department gives all loan money directly to colleges and their students (Basken, 2010). According to the Congressional Budget Office (CBO), the elimination of the bank-based system will save $61 billion over ten years, of which $36 billion are already allocated to increase the Pell Grant program. For Pell Grants, the bill increases the maximum grant award and incorporates, for the first time, an automatic adjustment to inflation rates in the U.S.

Further, the student loan bill specifically focuses on college access. Even though final appropriations were significantly lower than in the first draft of the bill in 2009, this legislature provides $750 million over five years to prepare more low-income students to enrolland succeed in college. It also allocates $2 billion over four years to specifically help community colleges, who are crucial entry points for first-generation and low-income students into postsecondary education. To assist students that take out loans, the bill now limits the income-based repayments of federally subsidized loans to 10% of discretionary income, down from currently 15%. The period after which federal loans are forgiven has also been reduced from 25 to 20 years.

STATE FINANCIAL AID

During much of American history, the states have played a greater role than the federal government in organizing, operating, and financing public higher education. A national university planned by George Washington, among others, was never built, and therefore an institution directly funded and operated by the federal government did not make an early historical appearance (Madsen, 1966). Therefore, federal resources for higher education were indirectly channelled through the states to colleges and universities, such as through land grants (Northwest Ordinance of 1787, Morrill Land Grants Acts of 1862 and 1890) and funding for agricultural education (the Hatch Act of 1877).

Freedom from federal control allowed the states to pursue various types of systems of public higher education. As Justice Louis Brandeis noted, "It is one of the happy incidents of the federal system that a single courageous state may, if its

citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country." (New State Co. v. Liebman, 285 U.S. 262 (1932)). The states have indeed acted as laboratories for many social and economic policies, including financial aid for college. Below we examine the financial aid policies of various American states, and to what extent they promote access to college and persistence to graduation.

STATE TUITION SUBSIDIES

The states provide large subsidies for public higher education, most of which goes directly to public colleges and universities for their general operating expenses. In 2009, states, along with local communities, gave a total of $88.8 billion in financial support, of which 78% went to general operating expenses (State Higher Education Executive Officers [SHEEO], 2010). Public colleges and universities use these huge subsidies to keep their tuitions relatively low, helping (in theory) to make college more affordable for state residents.

A century or so ago, college (especially at public schools) was inexpensive; in 1920, average tuition prices at all colleges and universities, public and private, were $70 per year ($755 in 2010 USD) (Thelin, 2004). Student aid from public sources was nearly non-existent prior to the Second World War (Fenske & Boyd, 1981). During the twentieth century, the demand for higher education rose sharply, as did its cost. In 2009, the average in-state tuition price for a public 4-year university was $7,020. This does not include the often heavy prices of students paying for their room, board, and various additional fees. Further, attending public school in-state costs differently depending on the state in which one resides; it is one of the curious and inequitable remainders of the American federal system (Bowen, Kurzweil, & Tobin, 2006). For example, in the academic year 2008–2009, attending a public, 4-year university in the state of New Jersey costs $20,735 for a state resident, more than double the price paid in Utah ($10,352) for tuition, fees, room and board (College Board, 2009a).

One of the main purposes of in-state tuition is to encourage state residents to remain home during their college years and stay in the state for their adult lives. Nationally, 24% of freshmen enrol outside their home states (California Postsecondary Education Commission, 2010). As with so many issues, the national average is much more complex when considering individual states and their public college and university enrolments. The Northeast region claims the states that are the most successful in bringing in students from across border lines: 61% of freshmen in Vermont's public colleges and universities are not state residents; the figures for the next highest states are 19% and 18%, for Pennsylvania and Connecticut, respectively. California and Texas, on the other hand, only enrol 5% of their first-year students from out-of-state (Abbey & Armour-Garb, 2010). In contrast, over 27,000 New Jerseyites leave their state for college every year—in large part because of the high in-state tuition mentioned above. Pennsylvania, however, imports over 14,000 first-year students each year—many of them from New Jersey (California Postsecondary Education Commission [CPEC], 2010). The implications for nations with decentralized systems of higher education or federal

systems are clear: varying subsidies for postsecondary education may result in large flows of students across regional or state borders.

STATE GRANT AID PROGRAMMES

Today, financial aid from state sources is much less than that distributed by both the federal government and by colleges and universities themselves. In 2008–2009, the federal government provided 69% ($85.6 billion) of all undergraduate student aid as opposed to 7% ($8.3 billion) provided by the states (College Board, 2009b). Of the $125.7 billion in aid awarded to undergraduates students in the 2008–2009 academic year, over two-thirds was derived from federal sources, with another quarter coming from either colleges and universities themselves or from private sources such as employers. Less than ten % of undergraduate student aid is distributed by the states. This small share, however, has significant effects on college access, especially for students from low-socioeconomic backgrounds. The % age of total state aid based (at least in part) on financial need dropped from 90% to 72% from the 1992–93 to 2008–2009 academic years (National Association of State Student Grant and Aid Programs [NASSGAP], 2010)[3].

States offer most financial aid in grants which need not be repaid. The states' non-grant programs, such as loans, loan forgiveness programs, work-study, and tuition waivers comprise less than 15% of all state financial aid (NASSGAP, 2010). In the 2008–2009 academic year, states awarded roughly $10.3 billion in total student financial aid, $8.5 billion in grant aid, and $1.8 billion in non-grant aid (NASSGAP, 2010). Grant aid has received the greatest attention, therefore, in the research literature, specifically the recent trend of states' awarding relatively more grant aid not on the basis of financial need. Need-based grant aid increased 105% in the decade from 1998–2008, while non-need grant aid increased at more than twice the rate (230%) during the same period (NASSGAP, 2010).

When more closely analysing such state programs, national totals quickly become misleading. The states in their variety have adopted different means of distributing such grant monies. Some states strongly favour distributing grants on the basis of financial need ("need-based programs"); others offer rewards based on high school grades or test scores, ignoring students' finances ("merit-based programs"); and some states promote hybrids of these two approaches. Some states are champions of one approach: for example, ten states award two-thirds of all grant aid of all need-based aid, while several states, clustered mainly in the South, strongly favor non need-based grant aid programs (NASSGAP, 2010).

Merit-based State Aid Programs

Georgia's HOPE Scholarship Program, created in 1993, led the way in a wave of popular new mass state scholarships whose grants are not awarded on the sole basis of financial need (Heller, 2002). Today, Georgia offers 99% of its grant aid without regard to the student's financial need (NASSGAP, 2009). At the program's outset, there was a family-income eligibility cap, which was removed in 1995; since then

family income is not part of the selection criteria for the award. The HOPE program design was kept as simple as possible because, according to former University System of Georgia Chancellor Steven Portch:

> You can't explain federal financial aid – I don't understand it and I've been in the field all these years. But I understand HOPE: You get a B in high school, you get a scholarship. Keep it in college you keep your scholarship. It's so simple… that's why it's politically so attractive, because you've got to be able to describe something in a coffee shop. And this one you can (Campbell, 2003).

The HOPE scholarship is simple in its design but has proven complex in its results, as has been the case for all state merit scholarship programs. As a result, since 2002, Arkansas and Maryland have ended their programs (Scott-Clayton, 2008). One clear finding is that the program has helped to keep Georgians in the state for college. In the first years of the HOPE program, HOPE grew enrolments in Georgia colleges and lessened the numbers of Georgians leaving for college in other Southern states (Cornwell, Mustard, & Sridhar, 2006). By examining student residency and migration statistics, they determined that from 1988 to 1997 HOPE cut the number of Georgia college students leaving the state for school by 560 per year. Furthermore, HOPE marginally helped to retain students in Georgia for college: data showed a small decrease from 1992 to 1998 in the number of Georgians enrolled in border-state colleges and significant drops in enrolments of Georgia freshmen at those border institutions that historically had lured the highest numbers of Georgians across state lines for college (Dynarski, 2002).

One of the main motivations for merit aid programs was (and is presently) to prevent the flight of a state's high school graduates to other states' colleges. There is sound evidence (if limited by the short period of the periods the studies cover) that merit programs helped other states, such as New Mexico and Florida, to retain their resident students (Orsuwan & Heck, 2009). Where the fear of brain drain is not as acute, for example in North Carolina, which has one of the nation's foremost research universities and a long historical tradition of championing college affordability, policymakers have resisted calls for merit aid programs. North Carolina has resisted creating a broad merit aid program despite the fact that it started a state lottery in 2005, and its neighbouring states South Carolina and Tennessee both began their own merit scholarships in 2001 and 2003, respectively, shortly after creating state lotteries to fund them (Ness & Mistretta, 2010). This example shows that, while certainly all states compete for academically superior students, this arms race for brains does not dominate policymaking altogether. Helping those with financial need is still a vital concern in many states.

Merit aid programs have had other effects as well; for example, Georgia HOPE has also seemed to boost college participation rates. Dynarski (2002) found Georgians 18 to 19 years of age to be 25% more likely to attend college following the inception of HOPE than before. She does not, however, distinguish among types of institutions – for example, whether students are more likely to attend the public flagship institution, the University of Georgia than a private institution such

as Mercer University. However, there were few observed positive effects on college enrolments for black or lower-income students. With regard to college choice, Dynarski found that for the most part HOPE shifted students from two-year colleges into four-year institutions. Enrolments in two-year colleges fell during HOPE's first five years, while enrolments in four-year colleges enjoyed consistent growth. Further, Georgia's flagship colleges and universities, such as the University of Georgia and the Georgia Institute of Technology, have witnessed a trend toward greater selectivity in admissions requirements since HOPE began. As a result, according to Cornwell and Mustard, from 1993 to 2000, African American enrolments in both schools declined sharply. Cornwell and Mustard found that historically black colleges and universities in Georgia enrolled more students between 1993 and 1997, because of HOPE's effects on black enrolments elsewhere (Cornwell, et al., 2006).

With regard to degree completion, Dynarski and Scott-Clayton (2008) found the merit scholarship programs for both Georgia and Arkansas had positive effects on college completion—increasing degree completion by small rates generally (3–4%) and at higher rates among students at low risk of dropping out (5–11%). Yet the specific reasons for why the scholarship helped boost degree completion were not fully isolated. In a different study, the HOPE program was shown to increase persistence four-year institutions by 13% more for students whom had barely qualified for the scholarship than for non-recipients (Henry, Rubenstein, & Bugler, 2004).

A study of the West Virginia Promise Scholarship ("Promise") has revealed interesting findings regarding its possible effects on college completion (Scott-Clayton, 2008). Promise is a broad-based scholarship program modelled on Georgia HOPE; first-year college students are eligible if they maintained a 3.0 grade point average in high school and received relatively high scores on standardized exams (21 on ACT, 1000 on SAT). The key in Promise is that awardees must maintain a 3.0 GPA in college to retain the scholarship, along with registering for 15 credits per semester. This last requirement is not lightly made, as few other states make such stringent requirements upon their scholarship awardees. Scott-Clayton found the credits requirement to contribute to a 6.7%age point increase in four-year degree completion rates among Promise recipients. Further, the observed effects vanished during the fourth years of college, as the scholarship could no longer be renewed at this point—the incentive was taken away. As Scott-Clayton observes, "incentives matter, and the details of incentive design can have big consequences." (2008).

Need-based State Aid and Tuition Assistance Programs

The states took advantage in the 1970s of the federal government's new enthusiasm in providing financial aid. The federal government, through the State Student Incentive Grant (SSIG), matched states' aid grants based on financial need; within a decade (1969 to 1979), total grants under the SSIG had quadrupled from $200 to $800 million (Heller, 2002). Accordingly, mass need-based aid historically

preceded the popular new merit programs, and aid based on financial need remains the major type of state grant aid, though its dominance has slipped in recent years. According to Doyle's (2010) tabulation, the proportion of aid based on need has fallen from 90% in 1984 to 80% in 2005.

In the 2007–2008 academic year, nine states (California, Illinois, Indiana, New Jersey, New York North Carolina, Pennsylvania, Texas, and Washington) distributed $3.8 billion in need-based grants, more than two-thirds of all such aid (NASSGAP, 2009). One of the major need-based grant programs is California's Cal Grants A, B, and C 4. Cal grants (depending on whether A, B, or C) are available for use at any public or private college and university in the state, along with many vocational and technical schools (California Student Aid Commission, 2011). A large-scale and comprehensive study of Cal Grants' effects on college access indicated that grant recipients were 3–4%age points more likely to enrol in a college or university than had they not received a grant (Kane, 2003). Yet these findings are modest and they parallel research done on federal Pell Grants where large boosts in college enrolments, especially among the poor, are not readily observed. Information on eligibility for such need-based funds might help more if provided earlier (Long, 2008).

Before fall 2000, District of Columbia residents only had the opportunity of a subsidized tuition at the University of District of Columbia. This institution resembled a community college more than a university, mainly with regard to its open admissions policy. In 2000, Congress instituted the Tuition Assistance Grant Program (TAG), in which the federal government paid the difference between the tuition costs accorded to in-state and out-of-state students at public institutions of higher education, up to $10,000 per year. This $10,000 per year is usually enough to cover the difference between in-state and out-of-state tuition costs (the notable exception is the University of Virginia—in 2002, the difference was $15,000). However, there is a lifetime cap of $50,000 for each student under the TAG program. Originally TAG could only be used at Maryland and Virginia schools, but Maryland and Virginia expanded it to other states. Combined with the D.C. College Access program, TAG seems to have made a large impact on numbers of District of Columbia citizens entering higher education. The numbers of first-time federal student aid applicants, first-year Pell Grants awarded, and the number of D.C. freshmen reported by colleges and universities nationwide has gone up 15% or higher in each category (Kane, 2003).

Hybrid State Grant Aid Programs

In 1990 Indiana created the Twenty-first Century Scholars program, which is both a college scholarship and college guidance program. It has been described, along with the Oklahoma Higher Education Access Program, as an "early commitment aid program", in which middle school or high school students opt in long before applying for college (Blanco, 2005). Students must be Indiana residents both at the time they apply and when they receive the scholarship; a scholarship applicant must be the child of a U.S. citizen or resident alien; and they must enrol in the

program in the seventh or eighth grade, and then enrol in an Indiana college or university within two years of high school graduation. Also an applicant's family income must fall within a certain range depending on the size of the family, unless the applicant is a foster child, a ward of the court. Once accepted into the program, a change in the family's finances will not remove the student from the Scholars program.

What makes this Scholars program different from most of the other state scholarship programs is the requirement that applicants sign a Scholars Pledge and adhere to it in order to be eligible for an award. A Twenty-first Century Scholar must refrain from alcohol or drugs, not commit any crime, graduate from a high school in Indiana with at least a 2.0 grade point average, and apply for financial aid in a timely manner using the Free Application for Federal Student Aid (FAFSA). Once enrolled, Scholars may attend regional support programs that resemble summer camps with a college aspirational framework, are sent newsletters, made aware of mentoring programs, provided access to an academic and college counselling hotline, and other support items. The intent of the Scholars Program is to reach students who may lack college aspirations or family financial resources, mentoring, or guidance, and provide them with support and a framework to facilitate Scholars' college attendance.

Research indicates students from college aspirations early in their education, yet students' views of college costs and financing can dampen predispositions to attend college (Hossler, Braxton, & Coopersmith, 1989). Accordingly, some of the most effective student aid programs reach out to middle school and early high school students. However, taking the pledge during middle school to become a Scholar had no significant positive effects on college enrolment, that is, students who joined the program in later years were just as likely to attend college (Blanco, 2005).

The Scholars program has helped Indiana in improving access to higher education among its population; for example, with regard to the % age of high school graduates who moved directly on to college, in 1986 Indiana ranked 40th in the Union, and in 2002 ranked ninth (St. John, Musoba, Simmons, & Chung, 2002). Also among this report's findings were that scholars were more likely than non-recipients to attend all types of colleges and universities, and also more likely, though by a smaller margin, to attend college in a state other than Indiana.

INSTITUTIONAL FINANCIAL AID

While the federal and state governments provide the great bulk of financial aid, colleges and universities themselves contributed $24.3 billion directly to their students in the 2007–2008 academic year, which comprises 19% of all student aid awarded (College Board, 2009b). Further, as of 2008 a large majority (82%) of first-year students receive institutional aid, and the awards on the average paid for over half (54%) of the awardees' tuition and fees (National Association of College & Business University Officers, 2010). Colleges and universities with large endowments are able to use these funds strategically to recruit low and

middle income students. At present, these endowments are hard hit by the present recession, losing on average 18.7% of their value, which will complicate efforts to tap them for financial aid support for students (Lewin, 2010).

Colleges and universities that are highly selective in their admissions policies are also highly competitive in enrolling their desired students. These elite private colleges and universities (and increasingly, their public sector peers) are using student financial aid as means of competitive advantage. For example, highly selective schools offer students from low-income families grant dollars in order to lower the overall high—usually, prohibitively high—costs of attendance. This practice is known as "tuition discounting", and though it is done for a variety of reasons, such as to increase enrolment, and grow revenue streams, most attention has been placed recently on its use at highly selective, elite colleges and universities. As tuitions have increased in the recent past, tuition discounts have followed, climbing from 27% in 1990 to 42% in 2008 (De Vise, 2010).

Much of this institutional aid comes in the form of tuition waivers for certain students. At public universities, for example, students in teacher training programs may have their tuition and fees waived, as they are devoting themselves to public service. Other groups of students who may be eligible for tuition waivers include veterans, senior citizens, and employees or children of employees. Other institutional aid is more controversially awarded to students with special talents, such as athletes, musicians, actors, and artists; this aid, again often coming in the form of tuition waivers, may be given without reference to the students' relative financial need—merit only is taken into account (Redd, 2008). At private colleges and universities, financial aid is often awarded with the top factor being the applicant's financial circumstances; in this manner these schools may achieve a more diverse student population and compete effectively with their peers for students from lower socio-economic backgrounds. Institutions offering grant aid, especially as allocated at public colleges and universities, offer much the same awards to students from lower income families as their peers from wealthier backgrounds. Students coming from low-income families (under $32,000 per year), middle-income families (between $32,500 and $59,999) and upper-middle income backgrounds ($60,000 and $99,999) average similar amounts of institutional grant aid: ($1,340; $1,150, and $900, respectively). In the College Board's most recent special report on tuition discounting, private 4-year schools awarded 68% of their institutional aid on the basis of financial need, while public 4-year colleges and universities offered 40–42% based on need. Indeed, several elite universities, following the lead of Princeton University, have pledged funds to first-year students so that undergraduates need not borrow money for school (Perna, 2010).

The practice of tuition discounting at public institutions of higher education is troubling, as these schools offer relatively low tuition rates to state residents and are therefore attractive to students of modest means. For example, less than half of institutional grant aid (42%) at a group of major public colleges and universities is distributed on the basis of financial need (American Association of State Colleges and Universities, 2007). The research literature on institutional aid is inconclusive on whether it aids college access and persistence to graduation on the whole. What seems clear is that it is not helping students coming from families with fewer

financial resources (S. Baum & Lapovsky, 2006; Davis, 2003; Price & Davis, 2006).

Nevertheless, there are important exceptions to point out in this overall picture: many colleges and universities use these discretionary funds efficiently—they target students on the margins and direct money to boost funds often already provided by the federal government or states. Their successes demonstrate that institutions often know the best use for general discretionary funds, and they usually have special knowledge of individual students and their circumstances—personal knowledge that distant agencies would find impossible to gather. Northwest Missouri State University offers scholarships in increasing amounts based on applicant's grade point averages: $1,000 for a 3.3 grade point average (GPA), $1,500 for a 3.4 GPA, and $2,000 for a 3.5 GPA. Once the students are enrolled, this support does not disappear following the first year of college, as is often the case with institutional scholarships, but are renewable. Further, the university's financial aid office and academic departments are granted funds for continuing student scholarships to help ensure that students who enrol are helped along the way to graduation. At Western Illinois University, students who remain enrolled have their tuition frozen at first-year levels, and their fees and on-campus housing costs also are not raised. As one Western Illinois student explained, "in an environment where other institutions raise tuition every year, staying enrolled at WIU is almost like an additional scholarship." (Bradley & Blanco, 2010).

THE ROLE OF (MIS-)INFORMATION AND COMPLEXITY

Up to this point we have discussed several federal and state financial aid programs. In order to be effective, however, students and their families have to be aware of policies and financial aid programs designed to help them. Research tells us that many individuals that would benefit from financial aid seem to be lacking crucial information about higher education costs and financial aid (Long, 2008). Many studies have documented that prospective students and their parents greatly overestimate the costs of college (Higgins, 1984; Ikenberry & Hartle, 1998) and are often intimidated by news stories about increasing tuition and fees in higher education. Further, many individuals are not aware of all the elements that are available to them. A poll commissioned in 2003 found that two-thirds of all parents and young adults planning to attend college did not name grants as possible funding source when asked about types of financial aid. Also, many believe that all financial aid necessarily contains a merit component (Sallie Mae Fund, 2003).

Information about financial aid appears to be particularly limited among low-income students. In their study, Avery and Kane (2004) find that students from low-income backgrounds have very little knowledge about actual college tuition levels, available financial aid, and the general admissions and application process. They also find differences by racial/ethnic groups. Scholars have partially attributed this lack to information to inadequate access to guidance counselling in high school, particularly in schools with high % ages of low-income and minority students (Lee & Ekstrom, 1987). In 2002, on average one full-time guidance

counsellor served 315 students at public high schools, and the more vocationally oriented a public high school, the higher the ratio of students-to-counsellor (Parsad, Alexander, Farris, Hudson, & Greene, 2003).

Misinformation and lack of awareness are also spurred by the general complexity of the U.S. financial aid system that consists of vast, almost incomprehensible, number of federal, state, and institutional aid programs. To complicate matters further, the federal government, the largest single provider of financial aid, often plays an inconsistent and confusing role in financing the costs incurred by individual students pursuing higher education. There are at least 20 separate federal programs providing direct financial aid or tax benefits to individuals seeking postsecondary education. As Burgdorf and Kostka (2006) note, these myriad federal programs create undue complexity and confusion among users and are often overlapping and, in some cases, even redundant. According to them, this leads to under-usage of some programs and countervailing incentives for buyers of higher education. Evidence indicates that many of these more than twenty programs are underused compared to projections. As shown in the federal section, federal tax credits particularly benefit upper-middle and high-income families and overall usage of the program is estimated to be as low as 20% (Burgdorf & Kostka, 2006). It seems also evident that only a fraction of eligible low-income families actually applies for grants (Long, 2008).

The implementation of tax incentives and college savings in 1997 and the resulting shift away from more direct approaches of financial aid also unveiled a lack of strategic alignment in federal programs. Burgdorf and Kostka (2006) describe the federal system that evolved since WWII as a 'cumbersome maze of programs' that were never strategically aligned towards an overarching policy guiding federal participation in financing the costs of higher education. The change in the system over time also led to serious inconsistencies in the calculation and application of students' Expected Family Contribution (EFC), the primary determination formula for individuals' financial need, across federal student aid programs. According to Burgdorf and Kostka, there are at least four different variations of the basic EFC calculation that hinge in the student's individual circumstances.

A pivotal element that connects federal, state, and institutional aid elements is the Free Application for Federal Student Aid (FASFA). This financial aid application has to be submitted directly to the U.S. Department of Education's central processing system by an annual deadline. In its current form, the FAFSA has been critiqued for two main reasons. First, the FAFSA form appears "long, cumbersome and even more complicated than the federal tax return" (U.S. Department of Education, 2006, p. 11). As a result, there has been a movement towards creating a simplified application, mostly with the help of online tools on the application website. For example, in 2005, the Advisory Committee on Student Financial Assistance recommended keeping the FAFSA, but creating a special, simpler FAFSA for low-income students, and pashing out the paper forms entirely. Furthermore, since most information required for the FAFSA is contained in even the simplest IRS tax form (1040EZ), Dynarski and Scott-Clayton (Dynarski, 2007; Dynarski & Scott-Clayton, 2008) suggest an even more radical change in the FAFSA application process. These scholars favour an even simpler, "postcard-

like" FAFSA form, since much of the difference in eligibility for both grants and loans can be discovered with only a few pieces of data in addition to what has been already collected to determine federal tax status and liability (Dynarski, 2007; Dynarski & Scott-Clayton, 2008).

The second problem regarding the FAFSA process is its timing. Students cannot submit to FAFSA until January 1st in the year of intended college entry. Therefore, they must apply to college before even knowing whether they can truly afford it. This makes it often difficult for students and their families to plan ahead and in some cases discourages college attendance (U.S. Department of Education, 2006). To overcome this problem, the federal government already established the FAFSA-forecaster, an online-calculator that provides individuals with an early estimate of financial aid available to them. However, internet access, particularly high-speed access, is sometimes still limited among low-income students and therefore curbs visibility (Kolko, 2007). Also, the FAFSA-forecaster requires a set of personal identifiers, which has been found to deter use among target groups with restricted college opportunities.

A promising suggestion to overhaul the largest federal grant program is to distribute Pell Grants on a sliding scale, with the largest awards going to students from families with the lowest income for the previous year. Any students with a family income over $100,000 would be ineligible for grant awards. This new, simplified Pell Grant system would also replace the Hope and Lifetime Learning tax credits for undergraduates; under this proposal, the funding for these two tax credits, which presently does not reach lower income families, would finally be made available to them. Families would check their incomes for the previous year on a postcard and mail it (or file it online) with the Department of Education; the Department would check the numbers against the IRS's figures, and then distribute the grant awards directly to the students' chosen institution. The college would then refund to the student any monies remaining after tuition had been paid (Dynarski, 2007; Dynarski & Scott-Clayton, 2008).

CONCLUSION AND POLICY IMPLICATIONS

This paper reviewed various financial aid programs at the federal, state, and institutional level in the United States, showcasing their functions and their effects and consequences, both intended and unintended. In regard to the finance of higher education and student aid in particular, the experiences of the United States may be especially useful in the areas of tuition fee policies, and student aid in the forms of grants, loans, and tax credits. Tuition fees may be set at no, low, or high cost, with the caution that free and low tuition does not necessarily guarantee higher participation rates; this has been observed both in the United States and in Europe. Although controversial, higher tuition fees, coupled with robust financial aid subsidies to students from lower income families, may provide the best model to raise revenue in times of scarce and even declining public funds and also promote enrolments and completion among populations least likely to enter higher education. The continuing availability of robust financial aid subsidies has been

cast into doubt during this era of governmental austerity. Accordingly, high tuition models assuming the continuing availability of robust financial aid subsidies must also be viewed with caution, if not outright skepticism.

In the United States, financial aid in the form of grants is available from federal, state, and institutional sources. As research has shown, grants for the most part have proven to be effective to increase access, retention, and degree completion, although to varying degrees5. In order to overcome underutilization of grants among low-income students, however, efforts must be continued that make federal aid programs accessible through an application form that is as simple as possible and colleges and universities should provide information to students about the availability of aid as early as possible. State grant aid programs, as shown in this paper, also come in various forms and have different effects. Hybrid programs that combine merit- and need-based elements and purely need-based programs have proven to increase higher education participation in general and for underserved student populations. Purely merit-based programs, such as Georgia HOPE, were also found to have various positive effects, such as increasing enrolment in higher education, higher retention rates, and higher chances for students to attend 4-year instead of 2-year colleges. However, it has also been found that participation is not equally distributed and fewer positive effects, if any, are found for low-income students and underrepresented minorities. Thus, purely merit-based programs risk widening the attendance and attainment gap in higher education, instead of closing it. Policy makers should, therefore, carefully consider the alternatives for grant programs, as simple solutions may prove to be very complex in their results. In addition they should take into consideration that early information, particularly for low-income students, is vital and should be provided as early as middle school. Further, grants should ideally be distributed in large single blocks and not piecemeal, be delivered over the entire school career and not only the first year, and should address not only tuition fees but living expenses as well.

The federal government has shifted the burden of paying for college to students and their families by favouring loan over grant aid in recent decades. Yet federal loan programs do not clearly boost college participation or completion rates. Although sometimes found to shift attendance from a 2-year to a 4-year institutions, loans can significantly lower overall chances of attending higher education, particularly if they are replacing grants. If students take out high amounts of loans, these students become more at risk of not finishing their degree programs. Loans may also influence choice of academic major and deter students from low-return professions, such as teaching and public service, and negatively impact decisions on when to buy a home or start a family. Policy makers, therefore, should be cautious about the usage of student loans as financial aid. However, as loans help to make public resources go farther, and also serve certain nations' goals of encouraging students' independence, loans may be offered under certain conditions. Loan programs ought to offer money at fixed, low interest rates, and if possible, should allow for the possibility of conversion to grants if academic preconditions are met. Finally, loans should play a supporting, not dominant role (as they threaten to do in the U.S.) in student aid programs. In the United States, presently there are fears of a student loan bubble bursting similar to the housing

market, in which thousands of unemployed or underemployed graduates are left unable to meet their repayment obligations. Grant programs, on the other hand, offer students cash in hand while attending college, while not burdening them with repayment bills for years, even decades after graduation. If in the short term grants are more expensive aid programs to loans, in the long term they prevent steep costs for both individual graduates and society in general.

Financial aid dollars spent to subsidize students who already can afford college are wasted aid dollars. Aid must go where it can make the greatest impact, which means it must go to students from low-income families. Accordingly, we condemn tax credit or deduction programs as aid policies. Families earning these credits in the U.S. must first have an overall tax liability and, therefore, few if any poor families receive any benefit. These policies were created in the 1990s in order to win political support from the middle and upper classes for President Bill Clinton. Even though these programs may reap some benefits for politicians, there is little to recommend them as student aid policies. Tax credits also operate under the assumption that families are responsible for students' college costs; while this may be true for the most part in the United States, it is certainly not a cultural assumption for every nation (Usher, 2006). In addition, savings plans, including 529 plans, creating incentives for families to save for college benefit mostly upper-middle and high-income families. Such savings plans must also be cautiously considered as student aid programs, given the chronic scarcity of public finances.

Tuition subsidies offered to residents of American states are a longstanding feature of the financing structures of American higher education. Yet many nations do not share a history of such policies, in which in-state tuition rates are set low to encourage students to stay home. A pitfall of these subsidies is that they are unapologetically protectionist regarding human capital, and in Europe particularly, a supra-national region that has created a common higher education arena for many countries, minds and monies must be allowed to move unfettered across the Continent. Localism and protectionist tendencies in the distribution of scarce higher education appropriations, even in times of financial crises, are inefficient and counterproductive. A possible compromise measure for all of Europe is employed already by the Nordic nations (Denmark, Norway, Sweden, and Finland). Under this plan, a certain amount of money granted to students by their national governments (for example, 3,000 Euros) is available for use in any of the four countries (Lambert & Butler, 2006). This parallels the reciprocity agreements of American states that allow in-state tuition rates for their residents who attend the colleges of neighbouring states (College Board, 2009a).

In the past two centuries, higher education in the United States has evolved from an elite to mass to universal access system. This great accomplishment has not come cheaply or easily—one of the lasting legacies of this evolution is today's improvised, complex, and often inefficient structure of federal, state, and institutional student aid programs. It is exactly this financial aid system with its—on first glance—impressive overall aid amounts distributed to students, that fosters the assumption the United States has overcome college costs as barrier to postsecondary education. As this review of the literature has shown, however,

scholars find that attendance and attainment gaps not only persisted over time, but actually worsened in recent decades.

Multiple lessons may be learned from the American experience, some of which we have already discussed throughout this paper and the discussion section. Beyond the effects of individual financial aid instruments, it appears another lesson from the American experience is that haphazard improvisation and the lack of strategic alignment of aid programs can carry heavy costs. If higher education strives to serve increasingly diverse populations both for economic development and building societies that understand and appreciate cultural differences, financial aid systems ought to be purposefully designed and focus on providing generous support for students from families of modest means. Designing aid programs to help students whose families can already afford to support their college costs, for instance through purely merit-based grant programs, wastes precious funds that should be directed toward students from low-income families. However, simply increasing the financial strength of aid programs cannot be the answer either, as research has also shown how important information and knowledge about higher education costs and available financial aid are. Programs that assist students in gathering such vital information as early as middle school and also focus on the crucial transition from secondary to postsecondary education are just as important as financial aid itself, particularly for students from the lower income strata.

Nations moving toward models of universal access to higher education may with planning and foresight avoid the problems and inefficiencies of American student aid programs. No one may foresee all futures, and therefore governments must be free to experiment with varying solutions to varying problems occurring in different times. This may be of particular importance during periods of recession, when tax flows are weak or during economic expansion, when revenues are strong. Scholars, policy makers, and administrators involved in such design and planning processes should, however, be aware that the same instrument of financial aid may lead to different outcomes, depending on the societal and cultural context. One size will never fit all with regard to student aid programs, and decision makers must consider carefully how policies' effects may vary in different environments.

NOTES

[1] The CPI is a broad measure of price development in the U.S. and over this time period highly correlated with median household income (Heller, 2006).

[2] In the overarching modernization agenda for EU universities, equity and fairness issues for students are only addressed in the context of general university funding and strategies regarding early education and lifelong learning (EU Commission, 2006 [May]). Only in later communications by the EU Commission (EU Commission, 2006[Sept.]) strategies to overcome inequities in higher education attendance for students from disadvantaged backgrounds are specified. However, recommendations regarding financial aid are reflective only of the experiences in the Australian and US American higher education systems and neglect the differential effects of the various student aid instruments in use.

[3] For purposes of this study, we apply NASSGAP's definitions of need-based and merit-based aid. Need-based aid requires that recipients satisfy a standard of need, whether based on their expected family contributions or general level of family income. Merit-based aid recipients must be selected "in whole

or in part on the basis of test score, performance, class rank, grade point average, or other such criteria of achievement" (National Association of State Student Grant and Aid Programs, 2010).

[4] Since its inception, the Cal Grant program focused strongly on providing financially needy students access to postsecondary education in California, thus it is categorized as a need-based program, although minimum GPA requirements have to be fulfilled for eligibility.

[5] For the Pell Grant, the largest federal program that targets low- and middle-income students, for instance, empirical testing shows inconsistent findings, which is largely due to methodological issues and factors related to complexity and delivery of the program.

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10. TOWARDS A EUROPEAN QUALITY ASSURANCE SYSTEM

INTRODUCTION

This chapter aims to contribute to an increased understanding of how transnational or European policies and policy instruments are shaped and organised. It focuses on the role and meaning of non-governmental organisations (NGOs) operating at the European level in such processes and how they interrelate with other policy actors in relational network structures spanning organisational boundaries. Furthermore, this chapter is linked to a research agenda calling attention to the striking spread of soft rules such as policies, recommendations, guidelines, comparisons, and evaluations beyond the national level of contemporary society (Djelic & Sahlin-Andersson, 2006; Mörth, 2006). This is a diffusion that seems to be interrelated with the emergence of new governance mechanisms or policy instruments such as mutual arrangements, evaluations, rankings, and monitoring frames (c.f. Hedmo et al., 2007). Transnational governance studies argue that these occurrences form core components in a fundamental, new institutional order or re-regulation of the world, one that is moving towards becoming increasingly coordinated, comparable and transparent, and in a sense increasingly "boundary-less" (Djelic & Sahlin-Andersson, 2006). This development does not necessarily mean a "retreat of the state" (Strange, 1996) or a society characterised by "governance without government" (Rosenau, 1992), but a "new paradigm" (Nicolaidis & Egan, 2001:460) that brings about a shift in the nature, method and scope of regulation, and as such it is open to a plurality of actors involved in governance.

One public sector intensively exposed for such a development is higher education, particularly European higher education. During the last few decades, the proliferation of soft rules and new governance mechanisms in European higher education has been striking. Together with a considerable expansion and fragmentation of higher education systems (Meyer & Schofer, 2007), national reforms of deregulations, and a spread of management-oriented tools for governing academic work (Kogan & Hanney, 2000), European universities are, since the 1980s, increasingly influenced by policies and policy instruments that are initiated and formulated by actors operating beyond the national level (Krücken et al., 2007). One such initiative is the intergovernmental Bologna Process, which allows for the emergence of a new infrastructure in higher education across Europe with the ambition of reaching increased mobility, transparency and convergence. One

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Effects of Higher Education Reforms: change dynamics, 185–202.

central topic in the Bologna policy-making process is quality assurance (QA). Although QA in higher education is not a new phenomenon in the European context, it has never received as much attention as it has in the last 20 years in university governance. Vaira (2007:136) argues that European reform processes are even "triggered, inspired and based on such rhetoric and tools". Empirical studies demonstrate how the "quality revolution" and its spread across Europe has allowed for partly new, and many times confusing, concepts, tools and mechanisms for evaluating, comparing and monitoring the quality of academic core activities such as accreditations (Hedmo, 2004) and rankings (Wedlin, 2006). In the EU, there has also been a powerful idea of shaping a European QA system in European higher education since the early 1990s. A European dimension of QA has been described as a key guarantor and an indispensible policy instrument for achieving a strong, competitive and comparable European higher education market. By the end of the 1990s, the efforts for developing such a dimension were intensified. This paper argues that this advance, among other things, was triggered by the Bologna initiative, allowing for a frantic and dynamic policy-making activity in the area of quality following a collaborative and "open" approach in which NGOs have taken the role as relevant and strategic policy actors.

Accordingly, this chapter describes and analyses the creation and organisation of European policies in QA within the framework of the Bologna Process by focusing on the role and meaning of European or transnational NGOs in this process. It focuses on how European professional associations and network organisations have been critical policy actors in the formation of a joint European quality framework. To track this, the paper draws on previous studies of rule-making in European management studies (Hedmo, 2004; Wedlin, 2006), web pages, and numerous policy documents, reports and press articles that outline the major developments and debates in the Bologna Process, specifically those concentrating on QA. Data are also taken from an observation at the European Quality Assurance Register in Higher Education (EQAR) founding assembly in 2008.

This paper is structured as follows. It begins with a short theoretical introduction of the concept transnational governance, followed by a section focusing on the role of NGOs in such arrangements. Thereafter, the paper moves to the empirical portion, first describing the European context of QA predating the Bologna Process, and second outlining the formulation and organisation of QA in the Bologna Process between 1999 and 2008. The paper closes with a discussion section.

THEORISING THE ORGANISING OF EUROPEAN POLICY-MAKING

During the last few decades, the public policy research agenda has been influenced by a new vocabulary, including the terms policy network, governance, regulation, and interdependence. The research agenda signals a shift from a "government" to a "multi-actor" or "network governance" conceptual approach, as different types of non-state actors have entered policy arenas, co-determining policy processes and

outcomes. There has also been a (partial) move from "intergovernmentalism" to transnationalism, supranationalism and multi-level governance (Arts & Van Tatenhove, 2004), as a significant share of what ought to be domestic policy-making has moved beyond the state level. As interdependency problems prevail across boundaries, contemporary policy-making tends to take place across multiple levels of government and numerous arenas, involving both public and private actors (Héritier, 2002). No single actor seems to have sufficient potential for action and/or adequate power or authority to solve problems of interdependence on its own, especially as the institutional context in which policy-making takes place may be pluralistic, dynamic and multifaceted. The mutual dependency between actors allows for a vibrant and complex interplay between policy actors on the one hand and institutional change processes across settings and levels on the other (see for example Djelic & Sahlin-Andersson, 2006). With regard to the aforementioned, it is important to identify the specific features of such transnational governance that constitute the context in which European policies are formed.

Defining Transnational Governance

Contemporary studies of transnational governance (or European policy-making) vary in structures, functions and power asymmetries (Marcussen & Torfing, 2006; Wallace et al., 2005). Transnational governance also varies from relatively closed policy communities spanning the public and private divide in policy areas such as research and technological development to more loosely structured "issue networks" in areas such as environmental regulation. Some modes are more state-dominated or "transgovernmental" in character, whereas others are more pluralistic, including a rich variety of actors separate from states. There are also differences in stability and change (Wallace et al., 2005). Despite these differences, transnational governance forms also share a number of features.

Transnational governance modes contrast with traditional, hierarchical and "command and control-type regulation", which are backed by "hard-law sanctions" (see for example Baldwin & Cave, 1999), but also with the traditional classification of the markets as "authoritatively allocating resources and exercising control and coordination" (Wallace et al., 2005:37). As mentioned above, governance relies on the interdependence between organisations that are triggered by the need to exchange resources and negotiate (or bargain) shared purposes (Rhodes, 1996). State actors in these dynamic and fragmented contexts are unable to mobilise an adequate level of resources (in other words, information, expertise and money) or authority for solving complex, dynamic and diversified problems of their own, which allows other actors to engage in agenda setting and policy formulation because of a need for consultation and substantive input. Accordingly, transnational governance is broader but does not exclude the role of state actors, as it also encompasses other actors in non-hierarchical networks (Marcussen & Torfing, 2006) with shifting and blurred boundaries between public, private and voluntary sectors (Rhodes, 1996).

Transnational governance appears to rely on "soft rule approaches" and organising principles related to voluntariness, consultation, comparison, and transparency (Richardson, 2001). Policy-making within these relational network structures also gives the impression of following a logic of negotiation or arguing (see Wallace et al., 2005), meaning that policy actors do not simply bargain on fixed preferences and relative power, but also question their own beliefs and preferences, and are as such open to persuasion and the power of better arguments in order to achieve the best available solution.

A common soft instrument to organise and coordinate policy formation and formulation processes at the transnational level is the open method of coordination (OMC). The OMC was formally adopted as best practice at the Lisbon European Council in 2000, and is an EU governance technique used in politically sensitive areas of national sovereignty where harmonisation is inappropriate and the resulting regulatory competition may be too risky. In literature (and in practice), the OMC is described as a useful "transition tool" when nationally rooted policy-making is shifted to an EU collective level (Hodson & Maher, 2001). The OMC technique, which is frequently used in EU policy agenda setting, means that soft policy incentives that shape behaviour are applied in policy coordination rather than hard, often legally binding methods that require compliance (Wallace, 2000).

The OMC is also criticised. There are doubts with regard to its transparency and openness. There is also a risk that participants are selected and that exclusive interests shape the content of best practice. Decision-making at this level might not be less elitist and opaque than in traditional governance. Accordingly, transnational governance may not imply a more participatory and democratic policy mode, but a way of coordinating policy work that is dominated by a centre. Often the European Commission (EC) plays a central role as the agenda setter, revealing that the EU is part of, and not separate from, the politics and policy processes taking place at, for example, the intergovernmental level (Wallace et al., 2005). However, and as will be elaborated on further in the section that follows, it is important to also consider the role of NGOs in such processes, as they may constitute influential policy actors in transnational governance.

Bringing in the Role of Non-Governmental Organisations (NGOs) in Transnational Governance

Academic writings have observed that the number and forms of NGOs have exploded in society (Boli & Thomas, 1999). Clarke (1998) describes this radical expansion as an "associational revolution" and it is claimed that this development is closely related to the rise of transnational regulations (Boli & Thomas, 1999) and exchanges (Risse Kappen, 1995). Despite these observations, we still find a state-centric or interstate focus in many governance studies. It is taken for granted that state actors such as national governments and public authorities (understood as unified and rational actors) are dominant in policy-making processes, whereas NGOs are reduced to "rationalized others" (Meyer, 1994), instructing purposeful actors such as nation states and formal organisations on "how to organize the good

society, how to live safely and effectively in the natural world, how to respect the human members of society and on and on" (1994:47) in order to be "good", rational, effective, etc. NGOs are often bundled together in a broad and confusing category covering all actors apart from states, even though it is apparent that they have different identities, structures, resources, and ways of influencing policy-making. This vague concept thus "hides" actors operating autonomously from the nation-states such as private and semi-private standardisation organisations (Brunsson & Jacobsson, 2000; Tamm-Hallström, 2004), independent agencies (Majone, 1996), development organisations (Lewis & Opoku-Mensah, 2006), and professional associations. The structures of NGOs also stretch from the single organisation level to "networks of networks" (Hedmo, 2004)—or meta-organisations (Ahrne & Brunsson, 2006: 86-ff)—and as such, they may have overlapping boundaries, crossing what is traditionally considered as public/private, profit/non-profit, and/or national/global spheres or boundaries (Boli & Thomas, 1999; Risse-Kappen, 1995; Cowles et al., 2001; Djelic & Sahlin-Andersson, 2006).

However, Sandholtz & Stone Sweet (1998) and Risse-Kappen (1995) argue that international NGOs such as interest groups and knowledge-based elites, promoting principled ideas as well as expertise, have become important policy actors at the European or transnational level. They seem to exert significant influence over policy processes and outcomes by providing information and knowledge. They have established more channels of information with governmental actors, and they increasingly cooperate with and lobby such actors beyond the national level (Boli & Thomas, 1999). As such, they are inevitably involved in bargaining relationships with state actors, and the outcome of bargaining between states and NGOs depends on the balance of interests, capabilities and resources of these actors (Risse-Kappen, 1995). Scharpf (1999) and many others claim that NGOs play a vital role in open-ended and largely informal agenda-setting processes, preceding or accompanying formal decisions taken by parliaments under majority rule, or by negotiated agreement among governments in policy-making processes. Accordingly, they contribute to policy formation and policy implementation by introducing, clarifying and questioning policy options. Furthermore, Scharpf (1999) states that all varieties of decision-making, including policy-making, are strengthened in their legitimacy by their coexistence with open policy networks in which problems and potential policy choices can be explored in a wide-ranging or narrowly focused deliberation between state actors and NGOs. Zahariadis (2008) argues that policy-makers often operate under strong time constraints with unclear policy preferences, and they seldom know what they want. The ambiguity that characterises policy-making is thus an integral and inescapable part of transnational policy-making processes. Time restraints in combination with ambiguity and the presence of institutional complexity and pluralism allow for an "opportunity space" (c.f. Kingdon, 1995) for others actors to enter such as NGOs. They could, in varying degrees, influence the process and steer policy decisions toward their favourite outcomes by innovative policy ideas, knowledge and resources even if they lack the sovereignty and rational legal authority of state actors (Boli & Thomas, 1999).

This chapter associates a research agenda challenging the government-centred analytical perspective in studies of governance or policy-making. When moving to the transnational level of analysis, it becomes necessary, in my view, to re-evaluate the scope of analysis and to also consider the impact of other organisations. As has been previously mentioned, this paper calls attention to the important, but perhaps neglected, role of NGOs in such processes. In most cases, they are excluded from or downplayed within empirical analyses of transnational governance. I argue that a better, more general understanding of transnational governance could be achieved if NGOs are included and seriously considered in such analyses. To fill this empirical gap, the next section focuses on the role and meaning of such organisations in the organising and shaping of European QA activities in the Bologna Process. However, before introducing this course of events, we need to describe the shifts in the nature, scale and scope of QA in European higher education predating the Bologna Process.

THE DEVELOPMENT OF QA APPROACHES IN EUROPEAN HIGHER EDUCATION

In the 1980s and 1990s, the notion of quality found its way into national higher education debates and political reforms all over the world, including Europe (see for example Kogan & Hanney, 2000; Hedmo, 2004). In Western Europe, higher education systems experienced national reforms in terms of "massification", internationalisation, deregulation, and the introduction of more management-oriented tools for steering academic work. As a result, the continent experienced a spread of new and systematic external QA models such as private accreditation carried out by both private and public agencies. In the 1990s, the spread of QA was also obvious in the former communist countries in Central and Eastern Europe that were going through radical institutional transformations. This allowed for a rapid expansion and privatisation of higher education institutions.

The spread of QA at the national level in Europe triggered an expansion and variation of quality approaches and models. Yet, this pluralism was not simply a response to national reforms. It also seemed to be a reaction to political attempts initiated at the European level. In the 1990s, two initiatives were introduced by the EU in order to promote the further introduction of QA in European higher education: the EU pilot project on external evaluation methodology in 1994 and the subsequent European Council of Ministers' recommendation on European cooperation in Quality Assurance in Higher Education in 1998. These two EU initiatives were not only intended to stimulate an expansion of QA across the European continent. They were also aimed at encouraging the establishment of new quality agencies at the national level (including accreditation), and the formation of thematic networks and strategic alliances in QA, which could enable cooperation and mutual recognition of quality methodologies across Europe. In addition, the EC strongly argued for adding a European dimension to European QA systems on the basis of a common value or standard. This dimension made it possible to reach readability, comparability between degrees, compatibility, subsidiarity, and transparency in European higher education (Hedmo, 2004).

QA became a key issue in another political project that was central to the reformation of European higher education in years to come: the Bologna Process. This intergovernmental reform framework started in 1999 with 29 ministers or civil servants from education ministries across Europe voluntarily signing a joint declaration in Bologna, acknowledging their ambition to construct a common European academic area by 2010 (now extended to 2020). This area, which extends beyond the boundaries of the EU, should be constructed on the basis of shared values and beliefs, and would be translated into a common policy framework guiding national reforms. As will be described below, QA soon took a leading position in the Bologna policy agenda, and its shaping was to a large extent an outcome of an "open partnership approach" with NGOs playing a key role.

The Bologna Process and the Organising of QA

In the Bologna Declaration 1999, the state signatories declared to promote "European cooperation in quality assurance with a view to developing comparable criteria and methodologies" (The Bologna Declaration, 1999).

This statement allowed for increased cooperation and fervent activity among stakeholders in European QA. A number of seminars, conferences and projects were organised in order to generate input to the follow-up ministerial meeting in Prague 2001, but also to influence the policy debate in this issue area more generally. One of these stakeholders was the European University Association (EUA). The association was established in Salamanca in 2001 through a merger between the two largest higher education organisations in Europe—the Association of European Universities (CRE) and the Confederation of European Union Rectors' Conference. The mission of the EUA was, among other things, to protect and represent the interests and core academic values of European universities in the Bologna Process. The EUA policy position in the area of quality was also manifested at the time of the fusion, explaining that:

> Quality is the basic underlying condition for trust, relevance, mobility, compatibility and attractiveness in the European Higher Education Area (EUA, Message from the Salamanca Convention, 2001).

The association also declared that quality, accountability and university autonomy were the key aspects of universities' responsibility to society and the public. In the declaration, the EUA strongly promoted the value of designing mechanisms at the European level for mutual recognition of QA with accreditation being one possible option. However, such an instrument should respect national, linguistic and discipline differences and not exaggerate regional similarities.

Another stakeholder raising its voice in the area of quality was the European Students' Union (ESU)[1], which formulated a joint declaration in 2001 in Gothenburg demanding a strong student role in the Bologna policy-making process. The ESU supported the idea of constructing a common European framework for accreditation to promote quality and argued that such an approach should take a process-oriented perspective. In addition, the students encouraged

strong European cooperation between national QA systems (ESU, Gothenburg Student Declaration, 2001).

A challenging issue raised by stakeholders before the Prague meeting was how to decide who would be responsible for setting the quality reference standards at the European level. An idea was to use the European Network for Quality Assurance (ENQA) as a European platform for cooperation. The ENQA was launched in 1999 as a result of a recommendation on Quality Assurance in Higher Education, which was adopted by the Council of Ministers in 1998. The network was set up as a "mutually supportive voluntary membership body of independent European quality assurance agencies, heterogeneous in nature, providing professional services to its members" (ENQA Statement, Berlin 2003: 7).

In addition, ENQA membership was also open to public authorities who are responsible for higher education and European associations of higher education institutions (www.enqa.net, 2000-08-25). The activities of the network included the exchange and diffusion of information and expertise, the organising of conferences, training seminars and workshops, and the financial support and publication of thematic research (ENQA Statement, Berlin 2003).

The ENQA was skeptical about accreditation. In an internal follow-up report on the Bologna Declaration, the ENQA argued that accreditation "could not be viewed as an end in itself but rather as one of a number of possible components in a European approach to quality assurance" (ENQA, Follow-up on the Bologna Declaration; A European Quality Assurance System, 2001). In line with the EUA, the network board supported the formation of a European platform for the preparation of common goals, procedures and methodologies, but it was uncertain if such a platform, being composed of multiple stakeholders with varying interests, could reach a consensus on quality issues.

In Prague, the role of QA and accreditation was strengthened in the Bologna policy agenda. As formulated in the Prague Communiqué (2001):

> Ministers recognized the vital role that quality assurance systems play in ensuring high quality standards and in facilitating the comparability of qualifications throughout Europe.

The importance of close cooperation for achieving this objective was further emphasised, and the role of "mutual trust" in and acceptance of national QA systems and the value of involving relevant stakeholders in the making of policies were reinforced. The signatories encouraged "universities and other higher education institutions, national agencies and the European Network of Quality Assurance (ENQA), in cooperation with corresponding bodies from countries which are not members of ENQA, to collaborate in establishing a common framework of reference and to disseminate best practice" (The Prague Communiqué, 2001). The EUA, ENQA and ESU were now recommended as appropriate policy actors in such an endeavour by the state actors. During the interim period following Prague, intensity increased in quality initiatives at all levels in Europe, especially those run by European interest organisations, quality assurance agencies and networks. As argued by the ENQA:

> The process leading to the Berlin meeting in September 2003 is being more and more focused on quality assurance of higher education. Accordingly, serious interest for this issue is being demonstrated at more and more levels, many actors are positioning themselves for a place at the front of the debate, old themes are being redefined and new themes are being introduced. (ENQA Newsletter, April 2002)

Before the second follow-up ministerial meeting in Berlin in 2003, the ENQA actively struggled to strengthen its position as a policy actor in the creation of a common European quality approach in the Bologna Process (ENQA statements and news, 2001–2003). It strategically modified its structure and activities to match its aspired role. In a statement prepared for the Berlin meeting, the network declared its ambition to be selected as the European platform for recognising higher education QA agencies in Europe (ENQA Statement, Berlin 2003). Among other things, it launched, with the support of the EC, a pilot project in the area of transnational evaluation in 2002—the Trans-National European Evaluation Project (TEEP 2002)—to investigate the possibilities of launching a transnational quality evaluation system in European higher education (ENQA Newsletter, July 2002, November 2002). The network also invited the presidents of the EUA, ESU and EC to its various meetings to increase cooperation and formulate joint plans and projects in the area of QA. Furthermore, the ENQA informed its intention to develop a voluntary and open European register for QA agencies (public, private and professional) that would operate in Europe and beyond. The idea was to use its membership criteria as eligibility standards for such a register. In practice, this would mean that present and future ENQA members (QA agencies) would be subjected to QA and evaluation. The association argued that the strength of the ENQA in this respect was related to its growing network, and that its membership was open to all of the signatory countries of the Bologna Process. It also described the good working relationship that it had established with the ESU, EUA and the European Association of Institutions in Higher Education (or EURASHE) as being a European association for non-university higher institutions such as polytechnics, colleges and university colleges (ENQA Statement, Berlin 2003).

Before the Berlin ministerial meeting in 2003, the EUA launched, with the moral and financial support of the EU, an internal pilot project called the Quality Culture Project. This project had its roots in the EUA's Action Plan 2001–2003 and its policy position paper on quality (EUA Council, Dubrovnik, September 2001). Its aim was to introduce internal QA mechanisms in universities linked to university autonomy and public accountability, and to prepare for external evaluations (The Zgaga Report, 2001). The objective of this quality project was also reflected in the EUA policy position paper for the Berlin meeting that was prepared at a convention in Graz 2003:

> The starting point is for universities to assume responsibility for internal quality culture, and for all stakeholders to be involved in European-level developments. (EUA, The Graz declaration, 2003)

By now, the European Consortium for Accreditation (ECA) became a policy actor in the Bologna Process. Its creation was a direct response to the Bologna Process. The ECA's aim was to contribute to the development of an accreditation approach serving the needs of the emerging European academic area. The intention of the ECA was not to become a club imposing accreditation as the sole instrument for QA, but a consortium, strengthening collaboration among accrediting agencies and other quality organisations and initiatives such as the ENQA. A number of ECA members were also members of the ENQA, which should prevent the ECA from acting "in a closed world" (The Zgaga Report, 2003).

At the third ministerial meeting in Berlin 2003, the signatories stated that the "quality of higher education had proven to be at the heart of the setting up of the European Higher Education Area" (the Berlin Communiqué 2003). QA was now at the front of the Bologna action lines and it became a priority for the next two years, meant to strengthen the efforts to promote effective QA systems at all levels (institutional, national and European). It was agreed by the signatories that,

> By 2005 national quality assurance agencies should include … evaluation of programmes or institutions … and a system of accreditation, certification or comparable procedures … and … international participation, co-operation and networking (The Berlin Communiqué, 2003).

The ministers also emphasised, supporting the position of the EUA, that European higher education institutions had the prime responsibility for QA in higher education, providing the basis for accountability in the academic system within the national quality framework. At the Berlin meeting, the ENQA was authorised the twin mandates of:

> Through its members, in cooperation with the EUA, EURASHE and ESIB to develop an agreed set of standards, procedures and guidelines on quality assurance … and to … explore ways of ensuring an adequate peer review system for quality assurance and/or accreditation agencies or bodies, and to report back through the Bologna Follow-Up Group to Minister in 2005. (The Berlin Communiqué, 2003)

In addition, the ministers asked the ENQA to take account of "the expertise of other quality assurance associations and networks" in the development (The Berlin Communiqué, 2003).

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CONCLUDING DISCUSSION

This chapter has described and analysed the complexity and pluralism characterising transnational governance. It has used the Bologna Process and its policy agenda in QA as an illustrative example for studying the role and meaning of NGOs in shaping and organising European policy-making.

The empirical study reveals how the development towards a European QA system did not take place in isolation, but was contextually dependent on prior and contemporary institutional conditions in the area of European higher education in general and in QA in particular. In the 1990s, QA developed as a policy area of high political interest below and beyond the national level in Europe. Strong political efforts in the EU triggered the spread of soft external QA approaches across Europe and the idea of constructing what was labelled a European dimension in QA that could provide added value to national QA approaches. The EU promoted the launch of European comparative quality projects to distinguish best practice. It also supported the formation of a European "network of networks" or meta-organisation such as the ENQA to stimulate cooperation between QA agencies and the exchange of experiences. What became apparent is how this development was intensified with the introduction of the intergovernmental Bologna Process. QA was a policy area soon advancing on the Bologna policy agenda. As a response, there was an increase in the number of policy actors and activities in this area, conditioning the construction of European instrumental policy instruments like the ESG and EQAR.

The results from the study make clear that the Bologna Process generally corresponds to a multidimensional process, covering multiple levels, actors, logics, preferences, and values in line with what is argued in previous studies of transnational governance. The shaping and organising of European quality policies emerged and developed in close relation with and was largely driven by national governments, the EU and European NGOs. The policy positions of these actors, based on their ambitions, preferences, and logics and ideals, clearly influenced and shaped the agenda setting and formulation of the policies and policy instruments that were prepared and agreed upon. The organising of policy-making also shared elements with what is known as the "open method of coordination", which is used in the EU in sensitive policy areas such as higher education. In order to overcome institutional variation and obstacles, and to make progress at the intergovernmental level, such a soft, multi-dimensional and multi-actor coordinating structure was presumably an appropriate institutional arrangement (if not a necessary condition) in a context characterised by time restraints and uncertainty. When shifted to the European level, policy-making thus allowed for an "opportunity space" for actors other than states to enter into agenda setting and policy formulation. Results from the study outline how European NGOs—identified as QA networks or meta-organisations, professional associations and interest organisations—were influential in and central to the shaping and organising of the European quality framework in the Bologna Process. The data reveals how these organisations gradually mobilised their efforts, both separately and in common, to be more

powerful in the process. They moved from having a status as consultants or observers in the more informal agenda-setting phase to deliberately taking on a more dominant position when formulating policies and policy instruments over time. As such, they also took on different roles in the different passages of policy-making. Strategically, they changed their organisational structures and formulated position papers on quality based on their internal ambitions, preferences and ideals. They also increased cooperation and/or formed joint collaborative platforms such as the E4 Group. These initiatives were also strongly promoted by the intergovernmental political actors generally supporting an open partnership approach and cooperation in the Bologna Process, particularly in the area of quality. The European NGOs were also, with the ENQA playing a central role, selected by the signatories to prepare and formulate the European quality framework or policy instruments in terms of the ESG and EQAR, which formed the basis for formal intergovernmental agreements at the ministerial meetings. As such, they also became the architects of the European quality framework. It is obvious that the political actors operating at the intergovernmental were dependent on the resources, legitimacy and expertise being provided by these NGOs in order to make progress in this policy area. The national ministries of education engaging in intergovernmental bargaining and agreements in the Bologna Process not only lacked authority beyond the national level, but also the expertise needed. As a solution to solve problem interdependencies, they approached appropriate European NGOs.

We can note how the movement towards a European QA system also involved and was dependent on the supranational scope, technical expertise and resources of EU authorities, especially those of the EC. The EU financed and promoted many of the quality activities in the Bologna Process, and the establishment and spread of QA agencies in the member states. For instance, the EU supported the formation of the ENQA, and it was involved in and supported numerous ENQA activities over time. This also means that the Bologna Process and the policy-making guiding the reformation of national educational systems, particularly QA, did not develop autonomously of EU interference. Rather, and what is argued in other studies of transnational governance and/or European policy-making, problem interdependencies at this level also allow for supranational authorities to engage in policy-making processes. The EU, however, is strictly obliged to comply with the subsidiarity principle making clear that sovereignty over higher education is retained at the national level. The Bologna Process thus allowed for an opportunity space and for the EU to engage in policy-making following a soft and consultative approach. This finding highlights the importance to also consider the relations between national systems and supranational governance for understanding how transnational governance or European policy-making takes shape and is ultimately created. It also outlines the interdependencies and interrelatedness between different actors involved in European policy-making.

To conclude, it is obvious that European policy-making in the area of QA takes place in a pluralistic and dynamic context that goes well beyond the national level. Over time, national governmental political aspirations have been increasingly

intertwined with the preferences and core values of other stakeholders, and especially those of NGOs operating at the transnational level such as voluntary interest organisations, professional associations and QA agencies and networks. It is obvious that the creation and progress of European policy-making in this area assumed the involvement of such actors as they provided expertise and legitimacy to the process. In addition, the results from the study show how the NGOs were not passive "others"; they operated strategically and purposefully in the process in order to become central policy actors. This finding reveals how important it is to consider this kind of actor when analysing transnational governance. It is also important to note the impact and role of supranational aspirations and ideals in such contexts. The EC has been a central agenda setter in the Bologna Process and has supported the creation of the European quality framework. The EC has also backed numerous quality projects and the formation of actors central to the creation of a European framework in QA. This means that the shaping and organising of European policy-making is, when referring to this particular case, embedded in a dynamic, intricate transnational web that includes intergovernmental and supranational actors and NGOs. European policy-making is guided by the aspirations, values and ideals of these actors.

NOTES

[1] Before 2007, the ESU was named the National Unions of Students in Europe (ESIB). In order to avoid confusing the reader with an additional abbreviation, the association will be described as the ESU throughout this chapter, even when referring to the period preceding the name change.

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11. FRAMEWORKS, EFFECTS AND SIGNIFICANCE OF RESEARCH ASSESSMENT IN THE ITALIAN UNIVERSITY SYSTEM

INTRODUCTION

In the past decades, growing attention has been paid to the assessment of the quality of university research (Handerson et al., 1990; Genua & Martin 2003; Lange, 2006). Although Italy is traditionally behind other European countries in introducing assessment systems for academic activities, it is now distinguishing itself on the European scene as a country that is adopting large-scale research assessment practices. In 2004, the Committee for the Evaluation of Research (CIVR) launched the Three Year Assessment Exercise (VTR) to analyse research activities carried out in the three year period 2001–2003 which had its origins in the European peer review experience. The most significant outcome of the assessment exercise – conducted by elected panels in each disciplinary area – was the publication of a ranking list of universities according to discipline. Despite the weak links between assessment output and university state funding, the disciplinary groups were encouraged to revise the assessment criteria for research and pay greater attention to the internationalisation of publications, particularly in the field of social studies.

In 2010 the Ministry for the University stated its intention to commission the CIVR to carry out a second more complete research exercise, the Five Year Research Exercise (VQR)[1]. This is one of a larger set of government measures introduced by the centre right government after it came to power in 2008 and is coupled with heavy cutbacks in state funding for universities. This will presumably have significant effects on the relationship between universities and the state and on the universities' internal governance balance due to the combination of assessment with reduced government funds.

National research assessment exercises are of considerable importance for the university systems that adopt them. This paper examines the research assessment exercise launched in Italy in 2004 and the exercise that is currently at the start-up stage, focusing on their significance in system governance.

CHANGE IN HIGHER EDUCATION SYSTEM GOVERNANCE

The concept of governance has not yet found a commonly accepted definition in studies of higher education as is evident from the ever-increasing interest shown by the literature (Enders et al., 2008; Huisman, 2009).

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
Effects of Higher Education Reforms: Change Dynamics, 203–216.

In the past, the topic of system governance frameworks held a prominent position in the literature with regard to the role and function of the actors in the university system since higher education studies have traditionally focused their attention on the relationship between government authorities and universities.
Among the first models to become established among scholars was Clark's (1977) "triangle of coordination" which analysed system governance starting from the role of the state, the market and the academic oligarchy.

The role of the state is at the basis of the framework formulated by van Vught (1989) which distinguishes between two possible state functions in the university system: the state supervising model in Anglo-Saxon countries where the system is funded by the state and gives great autonomy to universities to act according to their own intellectual values (the Oxford and Cambridge model) and the state control model in west European university systems where weak university autonomy is characterised by a balance of power between ministerial bureaucracies and the academic élite. The latter model is Humboldt's conception of bureaucratic and oligarchic universities in which autonomy and the protection of self-interests on the part of academics is the key element (Lazzeretti & Tavoletti, 2006).

The diminishing role of the state in higher education (at least in Western Europe) and its inability to cover the growing costs of a mass university system has modified the relationship between governments and universities bringing about greater university autonomy and a tendency to broaden, expand and make institutional boundaries less impenetrable by taking into consideration a larger number of stakeholders (Hedmo & Wedlin, 2008). The commencement of policies for autonomy in European universities introduced the theme of steering at a distance which took on considerable importance with the diffusion of system governance models based on contractual relationships between the state and universities (De Boer et al., 2007).

Further attenuation of the state's role resulted in the cybernetic perspective defined by Maassen & van Vught (1994), also on the basis of previous articles (Ashby, 1956; Steinbrunner, 1974), as self-regulation steering based on distinctly fragmented decision-making. In this conception the state's function in the university system is restricted to that of a referee between competing universities according to their own particular strategies. Although the state retains the power to revise the rules if satisfactory results are not achieved, the universities are fully autonomous.

Goedegebuure et al. (1996) asserts that the shift towards system governance models oriented to self-regulation is linked to the spreading of greater diversity within university systems, encouraged to favour the ability of the higher education system to respond to society's increasingly different demands.

The tendency to involve a larger number of stakeholders has led studies to analyse relationships between subjects that have their own functions within the university system but have different prerogatives and gives rise to the concept of "steering through networks":

> Responsibilities that were formerly those of the state have thus not only been transferred to higher education institutions but also to other organizations

> such as research councils, accreditation bodies etc. New actors at national level (e.g. ministries of economic affairs) and regional level are entering the higher education scene, especially given their interest in the emerging knowledge society and technology transfer. In this respect the state's role becomes one of a network manager ('steering through networks') and new regimes of governance emerge: we now see a more multi-actor, multi-level governance framework emerging in a number of countries (Stensaker et al., 2006: 12)

In this context a similar meaning is attributed to the terms 'governance' and 'network' by making reference "to self-organizing, inter-organizational networks characterized by interdependence, resource exchange, rules of the game" (Rhodes 1997:15).

The consolidation of European integration processes that subsequently came into operation (with the participation of the Regions) has led to the emergence of multi-level governance focusing on the relationships between the different players governing higher education and the relationship between them. The role of state authorities is to activate and facilitate interaction between subjects (Potì & Reale, 2005:2).

In the past twenty years universities, like other public organisations, have been involved in change processes inspired by NPM with particular effects on governance. For this reason greater attention has been paid to universities seen as autonomous institutions and as corporate actors with a unitary character and their own organisational boundaries. At the same time, universities have been endowed with greater autonomy and the possibility of managing their funds. The use of market mechanisms for regulating the university system has been furthered by introducing the concept of the 'client' (De Boer et al., 2007). In this situation, increasing attention is paid to assessment tools which balance the progressive undermining of trust in the self-governing ability of academics (Enders et al., 2008). This type of university model inspired by NPM supersedes the pre-existing one based on the peculiarities of the university and defined as an organised anarchy (Cohen et al., 1972) and loosely-coupled organisation (Weick, 1976). Through the application of NPM, the university is transformed from a 'loosely coupled' organisation into a more structured 'tightly- coupled system' (de Boer et al., 2007) although it would be wrong to define this as a complete transition and resolution. It is more of an on-going process which lends itself to including other concepts that are based on the characteristics of different national contexts and leave open the possibility for differentiated development scenarios. The diffusion of these NPM principles has undoubtedly led to an "elaboration of explicit measurement and monitoring of performance in both research and teaching development of audit and checking systems" (Ferlie et al., 2008: 335).

University system governance is thus crossed by a plurality of stimuli with no dominant model. Olsen (2005 and 2007) analysed change in university governance paying particular attention to the situation in Europe, and the model that he applies to universities derives from a previous framework (Olsen, 1988)

referring to the evolutionary models of the state. According to this framework two fundamental concepts face each other. The first considers the university as a tool of the policies or objectives of particular external subjects. The second hinges on the view of the university as an institution driven by requests and aims that are mainly conceived within it. As a second variable in the governance structure Olsen considers the role of the actors who influence decision-making and in particular the fact that they either share objectives and behaviour or put in different, even conflicting, requests.

The framework formulated by Rebora & Turri (2009) studying university system governance, takes up the analytical categories elaborated by Olsen (2005 and 2007) proposing a new framework based on two analytical concepts: (a) the locus of governance, which may be internal or external depending on whether the important choices for organisational governance are within or outside the university and the subjects involved; (b) the focus of governance, which takes on a strategic meaning if decision-making is guided by shared values and objectives based on rational strategies and planning or is incremental and conflicting if strategies are not shared and decisions arise from conflicting negotiation-based processes in the presence of a plurality of values and objectives.

THE ITALIAN EXPERIENCE FROM THE VTR TO THE VQR

This section compares the first and second assessment exercise (the VTR and VQR). Whereas an abundance of documentation on the first exercise is available (Poti & Reale, 2005; Reale et al., 2006; Reale & Seeber, 2007; Reale, 2008; Minelli et al., 2008), the second exercise has not yet begun and consequently information is obtained from Ministerial Decree no. 8 issued on 19 March 2010 "Guidelines for the VQR 2004–2008", which sets out and regulates the assessment exercise.

In 1997, the Bassanini Law 59 for public administration reform was passed which required the government to appoint members of the Committee for the Evaluation of Research (CIVR). The CIVR came into operation with Legislative Decree 204, issued in 1998, to assess national scientific and technological research, with the objective of improving its quality and use. It is located at the Ministry for the University and composed of seven highly qualified, experienced members chosen among a number of methodological and disciplinary areas. The members are appointed by the Prime Minister with Cabinet approval at the suggestion of the Ministry for the University, who then elect their own president (Legislative Decree 204/1998).

The CIVR is assisted by a small group of staff at the Ministry for the University who in December 2003 activated the VTR, a three year assessment exercise concerned with research products between 2001 and 2003 (CIVR, 2003). Assessment was conducted between 2004 and 2005 and initial results were communicated in the first six months of 2006 (CIVR, 2006; Reale, 2008).

At the beginning of 2010 the Ministry of the University commissioned the CIVR to conduct a second assessment exercise known as the Five-Year Research Assessment (VQR) regarding the period 2004–2008.

The methodology of the two exercises is based on analysis of research products of excellence paying particular attention to the international context. Both are hinged on disciplinary areas in which panels are set up to define methodologies and manage assessment, including the appointment of external experts for assessing the products. Ultimately a synthetic assessment of each examined product is given and a ranking list made.

There are, however several differences between the two exercises which not only annul some of the criticisms levelled at the VTR (Minelli, Rebora, & Turri, 2008), but highlight important methodological changes.

Firstly, there is a difference in assessment methodologies. In the VQR the panels either adopt peer review using external experts appointed by the panels, or citation analysis, or a combination of the two. In some disciplines the VQR works alongside, or substitutes, the opinions of the peers with bibliometric analyses, which were not included in the VTR. Secondly, the number of products and their direct link with researchers differs in that the ratio of products to be presented by each university no longer stands at one for every four members of permanent academic staff (researchers, assistant professors or full professors) but two for each academic. In 2003, 13, 585 research products were presented by the 55, 542 professors in Italian universities whereas in 2010 the theoretical number of products for assessment for 62, 709 professors was ten times greater, totalling 125.418[2]. Thirdly, research products and researchers are directly linked as each researcher is required to submit two of his or her personal research products. Researchers are declared to be inactive if they fail to produce products and partly active if they only present one product. The first exercise foresaw no connection between products and researchers and it was not compulsory for each researcher to submit products. The number of products to be presented in the VTR was determined for every university without any indication of how these products were to be distributed among academic staff. The disciplinary area was defined as the one in which the product was submitted and was not necessarily the author's own disciplinary area. Furthermore, the distribution of products by area was left to the discretion of the university. Fourthly, the time span of the assessment exercise was increased from three years (2001–2003) to five (2004–2008). Although this factor is not linked to any specific policy on the part of the CIVR, it is important in that it goes beyond organisational aspects and has repercussions on the universities' ability to modify their behaviour. In effect, the three-year structure of the assessment exercise hampered university initiatives to improve or boost publications whereas the longer time span will permit those involved to take note of results and decide whether different behaviour is called for.

In addition, the VQR scale for rating individual research products differs from the VTR where four different ratings were given: *excellent* (1), the product is collocated in the top 20% of the international scientific community's scale; *good*

(0.8), the product is in the 60%– 80% range; *fair* (0.6), the product is in the 40%–60% range and *limited* (0.2), the product is in the lower 40%. The VQR includes six ratings, hence the structure is more detailed, and assessment is also stricter: *excellent* – the publication is in the top 20% of the international scientific community's scale (weighting 1); *good* – the product is in the 60%–80% segment (weighting 0.8); *fair* – the publication is in the 50%–60% segment; *limited* – the publication is in the lower 50% (weighting 0); *not assessable* – the publication is excluded or not assessable (weighting -1) and *not submitted* – (weighting –0.5).

These structural changes impact greatly on the assessment framework and directly affect the VQR as follows:

- the original twenty panels have been reduced to fourteen by eliminating the special disciplinary areas in the VTR that were not included in the fourteen areas stipulated by the National University Council (CUN). This guarantees a link between research products, researchers and universities. The possibility of creating sub-panels with specific disciplinary competences does, however, still exist.
- the characteristics of the rating have evolved. The VTR simply gave a rating to the university's ability to produce a certain number of products of excellence since there was no direct link between the selected products and researchers. Performance was linked to the quality of publications and the university's skill in selecting them. In the VQR, products are directly related to researchers, so the exercise will give a rating to the quality of publications and to the researcher. The rating is thus important in terms of productivity since it permits assessment of the quality of the research product of each researcher over a five-year period.
- university intervention in the selection of publications, which was crucial in the VTR, is restricted since research products are directly linked to and chosen by researchers. Hence, the risk of opportunistic behaviour by universities in order to favour the comparability of the assessment output is reduced.
- the link between researchers and products means that in the VQR, unlike the VTR, the CIVR assesses each university (the sum of the ratings in the disciplinary areas) and department by totalling the ratings for all the publications produced by their own researchers. The VQR also includes a specific elaboration of results for researchers who were recruited or promoted between 2004 and 2008.

Lastly, there is a change in the relationship between assessment and funding. This issue was not directly addressed in the first exercise but is one of the foundations of the assessment framework in the VQR. In fact, the constitutive Ministerial Decree states the government's decision to allocate public funds according to the quality of research.

Table 1. Evolution from the VTR to the VQR

	VTR	*VQR*
Methodology	Only peer review by external experts appointed by the panels	Peer review using external experts appointed by the panels, or citation analysis
Number of products	One for every four members of permanent staff	Two for every member of permanent staff
Direct relationship between research products and researchers	No. The university decides which products to present without any restrictions, except that the author has to be a member of the university	Always. Two products have to be presented by each researcher
Period	3 years (2001–2003)	5 years (2004–2008)
Scale for rating individual research products	*Excellent* (1); *Good* (0.8); *Fair* (0.6); *Limited* (0.2)	*Excellent* (1); *Good* (0.8); *Fair* (0.6); *Limited* (weighting 0); *Not assessable* – excluded or unsuitable publication for assessment (weighting -1); *Not submitted* (weighting -0.5)
Link between assessment and funding	Non-existent	Strong link imposed by the Decree setting up the assessment exercise.

EFFECTS OF THE VTR ON THE ITALIAN UNIVERSITY SYSTEM AND THE USE MADE OF RESULTS

The conclusion of the VTR in 2006 provides the opportunity to analyse its methodological framework as well as the use made of assessment reports and their contribution to change in the Italian university system. The information is taken from two sources: public documentation on the functioning of the Italian university system and publications addressing the consequences of the assessment exercise (Reale & Seeber, 2007; Reale, 2008; Minelli et al., 2008; Capano, 2010; Rebora, 2010).

The immediate effect of the VTR results published in February 2006 was to diffuse information among academics, as shown by the large number of visitors to the CIVR website (460,000 visits in the first month alone according to the statistics that are still available on the website).

When referring to the English situation, Manna (2008) states that it is crucial to understand the incentives given to individual research strategies and institutions by research assessment, even if the issue is still largely ignored. The situation is also underrated in Italy. The large number of academics involved in assessment procedures who participate in the panels created in each discipline and in the

selection of products in the universities has stimulated the disciplinary groups to codify and update the assessment criteria of publications and, especially in the social sciences, to pay greater attention to the internationalisation of publications (Rebora & Turri, 2011). The study based on interviews with academics conducted by Reale & Seeber (2007) shows that Management Departments are more affected than Biomedical Departments. Assessment based on international quality criteria is well-established in the latter but it is a new experience that changes consolidated habits and the balance of power in the former.

Discussions on the revision of examination procedures for admittance to, and promotion in, the academic profession have attracted greater attention to assessment output, awakening academics and the universities' organisational structures to a greater awareness of the quality of scientific research (Rebora, 2010).

Conversely, the consequences of the VTR have affected relationships between the Ministry of the University and universities to a lesser extent (Capano, 2010). The VTR output only allocated a very small amount of public funding (the Ordinary Finance Fund – FFO) to state universities. All the performance measurements considered by the government (of which the VTR results are only a small part) have affected the FFO: 1.2% in 2006, 0.2% in 2007 and 0.7% in 2008. The small amount of funding involved, its combination with other performance measurements, and the general lack of publicity, meant that the repercussions of these measures were hardly noticed.

The picture changed in 2008 when the newly-elected central right government announced huge cutbacks in state funding for universities and in 2009 allocated state universities 2.3% of funds solely on the basis of their performance in the 2001–2003 VTR. This measure, however, is due to come into effect four years after the publication of results.

The reduction in the university budget owing to government cutbacks, the direct link with VTR results and the likelihood of an increase in state funds to universities on a competitive basis, is now greatly affecting universities both financially and regarding the executive's sensitivity to assessment.

THE ROLE PLAYED BY RESEARCH ASSESSMENT IN SYSTEM GOVERNANCE

The literature has discussed the influence of the English Research Assessment Exercise on the transition from collegiality type governance to structures that are more oriented to managerialism (Yokoyama, 2006). Similarly, the issue to be faced in Italy is whether the widespread introduction of assessment mechanisms for research output, the link with state funding and the launch of the exercise at the same time as the reduction in government expenditure in the higher education sector indicate a shift in the prevailing governance model in universities. To this end, the consequences of the first national research assessment exercise (VTR) presented in the previous section are analysed and the potential effects to be reasonably expected from the second assessment exercise (VQR) are put forward.

This has to take into consideration the evolution of system governance in the Italian higher education sector which is characterised by a transition from an

internal to an external locus in the presence of decision-making processes which remain conflicting and incremental (Rebora & Turri, 2009). On the basis of the trends in the literature analysed in the second section, three trends for the evolution of governance systems in Italy can be singled out, also taking into account the current policies for reducing state funding:

- making a transition towards governance systems that are more receptive to external stimuli and involve actors that are not linked to institutional parameters;
- giving state authorities the task of steering the university system at a distance, cutting state funds and creating a direct link between funding and performance;
- strengthening the universities' position as corporate actors, in order to give them appropriate differentiated institutional strategies for coping with the many contradictory demands deriving from the external environment.

The development of research assessment (VTR and VQR) in Italy has differentiated consequences on these three trends.

The most important effect of the VTR was an opening up to the external environment due to media coverage, the interest shown in the exercise by society at large and above all the great incentive for internationalisation and comparison with the external environment deriving from the assessment exercise. The new exercise should confirm and enhance this trend, assisted by the rating given to departments which facilitate the use of output by external subjects such as financial backers, students and families, industrial partners and other research centres etc.

The second trend regards the government's 'steering' ability where the VQR should provide a more effective answer to the potential use of output for accountability and state funding than the VTR exercise. Unlike the VTR which only focused on peaks of excellence, the VQR will produce a chart representing the quality of research concerning each university, department and individual researcher, thus supporting the allocation of Ministerial funding for universities.

The third trend is the most problematic since the methodologies on which the VQR is based, in particular the rating of -1 for non-participation as opposed to 0 for participation with a fair product, is leading to widespread participation in the exercise. Hence, the 60,000 plus Italian academics will be assessed on their ability to produce quality research, or as the CIVR states "*publications in at least the top 50% of the scale shared by the international scientific community*". The direct consequence is that all academics see their own and their colleagues' professional activity in terms of satisfying this requirement. University governance structures tend to make a similar interpretation as the exercise is directly linked to the criteria for university funding. The situation exists at a time when funds are being cut back and the use made of assessment results is not related to specific funds but directly affects criteria for allocating the FFO, hence behaviour of this kind is widespread.

The strict and uniform application of assessment limits the universities' possibility of adopting differentiated strategies forcing them to consider themselves as research universities, even if in many cases the finances and faculty for achieving this status are lacking. Above all, as the situation is not linked to differentiated academic careers, a large number of university staff risk becoming

de-motivated since the majority of the population is unlikely to be placed in the VQR "*at least in the top 50% of the scale shared by the international scientific community*". The danger of creating favourable conditions for diffused phenomena of perverse incentives and opportunistic behaviour also exists.

This trend contrasts with the previous two and is in disagreement with policies for concentrating scientific excellence in a few national centres such as in the French and German university systems (Paradise et al., 2009). The phenomenon is strongly rooted in the Italian university system which is not inspired by a model based on the plurality and differentiation of institutions, but on the Napoleonic model, where universities are weak bodies which are the object of undifferentiated ministerial policies whose goal is to make the university's contribution to society homogeneous and equitable (Moscati, 2001:117). Although modalities are different since they no longer comply with rules of law but with assessment measures, the ministerial direction remains that of encouraging scientific research in the whole university system without differentiating strategies between one university and another.

The top management of each university has to face the assessment exercise with very little opportunity for corporate decision-making. Limiting the possibility to select the best researchers/publications along with the direct correlation between assessment and funding, which will authorise departments to request funds from the university according to their performance in the assessment exercise, are contributing factors. Strict adherence to the rules will create uniformity in the academic profession which may result in a general improvement in research activities in agreement with international quality parameters, to the detriment of applied research and teaching. The effects are likely to vary depending on the disciplinary area and cause difficulties in some of them.

CONCLUSION

The evolution in research assessment systems in Italy, with the shift from the VTR 2001–2003 to the VQR 2004–2008, justifies its inclusion in the question of changes in the overall governance system at both system and individual university level, where it occupies a prominent position. The launch of the second research assessment exercise in the Italian university system, and its effects on funding, respond to the demand for authoritative transparent results in the research field, shared by academics and all the main university stakeholders.

At the end of 2010, after lengthy preparation, Parliament passed new laws strengthening the decision-making power of university rectors and the executive board alongside the role of assessment in allocating funds. At the same time, the new Agency for assessment (Anvur) incorporated existing bodies, such as the CIVR, into its organisation and is about to become operative.

At all events, the above-mentioned factors increase the critical state of the reflections presented in this chapter. In fact, the features of a national research assessment system have a value and meaning in a broader "multi-level" and "multi-actor" governance system.

The fact that the Italian research assessment system focuses on internationalisation and parameters of excellence and leaves little room for differentiated university policies, has a dual significance: on the one hand, it can give the entire system a boost towards international competitiveness whilst, on the other, the universities' corporate identity risks being drained and academic behaviour standardised, thus obstructing the trend towards differentiation and specialisation in universities.

The academic sectors that are already more competitive and open to international criteria will surely benefit from this situation and the possibility of strengthening their structures, whereas the weaker sectors or those that are tied to national cultural and regional environments run the risk of misuse, being driven in directions that are inappropriate for making full use of their characteristics and potential.

Government policies in other European countries tend not only to combine and concentrate funds but also to offer opportunities and incentives for the differentiation of strategies in different universities. By underestimating the corporate aspect of universities, the formulation of the VQR partly contradicts the line of evolution of system governance.

National research assessment exercises are powerful governance tools in the university system, particularly when they are linked to university funding. For this reason, these exercises and their particular characteristics need to be part of a broader medium-long term strategy in order to realise their full potential. The Italian case illustrates that national research assessment exercises require strong direction, in the sense of steering at a distance, by managing the stimuli for the university system that derive from the autonomy of the universities.

NOTES

1 In January 2011, the assessment exercise is at a standstill, also as a result of substantial reforms in the university system approved by Parliament in December 2010. In 2011, it is therefore possible that the duration of the exercise will be increased. This paragraph and the rest of the chapter refer to Ministerial Decree no. 8 issued on 19 March 2010.

2 The VQR also permits the presentation of research products by non-permanent staff.

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PART 4

ACADEMIC PROFESSION

ELKE PARK

12. THE TRANSFORMATION OF THE ACADEMIC PROFESSION

The Erosion of Tenure and the (E)state of the Professoriate

INTRODUCTION

The far-reaching changes and reforms in Higher Education over the last two decades have also left their marks on the academic profession. With universities striving to position themselves in an increasingly competitive market situation, market-oriented forms of governance have been introduced and stronger internal management structures challenged the once "donnish dominion" of scholars. As a response to growing societal demands for relevance and more direct "return on investment" the funding regimes have changed and financial resources are increasingly allocated according to – measurable – performance. Universities are no longer shielded from market pressures but are rather forced to behave as economic entities competing for scarce resources. In this dialectical and at times frictional process of transformation old paradigms of university organization marked by broad faculty autonomy and self-governance have been challenged by new paradigms of accountability, efficiency and institutional flexibility. This shift towards more entrepreneurial notions of the university as an organization is also reflected in changes of employment contracts and employment relations.

Academic Tenure – generally understood as permanent employment until retirement for professors – is one of the concepts at the heart of the academic profession, central to its identity and *Berufsbild*. Tenure was often regarded as the „ultimate prize", the "crown jewel" or also "the "sacred cow of the academy". However, with a growing need for institutional flexibility and diminishing fiscal resources we are currently witnessing a loosening of tenure regimes and an increased reliance on contingent staff rather than full-time tenure-track and tenured faculty.

While reform measures in each national system vary widely in speed and intensity, what is here referred to as the "erosion of tenure" – namely the shrinking numbers of tenured positions within universities and at the same time the qualitatively diminishing strength or degree of employment protection tenure offers – is, as the numbers aptly show, a global phenomenon.

The following analysis will address these international developments. It is empirically based on public data on the employment status and situation of academics provided by various national HE ministries or statistical offices. The

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
Effects of Higher Education Reforms: Change Dynamics, 219–238.

article – which originated in the framework of an on-going ESF project on Higher Education and Social Change (EuroHESC) – will give an overview of the various dimensions of tenure in the US and Europe, trying first to delineate what tenure actually is by means of a comparative analysis of employment contract provisions and dismissal clauses in selected countries. The approach narrowly focuses on changes in the degree and scope of employment security offered at universities, an aspect which has so far not yet fully been explored in comparative perspective. The second part deals with the impressive rise of full-time non tenure-track and part-time positions, which some already call an "Appointment Revolution", to conclude whether "parallel systems" of employment at universities are currently emerging, leading to a "binary divide" in academe between the tenured few and the rest.

Ultimately, this article intends to analytically extract common reactive patterns of universities as organizations in the framework of on-going paradigmatic HE system changes. Faced with new economic pressures, what options or means of institutional action (in the field of security of employment) are at their disposal in the attempt to navigate and adapt to an ever more competitive higher education landscape?

DIMENSIONS OF TENURE – AN INTERNATIONAL OVERVIEW

> A professor was an employee of the institution. No less no more. If his conduct was displeasing to management, officials were entitled to give him his walking papers as readily as business executives might fire any factory hireling (Lucas, 1994:197).

This is not an ominous description and foreboding of future working conditions for academics in the "corporate university" of the 21st century where academics are hired as ordinary "knowledge workers" in rather insecure forms of employment and responsible to a new corporate style management within universities. Rather, it is a historical account of the situation professors faced at the beginning of the 20th century. In the words of a US contemporary around 1900: "Our strongest desire was to be made safe...We were dependent on the college, which itself was always pressed for money, and could not be counted upon to be either judicious or just." (Lucas, 1994:197).

In the following decades the American Association of University Professors AAUP, which was founded in 1915, successfully fought for the introduction of academic "tenure" as a means to safeguard and protect academic expression from political interference and external pressures.[1] To date tenure remains a cornerstone of academic freedom and academic identity. The AAUP 1940 statement which was endorsed by most US universities reads:

> Tenure is a means to certain ends; specifically: (1) freedom of teaching and research and of extramural activities, and (2) a sufficient degree of economic security to make the profession attractive to men and women of ability. Freedom and economic security, hence, tenure, are indispensable to the

> success of an institution in fulfilling its obligations to its students and to society (AAUP, 1940:3).

Tenure is granted after a probationary period and a high-stakes evaluation at the end of the probationary period (tenure-track) and provides for "an indefinite appointment whose continuity is guaranteed by a cumbersome dismissal procedure, anchored in the principles of dismissal for cause, due process for the individual, and peer review" (Finkelstein, 2003: 510).

Today, tenure is increasingly criticized as a hindrance to economic flexibility and the ability of the university to respond and adapt to the demands of an ever more competitive market in the knowledge society. It is seen as an outdated form of lifetime employment that encourages professorial laziness (Altbach, 2005:155) and ultimately blocks management from getting rid of unproductive professors or "faculty deadwood" and altering program structures in line with market demands to streamline and improve university performance in general. Outside academe tenure is often regarded as an anachronism, with "faculty being the last group of people who own the means of production and have lifetime-job security as well" (Gould, 2006:241).

Indeed, tenure is – due to the linkage of employment security with the protection of academic freedom – a specific of the academic labour market. However, "tenure" is a very diverse concept with strong variations depending on the institution that offers it as will be shown below.

Tenure in the US

The Harvard Project of Faculty Appointments in the 2000 volume by Cathy Trower provided a comprehensive scope of descriptive norms of tenure: Following a minute analysis of [provisions for] tenure in 217 randomly selected US universities stratified by the Carnegie criteria, for 87% of all 190 institutions that define it tenure means "permanent or continuous employment until retirement barring dismissal for cause" (Trower, 2000:79).

Tenured academic staff is thus protected from arbitrary dismissal and professors can be discharged only for "good cause" – generally referring to gross misconduct or gross moral turpitude – and only after a hearing before a body of his or her academic peers (see also Finkin, 1996:3).

Upon closer inspection, tenure is not per se a guarantee for lifetime employment; it just sets a high threshold/standard for dismissal. The granting of tenure thus means permanency of employment or lifelong unlimited employment UNLESS certain conditions are met, or better: not met. Which conditions, i.e. the level and amount of reasons for dismissal that need to be met, define the quality and rigidity (hard- or softness), or the degree of academic tenure.

It must be noted that the difference between an "unlimited, indefinite or open-ended contract" and a "permanent, lifelong tenured position" is hard to delineate. In practice, a contract that is unlimited and has no set ending date is equal to a permanent position until retirement; it is ultimately the conditions by which the

contract can be ended, i.e. the dismissal clauses that define the level of employment security.[2]

My own initial assumption at the outset of this analysis was that the ability to let personnel go due to a decrease in demand or need of the person's expertise or due to strategic restructuring manoeuvres on the part of university management ("Bedarfskündigung") is in fact the watershed that separates "true" tenure from other forms of employment. However, in the course of this analysis, this assumption had to be corrected as tenure seems to encompass far broader definitions and emerges as a highly diverse and porous concept. Tenure is not – at least not in the US – an ironclad pillar of (in)definite job security and allows for more flexibility than was originally assumed:

In the US, "extraordinary circumstances" such as financial problems and changes in educational, programmatic needs can lead to the termination of tenured positions and the reduction of tenured faculty. In its 1940 Statement the AAUP already stipulated that financial difficulties on the side of the universities provide grounds for the dismissal of tenured staff: "Their service should be terminated only for adequate cause , (...), or under extraordinary circumstances because of financial exigencies" (AAUP, 1995:4). In 1957 a paragraph on program discontinuance was added: "Termination of an appointment may occur as a result of bona fide formal discontinuance of a program or department of instruction" (AAUP, 1995:25). In fact, 91% of the universities listed in the Harvard Project on Faculty Appointments provide policies on faculty employment security in the event of institutional financial distress (Couturier, 2000:244) and all of them (100%) permit the termination of tenured faculty members in that case. 81% have policies on employment security in the event of program changes, reduction, curtailment , or elimination, 98% of which allow the institution to dismiss of tenured faculty members in the event of program discontinuance (ibid.:245).

Financial Exigency

Regarding the definition of what constitutes "financial exigency" university policies range from severe and extraordinary financial difficulties that threaten the survival of the university as a whole[3] to "serious financial needs which force the university to discontinue [a] unit of instruction", and a "shortfall in revenues which would have a material adverse effect on the operation of the institution or academic unit" (ibid.:266). Some institutions, such as Florida State University, however, simply "allow layoff ...as a result of adverse financial circumstances", and at another tenure granting university the president "may terminate any appointment for lack of appropriations or other funds with which to support the appointment" (ibid.:251).

Program Discontinuance

Changes in demand of certain educational programs can also provide grounds for dismissal and according to the AAUP guidelines an adequate cause for the

termination of tenured positions within a university. Academic reorganizations, programmatic reviews, educational or mission-related considerations can lead to program discontinuance or the reduction of the size of faculty in an academic department. The AAUP recommends (1995:25) that such decisions be based "essentially upon educational considerations", however there is a fine line between program discontinuance and financial exigency. In their policies on program discontinuance universities claim that they need to be able to react to changes in demand in the educational market: "universities essentially serve the needs of [...]student populations and as these populations evolve so should the program arrays which purport to address these needs" (Couturier, 2000:267). Meeting the "educational needs of the state's students in relation to taxpayer's expectation merits the change and/or closing down of unrequested programs or departments and the creation of new structures to address these needs" (ibid.).

However, policies foresee that alternatives must be exhausted, that faculty should hold a role in declaring a financial exigency and efforts will be made in finding other suitable positions, there are policies on severance pay and a right to reinstatement. Whereas generally tenured faculty will not be let go before non-tenured faculty[4], some universities' "Layoff Considerations" or "Staff reduction criteria" foresee that only those employees will be retained who are of "key importance" to the specific programme regardless of tenure, rank or length of service" (Couturier, 2000:259).

In fact, as a result of the international financial crisis and economic downturn many US universities are currently facing a period of financial distress, from state universities depending on state revenues and affected by budget cuts to private institutions where a decrease in private endowments has led to a reduction in funds. Universities mostly responded, however, with salary freezes and early retirement plans as well as cuts in administrative staff, but also by severely reducing new hires and by curtailing tenure-track searches.[5] The current "hiring freeze" for tenure-track positions in the US has even led some scholars to pursue careers abroad, in Asia or Europe. Also in top-tier elite institutions like Harvard the economic crisis has clearly left its mark: 275 mostly administrative staff were let go at Harvard in 2009.[6] Moreover, Harvard ladder faculty (tenured and on track) shrank slightly by 2,5% from fall 2008 to fall 2009 (from 1546 to 1507 headcount), while non-ladder faculty saw a marked decrease of 19% (1579 in 2008, 1279 in 2009 headcount).[7]

This implies that US universities indeed protect tenured personnel and try to exhaust all other possible means before firing tenured faculty, mostly at the expense of part-time and other non-tenure track faculty.

Post-Tenure Review

With ever growing societal pressures for accountability and a culture of evaluation and constant quality assessment and control emerging, another trend that has been on the rise is the gradual introduction of post-tenure review. Critics of tenure argue that unproductive professors could hide behind the security of a tenured post ("tenure as a shield for mediocrity, incompetence or academic irresponsibility",

Trower, 2000:84). Over the last fifteen years the number of institutions adopting formal post-tenure review processes has continued to climb dramatically and approximately half of all tenure granting institutions in the Harvard Project on Faculty Appointments have provisions for post-tenure review (ibid.:182). Either cyclical reviews or reviews triggered by poor performance can be instituted. Whereas some review processes foresee development plans and other goal settings mechanisms, 38% of universities with post-tenure review impose sanctions after repeatedly unsatisfactory performance reviews, some of which also include the revocation of tenure and dismissal. (Sternman Rule, 2000:195–196.)

Still, in practice, the impact of post-tenure review has not been drastic. An article in the *Chronicle of Higher Education* on "The Fallout from Post-Tenure Review" noted in 2002 that after almost a decade of wide-spread implementation "the firing of tenured faculty members as a result of post-tenure review is extremely rare" and that "the number of tenured faculty members who have received unsatisfactory ratings during their reviews is also tiny" (Montell, 2002). This can also be attributed to the fact that many faculty members who receive mediocre to negative reviews opt to retire or resign and that "while the mechanisms are in place, outright dismissals are not a tradition of academic culture" as one university official claimed (ibid.).

The Situation in the UK

With the 1988 Education Reform Act tenure was abolished – or drastically softened – in the UK.[8] The Thatcher administration viewed the strong form of tenure prevalent in the UK before 1988 as a hindrance to economic performance and institutional flexibility of universities and introduced a new law that first made it possible to dismiss academic staff on the grounds of redundancy (see also Edwards, 2006:290–291): If a specific program or department was no longer deemed relevant or profitable (for example through shrinking student enrolment and/or a reduction in government grant) the university should be entitled to adapt accordingly and cut the program.

The reduction of government grant can not only be triggered by lower numbers of students enrolling but also by a failure to perform well in evaluation processes as public HE monies are competitively awarded to departments depending on their results in the British Research Assessment Exercise (RAE). This was the case at Swansea University 2004 where four academic Departments in 2004 were closed in an effort to rise higher in the national research rankings by removing the poorer performers (Batterbury, 2008:8). Only recently Middlesex University announced to close their renowned philosophy department due to insufficient student enrolment. While the department performed well in the RAE, it was apparently no longer financially viable.[9] Management claimed that the planned move was a reflection of falling demand for philosophy degrees, overstaffing and insufficient earnings from governmental research grants which do not cover the research costs incurred by philosophy staff, and the general need to cut costs due to massive budgetary cutbacks in HE funding.[10] This example underlines that in principle, academics of

all ranks can be dismissed due to economic considerations. Another recent case that caused major international outrage was the announcement by King's College London to release 125 staff, among them David Ganz, a renowned scholar and Britain's only professor of palaeography.[11] Also, Sussex College presented a plan to cut 122 jobs in languages, history and science as a reaction to massive subsidy cuts.[12] The corporate university seems to have become a reality in the British HE landscape.

Further, the Reform Act stipulates that dismissal for "good cause" must be related to conduct, capabilities or the qualification for the type of work for which the academic was employed (Dnes & Seaton, 1998:497). Referring to capabilities, this allows universities to fire academic staff whose competence is considered below adequate, whose "ability has eroded" (ibid.). Thus, it is possible to dismiss an academic of any rank for reasons of poor performance and, in principle, university management is empowered to replace one academic with a more accomplished one. Competency is measured through periodic reviews. The British contract-based system puts a strong focus on accountability and is tied to strict evaluation mechanisms. The capabilities and performance of each researcher and/or teacher are regularly assessed through the periodic national Research Assessment Exercises. It is the culture of evaluation that permeates the Bristish system and is at the foundation of its logic.

The protection of academic freedom was at the same time guaranteed through an amendment of the law *"to ensure that academic staff have freedom to question and test received wisdom, and to put forward new ideas, and controversial or unpopular opinions, without placing themselves in jeopardy of losing their jobs or privileges"* (Edwards 2006, 290).

Still, some authors argue that the British system is more egalitarian as all academics are subject to rigid assessment and review and it is generally easier for young academics to obtain a permanent, unlimited contract than it is to get on the tenure track in the US or to reach professorial status in Germany (Batterbury, 2008:7). While it is easier to dissolve these contracts and dismiss academics, it is at the same time easier to obtain a permanent, open-ended, unlimited contract even in early stages of the career as lecturer in the UK. All in all, about 66% of full-time staff are employed on permanent contracts, on an unlimited basis (HESA 2004, in Batterbury, 2008:7)

Tenured Professors as Civil Servants: Germany, Italy and France

In Germany, Italy and France professors enjoy a high level of employment protection as civil servants. German professors are appointed for life. The legal status of civil servants (*Beamte*) is based on public law, not private employment law and employment protection here is "ironclad", i.e. it is very hard to remove or dismiss a "servant of the state" with only severe misconduct ("damaging the reputation of the office") and criminal offence proving grounds for the initiation of disciplinary procedures. Thus, the cases of professors removed from office are extremely rare ("no professor dismissed in Göttingen in a 150 years").[13] Financial

difficulties on the part of the university, program discontinuance or organizational restructuring efforts simply cannot prove grounds for dismissal (Altbach, 2002a:166).

However, with the exception of certain higher ranking non-professorial positions (Akademischer Rat, Oberräte) who are also permanently employed as civil servants, all academic staff in Germany below the rank of professor is employed on a fixed-term basis. Non-professorial staff is hired on the basis of private fixed term contracts, with a maximum of 12 years of rolling contracts before reaching professorial status and thus unlimited, permanent employment (see also Enders, 2001).

In Italy both associate professors and full professors are civil servants and Italy is still one of the countries with the highest tenure rates internationally (about 90%). Once appointed to a permanent position in Italian academia it is very difficult to lose it (Altbach, 2002a:166). However, in 2005 the position of ricercatore – a position at the level of assistant professor which in most cases also provided unlimited employment – was abolished and replaced with the "*professore al contrato*", a fixed term contract now used mostly as an entry position for young researchers.[14] This contract is renewable only for two possible 3-year periods until application for associate or full professorship. Along the same lines, the Gelmini law which was passed amid strong protests in late 2010 introduced a tenure-track system and ultimately eliminated all permanent, unlimited contracts for academics below the associate professorship.

The Austrian Example

In Austria the civil servant status of professors was abolished in 2002 in the course of a far-reaching, overall transformation of the Higher Education sector which decoupled the universities from direct state control and granted universities autonomy. All employees are now hired on the basis of private contracts with the university acting as an autonomous body. Regarding life-long employment of professors and employment security in general, the collective bargaining agreement which entered into force in 2009 foresees in principle that every university employee, including professors, can be dismissed by the university as a consequence of organizational restructuring processes and changes in demand.[15] This presents a marked detour and drastic transformation of the Austrian system. For employees of a certain age or a specified length of service enhanced dismissal protection applies and universities have to give a reason such as "good cause" or two consecutive negative performance evaluations for the dismissal.

However, in practice, these are minimum standards and most universities in Austria surpass these standards. The employment contracts for professors and associate professors (a recently created position) foresee the contractual right to unlimited, lifelong employment. The so-called "Bedarfskündigung" (dismissal for changes in need or demand) is explicitly excluded as grounds for dismissal. Still,

two negative evaluations in a row are grounds for dismissal even for the top-tier of university employees.

AN APPOINTMENT REVOLUTION? – THE EROSION OF TENURE IN NUMBERS

Looking at recent literature on the "professoriate" the overall impression is one of crisis, decline and a loss of prestige and status ("Decline of Donnish dominion", Halsey, 1992; "Decline of the Guru", Altbach, 2002b; "The Professoriate in Crisis", Finkelstein, 1997). There is a sense of good-bye, a literature of regret ("The last professors", "The Shrinking Professoriate"). The traditional "professor" seems to be a dying species ("Gone for good", "The Vanishing Professor")[16] and old ideals of intellectual autonomy, economic security and academic freedom are slowly eroding.

The Rise of non-tenured and Part-time Positions

The most prominent "threat" to the "tenured, full professor" identified and expressed in various works is the "rise of the part-time profession" (see Altbach et al., 2009) and the increase in off-track appointments. The American Federation of Teachers concludes:

> In recent years, the most notable—and potentially the most destructive—trend in higher education has been a significant shift away from employing tenured and tenure-track faculty members in favour of employing full-time non-tenure-track faculty members, part-time/adjunct faculty members and graduate employees. (AFT, American Academic, 2009:3).

Data from the ISPED Fall Staff Survey of the US Department of Education illustrate this trend (MLA, 2008:23–25): while student enrolment grew from 14,26 million (1995) to 17,48 million (2005), an increase of 24%, tenured faculty only grew by 5%. Full time non tenure track positions however saw an increase of 67%, and part-time faculty rose by 61% (see Figure 1). In 2005 32% (415. 503) of academic staff held tenure or were on-track, 20% (261. 493) were full-time employees not on the tenure track and 48% (614. 162) were part-timers. Thus, part-timers and full time-non tenure track positions far exceeded the numbers of tenured faculty, with tenured faculty amounting to roughly one third of total faculty in 2005, and two thirds of academic employees not employed on the tenure track. Between 1975 and 2005, the percentage of American faculty either tenured or eligible for tenure was gradually cut nearly in half, from 56.8% to 31.9% (Nelson, 2008). The actual number of such positions has not declined, but the majority of hiring has been off the tenure track.

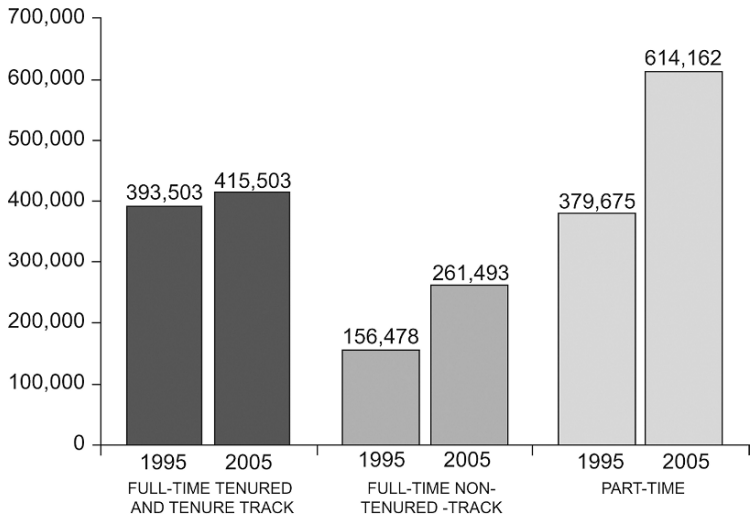

Figure 1. Number of faculty members by employment categories, all institutions, 1995 and 2005. Source: MLA (2008).

While in research universities the numbers are less drastic, the trend is the same: Non-tenure-track and/or part-time positions saw a markedly stronger increase than tenured/tenure-track positions from 1995–2005, and non-tenured faculty represents the majority of academic employees also at Carnegie Doctoral/Research institutions (MLA, 2008:25; see Figure 2; the rate in 2005 being 45% tenured, 55% non-tenured, for instance at Harvard in 2008 the rate was approximately fifty/fifty).

Schuster and Finkelstein 2006 provide a comprehensive scope of what they call an "Appointment Revolution". Drawing on data from the Carnegie Survey and the NSOPF they also show that the number of tenured positions has dramatically declined in favour of non-tenured fixed contracts within the last thirty years. What is more, the new generation seems to grow up mainly beside the tenure track: 58, 6% of new full-time hires in 2003 were non-tenured off track positions (ibid.:194). Schuster and Finkelstein extrapolate that if this hiring-patterns continues with an annual retirement rate of tenured faculty of 4%, the percentage of tenured faculty will shrink to only 15% of total headcount faculty over the next 20 years (30% of all full-time positions) (Finkelstein, 2007:149).

The full-time tenured professoriate seems to be in retreat (see also AFT Vanishing Professor, 1999), and a recent UNESCO report concludes pessimistically: "The professoriate faces significant difficulties everywhere [...]. The decline of a real full-time professoriate is undermining high-quality higher education." (Altbach et al., 2009: 89–90.).

To put these findings into international perspective: in Germany, student enrolment grew from 1,8 million (1998) to 2 million (2008), an increase of around 11%. At the same time the number of full professors (Beamte) at universities decreased very slightly by 0,8%, while other full-time academic staff saw an increase by 20, 8%, and part-time staff an increase of 47%[17] (see Figure 3).

In 2008 about 10, 8% of academic staff were professors, a further 8% higher non-professorial civil servants (i.e. permanently employed faculty, but no professorial rank), 56,8% were full time non-professorial academics on fixed term contracts and 25, 1% were part-time workers.[18]

In Germany the rate of tenured positions (full professors with civil servant status) to non-tenured positions is traditionally very low but even so, it is sinking further: according to federal statistics in 1998 only 16% of full-time academic staff (head-count) were tenured professors, this number continuously shrunk to 13,4% in 2008. Including part-time workers, professors' share of all staff dropped steadily from 12, 5% in 1998 to 10,08% in 2008 (headcount).[19]

Jürgen Enders estimated for 1996 that 90% of full-time non-professorial staff are employed on fixed-term contracts (Enders, 2001:8), and this estimate still seems valid for 2008 (as 9, 4% of full-time non-professorial staff were permanently employed as civil servants): He concluded that "all in all, approximately only one fourth of regular [full-time] academic staff are professors and middle-rank academics having unlimited contracts as civil servants or public employees (ibid.)". This number is slowly sinking to about one fifth in 2008 (21, 4%).

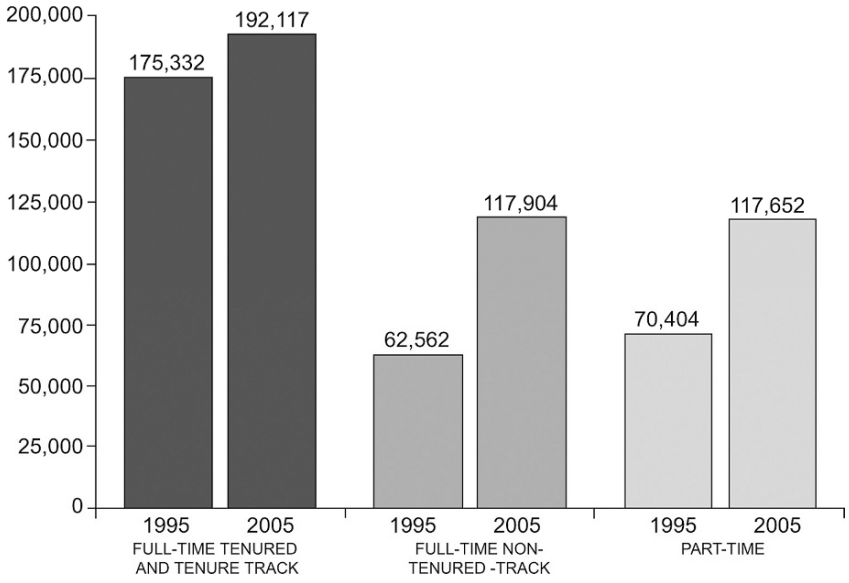

Figure 2. Number of faculty members by employment categories, Carnegie doctoral/research institutions. Source: MLA (2008).

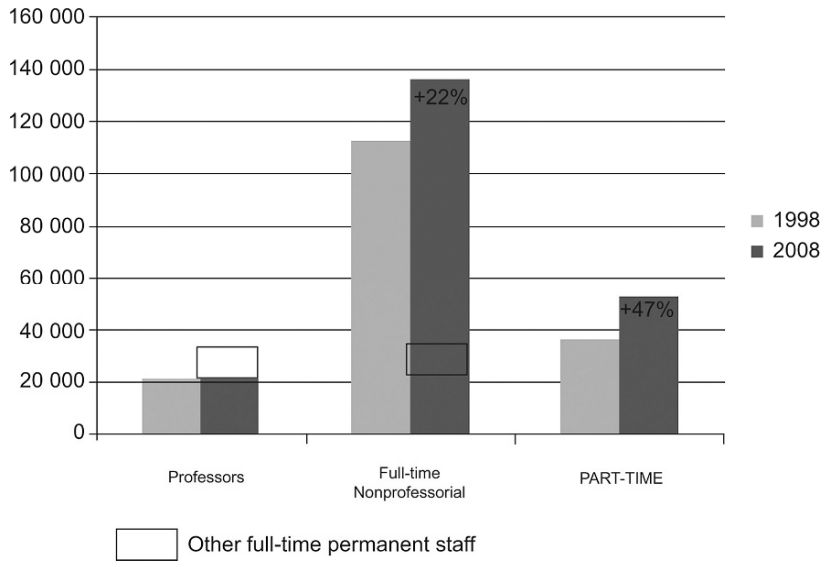

Figure 3. Number of Faculty by Employment Categories, Germany, Universities, 1998–2008. Source: Statistisches Bundesamt, Personal an Hochschulen – Fachserie 11 Reihe 4.4 1998, 2008.

Other countries that offer professors the relative security of civil servant positions show quite different numbers. In France 63,2% of academic staff are full professors or associate professors (maítres de conférence) with civil servant status, only 25,7% are fixed-term or part-time staff, part-time staff or ATER (Attachés temporaires d'enseignement et de recherche) amount to only 7,3% of academic personnel in 2008/2009 (as compared to 48% in the US).[20] However, they are also the group that showed the highest growth rates from 1992–2009: 130%, whereas professors grew by 60%, associate professors by 70%. Also in Italy around 90% of faculty are tenured civil servants (Altbach, 2002a:167). Italy is thus one of the countries in Europe with the highest proportion of permanent tenured positions.

For the United Kingdom, Simon Batterbury estimated for 2003 that around 66% of all full time staff employed in British universities in 2003/4 had permanent or open-ended contracts, and thus 34% were on temporary contracts (Batterbury 2008; HESA, 2004). Part-time workers amounted to approximately 21% in 2003 in the UK.[21] Again, it must be noted that the entry conditions to obtain the post of lecturer (an entry position equivalent to an assistant professor) are much less arduous than it is to get on the tenure track in the US (Batterbury, 2008). Many of these posts are already permanent, some have prospects of permanency after a probationary period, and some are fixed term. A three year contract with possibility of renewal after a performance review or a permanent contract as a lecturer is "very common after receipt of the Ph.D." (Batterbury, 2008:7), from there

promotion to higher ranking positions is only a matter of rank, not employment security.

In Australia which followed the British model, the situation is similar: in 2009 47,9% of all academic positions were permanent contracts at the level of associate professor (senior lecturer, 23,1%) or professor (above senior lecturer, 24,7%), The lower ranking position of lecturer amounted to 33,1.[22] If roughly one third of lecturer positions are considered permanent or with prospect of permanency, the number of academic staff on indefinite, open-ended contracts rises to about 60% (this corresponds to 60% of all personnel, including administrative staff, in Australian universities in 2009 that were on unlimited, permanent contracts[23]).

Part-time academic work in Australia was at 23% in 2009, however, this number increased by 55,1% from 1998–2008, whereas full-time faculty only grew by 22,7% in the ten year frame.[24]

Overall, in Germany and the United States the rate of permanent, open-ended positions with strong employment security is lowest: in both cases only a minority of academic staff are actually enjoying the protection of "tenure", in the U.S. this number was at 32% in 2005, for Germany the estimated number is at ca. 20%, only 10,08% of which were actually professors in 2008. For the US this is due to a rapid increase in part-time positions. In Germany there is also a noted increase in part-time staff, however, the high threshold of reaching a professoriate and thus, permanent employment and tenure, and a systematic lack of non-professorial permanent positions explain the data. Both systems thus create high inequalities amongst staff (see Figure 4 for a comprehensive comparative overview).

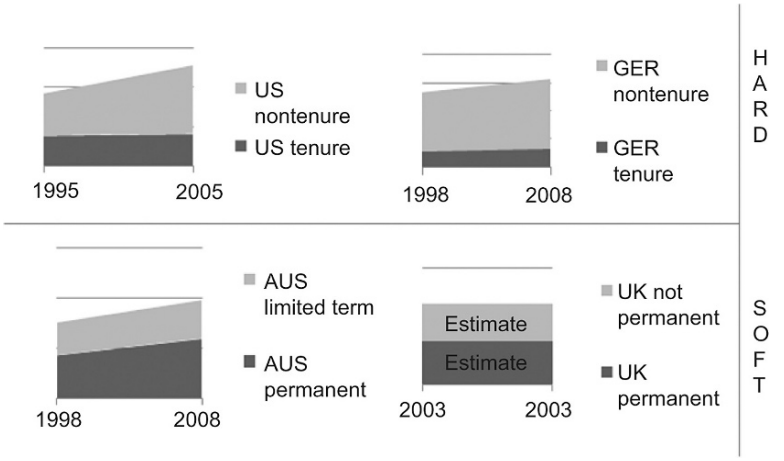

Figure 4. Systems with Harder and Softer Forms of Tenure and the Distribution of Tenured Positions. Author's own estimate.

One could conclude that where employment protection is relatively high (strong tenure, civil servant status), only few get to enjoy it. Apparently universities are creating flexibility and a capability to manoeuvre by limiting these posts and relying heavier on fixed-term staff or part-timers. There seems to be a trade-off between lowering employment protection and making it available to more people, and maintaining higher security of employment while restricting access only to a few.

Parallel Systems or a Binary Divide?

As was shown above the proportion of academic staff in tenured positions is declining in many countries. At the same time full-time non-tenure track positions are on the rise, and part-time positions have seen the most rapid growth over the last fifteen years. As a result, inequalities regarding security of employment are emerging or are becoming stronger. In numbers, both the American and the German system show the greatest gap or divide between tenured positions on the one hand and fixed-term or part-time employment on the other. The US and Germany thus emerge as the two systems with the highest degree of inequality among academic staff. Faculty is divided along the lines of tenure and in recent years the rhetoric of "division" and "class" are becoming increasingly more pronounced and heated.

Martin Finkelstein explored this "trend toward hiring off the tenure track" further. Referring to the relative growth of non-tenure eligible full-time appointments he predicted the development of "parallel systems": the traditional tenure track system on the one hand, and a fixed-term contracts system on the other (Finkelstein, 2007:148).

Philip Altbach sees a "caste system" emerging in American Higher Education with few on top in old tenured positions, a new middle class (full-time non tenure track faculty) and part timers as Paria: "The tenured Brahmin are at the top, and the lower castes occupy subservient positions." (Altbach, 2002a:153). He also compares part-timers to the Japanese Ronin–masterless Samurai who have all the qualifications of a samurai, they lack only a sponsor (ibid.). There is growing literature and concern about the social situation of part-time workers in academe characterized as a "super exploited corps of disposable workers" with worse terms of employment than they could achieve in the private sector (Bousquet, 2008:3; see also Rajagopal, 2002). Some call the lot of temporary lecturers "akin to that of international migrant labourers." (Mysyk, 2001; in Batterbury, 2008:6). The university is becoming "a workplace in which the rights of a shrinking minority are secured by the precarious labour of disenfranchised part-timers [...], and for the contingent majority of perma-temps, the privileges that accompany tenure are little more than a mirage in the desert." (Ross, 2008)

It is argued that the tenure system is creating a binary divide between faculty, a class system "that offers a job for life or a succession of poorly paid non-tenured posts with little status, pay or security (Batterbury, 2008:7). "Tenure creates social inequality by its very existence. For contingent labour and adjunct staff members,

the lack of an ability to realize one's capabilities sits in marked contrast to the situation of the tenured class." (Batterbury, 2008:6).

Many bemoan the "injustice" of the tenure system ("exclusionary and cut-throat"), as entering the tenure track or reaching professorial status in Germany is becoming increasingly difficult. As was shown, in the US around 60% of new hires occur off the tenure track (Finkelstein, 2007:149). And not only the best make it through the bottleneck of the tenure process. Cathy Trower – one of the most eminent researchers in the field – remarks that the tenure system has a tendency to reproduce itself: She argues that tenured faculty acts as gatekeepers for those who come in, often with detrimental effects for women and minorities: "Those who have it decide who else gets it" (Trower, 2008). She notices a bias in the tenure process and peer review and concludes: "The tenured cannot continue to be blissfully unaware of the biases, subconscious or otherwise, that have allowed them continually to reproduce themselves." (ibid.). What was instituted- at least in the US – as a means to protect all professors has now turned into the privilege of a few.

Taking these ethical considerations into account this analysis tried to show that in response to rising student numbers and the need for institutional flexibility, Higher Education systems seem to be oscillating between two poles or options: On the one hand, softening tenure, making it more available to more people while at the same time reducing employment protection, and decoupling academic freedom from tenure by enshrining it in the constitution or ensuring it by law, thus turning the university into a workplace like any other (similar to developments in the UK). Or, on the other hand, and this is the development that seems prevalent in the US and Germany, creating "elite" tracks, or a system within the system reserved for a minority. Either the borders between the privileged and the non-privileged dissolve, making it "grey", or a system emerges that maintains sharply defined borders (black and white) where high employment protection is reserved for those who are able to make it through the bottleneck, possibly leading to a two-class educational system (Nelson, 2008). However, with only one third (US) or less (GER) of faculty enjoying relatively secure forms of employment, the innate stability of the system ultimately becomes doubtful.

CONCLUDING REMARKS

Tenure is a very diverse concept, encompassing various institutional approaches, that is hard to ultimately delineate. In the course of this comparative analysis it became clear, however, that [the quality of] tenure can be conceptualized as a certain range of degree of dismissal protection in permanent, unlimited employment contracts: from hard forms of tenure such as the ironclad job security for civil servants in Germany, France and Italy where only good cause or gross misconduct can lead to dismissal, to medium/intermediate forms where extraordinary circumstances such as financial exigency and program discontinuance and the failure to perform well in post-tenure reviews (US) can prove grounds for the dismissal of tenured staff, finally to the softest form of tenure

which provides permanent employment but – in principle – also the possibility to dismiss permanent academic staff due to economic and financial considerations as in the UK.

Further, the quantitative comparison of employment contracts showed that the increase in student population over the last two decades has mostly been absorbed by non-tenure track and part-time faculty. Part-time work is on the rise in all countries analysed, it is in fact the fastest growing group of academic workers. Furthermore, there is an (albeit less pronounced) increase in full-time non-tenure track positions. Especially in the US as well as in Germany the gap between tenured/permanent and fixed-term and part-time staff is particularly pronounced, with 30% and less in permanent or tenured positions. The growing reliance on contingent faculty rather than full-time tenure-track and tenured faculty has led some authors to speak of an "Appointment revolution" at universities, possibly leading to a structural change in HE systems, through the development of parallel systems, creating a "caste" or class system, a binary divide among faculty along the lines of tenure.

In the beginning we outlined a shift towards a more competitive nature of the HE sector in general which puts pressure on universities to create or maintain institutional flexibility in order to be able to react and adapt to an increasingly competitive market situation. As a result of this comparative analysis it can be argued that – following this economic rationale – HE systems or institutions are confronted with a choice between two options to attain this flexibility. These options were analytically extracted through a comparative perspective – hence the advantage of an overarching approach – and represent reactive mechanisms of HE systems or means of organizational action in the field of employment contracts and employment relations. In conclusion, in adapting to the current paradigm changes, there seems to be a trade-off for HE systems between diluting tenure on the one hand, thus providing less employment security, or maintaining harder forms of tenure at the price of creating a clear divide, instituting in practice parallel systems of appointment, with tenure reserved for a minority only.

NOTES

[1] Sparked by Ross vs. Stanford in 1900.

[2] This is also the reason why some authors (Dnes) argue that tenure was not officially abolished in the UK , but only "softened" (see 2.1) as they still have unlimited or permanent employment contracts. Reviewing three recent comprehensive empirical accounts of tenure Martin Finkelstein criticized that none of the studies were ultimately able to find an answer to what tenure actually IS. They provide empirical backing and analyses of aspects of tenure but the "fundamental question is rarely explicitly addressed: What, by definition, is a tenure system? And what makes a contract system different from a tenure system? [...] Just what constitutes a tenure system? And what does not? These questions are, unfortunately, never explicitly addressed in any of these volumes." He comes to the conclusion that in practice the difference between a contract-based and a tenure system is negligible, and that the findings on tenure vs. contract systems are ambiguous, in part opposing and incongruous, ultimately highlighting only the blurriness and diversity of the concept. (Finkelstein 2003).

[3] In line with the AAUP definition as "a financial crisis that threatens the survival of the university as a whole" many universities regard financial exigency as "survival of the whole university is at issue", "financial exigency for termination is a condition of such bona fide distress that the survival of the whole university is threatened".

[4] The AAUP *Regulations* (1995) stipulate that tenured faculty will not be terminated before untenured faculty, and new appointments will not be made at the same time as others are terminated.

[5] An article by Siri Carpenter from 2010, "Tenure-Track Jobs Remain Scarce", available at: http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_01_15/caredit.a1000006 (page accessed 24 May 2012).

[6] An article by Tracy Jan from 2008, "Harvard curtails tenure searches", available at: http://www.boston.com/news/education/higher/articles/2008/12/10/harvard_curtails_tenure_searches/ (page accessed 24 May 2012).

[7] Harvard University Factbook 2008/2009 and Harvard University Factbook 2009/2010.

[8] Dnes & Seaton (1998: 491-492).

[9] An article by Frederika Whitehead from 2010, "International academic protest at Middlesex philosophy closure", available at: http://www.guardian.co.uk/education/2010/may/07/philosophy-cuts-closures-middlesex-university(page accessed 24 May 2012).

[10] Ibid.

[11] See http://westminsterucu.wordpress.com/2010/03/09/the-palaeographer-and-the-manager/ (page accessed 24 May 2012).

[12] http://www.timesonline.co.uk/tol/life_and_style/education/article7052549.ece

[13] An article by Tanjev Schultz from 2010, available at: http://www.sueddeutsche.de/karriere/eklat-an-der-uni-goettingen-pruefung-einer-professorengattin-1.59916 (page accessed 24 May 2012).

[14] See overview provided by the European University Institute, accessed 24 May 2012: http://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/Italy.aspx

[15] Kollektivvertrag für die ArbeitnehmerInnen der Universitäten, http://www.uni-klu.ac.at/persabt/downloads/KollV_Endfassung200905.pdf (page accessed 24 May 2012)

[16] Stainburn, S. (2009), The Case of the Vanishing Full-Time Professor, Published: December 30, 2009, http://www.nytimes.com/2010/01/03/education/edlife/03strategy-t.html. Jaschik, S. (2008), The Shrinking Professoriate, Inside Higher Ed (March 12 2008), http://www.insidehighered.com/news/2008/03/12/jobs, Donoghue, F (2008)., The Last Professors: The Corporate University and the Fate of the Humanities, Fordham University Press.

[17] Data: Statistisches Bundesamt Personal an Hochschulen – Fachserie 11 Reihe 4.4 – 1998 as well as Personal an Hochschulen – Fachserie 11 Reihe 4.4 – 2008: The comparative data for 1998 include the Gesamthochschulen which were turned into universities in 2003 and have been automatically included since then. Also, Pädagogische Hochschulen, Theologische Hochschulen und Kunsthochschulen have not been taken into account.

[18] The German case is the prime example for the traditional chair system (*Ordinarienuniversität*) where almost feudal structures prevail: one master with many apprenctices, only very few of which will eventually be able to succeed him.

[19] In Austria only 6% of all university employees are full professors, however, "other academic personnel" includes also non-professorial full-term staff with unlimited contracts.

[20] Source: Ministère de L'Enseignement et de la Recherche, Les personnels enseignants de l'enseignement supérieur 2008-2009, Note d'Information, http://www.eui.eu/Documents/MWP/AcademicCareers/Countries/France/Notedinfo200809.pdf

[21] HESA 2002/03: Full-time all institutions: 120800, part-time 26080. Higher Education Statistics Agency, Resources of Higher Education Institutions 2002/03, Table 14, http://www.hesa.ac.uk/index.php/content/view/1555/251/

[22] 2008: above senior lecturer 10538 24,1%, senior lecturer 10162 23,3%, lecturer: 14441 33,1%, below lecturer: 8420 19,3%, total academic staff 2008: 43561: Source: Australian Department of

Education, Staff 2009: Selected Higher Education Statistics, http://www.deewr.gov.au/HigherEducation/Publications/HEStatistics/Publications/Pages/Staff.aspx

[23] More detailed data on permanent vs. term appointments only for academic staff and by rank could not be obtained at the time of finishing this paper.

[24] It must be noted that these numbers correspond to the situation at US research universities, with about 61% of full-time faculty on permanent contracts, i.e. tenured, and around 27,5% part-time employees. For all US institutions around 60% of full-time faculty are tenured, however, 48% of staff are part-timers (see Figure 1).

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13. BEYOND PHYSICAL MOBILITY: OTHER WAYS TO INTERNATIONALISE THE ACADEMIC PROFESSION

INTRODUCTION

Internationalisation has always been an argument for almost any reform in higher education. The need for improvements in quality, relevance, management, and efficiency has been called upon in order to face worldwide or global competition (Teichler, 2009). Recent national policies fostering excellence in higher education are deeply embedded in an international dimension being both triggered and legitimated by international comparisons conveyed by world rankings (Rostan & Vaira, 2011). At the same time, higher education reforms and policies have fostered the internationalisation of both higher education and the academic profession in various ways. The Erasmus Program not only enhanced student mobility within Europe but fostered international cooperation on equal terms, and favoured a more systematic embedding of international activities within the ordinary activities of higher education institutions (Teichler, 2009). Policies granting more autonomy to individual higher education institutions, rationalising higher education and research public funding, creating new super national "spaces" for teaching, learning, and research, have urged both institutions and academics to search for international funds, to get involved in international research networks, or to start international strategic alliances (Gornitzka, 2010).

One of the changes brought about by this mutually reinforcing circular relationship concerns the growing importance that some academic activities apart from the physical mobility of students and scholars have in the internationalisation of both higher education and the academic profession.

The chapter focuses on these activities, on individual academics' involvement in them, and on the contribution academics give to the internationalisation of both the academic profession, and of higher education institutions and systems. After a brief sketch of some literature on internationalisation beyond physical mobility, building on data collected through an international survey, the chapter analyses the extent to which academics are involved in international teaching, research and dissemination activities looking at differences across disciplines and countries, briefly discusses academics' involvement in international knowledge transfer and in internationalisation "at home", and their contribution to the integration of various international activities. Finally, some conclusions and implications for further investigations are provided.

M. Vukasović, P. Maassen, M. Nerland, R. Pinheiro, B. Stensaker, A. Vabø (Eds.),
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INTERNATIONALISATION BEYOND PHYSICAL MOBILITY

For a long time physical mobility of students and scholars has been considered the core activity in the internationalisation of higher education. Yet things have progressively changed. Starting in the late 1990s, increasing importance has been given to an aspect of higher education internationalisation called "internationalisation at home", conceived as "Any internationally related activity with the exception of outbound student and staff mobility" (Crowther et al., 2000; Wächter, 2003). The rise of "internationalisation at home", and the development of "international curricula" (Van der Wende, 1996) have been considered as responding to emerging problems, needs and requirements. Although student mobility programmes–especially in Europe (Teichler, 2009) – have been quite successful, the majority of students were, and are, non-mobile, and there are limits to a further expansion of student mobility. As a consequence, the problem has risen of how to give an international dimension to non-mobile students' education. At the same time, graduate labour market and research-based problem-solving activities have increasingly demanded skills related to other cultures and societies, international comparisons and international relations, foreign language proficiency, and field knowledge from other countries (Teichler, 2004). Moreover, depending on international migrations, nations, communities, and workplaces have been–and continue to be–characterised by growing cultural diversity. As a consequence, curricula providing international and intercultural knowledge and abilities, and aimed at preparing students for performing in international and multicultural contexts, have been required, and likely will increasingly be required in the future.

The research basis needed to support these teaching and learning activities–the research fields traditionally focused on international issues–has been considered as expanding. But also other research fields have, correspondingly, improved their international scope or orientation. Briefly, the emphasis on the international dimension in regular teaching, learning, and research activities at higher education institutions has grown.

Although the mobility of students and scholars has been–and still is–a means to transfer knowledge in higher education and the academe from one country to the other, its importance in relative terms–that is as a proportion of all the activities of knowledge transfer–is decreasing.

As higher education expands (Trow, 2006) and academic research becomes more internationalised (Vincent-Lancrin, 2006), "moving people" can turn out to be an inefficient way to use available resources. Further, as border-crossing transfer of knowledge grows and becomes more structured the "experiential learning" gained through physical mobility might prove to be insufficient and be supplemented or replaced by other more targeted and specialised modes of knowledge transfer (Teichler, 2004). Finally, the development and spread of ICT has provided a less expensive and quicker way to circulate and exchange information also in higher education (Joris et al., 2003). As a consequence, other modes of transferring knowledge across borders have grown, and are still growing:

knowledge transfer through old and new media, collaborative research, trans-national education (Huang, 2007).

Thus, international activities beyond physical mobility of students and scholars have gained and are gaining ground. In these activities, academics play–for the good or for the bad–a crucial role as they are called to integrate an international dimension in their teaching and research and to get involved in international networks and collaborations (Knight, 2004; Teichler, 1999).

Yet the internationalisation of higher education cannot be identified with the mere expansion of international activities, or with the strengthening of its core activities' international dimension. It has been argued that internationalisation also consists of qualitative changes in the dynamics of higher education systems (Teichler, 1999; 2009). In the European context, one of these on-going changes was referred to as a shift "from a disconnection of specific international activities on the one hand, and (on the other) internationalisation of the core activities, towards an integrated internationalisation of higher education" (Teichler, 1999:9) or as "a leap towards connecting the specific international activities, such as the fostering of international mobility of students and staff, with internationalisation at the core of higher education, i.e. emphasis on the international dimension in regular teaching and learning, as well as research activities" (Teichler, 1999:20).

Although this change was considered–and still is considered–as not having been realised to the same extent of other changes–namely, the establishment of international relations "on equal terms" and of more systematic policies of internationalisation–available observations suggest "that efforts to internationalise higher education cannot opt anymore for stand-alone activities, but have to integrate border-crossing activities with some steps towards international convergence and with mainstream activities at home" (Teichler, 2009:105).

To sum up, this brief overview of the literature on recent trends in the internationalisation of higher education shows that: a) internationalisation is not limited to the physical mobility of students and scholars; b) there are at least two kinds of academic international activities that go beyond mobility: border-crossing academic activities which do not require people's physical mobility, and internationalisation activities "at home"; c) academics can play a crucial role in both these kind of activities and possibly also in their integration. As a consequence, it might be asked whether, and to what extent, academics are involved in international activities beyond physical mobility; whether there are differences in this involvement across scientific disciplines and across national higher education systems, and whether, and to what extent, within academic work, international teaching and research activities, and international border-crossing and "at home" activities are integrated.

DATA AND INDICATORS

The research basis for answering these questions is provided by the results of the Changing Academic Profession International Survey. The survey–also known as the CAP Survey–was launched in 2007 as a follow-up to the 1992 Carnegie Foundation International Faculty Survey. It provides information on some 25,000 academics working in 18 countries located in 5 continents. Data have been collected through a common instrument in six areas: career and professional status, general work situation and activities, teaching, research, governance and management, personal background and professional preparation.

The CAP survey focuses on three overarching themes: relevance of both higher education and the academic profession to the knowledge economy and society, managerialism within higher education and its impact on the academic profession, and internationalisation of academic work. The focus on internationalisation reflects the increasing permeability of national boundaries in faculty research and teaching and the increasing mobility of students and faculty across borders.

CAP data offer a valuable window into several aspects of current academic life – career, working conditions, academic activities, academics'organizational environment – and assess changes in the academic profession from a comparative perspective. Data analyses included in this chapter have been carried out on the international data set released in 2010.

In the CAP master questionnaire there are 14 questions directly related to the internationalisation of the academic profession which translate into 37 discrete variables: 13 refer to academics' educational background and career, 12 to academic work, 5 to languages, either academics' mother tongue or second language, one to institutional governance, and 6 to academics' citizenship and residence. These 37 variables can be clustered around five academic activity categories as follows:

- *physical mobility across borders* (n = 19), including whether the country in which academics earned their degrees was the country of their current employment or not (8 variables), whether they considered and took concrete actions to move to an academic position in another country (2 variables), whether they spent periods abroad since the award of academics' first degree (3 variables), their citizenship and country of residence at three points in time in their life: at birth, first degree and currently (6 variables);
- *teaching* (n = 7), including the presence/absence of international perspectives or contents in courses, the "official" language of instruction at current institution; whether academics taught courses abroad in the current or previous year, the language they primarily employ in their own teaching, whether first language/mother tongue or another language, and the specific other language primarily used in teaching, and the number of international students (2 variables);
- *research* (n = 5), namely research collaboration with international colleagues, the international scope or orientation of academics' primary research, whether international organisations served as source of research external funding, the

language primarily employed in research, whether first language/mother tongue or another language, and the specific other language primarily used in research;
- *dissemination* (n = 4), namely publications which are: a) published in a "foreign" language, b) co-authored with colleagues located in other countries, c) published in a foreign country, d) on-line or electronically published;
- *decision making role* (n = 1), namely the actor–individual faculty or another relevant actor–who has the primary influence on establishing international linkages at home institution.

Three of these items, namely research collaboration with foreign academics, publishing in another country, and publishing in a "foreign" language were used in the Carnegie study (Altbach, 1996) and have been replicated in the CAP survey.

The set of items related to the country in which academics earned their degrees has been used to determine which higher education systems are net exporters or importers of academic labour (Welch, 1997). One or more of the above mentioned items have been used to study academics' participation or involvement in international activities (Cummings & Bain, 2009; El-Khawas, 2002; Welch, 1997), academics' influence on the international content of curricula (El-Khawas, 2002), the internationalisation of the content of academic work (Finkelstein et al., 2009), the internationalisation of scholarly networks (Finkelstein et al., 2009), and changes in the internationalisation of the academic profession (Huang, 2009). Some of them–or very similar to them–such as funds received from international agencies, international perspective in curricular content, and international books, have been used for assessing higher education institutions' internationalisation (Horn et al., 2007), others such as international co-authorship are currently used in assessing the internationalisation of academic research (Vincent-Lancrin, 2006). Finally, as English shapes the work of individual academics and of their institutions because of its international role in teaching, research, scholarship, knowledge dissemination and circulation through journals, books and the Internet (Altbach, 2006), five of the mentioned variables allow us to assess its use by academics both as mother tongue or as a second language in teaching and research (Rostan, 2011).

THE INTERNATIONALISATION OF ACADEMIC ACTIVITIES: A GENERAL OVERVIEW

Academics' involvement in specific activities can be considered as a indicator of the internationalisation of their profession, and the proportion of academics involved in such activities provides information on whether and to what extent the academic profession is internationalised, and on which activities are the most internationalised.

As Table 1 shows, most academics internationalise the content of their teaching and research activity as they integrate international perspectives into their courses, and consider their primary research as international in scope or orientation. Thus the internationalisation of the contents of teaching and research is the most relevant aspect of the internationalisation of the academic profession at the global level. The second most common aspect refers to the international dissemination of knowledge

as half of the academics participating in the CAP survey say that within a period of three years they have published in a foreign country or they have published in a language different from the language of instruction at their current institution. Moreover, at the time of the survey, 40% of the respondents had already published on-line or electronically. The third most frequent aspect of academic internationalisation is international research cooperation. A considerable proportion of academics are personally involved in establishing international research networks. This involvement takes a variety of forms: 40% of the respondents collaborate with international colleagues in research, 35% primarily employ English as second language in their research activity, and 30% have co-authored a work with foreign colleagues, which is also another aspect of international dissemination of knowledge. Other activities involve less than one in four academics.

Table 1. International academic activities

	%	*N*
Academics …		
… who emphasize international perspectives or content in their courses	63	20,371
… whose primary research is international in scope or orientation	55	17,660
… publishing in a foreign country	53	16,511
… publishing in a language different from the language of instruction at their current institution	50	16,511
… collaborating with international colleagues in research	41	19,249
… publishing on-line or electronically	41	16,510
… primarily employing English in research as their second language	35	21,630
… publishing works co-authored with colleagues located in other countries	31	16,510
… whose research external funding comes from international organisations	19	12,730
… primarily employing English in research as their mother tongue	17	21,630
… primarily employing English in teaching as their mother tongue	16	21,323
… teaching courses in a language different from the language of instruction at their current institution	16	20,445
… primarily employing English in teaching as their second language	14	21,323

Source: CAP Survey, 2010.

It is worth noting that CAP data–although not shown in Table 1–support the idea that, while important, physical mobility doesn't represent the main aspect of academic profession's internationalisation. Mobility for reasons of study–the most common aspect of academics' physical international mobility–is reported by 20% of all academics or less depending on the type of degree they've earned "abroad".

Further, less than 10% of respondents are "foreign" academics as they say that the country of their current citizenship is different from the country of their current employment.

DIFFERENCES ACROSS DISCIPLINES

Although not always, and not always in the same way, belonging to two broad disciplinary fields–namely "soft" and "hard" disciplines[1]–has a strong impact on the internationalisation of the academic profession (Tables 2, 3, and 4).

Table 2. International teaching activities by broad disciplinary fields (%)

	Soft disciplines	*Hard disciplines*
Academics …		
… who emphasize international perspectives or content in their courses	68	58
… teaching courses in a language different from the language of instruction at their current institution	22	20
… primarily employing English in teaching as their mother tongue	18	14
… primarily employing English in teaching as their second language	14	13

Source: CAP Survey, 2010.

Three differences are worth mentioning. First, teaching is the only activity where academics belonging to soft disciplines are more internationalised than their colleagues from the hard ones. Although–as mentioned–an emphasis on international perspectives and contents in courses is widespread, this is much so among the formers.

Table 3. International research activities by broad disciplinary fields (%)

	Soft disciplines	*Hard disciplines*
Academics …		
… whose primary research is international in scope or orientation	56	55
… collaborating with international colleagues in research	35	45
… primarily employing English in research as their second language	25	44
… whose research external funding comes from international organisations	15	21
… primarily employing English in research as their mother tongue	19	14

Source: CAP Survey, 2010.

Second, in three relevant research activities – international research collaboration, primarily employing English as second language, and receiving funds from international organisation–academics from hard disciplines appear to be more internationalised than their colleagues from the soft ones. Third, hard disciplines' higher degree of internationalisation is even more pronounced as regards as dissemination activities. Finally, it has to be noted that there is no difference between academics belonging to the two broad disciplinary fields when it comes to the international scope or orientation of their primary research.

Table 4. International dissemination activities by broad disciplinary fields (%)

	Soft disciplines	*Hard disciplines*
Academics …		
… publishing in a foreign country	42	61
… publishing in a language different from the language of instruction at their current institution	36	61
… publishing on-line or electronically	34	46
… publishing works co-authored with colleagues located in other countries	20	39

Source: CAP Survey, 2010.

As far as more delimited disciplinary groups are concerned, some further conclusions can be pointed out. The highest proportion of academics incorporating an international perspective in their teaching (68–70%) is to be found among those teaching humanities and art, business & administration, economics, and social sciences, while the lowest proportion is found among those teaching physical sciences, maths, and computer science (51%). According to several indicators referring to both research and dissemination activities (international research collaboration, funding from international organisations, the use of English as other language in research, co-authorship with international colleagues) the most internationalised academics are those from the life sciences, often very closely followed by those from the physical sciences, mathematics, and computer science, while the least internationalised are those from law. Some groups of academics display a contradictory attitude towards internationalisation depending on the type of activity taken into consideration. For instance, while academics from law and humanities consider their research as international in scope or orientation as much as their colleagues from the life and the physical sciences, they are among the least internationalised when it comes to research collaboration and co-authorship with colleagues from other countries.

DIFFERENCES ACROSS COUNTRIES

Academics' involvement in international activities varies across countries as well. In looking at differences across countries, we need to consider the role played by

the English language as the contemporary "lingua franca" in both higher education and the academic profession (Rostan, 2011). Depending on their language(s), countries participating in the CAP survey can be divided into three groups. First, in three countries English is either the official or the main language: Australia, the United Kingdom, and the United States. Second, in four countries with a special bilingual or multilingual context, English is one of the official languages, together with one or more other languages: Canada, Hong Kong, Malaysia, and South Africa. The third group of countries includes those where English is not an official language.

English plays a different role in the internationalisation of both the academy and higher education in these three groups of countries. In the first two groups, most academics teach in English, either as it is their mother tongue (in Australia, United Kingdom, United States and Canada) or as it is their second language (in Hong Kong, Malaysia and South Africa), giving institutions and higher education systems a competitive advantage in the global student market[2]. In countries where English is either the official language or the main language, or one of the official languages, a large majority of academics employ it in research. In these countries, employing English in research doesn't necessarily indicate academics' participation in international networks. Of course, as English is the dominant means of communication in the international scientific community using it gives academics working in these countries an advantage. Yet, when English is academics' mother tongue, employing it doesn't imply an involvement in international research collaboration, and when it is academics' second language using it may simply be necessary to take part in national research activities.

As far as teaching is concerned, countries where English is not an official language can be split into two sub-groups. In three countries–Finland, Norway and South Korea–a small but considerable part of academics (10 to 20%) are committed to employing English in teaching as an effort to attract international students and/or to provide domestic ones with useful language skills. In the other eight countries English is not, or seldom, used for teaching. In countries where English is not an official language, employing it as second language in research can be considered as an indicator of participation in international research networks. Again, the third group of countries can be split into two parts. First, there are six countries where the proportion of academics using English as their second language in research is above average: Italy, Finland, Portugal, Norway, Germany, and South Korea. Second, there are five countries where this proportion is below average: Brazil, Argentina, Mexico, Japan, and China. We can conclude that academics working in the first six countries are well integrated in international research networks while those working in the other countries are not or less so.

Depending on the international activity taken into consideration, academics working in the 18 participating countries can be clustered in several ways. As far as the international dimension of teaching or research contents is concerned, we can detect four groups of academics. First, there are those ranking high in the internationalisation of the contents of their activity in both teaching and research. These are people working in Hong Kong, Australia, China, Norway,

United Kingdom. At the opposite, there are the academics working in the United States, Brazil, Japan, Argentina, Germany: relatively to the others they are less keen to internationalised both their teaching and their research. Finally, there are those displaying a contradictory attitude towards the internationalisation of the contents of their teaching and research. For instance, in Portugal, Mexico, and South Korea, lots of academics are incorporating an international dimension in their teaching while those characterising their research as international are much less. Conversely, in Italy or Finland academics carrying out researches with an international scope or orientation are much more than those emphasizing the international dimension in their teaching.

Collaboration in research and co-authorship reveal the existence of relations among academics working in different countries, and indicate their participation in international networks. Chinese academics are the most insular and disconnected as very few collaborate with international colleagues in research or publish works co-authored with colleagues from other countries. Also academics working in other countries–although to a varying degree–appear to be inward looking and relatively less internationally connected. This happens in Japan, Brazil, South Korea, Malaysia, the United States, and Mexico. At the opposite, academics working in Finland, Canada, United Kingdom, Norway, Italy, Australia, and Hong Kong appear to be relatively more internationally connected. Academics from other countries are located somewhere in between.

Publishing is also linked to the internationalisation of both the academic profession and higher education. Firstly, publishing in a language different from the language of instruction at academics' institution can be considered as an indicator of internationalisation as the aim of doing so can be the transfer of knowledge either to colleagues and/or to international students who don't read publications written in the language of instruction at academics' home institution, or to domestic students in order to enhance their foreign language skills. Assuming that English is playing the role of "lingua franca" in the publication of books, journals and other media, we can expect that academics primarily employing English in teaching don't really need to publish in a different language to reach an international audience. As a matter of fact, among those primarily teaching in English, academics who are not publishing in a different language are 75%–85% in Malaysia, Hong Kong and South Africa, and 90%–95% in Canada, the United Kingdom, the United States and Australia, while among those who don't primarily teach in English, academics publishing in a different language are above average (63%) in Norway, Germany, Italy, Finland, Portugal, and Japan, and below average in South Korea, Mexico, Argentina, Brazil, and China.

Secondly, publishing in another country is an indicator of academics' participation in the international or world market of scientific media, especially books and journals. Chinese and United States' academics are those least participating in it, possibly for different reasons. Of course, both have a huge domestic market, but 98% of academics working in the United States primarily employ English in research–either as mother tongue or as second language–fully profiting from the use of the contemporary "lingua franca", while only 5% of

Chinese academics do so. Further, many journals are edited in the United States and many publishers are United States based. At the opposite there are those academics participating in the international media market to a very high extent (Hong Kong, Norway, Finland, and Portugal) or to a high extent (Italy, Germany, Canada, Argentina, United Kingdom, Australia, Mexico).

It is interesting to note that academics working in four countries where English is the official, or one of the official languages, show a high degree of participation in the international media market. It seems that in these cases English is not only giving an advantage to domestic scientific publishers and journals but it also gives academics a more easy access to publishing in other countries.

In order to get an overall picture of the internationalisation of the academic profession by country based on academic activities, we have selected six indicators, namely the emphasis on international perspective or content in courses, international scope or orientation of primary research, collaboration with international colleagues in research, publishing works co-authored with colleagues located in other countries, publishing in a foreign country, and publishing on-line or electronically. We have assigned 1 point to a country each time the percentage of its academics performing a selected activity was above average, or equal to it. We have calculated country scores as the sum of assigned points and finally ranked countries–that is academics working in them–according to these scores. All in all, the three countries where the academic profession is more internationalised according to selected indicators are Australia, Norway and the United Kingdom (score = 6 points), followed by Canada, Hong Kong, Italy, and Portugal (score = 5 points), and Finland, and Germany (score = 4 points). On the contrary, the three countries where the academic profession is less internationalised are Japan, Malaysia, and the United States (score = 0), followed by Brazil, South Korea, and South Africa (score = 1 point), and by Argentina, Mexico, and China (score = 3).

KNOWLEDGE TRANSFER

Five academic activities imply a movement across borders not necessarily requiring the physical mobility of scholars. What is moving are not academics themselves but information, knowledge, and other resources. These five activities include collaborating with international colleagues in research activities, publishing works co-authored with colleagues located in other countries, publishing in a foreign country, publishing on-line or electronically, receiving external research funding from international organisations. We shall concentrate our attention on activities implying the transfer of knowledge across borders. As it has been shown, international research collaboration and knowledge dissemination through old and new media involve a considerable part of academic worldwide (between 1 out of 2 and 1 out of 3) while receiving international funds involves less academics (1 out of 5).

Academics engaged in at least three of these activities can be considered as very much involved in international knowledge transfer, while academics engaged in one or two can be considered as involved, and academics not engaged in any can

be considered as excluded from international knowledge transfer. At the global level, 26% of academics are very much involved, 39% are involved, and 36% are not involved in border-crossing knowledge transfer activities.

Belonging to the two already mentioned broad scientific fields–"soft" and "hard" disciplines–has a strong impact on academics' involvement in international knowledge transfer, as academics from the hard disciplines are much more involved in these activities. Academics from the life sciences, the physical sciences, mathematics, computer sciences, agriculture, and the medical sciences appear to be especially involved, while the least involved are those from law, teacher training and education science, business & administration and economics, and humanities and arts. On the basis of the flows of knowledge across borders, it can be argued that a well connected global scientific academic community is more developed in some hard disciplines than elsewhere.

Academics highly involved in international knowledge transfer are more than average in ten countries (Italy, Norway, Canada, Hong Kong, the United Kingdom, Finland, Germany, Australia, Argentina, Portugal), while academics who are not involved in international knowledge transfer are more than average in the other eight participating countries (China, Japan, South Africa, Malaysia, United States, Mexico, Brazil, South Korea).

INTERNATIONALISATION AT HOME

As mentioned, internationalisation at home refers to internationally related activities different from "outbound student and staff mobility" aimed at preparing students and graduates for performing in international and multicultural professional (or other) contexts. Although internationalisation at home activities were not directly addressed by the CAP master questionnaire, five CAP items might be used as indicators of academics' involvement in them. First of all, internationalisation at home requires that teaching and research include an international dimension. As a consequence, academics incorporating international perspectives or contents in their courses, and participating in researches having an international scope or orientation can be considered as contributing to internationalisation at their home institution.

Second, internationalisation at home requires appropriate means of communication towards international incoming students and efforts to improve language skills of domestic students. Primarily employing English in teaching, either as mother tongue or as second language, can be considered as means to enhance internationalisation at home[3]. It has to be noted, though, that in order to contribute to internationalization at home, teaching in English–that is carrying out instruction in the contemporary "lingua franca"–must be performed at academics' home institution. Indeed, performing this activity abroad contribute to other aspects of the internationalisation of higher education such as transnational education.

Finally, either in countries where English is the official or the main language, or one of the official languages, and in the other countries, publishing in a language different from the language of instruction at academics' current institution can be

considered a specific contribution to internationalisation at home as well. Although academics primarily teaching in English seldom publish in a different language, it can be argued that if they do they contribute to offer their students at home a more internationalised study environment. The same is obtained by academics publishing in a different language working in countries where generally English is not the language of instruction.

As it has been shown, most academics integrate an international dimension in their teaching (63%) or in their research (55%) contributing to internationalisation at home. Academics from the soft disciplines are giving a greater contribution to internationalization at home as they are emphasizing international perspectives and contents in their courses more than their colleagues from the hard disciplines (Table 2), while there is no difference between the two broad disciplinary fields as far as the international scope or orientation of their research is concerned (Table 3).

In eight countries (Portugal, Mexico, South Korea, Hong Kong, Australia, China, Norway, United Kingdom) the percentage of academics incorporating an international dimension in their teaching is higher than average, and in eight countries (Italy, Australia, Norway, China, Hong Kong, United Kingdom, Finland, Canada) the percentage of academics integrating an international dimension in their research is above average. As far as the internationalization of the contents of teaching and research is concerned, we can consider academics working in these countries as engaged in internationalization at home to a greater extent than others.

On the whole, 14% of academics are primarily employing English in teaching as it is their mother tongue at their home institution, and 12% are primarily teaching at home in English as it is their second language. While academics primarily teaching in English as mother tongue are slightly more in the soft disciplines than in the hard ones, no differences between hard scientists and soft scientists are reported in teaching in English as second language.

As expected, in the countries where English is the official or the main language, or it is one of the official languages, academics primarily teaching in English at their home institution, using English as their mother tongue, are more than average in the United States, the United Kingdom, Australia and Canada, while academics primarily teaching in English as it is their second language are more than average in Malaysia, South Africa and Hong Kong. In the countries where English is not an official language, academics primarily employing English in teaching as second language at home are above average (or equal to average) in South Korea, Finland, Norway and Mexico. It can be argued that academics working in these eleven countries are contributing to internationalisation at home more than others.

Finally, as already noted, half of the interviewed academics – much more in the hard disciplines than in the soft ones – are publishing in a language different from the language of instruction at their current institution. In countries where English is not the official language, publishing in a different language from the language of instruction at academics' institution is more widespread in seven countries: Norway, Germany, Italy, Finland, Portugal, Japan, and South Korea[4]. In the other countries, publishing in a different language is more widespread in bilingual or multilingual countries[5].

On the basis of the above discussed indicators, it is possible to rank the 18 countries participating in the CAP Survey according to the contribution their academics possibly give to internationalisation at home[6]. At the top of the country ranking we find academics working in Hong Kong and in Norway (score = 4), followed by those working in Australia, Canada, Finland, South Korea, and the United Kingdom (score = 3), and those working in China, Italy, Malaysia, Mexico, Portugal, and South Africa (score = 2). Academics' involvement in internationalisation at home activities appears to be weaker in Germany, Japan, and the United States (score = 1), and especially in Argentina, and Brazil (score = 0).

CONNECTING INTERNATIONAL ACADEMIC ACTIVITIES

The internationalisation of higher education doesn't imply only the growth of international activities. It displays also a qualitative dimension based on the connection between various international activities. Academics may give a contribution to this connection in their daily work: do they? The aspects of academic profession's internationalisation beyond physical mobility reviewed so far may help to provide an answer to this question. At least three issues can be addressed: a) connecting internationalisation of teaching and research; b) connecting the internationalisation of research contents with international research collaboration; c) connecting academic border-crossing activities and internationalisation at home.

First, as it has been shown, most academics integrate an international dimension in the contents of their teaching and research activities. Some of them may incorporate and international dimension into both activities. Globally, 42% of academics are able to integrate an international dimension in the contents of both their teaching and their research, 22% internationalise only their teaching and 13% only their research. The remaining 23% are not incorporating an international dimension neither in their teaching activities nor in their research ones. Academics from the soft disciplines – especially in humanities and arts, law, and the social sciences – are more able to do so than their colleagues from the hard disciplines.

Second, most academics are engaged in research activities which are international in scope or orientation but a bit less are involved in international research networks and collaborations. Some of them may be able to connect the internationalisation of the contents of their research and the internationalisation of their scholarly networks. On the whole, 31% of academics are working on a research that is international in scope or orientation and, at the same time, are collaborating with international colleagues in research. Those who are integrating an international dimension in the contents of their research without collaborating with international colleagues are 25%, while those involved in international research networks working on project with no international scope or orientation are 12%. Finally, 32% of the CAP survey respondents are alien to both these aspects.

Contrary to what has just been said, here academics more able to connect the internationalisation of research contents and of research networks are those from the hard disciplines, especially those from the life sciences, and the physical

sciences, mathematics & computer sciences, although academics from the social sciences doing so are above average as well.

Third, the problem of the connection between academic border-crossing activities and internationalisation at home has been raised. Discussing this relationship is more difficult especially because selected indicators are only indirectly portraying internationalisation at home. Yet, it can be noted that among the four countries (Italy, Norway, Canada and Hong Kong) where more than 40% of academics are very much involved in international knowledge transfer–that is a specific type of border-crossing academic activity – three (Hong Kong, Norway, and Canada) are also at the top of the country ranking on internationalisation at home. This finding suggests that in the institutions of these countries academic border-crossing activities and internationalisation at home might be strictly integrated.

CONCLUSIONS AND IMPLICATIONS

Data collected through the CAP Survey shows that – beyond the physical mobility of scholars – the academic profession is highly internationalised as an international dimension is integrated in several academic activities. Most academics incorporate an international perspective in their courses or integrate an international dimension in the contents of their teaching. Again, most academics characterise their primary research as international in scope or orientation. At least half of them have published in a foreign country or in a language which is different from the language of instruction at their current institution.

The process of internationalisation, though, doesn't affect the various aspects of the academic profession, and hence of higher education at large, to the same extent. While the internationalisation of the contents of teaching and research, and the internationalisation of academic dissemination are widespread, international research collaboration is less common as only a consistent minority (30–40%) collaborates with international colleagues in research or have published works co-authored with colleagues located in other countries. Further, other means of internationalisation of the academic profession involve decreasing proportions of academics.

CAP data also show that two major aspects of the internationalisation of both the academic profession and higher education–namely, knowledge transfer across borders beyond the physical mobility of students and scholars, and internationalisation at home–are widespread. Moreover, some evidence supports the argument that internationalisation doesn't consist only of an expansion of international academic activities but also of their integration. A considerable minority of academics contribute to this integration in their daily operations as they incorporate a international dimension in both their teaching and research activities (42%) or they are able to link the international scope or orientation of their primary research to research collaboration with international colleagues (31%). Finally, comparing across countries academics' involvement in both knowledge transfer

and internationalisation at home activities there are signs that in some countries these aspects of internationalisation might be well integrated.

Although preliminary, our analysis points out some meaningful differences in the internationalisation of the academic profession beyond physical mobility.

First, while the internationalisation of the contents of both teaching and research is widespread, teaching activities appear to be less internationalised than research ones: the percentage of academics who teach in a "foreign" language at their institution is consistently lower than the percentage of academics publishing in a "foreign" language, and academics who primarily employ English as second language in teaching are much less than those who primarily use it as second language in research.

Second, one of the main axes of differentiation of the academic profession, namely the discipline, has a strong impact on several aspects of its internationalisation. As far as the internationalisation of teaching contents, and the connection between the internationalisation of teaching and research contents are concerned, academics belonging to the soft disciplines appear to be ahead. On the contrary, as regards as several research activities, dissemination, strong involvement in international knowledge transfer, and connecting research contents and research networks, academics from the hard disciplines are more internationalised. The disciplinary divide doesn't have an impact on the internationalisation of research contents.

Looking at differences in the internationalisation of academic activities across broad disciplinary fields two findings are worth emphasizing. Both address our attention to the different implications that national borders have for disciplines.

The first finding refers to teaching. As it has been shown, while the degree of internationalisation of the contents of teaching is very high in general, it is higher among academics belonging to the soft disciplines. The difference between soft and hard disciplines is largely due to what happens in the fields of humanities and arts, social and behavioural sciences, business & administration and economics, where the percentage of academics emphasizing international perspectives or content in their courses is consistently higher than average, and in the field of physical sciences, mathematics and computer science, where the percentage is consistently lower than average. This difference (which is worth 20 percentage points) might be explained by the subject matters which are thought in the respective courses. Where art, literature, natural languages, institutions, politics, business, trade and the like are at stake, teaching and subject matters are deeply embedded in national cultures, state borders are relevant, and international comparisons and perspectives are highly significant. Where physical laws, theorems, artificial languages are at stake, teaching and subjects are less affected by national cultures, borders are less relevant, and an international perspective is less meaningful. Briefly, it might be that in teaching disciplines or subjects for which national borders are still highly relevant a stronger emphasis on international perspectives and contents would result.

The second finding concerns research. While researches that are international in scope or orientation are equally spread among soft and hard disciplines, the ways

through which these researches are carried out and their results are disclosed and disseminated are quite different. All available indicators show that well established international scientific communities are more common within the hard disciplines than within the soft ones. Hard scientists publish in a language different from the language of instruction at their current institution, publish works co-authored with colleagues located in other countries, publish in foreign countries, primarily employ English in research as second language, publish on-line, and collaborate with international colleagues in research more or much more than their colleagues from the soft disciplines. Again the relevance of national borders appears to be different in the two broad disciplinary fields. Borders seem to be much more permeable–that is less relevant–for hard scientists who are–as a consequence–more involved in international scholarly networks and in international dissemination activities.

These findings suggest a possible perspective for further investigations that could profit from using concepts such as those of epistemic cultures (Knorr-Cetina, 1999) and community of practice (Wenger, 1998). It might be that different communities of practice within the hard disciplines, sharing a common epistemic culture, have been, and still are, in a better position to transfer knowledge across borders and to work with colleagues in other countries establishing international scientific communities which over time set standards for their members concerning the use of English, publishing, and research collaboration.

Third, a second axis of differentiation, namely the country where academics are working, also has an impact on the internationalisation of the academic profession although the picture is complicated by the status and the role of English across countries and higher education systems. Looking at international activities involving the major part, or at least a considerable part, of academics, those working in three countries–Australia, Norway and the United Kingdom–appear to be most internationalised, followed by those working in four other countries: Canada, Honk Kong, Italy and Portugal. In this kind of ranking, major countries such as Japan and the US lay at the bottom of the list. Looking at internationalisation at home activities – which partially take into account the role of English – academics working in Hong Kong and in Norway come first, followed by those working in Australia, Canada, Finland, South Korea, and the UK. Again, academics working in Japan and the US (and in other countries too) are ranking very low. Five countries show up at the top of both rankings–Australia, Canada, Hong Kong, Norway and the United Kingdom – and might be considered the countries in which the internationalisation of the academic profession has gone further. It also might be that in these countries the various aspects of the internationalisation of higher education and the academic profession are more connected.

Collected evidence points towards various features of participating countries which may account for these differences. As English is playing the role of the contemporary "lingua franca", its status in participating countries has an impact on some aspects of both academic profession and higher education internationalisation. In the seven countries where English is either the official or

the main language, or one of the official languages, most academics teach in English providing their institutions and systems with a competitive advantage. These people don't really need to publish their works in a language different from the language of instruction at their institution to get internationalised, and seldom do so. Things are different in the countries where English is not an official language. In these countries, primarily employing English in teaching and/or in research must be considered an indicator of internationalisation of academic activities. Using English a second language in teaching and research differentiates among countries revealing those where academics' efforts to internationalise their activities are greater. Further, in these countries publishing in a language different from the language of instruction at academics' institution–whether this language is English or not–is more widespread than in the English-speaking countries, and differences across countries indicate where academics are keener to internationalise their publications.

Although important, the impact of English as lingua franca is not the whole story. In the countries where English is the official language, or the main one, or one of the official languages, the simple fact that most academics primarily employ English in research is not enough for ascertaining their participation in international research, and other factors must come into play to account for it. Further, the percentage of academics publishing in a foreign country is high or very high not only in 4 countries out of 7 where English is the official or main language, or one of the official languages, but also in 6 countries out of 11 where English is not an official language, while it is very low–indeed, the lowest–in the US and in China.

Reviewing country differences across available indicators and rankings of internationalisation–that is looking at the involvement in international activities of academics working in each country–two findings are worth mentioning. First, of the four largest countries participating in the CAP Survey, three – Brazil, Japan, and the US – are almost always scoring low on internationalisation indicators, and one – China – is not ranking high. Two of these countries are wealthy nations with mature economies, while two are less wealthy but fast developing countries. The US deserve special attention because academics working in the most economically and scientifically powerful country among those participating in the survey appear to be the least internationalised. Second, among the countries scoring high on most available indicators we find either English-speaking countries, Australia, the UK, Canada and Hong Kong, or small and rather peripheral countries like Norway (Gornitzka & Langfeldt, 2010). These findings suggest that a multidimensional approach taking into account several factors–at least the role of language (English but possibly also other international languages), countries' size, countries' belonging to well defined world geo-political regions (Asia, Latin America, North America, Europe), countries' peripheral vs. central status at the global and regional levels, economic development, countries' integration in super national markets and commodity chains–is needed to account for country differences in the internationalisation of the academic profession beyond physical mobility of scholars.

NOTES

[1] Soft disciplines include teacher training and education science, humanities and arts, social and behavioural sciences, business and administration, economics, and law; hard sciences include life sciences, physical sciences, mathematics, computer sciences, engineering, manufacturing and construction, architecture, agriculture, and medical sciences, health related sciences, social services.

[2] It has to be noted, though, that in Hong Kong, Malaysia and South Africa, academics may use English in teaching both for purposes of internationalisation and to employ a common language of instruction in multilingual national contexts.

[3] Teaching at home, whether primarily or occasionally, in a language which is different from the language of instruction at current institution, whether this language is English or not, can be considered as a way to contribute to internationalisation at home as well. Yet the impact on internationalisation at home across countries is more disputable. Teaching in a "different" language can be done either for purposes of internationalisation or for other purposes, such as teaching domestic students from linguistic minorities, depending on the country. So, it's rather preferable to drop this item in this first overview of CAP data.

[4] In these countries the percentage of academics publishing in "a different language" is higher or equal to the group average.

[5] Again, in these other countries the percentage of academics publishing in "a different language" is higher or equal to the group average.

[6] Selected indicators are the following: Emphasizing international perspective or content in courses; Primary research is international in scope or orientation; Primarily teaching in English as mother tongue at home in countries where English is the official language, or the main language, or one of the official languages; Primarily teaching in English as second language at home in countries where English is the official language, or the main language, or one of the official languages; Primarily teaching in English as second language at home in countries where English is not a official language; Publishing in a language different from the language of instruction at current institution in countries where English is the official language, or the main language, or one of the official languages; Publishing in a language different from the language of instruction at current institution in countries where English is not an official language. Again, we have assigned 1 point to a country each time the percentage of its academics performing a selected activity was above average, or equal to it. We have calculated country scores as the sum of assigned points, and ranked countries–that is academics working in them–according to these scores.

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14. GENDER GAPS IN NORTH AMERICAN RESEARCH PRODUCTIVITY

Examining Faculty Publication Rates in Mexico, Canada, and the U.S.

INTRODUCTION

The under-representation of women in the academic profession can be observed in several countries. In North America, female faculty account for little more than one third of all full-time university faculty (AAUP, 2006; CAUT, 2007; Galaz-Fontes et al., 2008). Academic women also tend to occupy lower ranks and hold fewer upper-level administrative positions than their male counterparts (Bain and Cummings, 2000; Marschke et al., 2007). This is particularly troublesome at a time when North American women are earning doctoral degrees in record numbers (Schoening, 2009; Xu, 2008).

Women entering and/or advancing within the academic profession face difficult social and cultural barriers. As a result, academic women seem to have a cumulative disadvantage in this profession (Bentley, 2009; Zuckerman, 2001). One expression of this disadvantage is related to research productivity. Several authors have found that female faculty members publish less than their male counterparts (Bentley, 2009; Fox & Mohapatra, 2007; Hartley & Dobele, 2009; Leahey et al., 2008; Sax et al., 2002). This fact may be related to inequities within the academic career, particularly with regard to women's retention, mobility, promotion and compensation. According to Sax et al. (2002), research findings on the role of family-related variables and research productivity have not been consistent as some studies report a significant negative relationship between these variables, whereas others do not find any relationship, or moreover, find a positive relationship. The type of academics and institutions included in the different studies has influences these results. Yet, a full explanation of gender disparities has eluded researchers so far. Thus, it is relevant to continue exploring this issue as well as to know the magnitude of the gender gap. Comparative analysis is another method by which we can better understand this phenomenon and relate the findings to policies regarding regional working conditions, academic development, and international research collaboration.

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Gender Differences in Academic Research Productivity

According to Bain and Cummings (2000), the glass ceiling in the academic career is rooted in culture and economic aspects that vary among different societies, as well as in particular characteristics of organizational settings, professional communities, and distinctive institutional traditions. In this context, male privileges foster a chilly climate unaccommodating to women (Maranto & Griffin, 2010; Monk-Turner & Fogerty, 2010); these privileges are maintained through several practices that constitute what has been regarded as 'toxic atmospheres' for work. These practices are embedded in the academic culture, which have been summarized by some authors (Hartley & Dobele, 2009; Marschke et al., 2007; Schoening, 2009; Wolfinger et al., 2008; Xu, 2008) as follows: poor recruitment, selection, as well as development and promotion policies; inherent inequity of tenure criteria and clocks; gender-biased performance evaluations; pay disparities; hidden and non-flexible workloads; lack or inadequate mentoring or role modeling, and networking opportunities; competitive rather than collaborative styles (Bosetti et al., 2008), lack of collegial support; male dominance in institutional power and inequity in leadership (De Wet, 2010; García-Guevara, 2004); hostility towards pregnancies and families; and the devaluation of certain disciplines and types of research, among others.

Research on the connections between the presence of female role models in academic settings and female researcher productivity has been conducted since the 1970s. For example, Goldstein (1979) found that cross-sex supervisory relationships resulted in lower publication rates for Ph.D. recipients after graduation, for both men and women. More recently, Monk-Turner and Fogerty (2010) found that women felt less welcomed in their academic departments than men, and that feeling welcomed was a critical variable for academic productivity. Leahey, Crockett, and Hunter (2008) note that men have better social networks, and used them more than women. These authors underline another type of capital, namely professional capital, which is associated in this case with the way academics work. Men tend to specialize more, and this increases productivity and visibility. Fox and Mohapatra (2007) contend that to understand academic productivity it is important to consider social-organizational characteristics of work groups, practices, and climates. For instance, they found that the number of male graduate students in the work team (team composition), the research styles, the number of research projects undertaken simultaneously, as well as collaboration with colleagues, especially outside the university (cosmopolitan or international collaborative patterns) are relevant variables to explaining gender disparity in publications (Fox & Mohapatra 2007). According to Bentley (2009), academic rank, time spent on research, as well as international collaboration were relevant variables to understand gender differences in academic productivity in Norway and Australia. This author suggests that research productivity may be skewed towards a small group of prolific publishers.

In assessing research productivity, Xie and Shulman note that this variable is defined as the "amount of research output over a period of exposure […]. Research

output is commonly measured by the number of publications, either reported by respondents in surveys or found in bibliographical searches" (Xie & Shulman, 1998:849). Although several authors point out that this is a narrow or rough definition, or that the number of publications alone may not be the most appropriate way to assess research productivity, this indicator is commonly used because of its importance in a successful academic career (Leahey et al., 2008). In addition, Xie and Shulman (1998) assert that short-term measures of exposure, versus cumulative measures, are better suited for analysing sex differences concerning research productivity. Among all types of publications, specialized articles are deemed the best indicator to evaluate research productivity. Bentley points out that there is also a pragmatic reason, as this type of publication "may avoid the problem of overlap [between publication types] by restricting the concept of research to the single most important publication type, usually peer reviewed journal articles" (Bentley, 2009:17).

Gender and International Comparisons of the Academic Profession

Comparative methods have had a long history in higher education policy studies (Altbach, 1979; Altbach & Kelly, 1985, 1986). Goedegebuure and Vught noted that there are generally two types of policy research in higher education using comparative perspectives: those that are descriptive (or 'thin') in their comparisons of the "'how, why and what' of governmental higher education policies" (1996:377–378) and those that lean toward 'thick' descriptions of multiple study sites to increase knowledge of both the process of comparison and the phenomenon studied. They further state that "in comparative studies methodological questions are not often raised and methodological choices remain implicit" (1996:383).

We also contend that too few studies of higher education policy from an international comparative perspective adequately engage with theory or employ theoretical frameworks. The comparison itself is often put forward as both theory and method. While this may be sufficient for descriptive studies of multiple sites of interest, the findings of which may or may not be useful in policy circles, it is not enough for critical studies that intend to inform (or reform) institutional or system-level policy. In studies of the academic profession and research activity, the reflexivity and embedded nature of the researcher within the academic environment in question is cause enough to warrant the use of an explicit theoretical lens.

Using the work of Bensimon and Marshall (1997, 2003) as a basis, we suggest that the theoretical and methodological framework known as Feminist Critical Policy Analysis (FCPA) is useful to emphasize the critical intention of research on gender differences in the academic profession. According to Bensimon and Marshall, FCPA orients researchers to ask questions where gender is a fundamental category and not merely one of many variables within a qualitative or quantitative study. For example, in the case of research productivity, we seek to go beyond whether or not the binary condition of sex, as it is often understood in quantitative research (i.e., that of marking "male" or "female" within a survey context where

these are the only options provided), is correlated with measures of performance, such as publication rates. To insert gender as an analytic category and not merely as a variable would be to include other measures of what has been shown to be gendered characteristics of the work of women and men in the academy, such as the "double shift" labour of childcare after the professional workday is over. These gendered conditions are influenced by social factors, which may be present or more pronounced in some national contexts and cultures than in others. As such, an international comparative study of the academic profession with regard to gender could offer both theoretical and descriptive insights.

Two prior international comparative studies of research productivity and gender are good starting points for our theoretical and methodological explorations. Both studies drew from the Carnegie Foundation's 1992 International Survey of the Academic Profession (Altbach, 1996). First, "An international study of the gendered nature of academic work: Some cross-cultural explorations" by Poole, Bornholt, and Summers (1997) examined variables for men and women across eight contexts: Australia, Germany, Hong Kong, Israel, Mexico, Sweden, the UK and the USA. Their study focused on activities and attitudes related to teaching, research, service, internationalization and governance. As they were interested in the variables that reflected the attitudes of survey participants as well as their behaviors, the authors explained that the findings were more relevant to the topic of gendered perceptions of faculty work than explicit differences in the output of male and female academics. While the study had a focus on gender and not just sex as a variable, the study was so broad with eight countries that little contextual analysis of the gendered aspects of academic work within each country was possible. Furthermore, other than inclusion in the Carnegie survey, there seemed to be no explicit rationale for the comparison of the countries in the analysis, which likely contributed to the lack of a detailed cross-national contextualization.

Second, in "Correlates of faculty publication productivity: A cross-national analysis" Teodorescu (2000) aimed to go beyond single-nation studies to examine faculty productivity. Using the same international dataset as Poole et al. (1997), Teodorescu compared the publication rates and other factors among faculty in the national samples collected by Chile, Mexico, Brazil, England, Israel, Australia, Hong Kong, Korea, Japan, and the United States. Again, like Poole et al., the inclusion criteria were described as selection of the countries in the dataset with the most reliable and representative national samples, but no other criteria (region, history of policy-borrowing, etc.) were used. In terms of the focus of the present study, the sex variable of "gender" was included as an "individual ascriptive" variable.

Both the Poole et al. and the Teodorescu studies showed little differences among men and women in the cross national samples, either in relation of attitudes towards faculty work or in research productivity. Poole et al. did find that more men than women had a positive orientation toward research and recognized the importance of research resources, but Teodorescu stated that "Gender did not enter as a significant variable into any of the ten regression equations" (2000:217).

The comparative research presented in these two examples highlights the importance of not only looking at gender as an analytic category, but also to consider how gender will be brought into the methodology. Recent research on the academic profession at the institutional level has found that it is important to separately analyse the variables related to research productivity for men and women (Bentley, 2009; Sax et al., 2002). If gender were merely one of many variables in the analysis and not an explicit focus of examination (as in the Teodorescu article), the "gap" between men and women might be lost within the other factors that contribute to research productivity. In addition, when comparative studies are too broad to consider the national context in detail, such as with the Poole et al. article, then a sweeping gesture is offered toward the question of gender in the academic profession but meaningful comparisons are more difficult. In our approach, we considered that given the differences between the working conditions and experiences of faculty in the three countries, it would be appropriate to compare the national gaps between male and female academics in addition to examining the survey results as a unified (combined) sample. As such, we focus on comparing the gender gaps in the three countries, and the relative positions of North American academics within the CAP survey as a whole.

Finally, the 2007–2008 CAP survey instrument offers new variables that were not included in the Carnegie survey, which is a benefit to researchers interested in gender issues. Family characteristics such as childcare and elder care responsibilities were included, as were variables relating to domestic partnerships/marriages. These variables have the potential to provide greater understanding of the working conditions of the academic profession, and the characteristics of contemporary academics.

METHODOLOGY

Samples and Instrument

This study relied on the international *Changing Academic Profession Survey (CAP)*, coordinated by Ulrich Teichler from Germany, William Cummings, from the United States, and Akira Arimoto, from Japan. This survey is a partial replication of the 1992 Carnegie faculty Survey (Altbach, 1996). Eighteen countries participated in this survey; however, the purpose of this analysis focused on data comparison from the North American region, drawn from the Mexican, American, and Canadian CAP databases. The questionnaire, which was developed by the international team, was administered during 2007 and 2008.

Mexico's sample. The higher education institutions that were considered in the sample included on one hand four different types of public institutions: research and graduate education centres, federal institutions, state universities, and state technological institutions; on the other hand, elite private institutions. In proportion to the number of faculty working within each type of institution, a sample of 101 institutions was drawn up in the first stage of the two- stage sampling design.

Faculty lists of academics with at least a half-time appointment were then obtained directly from each sampled institution and a total faculty sample of 2,826 academics was generated. The survey was closed in May 2008, having obtained 1973 valid returns. For comparative purposes, in the present study just full-time faculty were considered in the analysis (1775 academics after using the total weighted variable in the data set).

United States' sample. In the United States, at the institutional level, 80 randomly selected 4-year colleges and universities (29 research universities, 51 other) were included in the sample. At the individual level, 5,772 faculty members were randomly selected to be surveyed online. The survey was submitted to about 5000 reached recipients, having obtained 1048 respondents (after using the total weighted variable in the data set). For comparative purposes, 991 full-time faculty members were included in the analysis.

Canada's sample. A two-stage cluster sample was created at the level of institutions and the level of individuals. The institutional sample consisted of 18 institutions. Each of Canada's 10 provinces was represented by at least one institution. For each of the 18 universities in the sample, full-time faculty with the titles of Professor, Associate Professor, and Assistant Professor were included in the individual-level cluster sample. The survey was closed in May 2008 having obtained 1112 valid returns (after using the total weighted variable in the data set). This sample closely mirrors the demographic characteristics of full-time university faculty in Canada (CAUT, 2008).

Variables and Analysis

In this paper, research productivity, the dependent or criterion variable, was defined as the number of published articles in academic books and journals in the last three years previous at the time of the survey (2007–08). Research on this topic speaks to the relevance of this indicator for explaining gender differences (Sax et al., 2002). Surveyed academics reported this information, which may be one limitation of the study, as data accuracy relies on how academics answered the question (checking their resumes, general estimation, among others). Gender differences in research productivity by country were examined in a cross-tabulation.

A multivariate regression analysis was conducted to determine the impact of different groups of variables on research productivity also by country. In addition, regression analyses were conducted separately for academic men and women, within each country. After considering several models, a level-level OLS regression with binary transformations for most of the independent variables (see Appendix A) was chosen as the best way to handle the unique characteristics of the country subgroups. This approach maintains the benefits of a simpler model across the three countries in order to support the primary focus of the paper on the direction and significance of relationships between the variables. The trade-off is a

small decrease in the accuracy of magnitude for the influence of the independent variables on article productivity due, in part, to the effects of a large group of respondents without published articles. On balance, using a more complex log-level model did not improve the fit in a meaningful way; therefore, the following analysis uses the simpler level-level OLS regression model with selected binary transformation where appropriate.

Predictor variables in the regression equation were organized into three groups. First was the group of demographic and family-related variables, such as gender, age, parents' education level, familial status, and having children living at home with the academics. The second group, professional variables, considered three of them; the first one, having a Ph.D.; the second one, disciplinary field, divided into two categories STEM- disciplines (science, technology, engineering, and mathematics) and non-STEM disciplines; the third one, domestic and international collaboration with colleagues. Finally, the third group included the following variables related to working conditions: type of institution in which academics work; academic rank; overall job satisfaction; the extent to which the job is source of personal strain; academic focus or research orientation (whether the interests lie primarily in teaching or in research); year of experience in academic career; time spent on research; and, finally, academics' assessment of research equipment and research support staff. (Appendix A describes the way the variables in the three groups were considered in the questionnaire using Stata, version 11, for statistical analysis).

FINDINGS

The gender gap pattern in research productivity is presented in Table 1 for the three participant countries. In our study we found that faculty productivity rates in terms of article publication were lowest in the Mexican sample, with 41.1 percent of faculty stating that they had not published an article in a book or journal in the previous three years, whereas this percentage was 10.3 in Canada, and 27.8 percent in USA. Yet, more than half of the Mexican faculty indicated that they had at least one article published in the previous three years, with 44 percent between one and six articles. In the United States, the highest percentage of faculty indicated they had published between one and three articles in the same period (36.8 percent). In the Canadian sample, the largest clustering of publication rates was also in the 'one to three' article range (30.1 percent).

We found that among the mostly highly productive faculty members (those that had published ten or more articles) in our national samples, Canada had the highest percentage (21.5%). However, the biggest gender gap in the Canadian sample was due to the fact that many men had published at this upper range creating a gap of -14.4, the highest in the combined North American sample. The presence of prolific male authors influenced the overall gender gap in Canada, which was statistically significant, as in the previous ranges the gap favoured women. The percentage of academics in this range in the US sample was 12.2; however, the percentages of highly productive faculty in the US dataset were fairly well matched between men

and women, with a gender gap of –1.9. The results allow to state that in the US sample, there was no significant difference in research productivity regarding gender, which might be related to different policies and programs aimed at gender equity.

Table 1. Gender differences in the number of published articles in academic books or journals by full-time academics in North-America, previous three years

	n	*Total%*	*Female*	*Male*	*Gender Gap*
Mexico**	1619/1774	100.0	100.0	100.0	
No articles	665	41.1	42.7	40.2	2.5
1 to 3	466	28.8	31.8	27.1	4.7
4 to 6	251	15.5	15.6	15.5	0.1
7 to 9	110	6.8	5.2	7.6	-2.4
10 or more	127	7.8	4.7	9.6	-4.9
USA	869/991	100.0	100.0	100.0	
No articles	242	27.8	32.2	25.2	7.0
1 to 3	320	36.8	37.1	36.6	0.5
4 to 6	145	16.7	14.1	18.2	-4.1
7 to 9	56	6.4	5.5	7.0	-1.5
10 or more	106	12.2	11.0	12.9	-1.9
Canada***	915/1112	100.0	100.0	100.0	
No articles	94	10.3	10.1	10.4	-0.3
1 to 3	275	30.1	34.1	28.0	6.1
4 to 6	233	25.5	29.2	23.6	5.6
7 to 9	116	12.7	14.6	11.7	2.9
10 or more	197	21.5	12.0	26.4	-14.4

Chi Square (Pearson) ** $p < 0.01$ for Mexico *** $p < 0.001$
Source: CAP International Dataset (version from 19 March, 2010)

Mexico had the lowest percentage with regard to academics that have published more than 10 articles (7.8%), and the gender gap was against women (–4.9). Among Mexican faculty, publishing rates favoured women only in the lowest range (1 to 3 articles), were similar in the following range, and the highest publication rates favoured men. Thus, more female than male academics have not had published any articles or had published to a lesser extent.

Multiple Linear Regression Analysis

Regression analysis were conducted, first for the entire international CAP sample, as well as separately for the male and female samples; then, this same procedure was used for the samples of each of the three countries included in this study (Mexico, USA, and Canada). Table 2 provides the regression weights (beta) for every sample. The coefficients that reached some level of significance were highlighted to facilitate their identification. This table reports both the unstandardized and the standardized Beta coefficients. The number of observations, as well as the adjusted R Square, were included at the end of the table.

Although in all cases the model was significant, the values for the adjusted R Square were not high, close to 20 percent, which can be considered acceptable for this type of analysis. Thus, the significant predictor variables in our model explain about 20 percent of the variance in the number of published articles in the last three years previous at the time of the survey. Mexico presented the highest value for the adjusted R square (0.242), followed by Canada (0.198), and then the USA (0.161). These values were similar for the female and male samples, with the exception of women in the USA (0.21), and in Canada (0.131). The magnitude of the beta coefficients, as well as the level of the significance, allow us to estimate the impact of each of the predictor variables on the number of published articles as low, moderate or strong.

The regression analysis confirmed that in the US sample gender was not a significant variable in explaining research productivity, as this variable did not enter into the multiple linear regression equation. Yet, this variable was significant for the entire CAP sample, as well as for the Canadian and Mexican sample, which is relevant, considering the above mentioned findings by Teodorescu (2000).

Family-related variables had little impact on research productivity in general. These variables were not significant in the case of Mexico. Only one variable, the level of father's education, was significant in the general model in the US sample. Being married or living with a partner was the only significant predictor of research productivity in the case of Canadian faculty in general and, specifically for female faculty. It was also significant in the case of academic women in the US sample. These results were similar to those reported by Bellas and Toutkoshian (1999), Sax et al. (2002) and Xie and Shulman (1998); they found that being married presented a low but consistent association with research productivity. It may be that marriage acts as a personal asset in terms of additional economic resources and emotional support. They underlined that women scientists are less likely than men to be married, which was also the case in the three samples reported in this paper. We identified that in the three countries the percentages of married male faculty were higher (88.6% to 84.1%) than those of female faculty (70% in Canada and USA, and 57.6% in Mexico). The highest gap was found among Mexican faculty (-27.4%). The statistic for Mexico highlights one interesting finding of this study, that while researchers might be comparing male and female faculty in their gender analyses, the sex-segregated nature of the academic profession in various countries might mean that academic women are atypical in terms of personal characteristics compared to men and other women in their national contexts.

Table 2. Regression Results for Research Productivity Criterion Variable

Predictor	*CAP*			*Mexico*			*USA*			*Canada*		
Variables	*All*	*Male*	*Female*	*All*	*Male*	*Female*	*All*	*Male*	*Female*	*All*	*Male*	*Female*
AGE	-0.0162	-0.00905	-0.0164	0.026	0.0770**	0.000303	0.0687*	0.0359	0.144**	-0.00972	0.0202	-0.0488
	(-0.0149)	(-0.0076)	(-0.0205)	(0.048)	(0.129)	(0.001)	(0.084)	(0.042)	(0.184)	(-0.0128)	(0.025)	(-0.0783)
Father_Ed_tertiary	0.398	0.531	0.138	0.135	0.604	-0.673	1.599*	1.433	2.118	0.587	0.612	0.498
	(0.018)	(0.022)	(0.009)	(0.013)	(0.052)	(-0.0881)	(0.091)	(0.077)	(0.134)	(0.041)	(0.039)	(0.045)
Mother_Ed_tertiary	0.0451	0.097	0.0512	0.39	0.948	0.313	-1.061	-0.458	-1.876	-0.317	-0.428	0.333
	(0.002)	(0.003)	(0.003)	(0.030)	(0.060)	(0.036)	(-0.0605)	(-0.0245)	(-0.120)	(-0.0217)	(-0.0262)	(0.030)
F3_married/partner	1.230***	1.342***	0.993***	-0.214	-0.953	0.386	1.053	-0.719	3.186**	1.690**	1.235	1.963***
	(0.040)	(0.035)	(0.054)	(-0.0187)	(-0.0654)	(0.050)	(0.051)	(-0.0279)	(0.197)	(0.087)	(0.049)	(0.153)
F6_having children	0.710**	0.772*	0.704***	-0.0367	0.195	-0.0401	-0.793	0.253	-2.187*	-0.112	-0.439	0.99
	(0.032)	(0.032)	(0.045)	(-0.0038)	(0.019)	(-0.0051)	(-0.0435)	(0.013)	(-0.133)	(-0.0079)	(-0.0277)	(0.088)
F1_male	1.139***			0.551*			-0.626			1.111*		
	(0.049)			(0.054)			(-0.0349)			(0.076)		
Ph.D._yes	1.875***	1.953***	1.860***	1.641***	2.080***	0.39	0.555	-0.151	1.109	1.458*	1.411	1.037
	(0.080)	(0.074)	(0.113)	(0.171)	(0.201)	(0.051)	(0.018)	(-0.0043)	(0.046)	(0.051)	(0.045)	(0.046)
Discipline_STEM	1.974***	2.350***	1.230***	-0.353	-0.0732	-0.684	1.358*	0.419	3.629*	1.605***	2.038***	0.79
	(0.090)	(0.095)	(0.078)	(-0.0356)	(-0.0066)	(-0.0913)	(0.077)	(0.022)	(0.211)	(0.112)	(0.130)	(0.066)
Domestic_Coll	2.057***	2.360***	1.603***	1.363***	1.559***	1.336***	1.665***	1.203	2.958***	2.525***	3.144***	1.018
	(0.091)	(0.094)	(0.098)	(0.141)	(0.147)	(0.179)	(0.089)	(0.058)	(0.183)	(0.159)	(0.181)	(0.082)
International_Coll	1.921***	2.034***	1.641***	1.878***	2.276***	1.031*	2.537***	2.813***	1.7	2.094***	2.256***	1.761***
	(0.088)	(0.085)	(0.104)	(0.188)	(0.214)	(0.128)	(0.142)	(0.149)	(0.103)	(0.139)	(0.131)	(0.155)
Inst_Type_Uni	0.246	0.191	0.475	0.987***	0.678*	1.489***	1.434***	1.343*	1.744**			
	(0.010)	(0.007)	(0.024)	(0.103)	(0.065)	(0.199)	(0.065)	(0.058)	(0.087)			
Acad_Rank_Senr	2.542***	2.645***	2.160***	0.929*	1.685**	-0.612	1.930**	2.510***	1.613	2.792***	2.974***	1.848*
	(0.114)	(0.104)	(0.138)	(0.080)	(0.125)	(-0.0745)	(0.101)	(0.118)	(0.100)	(0.178)	(0.160)	(0.162)

Table 2 (cont.). Regression Results for Research Productivity Criterion Variable

Predictor	*CAP*			*Mexico*			*USA*			*Canada*		
Variables	*All*	*Male*	*Female*	*All*	*Male*	*Female*	*All*	*Male*	*Female*	*All*	*Male*	*Female*
Job_Satisf_ High	0.643***	0.837***	0.32	0.867**	0.975*	0.871*	-0.47	0.427	-2.260*	-0.775	-0.735	-0.722
	(0.028)	(0.033)	(0.020)	(0.061)	(0.062)	(0.082)	(-0.0260)	(0.022)	(-0.142)	(-0.0477)	(-0.0389)	(-0.0605)
Job_Stress_Low	1.514***	2.105***	0.246	-0.464	-0.672	-0.358	0.744	0.668	0.746	0.0504	0.0822	-0.774
	(0.069)	(0.088)	(0.016)	(-0.0420)	(-0.0549)	(-0.0431)	(0.041)	(0.035)	(0.047)	(0.004)	(0.005)	(-0.0697)
Research_Prefer	2.235***	2.948***	0.992***	0.877***	0.936**	0.951*	3.171***	3.577***	2.816**	2.045***	2.359***	1.558***
	(0.096)	(0.113)	(0.060)	(0.089)	(0.087)	(0.126)	(0.178)	(0.188)	(0.180)	(0.132)	(0.136)	(0.131)
A6_Years_exper	0.0677**	0.0795**	0.0329*	-0.0145	-0.0745*	0.0804**	-0.0249	0.0191	-0.101	0.00699	-0.00214	0.0246
	(0.065)	(0.071)	(0.040)	(-0.0301)	(-0.140)	(0.219)	(-0.0340)	(0.025)	(-0.138)	(0.010)	(-0.0030)	(0.041)
Time_on_Research	0.0165***	0.0134	0.0203***	0.00452	0.0018	0.00431	0.0229	0.0111	0.0602**	0.0419**	0.0569**	0.0012
	(0.033)	(0.025)	(0.056)	(0.020)	(0.007)	(0.023)	(0.050)	(0.023)	(0.144)	(0.119)	(0.152)	(0.004)
B3_res_equipB	-0.0208	0.00469	-0.145	0.165	0.439	-0.494	0.0223	-0.957	1.419	-0.15	-0.245	0.655
	(-0.00092)	(0.000)	(-0.00879)	(0.016)	(0.041)	(-0.0619)	(0.001)	(-0.0505)	(0.087)	(-0.0100)	(-0.0149)	(0.055)
B3_res_staffB	0.459	0.895	-0.388	0.185	0.155	-0.15	-0.961	-0.127	-3.779**	0.0803	0.536	-0.727
	(0.017)	(0.031)	(-0.0201)	(0.015)	(0.012)	(-0.0144)	(-0.0457)	(-0.0058)	(-0.193)	(0.005)	(0.031)	(-0.0547)
Constant	-4.814***	-5.841***	-1.653*	-1.720*	-3.605**	0.0664	-6.532***	-4.415*	-11.91***	-4.89	-6.303	0.444
Observations	10,253	6,974	3,279	844	567	277	546	329	217	722	446	276
Adjusted R-squared	0.122	0.112	0.135	0.242	0.268	0.208	0.161	0.138	0.21	0.198	0.196	0.131

Robust normalized beta coefficients in parentheses and significance marked where applicable (*** p<0.01, ** p<0.05, * p<0.1)

The variable related to having children only entered into the equation for female faculty in Canada; it seems that not having children, as the beta coefficient was negative, is related to higher research productivity. Similar results were reported by Sax et al. (2002). In relation to having children, the findings point toward two major concerns, as Wolf-Wendel and Ward (2006) noted: time (and lack thereof) and its impact on the "ideal worker" norms that shape what it means to be a good mother and good professor at different institutional types; and, the idea that academic choices may be illusory. The presence of a child certainly can add challenge and stress, but it also provides perspective.

There is evidence to suggest that women faculty who openly acknowledge wanting to pursue a tenure track position and motherhood are encouraged to do so at lower tier institutions (Wilson, 2004). This has the potential to steer talented women away from pursuing faculty careers at top tier institutions based on the implicit assumption that the roles of scholar and mother are incompatible.

Age was a demographic variable that was significant in the case of male faculty in Mexico, as well as for faculty in general in the US. It seems that research productivity increases as faculty grow older. However, in Mexico there are not policies regarding mandatory retirement, and there are indicators that productivity starts decreasing at some point according to age. Until recently, many provinces in Canada had mandatory retirement set at age 65, so this may have some lingering effect on the career trajectories and research productivity of older academics in the Canadian system. Hence, the relationship of age, as well as years of experience should be closer examined, as this relationship could be not linear.

Several professional and institutional variables had the highest impact on research productivity, and indicated a joint explanatory power among different factors (Xie & Schulman, 1998).With regard to professional variables, domestic as well as international collaboration with colleagues during the previous year at the time of the survey, were identified as strong predictors of research productivity in the three faculty samples; Bentley (2009) found similar results in the CAP samples from Norway and Australia. According to several authors (Fox & Mohapatra, 2007; Leahey et al., 2008), the professional capital that academics have earned in their academic career stands out as an important factor to explain research productivity. These results support Leahey et al.'s (2008) findings that indicate that men have better social networks, and used them more than women. Fox and Mohapatra's (2008) findings highlight the importance of social-organizational characteristics of work groups, practices, and climates, among them research collaboration.

This trend was equally strong for academic men in Canada, whereas just international collaboration was a significant predictor of research productivity for academic women. Cross tabulation results regarding these variables indicated that 68.4 percent of all surveyed faculty in this country reported research collaboration at the national level, and 64.1 percent at the international level. The percentage of collaboration at the national level was similar for men and women in the Canadian sample; however, it was significantly different (chi square, $p < 0.001$) for the international level, when it was a significant predictor, as 69.2 percent of male

faculty reported it, whereas only 54.2 of female faculty did it. Similar results were observed for the male faculty in the Mexican sample; however, in the case of female faculty, domestic collaboration was a strong predictor, whereas international collaboration was a low predictor. It is important to note that the percentages of Mexican academics who indicated national collaboration (54.9%), as well as international collaboration (34.8%) were the lowest of the three national faculty samples. In addition, differences between male and female academics were statistically significant in both cases (chi square, $p < 0.001$), that is, 59.1 percent of male faculty indicated national collaboration, while just 47.4 percent of women reported it; at the international level, the correspondent percentages were 37.5 and 30.0. As can be observed, international collaboration is not a rather widely extended practice among Mexican faculty, especially among academic women, which can be related to the lower relationship between this variable and their productivity.

Finally, in the US sample, national collaboration was a strong predictor only for female faculty, and international collaboration was significant only for male faculty. It this case, the percentage of US faculty that reported collaboration with national colleagues (62.5%), was similar but a little lower than that in the Canadian sample (68.4%); significant differences within gender were identified, as 65.1 of male faculty in the US reported this type of collaboration, while 57.9 of female faculty did. However, the percentage of faculty in the US sample that reported international collaboration was low, 34.5 percent, similar to that in the Mexican sample (34.8%). Differences within gender were also significant, as 37.1 percent of male faculty reported international collaboration, but only 29.9 percent of female faculty was in this case.

Among professional variables, having a Ph.D., was a strong predictor of research productivity only in the Mexican sample, and particularly for academic men. This can be explained in the context of Mexican higher education. CAP results indicated that only 31.1 percent of all surveyed full-time academics had earned a Ph.D.; moreover, this percentage was lower within female faculty (26.9%), and higher within male faculty (33.5%). This variable was also identified as a predictor, albeit low, among faculty in the Canadian sample; however, in this case, according to the CAP results, the percentage of faculty with a Ph.D., was 92.8, and there was not variation concerning gender.

The disciplinary field was a predictor of research productivity in the US sample, particularly for women; that is, female faculty in STEM disciplines are more likely to publish at a higher rate than female faculty in non-STEM disciplines; it might be that this type of disciplines foster a competitive culture in which publication is a meaningful feature. US male faculty in STEM disciplines continue to be overrepresented, as 67.3 percent of all faculty in these disciplines were male, whereas this percentage in other disciplines was 58.5. This overrepresentation was higher in Canada and in Mexico. It is important to note that in general, faculty in STEM disciplines reported to publish more than faculty in non-STEM disciplines, as 18.3 percent of the former faculty reported ten or more published articles, whereas just 7.9 percent of the latter reported the same rate.

The disciplinary field was a strong predictor in the Canadian sample, particularly for men. That is, in Canada those academics whose field is related to STEM disciplines (science, technology, engineering, and mathematics) are more likely to present higher article publication rates than those in other academic fields. For example, 28 percent of academics in STEM disciplines reported ten or more published articles, whereas just half this percentage (14.5%) of academics in other fields reported this rate. It is important to note that male faculty in STEM disciplines were overrepresented, as 74 percent of academics in these disciplines were men, whereas their equivalent in other disciplines was 60 percent. This fact might partially explain why disciplinary field was a strong predictor for male academics in Canada.

Other studies (Xie & Shulman, 1998) have identified this variable as a moderate predictor for research productivity. Exploring its impact may require a different approach, such as grouping the fields in a different way. For instance, in the case of Mexico, some STEM disciplines, particularly those related to health sciences, have different academic culture that can be related to productivity trends. Nevertheless, the findings pointed out that being an academic women in STEM disciplines in Mexico, increased the probability to report more articles published. It seems that in these fields female faculty have learned to be more productive in order to compete in the academic career. In the Mexican sample, an overrepresentation of male faculty in STEM disciplines was also identified as 71 percent of all faculty in STEM disciplines were men, whereas in other fields this percentage was 56. Finally, an important finding regarding publication rates in Mexico was that these rates were not significantly different by disciplinary field (STEM/no STEM disciplines). Thus, within STEM disciplines on one hand, the percentage of prolific authors was 8.5, whereas in other fields was 7.5; on the other hand, regarding the lower publication rate (1 to 3 articles), these percentages were 30.4 and 26.6.

Within the third group of variables included in the regression analysis, the type of institution, that is, being a professor in a university as compared to other types of institutions was a strong predictor of research productivity in the Mexican and US samples; this result was similar to the findings in previous studies (Xie & Shulman 1998, Sax et al., 2002). This variable was a stronger predictor for women than for men in both samples. In the case of the US, 75 percent of the surveyed academics were located in universities, and there were no differences by gender. In Mexico, this percentage was lower (just 36%), but, in a similar trend, no differences by gender were found. It is important to note, that in the case of Canada the sample was drawn only from universities, and that is the reason why this variable was excluded for the analysis. Nevertheless, according to Ornstein, Stewart and Drakich (2007), based on the Statistics Canada's annual census of full-time faculty at all Canadian universities, "accelerated failure time models show that gender has some effect on rates of promotion, but that disciplinary and institutional variation are much greater". Thus, it is expected that these variables might be related to publication rates, as promotion is closely linked to publication.

To this point the cumulative effect of family-related variables, as well as the type of discipline and type of institution have made evident their influence in

research productivity. As Clark and Hill note, "women in tenure-track positions in science disciplines at research-intensive institutions are more likely to acquire tenure if they are unmarried, and/or are childless than their married peers with children" (2010:1).

Research preference over teaching was a highly significant predictor of research productivity in the three faculty samples: this finding was also reported by Sax et al. (2002). This variable was equally significant by gender in the Canadian sample; in the US sample the significance was higher in the male sample, than in the female sample; finally, the level of significance of this variable for men in the Mexican sample was 0.05, and the lowest, was identified in the female sample 0.1. Thus, this preference for research and its impact on productivity leads to the dilemma of the balance between research and teaching, and the criteria to evaluate faculty work, which is also a controversial topic; however, it will not be discussed here, as the focus of this analysis is gender gaps. With regard to this issue, in the case of the CAP results no significant differences by gender were found concerning academic preference.

Academic rank was a significant predictor of research productivity in the three samples; similar results were reported by Bentley (2009). However, it was low in the case of Mexico, moderate in the case of US, and strong in the case of Canada, which can be associated with the hierarchical pattern in institutional settings, as well as the faculty promotion norms within each higher education system. Some studies from the US had also reported moderate effect of this variable (Xie & Shulman, 1998; Bellas & Toutkoushian, 1999; Sax et al., 2002). Academic rank was a moderate predictor in the Mexican male faculty sample, as well as a strong predictor in the USA and Canadian male sample; however, this variable was just a low predictor in the case of Canadian female faculty, but it was not significant within the other two female samples. The direction of the relationship of this variable is not clear, as it might be reciprocal (Sax et al., 2002; Bentley, 2009).

General job satisfaction was a moderate positive predictor only in the case of the Mexican sample, and it was also a low predictor for academic women and men in the sample. This variable did not enter into the regression equation for the other two general samples; only in the US female faculty sample, this variable was a negative low predictor of research productivity. It seems that women that publish at a lower rate at in general more satisfied, which might be related to the stress embedded in the process of publication.

The variable years of experience since the time of the first academic appointment was a moderate predictor for Mexican academic women, and a low predictor for Mexican men. This variable did not enter into the equation in the other two samples. As it was mentioned, this variable could be related to age. It might be that both variables are not linear, so that they would benefit from a different statistical approach.

Time spent on research was identified as a significant predictor just in the Canadian sample, and particularly in the male faculty sample. This variable was also significant in the case of female faculty in the US.

Finally, the faculty assessment of research staff at their institutions was a negative significant predictor on published articles in the case of female faculty in the USA.

CONCLUSIONS AND POLICY IMPLICATIONS

The Changing Academic Profession project offers much in the way of international comparative data on the working conditions and experiences of academics in many countries, including North America. Our study approached the combined national datasets of Canada, the US, and Mexico as a sub-unit of the larger international study, to highlight regional differences and similarities. This study focused on "gender gaps" in research productivity by examining the relationships between the responses of male and female academics within each of the country surveys as individual cases, and then comparing the magnitude of the gaps as a cross-case analysis. This method of gender analysis may prove fruitful for future studies of gender in international and comparative perspective.

The CAP study, and the analysis offered here, has much to contribute to higher education policy. In terms of research productivity, the relative productivity rates of male and female academics has been a policy priority for many years to increase the cumulative rates of research activity, and yet as the results here show, there are some areas that require further examination. Despite this emphasis on research productivity within the three countries, Mexico still lags behind Canada and US, as two fifths out of all full-time faculty have not published any articles at all. Moreover, full-time academics account for just one third of all academics in this country. While Canada and US present a more generalized publishing pattern; it is important to note that the apparent higher publication rate in Canada, as compared to US, might be related to the composition of the Canadian sample that included only university professors.

The study of research productivity and their related factors was wider and deeper in the US than in the other two countries, as the literature included here made clear. This emphasis is also reflected in the definition of national, as well as institutional programs focused on increasing and assessing research productivity. Some programs have targeted inequities within the academic culture that could prevent an adequate level of productivity, such as gender, race, ethnicity, nationality, disciplinary field, among others. The CAP findings reveal that there is no difference in research productivity regarding gender in this the US, even though differences regarding STEM disciplines remain, which could be associated to the impact of the diverse programs oriented toward this end.

On the contrary, the gender gap in Canada remains, but is located among prolific authors, that requires different strategies in order to overcome this problem, than those in Mexico could use, as the gap is more profound in the latter country, albeit the trend is similar. Thus, the gender gap is more significant with regard to higher publication rates. Prolific productivity is usually associated with better evaluations, and higher academic ranks, which in turn foster gender inequity, and could make it difficult for academic women to advance up the academic ladder.

Although gender inequity in the Canadian professoriate has been a topic of debate for some time (Blakely, 1989), efforts to increase the research capacities of university faculty, such as the Canada Research Chairs program, have met with critiques that disparities are being intensified rather than resolved (Side & Robbins, 2007). Furthermore, the increasingly competitive nature of the Canadian academy has been noted to have a negative impact on intellectual engagement (Menzies & Newson, 2008), which offers little respite for achieving work-life balance.

Within Canada and the US, spousal hiring policies and other family friendly policies would continue to support academics in ways that are conducive to combining research-intensive careers and family life. In addition, travel funding and incentives for national as well as international collaboration would likely increase research productivity, particularly among female academics where this activity occurs at a lower rate than it occurs with male academics.

In Mexico, perhaps one of the strongest tools for increasing women's research productivity would be educational and professional support for the attainment of the Ph.D.. The federal government established the Program for the Improvement of the Professoriate (PROMEP, in Spanish) in 1996, aimed at full-time faculty in-service at public institutions; one of its main goals was to grant scholarships to these academics, so that they could obtain their Ph.D. (SEP 2006). This program targeted the problem of the lack of specialized training of Mexican faculty in general, not only in academic women; despite this program is showing important results, the number of female faculty with a Ph.D. is still significantly lower than that of their male counterparts. Recently, in 2009, another important federal program titled Integral Program for Institutional Strengthening (PIFI, in Spanish) has started to grant financial support to those public higher education institutions that present projects focused on women and gender equity that are expected to impact gender disparity in higher education (http://pifi.sep.gob.mx/fomes/equidad_de_genero.htm).

In addition to educational policies targeted at increasing the proportion of women entering Ph.D. programs, which is something that needs to be done in the long run, it would also be most important to install appropriate working conditions for women who are leaving their Ph.D. programs and entering academia. Additionally, attention should be given to women who have already entered the profession.

In sum, gender gaps concerning research productivity remain within the three countries, especially in Canada and México. Relevant variables associated with this phenomenon are: having a Ph.D., belonging to the STEM disciplines, collaborating with colleagues (particularly at an international level), and research preference. Although academic rank and institution type are also important variables in relation to research productivity, their relationship might be reciprocal. Finally, family-related variables, such as marital status and having children can be related to research productivity even though their influence would be reflected in an indirect way.

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15. PERSONAL CHARACTERISTICS, CAREER TRAJECTORIES AND SENSE OF IDENTITY AMONG MALE AND FEMALE ACADEMICS IN NORWAY AND PORTUGAL

INTRODUCTION

Women's participation in science and higher education (HE) has been increasing almost all over the world in recent decades (Rees, 2001; OCES, 2004; Leathwood & Read, 2009). However this increase has not translated into equal patterns of participation and the persistent gender differences found across countries are not consistent with the widespread, popular idea of a 'feminised future' (Leathwood & Read, 2009).

Some participation differences are related to the fact that, while women's participation in the academic profession has increased, it has not kept pace with the changes observed at students' level, and women's participation is more concentrated in soft areas and the lower-ranking positions in academia (Leathwood & Read, 2009).

In order to understand these differences authors have focus their attention on a range of different factors that might explain gender difference. However conclusions on the role of these factors are not clear, often pointing in different directions. Some findings sustain the argument that women give priority to teaching and men to management and research (Poole & Langan-Fox, 1997; Poole, Bornholt & Summers, 1997; Sax, Hagerdon, Arredondo & Dicrisi, 2002; Nakhaie, 2002). Others reveal the importance of family and institutional life in male and female academic experiences (Kyvik & Teigen, 1996; Webster, 2001; Carvalho & Santiago, 2008).

This background leads us to conclude that this issue could benefit from more comparative analysis. Indeed, as noted by O'Connor (1993), there is an absence of gender analysis in comparative research. The proposed study aims to redress this imbalance, and contribute to the comparative literature that integrates gender issues into research on higher education, by comparing women academics in higher education in Portugal and Norway.

Our rationale for comparing Norway and Portugal is connected to both similarities of the two countries, and to their differences. Both have small-scale, welfare state type HE systems, that are fairly young, egalitarian and characterized by rapid expansion/ and (fairly) progressive patterns of recruitment over the last

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four decades. Both countries also have high levels of women participating in higher education careers. However, the countries also provide contrasts, between Southern Europe and the Nordic region, and by being marked by different cultures and policies as regards gender equality. Although the aim of gender equality has been emphasized in both countries, Norway has a more long-standing and radical tradition for proactive policies. Portugal is, however, characterized by more progressive gender patterns of recruitment to secondary- and higher education (GGGI). They therefore offer a comparison which is particularly interesting, in terms of the role social and cultural factors might play in differences in the role and status of women academics between the two countries.

A further rationale for this comparison is the availability of comparative national data, through the Changing Academic Profession (CAP) dataset. This offers a unique possibility to compare the position of male and female researchers in different national HE systems, as it includes both variables indicating patterns of recruitment or academics' social status, as well as those describing aspects of academic work practices – modes of teaching and research – which can provide an indication of the distribution of "forms of capital and types of power" between men and women in the various systems (Bourdieu, 1998).

This article makes a comparative analysis of gender differences in patterns of research productivity, or academics' own perceptions of time dedicated to various academic activities. It also offers an analysis of variables related to personal life and institutional situations.

Literature on Gender Differences Inside Academia

Several studies have been published on the reasons why gender differences inside academia are still so evident. Differences in terms of research productivity and time allocation are some of the issues covered most extensively in this literature.

Most empirical studies conclude that women have heavier teaching and institutional service commitments (Olsen, Maple & Stage, 1995) spending more time on these academic tasks than men (Poole et al., 1997; Sax et al., 2002). This stronger concentration in teaching tasks is often justified and influenced by traditional socialisation processes, which assume and pressure women to be more person-oriented, valuing more social, communication and interaction patterns. However, one cannot ignore that there are also important institutional factors which seem to play a determinant role on the persistence of this difference, namely institutional insecurity, which concentrates women in the higher education 'periphery', in the less secure lower grades; this pattern is linked to pauses due to maternity leave and the dominant orientation of universities, and also many disciplines, to research rather than to teaching (Harley, 2003). In addition, as men typically have more influence over academic power structures (scientific, governance and management bodies), they have more opportunities to focus on work that is more visible and prestigious – research and publishing – compelling women (and junior and part-time staff) to focus more on teaching and infrastructural academic work.

However, there is no general consensus concerning the set of influences that shape research activities and productivity, leading to gender inequalities. For instance, authors such as Olsen, Maple and Stage (1995) argue for the central influence of the different social roles women and men develop in the private domain as one of the main reasons explaining women's lower research productivity compared to men. Since women traditionally had the main responsibility for domestic and caring duties, they also had less time and so were less committed to research roles in the academic profession (Smeby & Try, 2005; Harley, 2003). Corley, (2005) and Corley and Gaughan, (2005) emphasised the way care for young children and the lack of collaborative research may help to explain the scarce representation of women in science. Nevertheless, other important variables seem also to be at work in these dynamics. Kyvik and Teigen (1996) showed in their study that caring responsibilities can affect scientific productivity, but also called attention to women's opportunities for networking, sustaining the idea that women are more dependent on collaboration.

Scientific or academic disciplines also seem to influence differing patterns of research production. Asmar (1999) argues that the humanities and social sciences are domains where individual work is stronger; as these are the areas where women are concentrated, their inclusion in networks and collaborative work therefore becomes less frequent, and access to research funds is also more limited (Lafferty & Fleming, 2000). This may create further barriers for women attempting to advance their academic careers, when this progress is increasingly based on continuous scientific productivity (Harley, 2003). However, even when women have a high scientific productivity rate (similar to men), they still have a lower chance than men of getting a tenured position (Rothause-Vange et al., 2005). Women also have less access to economic resources, less opportunities to do research and less research assistant availability (Toren, 1993) and they also have less access to networks, mentors and collaboration (Perna, 2005; Conley, 2005; Webster, 2001). As concluded in the Norwegian CAP study (Ramberg & Vabø, 2009) the way that male and female academics work and their experience of research vary in a range of ways. Women participate in international research collaboration and in colleague evaluation to a lesser degree than male researchers. Women experience a synergy between research and teaching to a lesser degree than their male colleges, and they are more dissatisfied when it comes to communication with the management. To a certain extent, these patterns reflect gender segregation between academic disciplines. For example, as there are relatively larger proportions of women in the humanities and in interdisciplinary communities oriented to national problems, it is perhaps of little surprise that fewer women participate in processes directed at technology transfer. Women researchers state that they are less satisfied than their male colleagues in terms of access to support personnel and secretarial assistance (teaching and research assistants), and this is especially so among women within the humanities and medicines. All in all, such findings are important empirical indications that women researchers are not as well-integrated in the formal or informal networks of academic life as their male colleagues, nor in the

disciplines that are best-placed in order to publish or secure financial and other resources, all of which are important to succeed in an academic career.

These difficulties in having access to formal or informal networks are also mentioned by Portuguese women academics as an obstacle to ascend to senior position in HEIs (Carvalho & Machado-Taylor, 2011; White, Carvalho & Riordan, 2011).

When it comes to family and personal factors, there are studies demonstrating that family variables contribute little or nothing to the prediction of women's research productivity (Toren, 1993; Perna, 2005; Sax et al., 2002) especially when compared with professional variables such as academic rank, salary, orientation to research, and desire for recognition. Instead, as Morley argues, it seems that women have less 'access to resources, influence, career opportunities and academic authority' (Morley, 1999:4). Webster (2001) shows that in Poland, where women have been strongly encouraged to participate in HE since the 1980s, this still has not produced equality at the scientific production level, and scientific production remains more 'parochial'.

These differences in research and scientific production are particularly relevant in the face of the external context confronting higher education institutions. Under the influence of new public management and managerialism (or new managerialism) higher education institutions are increasingly compelled to develop more quantified and objective performance assessment practices (Deem, Hillyard & Reed, 2007; Carvalho & Santiago, 2008; Santiago, Carvalho, Amaral & Meek, 2006). This, along with intentions to foster a knowledge economy/society, puts even greater emphasis on research, and leads to research output being valued above all other academic activities. It also strongly encourages systems that reward academics who bring external funding to the institutions. Van den Brink (2009: 179) considers how this disadvantages women academics:

> Emphasis on research and the quantity of publications in international peer-reviewed journals may lead to the undervaluation of other academic skills such as teaching, management and professional activities … [and] the heavier teaching loads that are associated with temporary contracts and positions serve as a source of gender inequality. Criteria that appear to be gender neutral (counting publications and citations) can disadvantage female academics if it does not take differences in career trajectories and research time into account.

These sets of concerns encompass the theoretical and empirical canvas for this comparative study: it will pick up the main elements addressed in exploring the quantitative data from the CAP survey, where it is related to the role of knowledge and research on vertical and horizontal gender segregation, in the two countries. Our intention is to further the analysis of these issues in this field and to contribute to the understanding of the persistent story of gender inequalities in higher education.

Methodological Approach

Given the national comparative nature of the study, gender differences by field will receive little direct attention in this analysis. Among the total numbers of respondents, in Portugal (N = 856) 528 come from universities 207 and from polytechnics (121 missing values in this item); in Norway (N = 1760) 944 come from universities, 67 from a university of applied science, 669 from R&D institutes (60 others and 20 missing values).

The surveyed sample in the two countries includes a higher number of men than women. Of the 1,684 of academics surveyed in Norway (who responded to the question on their gender) 64% were men and 36% women. In the Portuguese sample of 566 respondents the proportion of women is higher, at 48% women and 52% men. This means that in both countries the samples do not follow the gender composition of the overall academic population: in the Portuguese sample women are overrepresented, while in the Norwegian data they are underrepresented. In Norway, among the total of 25,229 academics working in higher education and research institutes, 41.4% are women according to recent estimates (NIFU, 2010). In 2005 in Portugal there were 24,280 academics in public higher education, 14,063 (58%) were men and 10,217 (42%) women (Carvalho & Santiago, 2008).

Portugal and Norway have markedly different higher education systems. Both countries have a binary system with a non-university and university sub-systems. The two systems are not comparable in size and there are also important differences in the system legal framework (Kyvik, 2008; Ferreira, Machado & Santiago, 2008).Nevertheless, in both systems the universities have more social prestige than the non-university higher education institutions (Kyvik, 2008; Carvalho & Santiago, 2008). Traditionally universities are perceived as being more 'knowledge/research-oriented', being the 'heirs' of the traditional institutions, and sites of basic/fundamental and applied research, while the non-universities HEIs were traditionally committed to professionally and vocationally-oriented teaching programmes. In considering these divisions within the systems, the well-known trends of academic drift and standardisation must be acknowledged, as they have intensified in the two countries over the last few years (Kyvik, 2008; Ferreira, Machado & Santiago, 2008).

In comparison with Portugal the Norwegian career structure – or positional hierarchy- is characterised by fewer categories and smaller differences between them as regards work duties and payment. In Portugal the academics career structure follows the same logic as other careers in the public sector. So, following from a bureaucratic logic, the career is based in a hierarchical structure (with 5 ranks) which has differences between them, especially in what concerns remuneration with a large difference between the salaries in the bottom and at the top of the career (Carvalho, 2011).

In order to create a data set that was appropriate for comparing the two countries, the public non-universities in Portugal and the research institutes in the Norwegian data were excluded from the analysis, as these represent aspects of each

system that differ substantially from the other and would otherwise tend to skew the overall sample.

Both the Portuguese and the Norwegian HE system is gender segregated, in the sense that a larger proportion of women academics are to found in the more vocationally-oriented parts of the HE system, in polytechnics and university colleges, which also have less symbolic prestige and poorer working conditions and typically more teaching-oriented career tracks.

By limiting our study population to those in senior positions in universities, we face certain challenges regarding the representativeness of women academics in this group. Those reaching these senior positions have a fairly high average age and it is reasonable to assume most of those who are mothers, have grown up children (although that still represents a caring responsibility, it is of a different sort to caring for young children).

In focusing on these high level academic positions, we limit our study to those few who have actually "succeeded" in academia. They will have gone through the extensive and often long-term processes of social and academic selection required to become a full member of a discipline at a university: from an "able" candidate receiving a Ph.D. scholarship /position to being granted a tenured position might (depending on discipline) take many years and a range of steps, including short-term contracts, postdoc positions etc.

Academic Rank: a Leaking Pipeline?

In a European comparison Portugal has a very high proportion of female researchers[1], 44 percent (in 2005) compared to 33 percent (in 2007) in Norway. In the higher education sector in Europe women on average make up 37 percent of all researchers, but the proportion of female researchers is higher in Norway at 39 percent (2006) and markedly higher in Portugal, at 47 percent. Sweden, Lithuania and Latvia have the highest shares of female researchers in Europe, ranging from 48–51 percent.

Portugal also has a high proportion of women among their Ph.D. graduates – 60 percent (2006) in contrast to 38 percent in Norway. The proportion of women in grade A positions (full professor roles) is also slightly higher in Portugal than in Norway (21 percent and 18 percent respectively). In comparison with Norway, Portugal has a much higher proportion of female grade A staff in the natural sciences (27, 5 percent compared to12,1 percent) as well as in the agricultural sciences.

This suggests that, in both countries, gender equality in academia has improved more at the lower levels, while in the top level significant gender imbalances still persist; this is in line with previous findings (Carvalho & Santiago, 2008; NIFU, 2010). In the research literature on women in science this recruitment process has been conceptualized as leaking pipeline, where women tend to "leak out" more than men (Allan & Castleman 2001; White, 2004). Furthermore, women academics usually need more time than male academics to qualify for professorships.

It seems that along with the horizontal segregation by discipline or area, academic careers also have a gendered vertical pattern in both higher education

systems. Women are still less represented in the top academic ranking (A), although representation is more balanced in the lower level (D). Previous data confirms the global tendency for persistent, horizontal and vertical segregation in higher education (Kloot, 2004; Wilson, 2005; Harman, 2003; Bagilhole, 2007; Krais, 2002; Sauderson, 2002; Benshop and Brouns, 2003). In both countries studied there are similar phenomena that can be observed, involving the differing distribution of women and men into different 'tribes and territories' (Becher & Trowler, 2001).

It does appear that in both Portugal and Norway academic women are more concentrated in 'soft basic and applied sciences' areas, such as the social sciences, humanities and arts, while men are concentrated in 'hard basic and applied sciences' areas of engineering and mathematics/physics (Carvalho & Santiago, 2010; NIFU, 2010).

These data are particularly relevant in light of the influence of New Public Management and managerialism: as noted above, the allocation of resources tends to be concentrated on those disciplines able to obtain external funds from strategic, commercial and techno-science sources (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004). In this way, this traditional gender division in the academic world can constitute a disadvantage for women in academia that is magnified under the new HE managerial regimes' emphasis on competition, and the need to connect research to the economy via new modes of applied knowledge production.

RESULTS FROM THE COMPARATIVE ANALYSIS

Age

According to the distribution of researchers in the higher education sector by gender and age, the academic workforce in Norway is generally older than in Portugal (2006). In the samples for both countries the average age for men is higher than for women, and based on the Norwegian data both women and men academics have a higher average age than in Portugal (Norway = M: 52,3; W: 48,3; Portugal = M: 46.7; W: 44,7). Differences in average ages between male and female academics would be expected in these countries, as more women have come into higher education over recent years.

Social Background

In addition to gender, social background – or cultural capital – is important for understanding patterns of social recruitment (Bourdieu & Passeron, 1964, 1970) and can be measured in terms of parents' level of education. Class and gender are "decisive" for achieving more advanced sociological understanding of the various and typical study and career tracks in the population. In investigating gender differences it is inevitable that awareness of the composition of the academic profession as regard social background is also important for constructing an understanding of the extent to which this group is elitist, marked

by either closure mechanisms or open for changing recruitment practices (Murphy, 1988). There are some significant variations between the two countries in patterns of parental educational attainment among academics (see table 1). Taking all levels of academia into account, the academics in Norway are more likely to have fathers who have entered or completed tertiary education than the academics in Portugal. Academics in Portugal are more likely to have parents (both mothers and fathers) who only entered or completed primary education. These differences may be due to overall levels of access to compulsory education and the pace and timing of massification of HE systems in each country.

Table 1. Educational background: father and mother. All levels

	Portugal				*Norway*			
	Father		*Mother*		*Father*		*Mother*	
	M	*F*	*M*	*F*	*M*	*F*	*M*	*F*
Entered and/or completed tertiary education	34%	41%	26%	34%	41%	52%	23%	36%
Entered and/or completed secondary education	32%	31%	27%	27%	27%	31%	34%	38%
Entered and/or completed primary education	32%	27%	44%	37%	24%	14%	34%	23%
No formal education	1%	0%	3%	2%	6%	3%	6%	3%
N	*253*	*179*	*254*	*179*	*462*	*236*	*462*	*236*

For women at the professor level, some similar differences emerge between Portugal and Norway (see table 2). A larger share of the female professors in Norway have fathers who entered or completed tertiary education than those in Portugal, and more female professors in Portugal than in Norway have parents who only entered or completed primary education.

Based on data from the European Social Survey 2005, Bull (2010) compared mothers in the Nordic countries with those in southern Europe, and found them to be less exposed to economic stress, receiving higher support from their environment and reporting "a higher degree of subjective well-being".

Given the importance of social background, in supporting higher academic qualifications, in passing on knowledge of tacit rules of behaviour in the academic field, and in the practical, economic and emotional advantages it is likely to bring, we suggest that cultural capital might function to compensate for the "gender handicap" of women. These academics are more 'elite' women in terms of their background, getting past potential barriers as, while gender disadvantages them, they have other sources of capital and advantage in their favour.

Table 2. Educational background: father and mother. Professors

	Portugal				*Norway*			
	Father		*Mother*		*Father*		*Mother*	
	M	*F*	*M*	*F*	*M*	*F*	*M*	*F*
Entered and/or completed tertiary education	39%	35%	25%	33%	39%	58%	21%	38%
Entered and/or completed secondary education	28%	28%	30%	22%	26%	28%	32%	38%
Entered and/or completed primary education	33%	37%	39%	41%	27%	11%	38%	21%
No formal education	1%	0%	6%	4%	6%	3%	6%	2%
N	*101*	*46*	*102*	*46*	*388*	*149*	*387*	*149*

Familiar Influence

Other possible drivers of national differences in women's academic participation relate to features of institutional organization and also academics' personal or family lives, for example: the relative number of women academics in institutions, the extent to which it is common for women to combine an academic career with marriage or with having children, and patterns among academics of having a partner working full-time. Such characteristics not only reveal basic features of the academic demography (in various countries) they also offer important empirical indications about the working conditions of women academics: they are factors that are likely to have a powerful influence on women's approach to furthering their academic career, keeping a high level of research activity and also going abroad as part of their work. Furthermore this information is important in understanding how the gendered social identity of the academic profession is constructed in various countries; is the internationally-oriented, full professor role, primarily associated with typically masculine features?

Norway (along with the other Nordic countries) receives top ratings in the Global Gender Gap Index[2], which examines differences between men and women according to economic participation and opportunity, educational attainment, health and survival and political empowerment. Portugal is ranked 32nd.

Although limited in scope, the GGGI reveals a number of relevant national differences. It is reasonable to assume that the gender-segregated enrolment pattern in secondary education helps to explain the high enrolment of women in Portuguese tertiary education. However Portugal has a lower score on variables on political empowerment and income.

The distinct positions of the two countries on gender issues are likely to be driven by differences in women's participation in the labour force and in politics. There are high levels of women participating in the labour market in both countries, which might be expected as such increases in women's participation is

one of the major socio-economic transformations of the end of the last century (Crompton, 1999). However, while Portugal has a long-standing tradition of women's participation in the labour market, overall participation is higher in Norway today, as can be seen in table 3.

Table 3. Global Gender Gap Index for Portugal and Norway

	*Global Gender gap index**	*Labour force participation f/m ratio*	*Professional & technical workers, f/m ratio*	*Women in parliament*	*Fertility Rate (births/ woman)*
Norway	2	0.94	1.00	0.66	1.90
Portugal	32	0.87	1.00	0.38	1.40

Source: WEF, *Global Gender Report* 2010

Another important difference concerns fertility rates, which are also higher in Norway. This may be due to the differences in welfare state regimes, with Norway having developed public policies directed at family life, earlier on. Smith (2001) stresses that Norway has (along with other Scandinavian countries) developed more generous parental leave policies. In fact, Norway was one of the earlier countries to create a mix of family and individual leave entitlements. This policy has included incentives to involve fathers, by offering high wage compensation and flexibility for parents to return to work at reduced hours, over a long period of time. In Portugal parental leave is also granted, with paid maternity leave for women (and in some cases leave offered for fathers) with 100% of paid salary for 120 days. However, even if the new Labour Code (Law 7/2009) allows parents to return to their job on a part-time basis, this is not usual in Portugal.

Family Roles

The different roles women and men develop in the private domain are usually set out as one of the reasons for differences in research productivity revealed here, and in many previous studies (Kyvik & Teigen, 1996; Webster, 2001). In this sense, it is also important to look closely at family variables.

When it comes to academics' civil status, the majority of academics are married in both countries, but in Portugal there are a higher number of single women. Among academics in top-level positions in Portugal, 14 percent women are single compared to just 5 percent of men. Based on previous studies showing that older women have more difficulties in reconciling work and family roles (Santos, 2008) one can hypothesise that the difference found in this study is due to the presence of a high number of women at the end of their career, who are not married.

Furthermore most female academic staff do combine their career with having children. The majority of them, both in Portugal and Norway, also have partners working full time: 93 percent of Norwegian female staff have a partner who works full-time (94 percent of female professors). This pattern may partly reflect

Norway's welfare state policy, where employees are guaranteed certain social and economic "benefits" in connection with maternity leave, so contributing to it being widely seen as legitimate for women to combine academic careers with caring for children. Norway (like Portugal) is a frontrunner in global comparisons of female employment and birth rates[3].

Nevertheless a relevant hypothesis explaining the vertical patterns of gender segregation identified in Norway and Portugal might be that female academics tend to experience slower research career development than men, due to maternity leave or periods of absence linked to family commitments, and because they generally combine their career with caring for children.

As table 4 shows, in both countries the percentage of female academics who have partners working full-time is high, and male staff are more likely than female staff to have a partner who does not work at all, and more likely to have a partner who works part-time. The gender differences in partners' working patterns are slightly different in Portugal, where the part-time employment situation is not as widespread, while in Norway there are a considerable number of male academics whose partner works part-time job (16 percent). However 14 percent of Portuguese men have partner who does not work at all.

Table 4. Employment of partner. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Yes, full-time	82%	91%	73%	93%
Yes, part-time	5%	3%	16%	3%
No	14%	6%	11%	4%
N	*218*	*129*	*424*	*194*

Looking at the professors only, the results are similar to those for all levels. More men than women, in both countries, have a partner who does not work full-time.

Table 5. Employment of partner. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Yes, full-time	83%	94%	71%	94%
Yes, part-time	4%	3%	16%	3%
No	13%	3%	13%	3%
N	*101*	*47*	*358*	*125*

The data suggest that male academics tend to have personal and family lives that allow them more time to focus on their work, research and publishing, as their partners are more likely to work part-time. It is also important to look at other variables related with the private domain, especially those about children. Previous studies developed by Kyvik and Teigen (1996); Corley, (2005) and Corley and Gaughan, (2005) focused on the gender imbalance in care for young children as a

factor explaining the scarce representation of women in science. CAP data confirm that the traditional division of caring work persists, with women being much more likely to have interrupted their career in order to provide child care or care for the elderly, in both countries (Norway (all levels) = M: 20%; W: 51%; Portugal (all levels) = M: 6%; W: 30%). In Portugal the difference is more pronounced, with 94% of men stating they have not interrupted their career, compared to 74% of men in Norway. The task of caring for others is far from being equally shared.

In sum, these gendered differences revealed in family and personal life variables may well influence research productivity, contributing to differences between men and women, although they cannot explain all of the differences. As mentioned previously, institutional factors are also likely to play an important role.

Differences in Academic time use and Working Patterns

As mentioned above, one of the reasons emphasized in the literature for the persistence of vertical segregation in academia is the different allocation of time academic women and men make for their main activities (Poole & Langan-Fox, 1997; Poole et al., 1997; Sax et al., 2002; Nakhaie, 2002; Carvalho & Santiago, 2008).

The analysis of time academics allocate to teaching, research, as well as other activities, such as administration and service (see table 6), indicates that there are significant differences in time spent on teaching between male and female Portuguese staff: comparing men and women at all levels shows that women spend more time on these tasks. At the same time, Portuguese men spend significantly more of their total time than their female counterparts on research activities. In Norway men spend more time than women on teaching, research, service and administration, but their total number of work hours is also slightly higher, within the same academic rank, than for the female academics. Looking at the total amount of time academics use on teaching and research, it is clear that men spend more of their total hours on teaching than women, but the total amount of time spent on research is about the same for male and female staff.

Table 6. Hours spent in a typical week. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Teaching (A)	18,9	20,9	16,9	14,6
Research (B)	13,9	12,4	13,3	11,5
Service (C)	1,7	1,2	2,3	1,3
Administration (D)	5,5	4,9	6,6	5,4
Other academic activities (E)	2,4	1,7	2,8	2,2
Total Hours	39,4	36,7	41,7	35,0
Percentage of teachings	*42,9*	*29,7*	*34,5*	*28,8*
Percentage of research	*46,4*	*25,2*	*25,9*	*22,2*

In both the Portuguese and Norwegian case, when the analysis is limited to include only professors (table 7), few differences in time allocations between men and women remain. The only significant difference in both countries is in the percentage of time spent on research, where men spend a little more time than women. In Norway male professors also spend more time on service than their female counterparts.

Table 7. Hours spent in a typical week when classes are in session, means and percentage of teachings and research. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Teaching (A)	16,9	18,1	17,5	17,3
Research (B)	14,0	11,5	13,6	11,7
Service (C)	1,7	1,7	2,5	1,6
Administration (D)	6,4	6,4	7,1	6,7
Other academic activities (E)	2,7	1,9	3,0	2,8
Total Hours	39,2	33,5	43,7	39,9
Percentage of teachings	*39,0*	*39,7*	*35,7*	*33,7*
Percentage of research	*30,6*	*22,6*	*26,2*	*22,1*

In Norway it is widely believed that academic staff at universities and colleges have less uninterrupted time for research than prior to the changes introduced through the Quality Reform, a policy initiative which was launched in 2003 (Vabø, 2010). It is also argued that women academics are more exposed to this problem, in part because they engage more in administrative and teaching duties at HE institutions and because they have more private-life obligations, in particular caring for children. According to the evaluation of the Quality Reform, the impact on research time was partly caused by the new requirements for closer monitoring of students within the new pedagogical regime (Michelsen & Aamodt, 2006). However it is also argued that less continuous time for research is a consequence of bureaucratization and the need for academics to become more involved in allocating external funding (Bentley et al., 2010; Vabø, 2010).

These results do not entirely confirm previous studies that found that women dedicate less time to research than men (Poole & Langan-Fox, 1997; Poole et al., 1997; Sax et al., 2002). Based on this data analysis it is possible to suggest that there are no global or homogeneous tendencies for gender differences in the allocation of time (Carvalho & Santiago, 2008). On other hand, these results also raise the possibility that other contextual factors are influencing the way women and men allocate their time in academic roles.

Even if women participate more in the labour market in Norway than in Portugal, it could be argued that teaching is a more feminised profession in Portugal, as there are higher percentages of female teachers at all educational levels. Curiously, higher education participation is the area where the two countries are more similar: the proportions of female teachers, in Portugal and Norway

respectively, are: 82% and 73% for primary education, 69% and 58% for secondary, and 43% and 41% for tertiary education, (WEF, 2010).

When asked directly about their preferences, women and men at all levels, in both countries, tend to prefer combining both teaching and research activities, although they give some preference to research. This set of results (see table 8) shows that, in spite of the managerial pressures that might be expected to fragment academic work, by inducing new ways of work division and organization, academics seem to have maintained fairly traditional, Humboldtian beliefs and values as a frame of reference driving their professional expectations and activities (Santiago & Carvalho, 2004; Santiago & Carvalho, 2008; Carvalho & Santiago, 2008). As table 8 also shows, a larger share of the academic staff in Portugal than in Norway prefer teaching activities, or to combine both activities, although they lean towards teaching. Among Norwegian staff, about one in four would prefer to focus primarily on research activities.

Table 8. Interests and preferences for teaching and/or research. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Primarily in teaching	5%	10%	2%	3%
In both, but leaning towards teaching	32%	29%	19%	15%
In both, but leaning towards research	50%	52%	56%	59%
Primarily in research	12%	9%	23%	24%
N	*195*	*134*	*482*	*238*

Looking at professors only (table 9), there are clear differences between Norway and Portugal: more of the professors in Portugal than in Norway prefer teaching activities, and a larger share of the professors in Norway value research activities higher than teaching.

Table 9. Interests and preferences for teaching and/or research. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Primarily in teaching	1%	11%	2%	1%
In both, but leaning towards teaching	35%	19%	19%	12%
In both, but leaning towards research	49%	56%	58%	66%
Primarily in research	14%	14%	21%	21%
N	*79*	*36*	*395*	*150*

Research Productivity

Differences in time allocation (table 5 and 6) do not necessarily mean that there are differences between women and men in terms of their research productivity making it important to look at this variable in more detail.

In the Norwegian case, the data analyses to a certain degree support the argument that the differences in time spent on research lead to differences in research productivity. Men (both in general and when only including professors) tend to publish more articles in academic books or journals than women. In Portugal, however, we find no differences between male and female academics regarding research productivity (see tables 10 and 11).

Table 10. Number of scholarly contributions completed in the last three years, means. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Scholarly books you authored or co-authored	1,2	0,7	0,7	0,6
Scholarly books you edited or co-edited	0,9	0,6	0,3	0,3
Articles published in an academic book or journal	7,7	6,8	7,5	5,1
Research report/monograph written for a funded project	2,5	1,9	0,8	0,5

In light of these results it is relevant to try to understand the personal and institutional factors that may explain differences in research productivity between women and men.

Table 11. Number of scholarly contributions completed in the last three years, means. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Scholarly books you authored or co-authored	1,5	1,3	0,8	0,8
Scholarly books you edited or co-edited	1,4	1,2	0,4	0,3
Articles published in an academic book or journal	10,3	10,2	8,2	6,1
Research report/monograph written for a funded project	3,1	2,6	0,9	0,7

Institutional Factors

Different studies have called attention to several institutional variables that may interfere with research productivity. Among them, access to economic resources and to research assistants have already be mentioned (Toren, 1993) but there are also issues of access to networks, mentors, collaboration (Perna, 2005; Conley, 2005; Webster, 2001) and also to 'influence, career opportunities and academic authority' (Morley, 1999:4).

It is evident that women often face more insecure and uncertain academic environments, as has been previously noted in both Norway and Portugal (Santiago & Carvalho, 2008). In Portugal those who are in less secure positions (in terms of their contract/legal position) need to teach more hours than the others, and this is also often the case in Norway.

These differences in job security have been linked to differences in time use, notably by Asmar (1999:267) who argues that it is not that women are "(…) knowingly damaging their career prospects by taking on abnormal amounts of teaching and administration work"; their employment situations often make more of this kind of work necessary.

Indeed, there are other relevant institutional differences concerning the gendered division of academic work, involving teaching responsibilities held by men and women at different levels of academic programmes (e.g. undergraduate and postgraduate teaching). In Portugal, looking at all levels of positions, women state that they assume a high proportion of teaching responsibilities for undergraduate programmes, but a relatively low share of teaching in doctoral programmes (see table 12). In Norway, the shares of teaching responsibilities are more even over the three levels, and between the male and female staff: about one third of teaching time is spent on undergraduate programmes, one third on master programmes, and 16–17 percent on doctoral level teaching.

Table 12. Teaching responsibilities, mean percentage of time for men and women in Portugal and Norway. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Undergraduate programs	48	56	34	34
Master programs	30	32	33	33
Doctoral programs	13	6	16	17

When we focus only on Norwegian professors, the mean shares of time spent on teaching at the three different levels are about the same at levels analysed. In Portugal, however, there are differences between men and women in time spent on teaching responsibilities in master programmes: while female professors in Portugal spend 40 percent of their teaching time on master programmes, male professors use only 30 percent of their time doing the same (see table 13).

Table 13. Teaching responsibilities, mean percentages of institution time for men and women in Portugal and Norway. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Undergraduate programs	46	43	34	30
Master programs	30	40	34	36
Doctoral programs	15	9	16	19

In both countries men are more likely than women to report that in the previous academic year they have: supervised a research team or graduate research assistant; been involved in the process of technology transfer; or managed research contracts and budgets (see table 14). In the Portuguese case men are also more likely to have been involved in answering calls for proposals or writing research grants during the last academic year. The Norwegian case also shows that, compared to Portugal, both more men and women have been involved in processes concerning the purchase or selection of equipment and research supplies, although there are no significant differences between male and female academics in this regard.

Table 14. Percentage involved in research activities in current academic year. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Supervising a research team or graduate research assistants	54%	43%	53%	40%
Involved in the process of technology transfer	26%	14%	17%	9%
Answering calls for proposals or writing research grants	50%	39%	80%	85%
Managing research contracts and budgets	45%	33%	51%	41%
Purchasing or selecting equipment and research supplies	52%	46%	42%	33%

Table 15. Percentage involved in research activities in current academic year. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Supervising a research team or graduate research assistants	60%	62%	57%	47%
Involved in the process of technology transfer	27%	15%	18%	9%
Answering calls for proposals or writing research grants	55%	53%	82%	91%
Managing research contracts and budgets	55%	45%	55%	49%
Purchasing or selecting equipment and research supplies	51%	51%	42%	35%

When only professor's research activities are considered (table 15), the only significant difference between men and women in the Portuguese case is involvement in the process of technology transfer. In the Norwegian case, male professors tend to be more involved in supervising a research team or graduate research assistant and the process of technology transfers than their female colleagues, while women have more often been involved in answering calls for proposals or writing research grants.

These data seem to offer some support to previous studies suggesting that men dominate not just the organisational structures but also the research agenda (Bagilhole, 2007). While these differences are not very large, they are important: to the extent that male academics are more involved in crucial research activities than their female peers, one can expect the allocation of resources to be gendered and to focus on male values and networks (Husu, 2004).

More positively, data concerning involvement in research networks and collaboration with other researchers shows few differences between male and female academics (table 16). In Norway, when looking at all levels of academics, there are no significant differences related to individual work in research, the existence of collaborators in research projects or even collaboration with persons at other institutions in the country. In Portugal, more men than women have collaborated with colleagues internationally, but other forms of collaboration appear to be fairly balanced.

Table 16. Research effort undertaken during the academic year, percentages of men and women in Portugal and Norway All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Collaborators in own research projects	68%	71%	84%	86%
National collaboration	71%	71%	64%	65%
International collaboration	79%	63%	72%	68%

When focusing only on the professor level, it appears that male professors in Portugal collaborate more internationally than female professors (table 17). In Norway there are no differences between male and female professors in this regard.

Table 17. Research effort undertaken during the academic year, percentages of men and women in Portugal and Norway. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Collaborators in own research projects	71%	73%	85%	89%
National collaboration	77%	69%	66%	72%
International collaboration	86%	60%	72%	73%

International networking may be particularly relevant in the contemporary context, as academics are increasingly pressured to publish internationally (Leden et al., 2007). In Norway, more male than female academics declare they have co-

authored publications with colleagues located in other countries, and that they have published in a different country in the last three years (table 18). In Portugal more male academics have published in a language different from the language of their institution and are also more likely than their female counterparts to have co-authored with colleagues located in the same country.

Table 18. Type of publications in the last three years, mean percentages of the total number of publications for men and women in Portugal and Norway. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Published in a language different from the language of instruction at your current institution	56	46	75	72
Co-authored with colleagues located in the country of your current employment	53	47	49	50
Co-authored with colleagues located in other (foreign)countries	22	17	24	18
Published in a foreign country	64	51	62	53

When focusing only on the professor level it appears that more male professors in Norway have co-authored with colleagues located in other countries and have published in a different country in the last three years. However, for Portuguese professors, there are no significant differences between men and women when it comes to participation in these types of publications (table 19).

Table 19. Type of publications in the last three years, mean percentages of the total number of publications for men and women in Portugal and Norway. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Published in a language different from the language of instruction at your current institution	54	51	76	72
Co-authored with colleagues located in the country of your current employment	53	57	49	49
Co-authored with colleagues located in other (foreign)countries	22	23	24	18
Published in a foreign country	66	56	63	51

In this matter is important to stress that men also seem to have more control of international publications. In general, more men than women served as peer reviewer (for journals, research sponsors and institutional evaluations) and as an editor of journals/books series (table 20). However, these figures change if we look at the professor level only (table 21) where this activity seems more equally distributed between men and women.

Table 20. Participation in research activities during the current academic year, percentages of men and women in Portugal and Norway. All levels

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Served as a member of national/international scientific committees/boards/bodies	54%	50%	53%	50%
Served as a peer reviewer (e.g. for journals, research sponsors, institutional evaluations)	73%	62%	72%	58%
Served as an editor of journals/book series	35%	21%	18%	14%

Among professors, we find that in Portugal more men than women have served as an editor of journals/books series (table 21). However, in Norway we find that female professors have actually been more involved than male professors when it comes to serving as a member on national or international scientific committees/boards/bodies.

Since the 1980s various actions have been implemented to increase the number of female faculty in Norwegian university and colleges (Brandt, Bruen, Olsen, & Vabø, 2002). These policies have been variously promoted on the basis of fairness, democracy, credibility, research relevance, and research quality. The focus has been on recruitment processes for academic positions and strategies to encourage women to apply for such positions. In recent years, policies for equal opportunity in the research system have also been justified on the basis of attracting and making the best use of the most talented candidates among the population. Special actions targeted at increasing qualifications among women have included scholarships, support in forming networks and mentoring. Emphasis has also been put on gender mainstreaming initiatives, which aim at the integration of gender equality issues across a wide range of activities, including: human resource management, management development programmes, strategies for recruitment and activities for developing an adequate knowledge base for promoting gender equality, including gender sensitive statistics, as well as efforts to ensure gender representation of 40/60 percent on all steering boards and committees. Norway (with Sweden) is leading the EU in terms of women's participation on management boards, with 45 percent of board members being women, compared to 24 percent in Portugal (White, Carvalho, & Riordan, 2011). Most likely this figure reflects the national legislation in Norway stating that women should be represented in all academic committees and decision making bodies. In practice studies also reveals that this democratic effort sometime represents an extra administrative burden of work on women academics, particularly in the disciplines where they are a minority, and where this type of work is not necessarily beneficial to academics' scientific career (Schwach &Waagene, 2010; White, Carvalho, & Riordan, 2011).

Table 21. Participation in research activities during the current academic year, percentages of men and women in Portugal and Norway. Professors

	Portugal		*Norway*	
	Men	*Women*	*Men*	*Women*
Served as a member of national/international scientific committees/boards/bodies	66%	69%	59%	70%
Served as a peer reviewer (e.g. for journals, research sponsors, institutional evaluations)	80%	79%	76%	70%
Served as an editor of journals/book series	48%	31%	21%	19%

Gender equality policies of this kind are important, however ambiguous since they might give the impression of high level of achievement – as well as top rankings in international figures. Indeed, this study reveals that even among tenured academic staff at universities, resources important for pursuing a scientific career are distributed mainly in favour of men, according to traditional patterns of division of labour between men and women. One might suggest that, in addition to formal policies (implemented through the institutional hierarchies) and legislation, attention needs to be given to the informal and unconscious practices and expectations that might discriminate against women, as regards recruitment, inclusion in formal and informal networks and other resource relations important for publishing and making a name for oneself.

CONCLUSIONS[4]

This comparative gender analysis of the academic professions in Norway and Portugal reveals that, while both countries have distinct welfare traditions and equal opportunities policies, traditional and broadly similar forms of inequality between men and women faculty still tend to be reproduced in academic employment. In both countries, the well-known patterns of horizontal and vertical segregation persist. In both countries women still represents a minority in grade A positions.

A particularly interesting finding is that, despite Norway being one of the first countries in the world to demonstrate more equity in several key socio-economic indicators, the figures show a lower proportion of women in academic positions overall in Norway than in Portugal. It is reasonable to suggest that this pattern can be explained by factors such as Portugal's more rapid and progressive patterns of recruitment of women into higher education; this also seems to be reflected in Norway's more elitist recruitment pattern as regard the educational background of fathers and mothers and Norway's higher fertility rates. As regard social background variables, cultural capital seems important for women to succeed in academia: a larger proportion of women than men in both countries come from an academic family background (in Norway both in terms of mothers' and fathers' education level).

This data analysis confirms previous studies in showing that the traditional division of labour in the private domain persists, with women having to interrupt their career more to take care of their families. Furthermore, and in line with this previous pattern, women academics in both countries report working fewer hours per week. Women academics are also more likely than men to have a partner working full time. All of these factors are likely to be important explanations for the limited success women in academia have had in "breaking through the glass ceiling".

The Portuguese academic system seems to be even more stratified internally, in terms of roles and academic modes of work, as men who are high up in the academic rank tend to invest more heavily in research related activities than women, in terms of international collaborations and publications as well as in management of research and allocation of funding.

These differences in national characteristics can only partly be explained in light of the differences in faculty working conditions identified in the two countries, such as Norwegian universities demonstrating more equal working conditions in terms of teaching loads. Instead of addressing these various patterns of gender difference individually, it seems sensible to strive to understand more about the interplay between internal (institutional) and external (social and personal) conditions. Data on the micro, meso and macro level must be considered to understand country specific, gendered social identities in the academic profession. To flag up just one of many possible indicators of the limited cultural or legitimate space for women to fulfil their potential as scientists, there is an interesting finding showing the relatively high proportion women within the academic profession in Portugal who are single, despite the more rapid expansion of women academics overall seen in Portugal; this indicates that there is still an even unequal distribution of scientific capital between men and women in tenured positions in Portuguese universities , than those in Norway. It appears that in many ways, being a full scale professor remains a role linked to typically masculine qualities . Nevertheless it seems that both national systems will benefit from recent policies aimed at recruiting more women into the HE system, and could benefit further by developing policies focused on keeping those women in the system and recruiting more women to top level positions.

NOTES

[1] By researchers one means for the purpose of this study academics who teach and do research in a public university.

[2] Global Gender Gap report 2010. World Economic Forum

[3] In Norway, around 80 percent of the female population is working and the birth rate is 1,9, one of the highest rates in Western Europe. To put this in context, one can compare the Norwegian situation to that in Japan, where there are a considerably lower proportion of female academics overall and where female academics are much more likely to be single and have no children.

[4] In order to make adequate comparisons, we limited our dataset to tenured positions in universities. When it comes to academic practice, the differences found between men and women are therefore less "remarkable" then they would have been if academics in non-tenured positions or those working in polytechnics had remained, as part of a broader sample. The differences found are within a quite

narrow and similar set of academic roles and positions. Furthermore, some of the differences found, such as the degree of participation in processes of commercialization or technology transfer, seem to be due to gender segregation between different fields of science and disciplines characterized by different modes of academic work and transmission of knowledge.

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