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DESIGNING HIGHER EDUCATION POLICY IN THE AGE OF GLOBALIZATION: IMPERFECT INFORMATION AND THE PURSUIT OF THE PUBLIC GOOD¹

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INTRODUCTION

There have been remarkable changes in the higher education policies of the developed countries over the last quarter century. “World class” universities are now believed to be a primary contributor to comparative advantage among the advanced nations – a critical source of needed human capital, of industrial technology, and of economic innovation (Dill and van Vught 2010). Because universities are still primarily funded or subsidized by national governments, higher education policy is perceived to be one of the more influential instruments that policy-makers in the leading nations can employ to sustain economic development in the new, more competitive global economy. Therefore, national governments are pursuing substantial reforms in the governance and management of the university sector.

But questions have been raised by a number of scholars (Calhoun 2006; Marginson 2007; Brown 2010; Molesworth, Scullion, and Nixon 2010) about whether these policy changes, which have introduced greater “privatization” and market competition into higher education systems (i.e., so-called neo-liberal reforms), are negatively affecting academic behaviour and diminishing universities’ ability to contribute to the “public good.” However, as our German colleague, Professor Ulrich Teichler, once so wonderfully put it, the main difference between research on mad cow disease and research on higher education policy is that when the mad cow researchers present their findings, the mad cows are not in the room!

While the effects on those actively engaged in the production of higher education should certainly be included in any calculation of the public good and/or the social benefits derived from higher education, focusing primarily on the impacts upon producers may not provide a totally objective assessment of the public good. Therefore, in a volume devoted to higher education policy in which the contributors are primarily academics, it is important to ask the traditional questions posed to policy analysts: which public? and for whose good? (Powell and Clemens 1998).

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For example, in the introduction to a report on Canadian higher education policy, the academic researchers noted, “Granting council policies that do not fully cover overheads and indirect costs . . . require user universities to short-change undergraduate training in order to ease up funds for prestige research projects” (Beach, Boadway, and McInnis 2005, 5). One can certainly argue that current reforms in research policy may negatively affect the incentives for university teaching, but the implication that universities are therefore “required” to short-change undergraduate training may reinforce the view among some policy-makers and members of the public that academics are using their granted autonomy to pursue professional preferences by cross-subsidizing research expenditures with funds intended for instruction.

I will argue that there are demonstrable weaknesses in a number of the current reforms of higher education. But the goal of my analysis is to determine how best to regulate universities to assure the provision of education, research, and public service that maximizes, in as efficient and equitable a manner as possible, the total social benefits of higher education.

Many recent national policies have been significantly influenced by the theories of the “new institutional economics” (Barzelay 2001; Scott, Ball, and Dale 1997), which attempt to make the assumptions about the nature and distribution of information in human behaviour much more explicit (Weimer and Vining 1996). For example, in higher education policy, there is a much greater emphasis now on providing public information about academic quality as a means of helping students choose the most effective university, on linking the award of university funds for research to measures of scholarly performance, and on the reallocation of intellectual property rights within universities as a means of motivating increased technology transfer. But are the assumptions about information in human behaviour that are currently guiding higher education reforms valid?

With the assistance of a number of distinguished international colleagues, I have recently completed two comparative studies of the influence of national policies on higher education (Dill and Beerkens 2010; Dill and van Vught 2010). The first is a study of the new regulatory instruments for assuring academic quality in universities, while the second is a study of the impact of national policies on the academic research enterprise among the leading nations of the Organisation for Economic Co-operation and Development (OECD). Drawing upon these studies, I would like to explore what we are learning about the role of information in the design of more effective higher education policy.

ACADEMIC QUALITY

Let me begin with the policies regarding academic quality. In many countries around the globe, the design of university quality assurance policies has become a “contested field” between universities and the state (Dill and Beerkens 2010). For example, does academic quality refer to the overall academic reputation of a university, to the quality of research by members of the academic staff, to objective indicators of the ability of admitted students, to the effectiveness of the processes by which university teaching and learning occur, and so on? From the standpoint of the public good, I would argue that the concept of academic quality is best defined by the concept of academic standards, by which I mean the level of knowledge, skills, and attitudes attained by university graduates as a result of their academic program or degree – what is increasingly referred to as the “value added” by a university education. This definition of academic quality is similar to the economists’ conception of general “human capital” (Becker 1994; McMahon 2009), which over students’ lifetimes provides both private and public economic benefits as well as valued social benefits in the form of improved parenting, healthier lifestyles, greater civic participation, and increased social cohesion.

One assumption of the new institutional economics, reflected in the statements of policy-makers in both the United Kingdom and the United States, is that if student consumers have sufficient information about the quality of universities, their subsequent enrolment choices will provide a powerful incentive for the institutions to improve the quality of academic programs, thereby increasing the human capital that benefits society.

However, the research evidence on the impact of the commercial university league tables that have proliferated rapidly around the world suggests that they do not effectively assure or improve the academic standards of universities (Dill and Soo 2005; Hazelkorn 2011). The challenge and cost of developing genuinely valid measures of academic program quality to inform student choice are significant. Furthermore, commercial publications have already achieved significant sales as well as influence among opinion leaders, higher-achieving students, and even university personnel by publishing *institutional* rankings using indicators of academic prestige, although they have dubious validity as predictors of student learning outcomes (Pascarella and Terenzini 2005).

More troublesome, the global focus on university prestige, which these commercial rankings have helped to foster, has distorted the expected constructive link between information on academic quality and university efforts to improve academic standards. Motivated by commercial institutional rankings based upon prestige, many universities have responded to market competition, not by improving the quality of student learning in academic programs, but by investing greater amounts of time and resources in marketing student admissions as well as developing attractive student facilities, “cream skimming” students by selecting the highest-achieving applicants, and engaging in other activities designed to enhance university prestige (Dill and Beerkens 2010).

The failure of the market to effectively provide consumer information about academic quality has inspired several non-profit efforts to provide more valid and socially beneficial academic rankings. These include the carefully designed academic program rankings developed by the Center for Higher Education in Germany (Beerkens and Dill 2010) and now being implemented in Canada. These league tables provide rankings of academic subjects rather than whole institutions, information genuinely useful to student choice, and these rankings were systematically developed by professionals based upon relevant research as well as current studies of student needs.

But while these rankings are genuinely superior to commercial league tables, they also have weaknesses for informing student choice (Beerkens and Dill 2010). For example, the program-level student surveys used to construct these rankings have limited reliability because of the low and/or highly variable response rates in different academic fields. Also, an association has been discovered between rankings scores and institutional size. Finally, the stated differences among subjects or institutions are insignificant and stable over time, providing limited guidance to student decision-making.

Furthermore, the international research to date on student choice suggests that many university applicants are “naïve consumers” whose education choices are influenced by a wide variety of educational, social, and personal factors, including the immediate consumption benefits of education. In mass higher education systems, quality rankings influence the educational decisions of a relatively small but growing segment of university applicants, primarily those of high ambition and achievement (Dill and Soo 2005). This suggests that the choices of even better-informed university applicants may not effectively represent the interests or values of the larger public good. Rather, as suggested below, information on the quality and performance of academic programs is most likely to benefit the public good if we focus on its

application to the collective actions of the primary producers of higher education – that is, the academic staff.

While the empirical evidence to date suggests that even better-informed student choices are unlikely to provide strong incentives for the assurance and improvement of academic standards within universities, there is some evidence – particularly in the US (Romer 2000) and some other countries – of a poor fit between student selection of subjects and needed human capital. Students appear to be choosing in societally insufficient numbers demanding academic fields such as the sciences and engineering, which clearly provide substantial private as well as public benefits. Therefore, countries such as China and the UK have recently proposed policies limiting enrolments and/or abolishing state subsidies for academic fields deemed less vital to society. A constructive first alternative to such restrictive regulation would be a national policy, similar to that adopted in Australia, requiring the provision of more useful performance information on academic fields to help guide student choice of university subject. Such a policy would require publication of data on student retention, student progression, and graduate outcomes (e.g., the nature of graduates’ employment, their average salaries, and their further education) *by subject field* for all institutions of higher education (Santiago et al. 2008).²

Finally, in contrast to the market for first degree–level education, where student preferences may not effectively reflect the public good, the international market for research doctoral students appears more consistent with classic economic assumptions (Dill 2009; Hazelkorn 2011). Many universities now provide full financial support to the best doctoral applicants in an effort to compete aggressively for the most able international students. Doctoral applicants are an older, more educationally experienced set of consumers than first-degree applicants, and they are pursuing advanced degrees primarily for vocational reasons. Doctoral applicants, therefore, are less likely to be swayed by consumption benefits, social factors, geographical considerations, or institutional reputation in their choice of academic programs and more likely to be influenced by valid information on doctoral program quality.

In this more perfectly competitive market, there is evidence that the well-designed National Research Council rankings of research doctoral programs in the US, which are subsidized by the federal government, are not only highly influential on student choice, but have also motivated demonstrable improvements in US PhD programs in a number of leading universities (Dill 2009). Given the acknowledged positive influence of research doctoral graduates on economic growth in the OECD countries (Aghion 2006) and the current efforts in many countries to improve the quality of research doctoral programs (Kottmann 2011), government support for doctoral-quality rankings appears to be a particularly well-justified policy for assuring the public good.

Much of the critical analysis of current reforms in higher education also warns of a possible decline in academic standards, arguing that “neo-liberal” policies may “privatize” academic life, thereby altering in a negative manner the constructive educational relationship between students and academic staff (Calhoun 2006; Barnett 2011). For example, the greater policy emphasis on competition for university research resources in many countries increases incentives for individual professors to devote more time and effort during their careers to academic specialization and research activity as well as for their universities to invest a greater

² There are a number of important methodological issues that would need to be addressed in such a policy (Dill and Soo 2005) – for example, assuring the validity and reliability of student performance information reported by institutions as well as the graduate outcomes reported in alumni surveys, addressing the limitations of the identified differential response rates by academic fields in student surveys, the fact that graduate salaries may reflect regional differences more than university differences, etc.

proportion of available resources in an academic “arms race” for research prestige (Dill and van Vught 2010).

As a consequence, academic staff may have less motivation and time to commit to the collective actions necessary to assure and improve academic standards in subject programs, and their universities may be even less inclined to require them to do so. Furthermore, the academic policies that often seem to accompany the “massification” of higher education, including modular teaching, continuous assessment, student surveys of instruction, program funding based upon enrolment, and university funding based upon student graduation rates, may actually encourage the inflation of grades or marks as well as the relaxation of academic standards. Indeed, a recent and much discussed study of a national sample of US college and university students suggests that academic standards in the world’s most expensive as well as most market-driven system of higher education may be declining (Arum and Roksa 2011). The studied US college students reported minimal classwork expectations and spent less time on academic work than comparable European Union (EU) university students. Over a third of those who graduated failed to demonstrate significant improvement in learning over their four years of college.

Consequently, in addition to the discussed instrument of quality information for student choice, recent government reforms have emphasized the development of external quality assurance (QA) instruments intended to maintain and improve academic standards in all university programs. Our analyses of these national QA mechanisms suggest some principles to guide the design of more effective policies (Dill and Beerkens 2010).

First, our analyses made clear that developing a stronger culture of quality in teaching and student learning, and creating conditions for the continual assurance and improvement of academic standards within universities, will require actively engaging *both* the collegial leadership of an institution as well as the academic staff in departments and subject fields. The positive impacts of the subject assessments, accreditations, and academic audits we studied in a number of countries (Dill and Beerkens 2010) were most clearly visible in the increased discussions about academic quality³ as well as measurable changes in curricula organization, student assessment, and modes of instruction that took place within academic programs. It is, after all, at the subject level that academic standards are most clearly assured and improved.

However, the external reviews or accreditations of all subjects recently implemented in some EU countries are costly to sustain for an entire system, their benefits tend to decline over time, they fail to assess the effectiveness of the university’s own collegial mechanisms for assuring quality, and these external processes appear to conflict with the global trend toward increased university autonomy. A more effective and efficient external quality assurance instrument would create incentives for the collective university to assume ongoing responsibility for maintaining academic standards and implementing rigorous and valid collegial processes for assuring and improving academic quality in all of the institution’s academic programs. For this to occur, the university’s core academic processes for assuring academic standards must be

³ Policy-makers may understandably question whether external assessments that promote greater collegial discussion among academic staff about improving academic standards are of significant public benefit. But both laboratory and field research suggests that face-to-face communication in social dilemmas is the most effective means of producing substantial increases in needed co-operation and coordination over time (Ostrom and Walker 1997). Similarly, research on universities (Braxton and Bayer 1999) suggests that effective deterrence and detection of proscribed academic behaviour is more likely to occur in departments with frequent social contact. Departmental meetings about assuring program quality, information exchanges with respected peers from other departments about ways of improving educational activities, and face-to-face collegial performance reviews regarding the quality of teaching and student learning in an academic program appear to promote the social ties necessary for the more effective observation, communication, and enforcement of academic standards (Dill and Beerkens 2010).

externally evaluated or audited by competent peer reviewers, and the efficacy of these processes must be confirmed by assessing their influence and impact on the quality of teaching and student learning in a representative sample of study programs within each institution – what in the UK are termed “audit trails.”⁴

A second design principle that can be deduced from the studied instruments relates to the core academic processes that must be externally evaluated. As in the Hong Kong Academic Audit process (Massy 2010), this requires a laser-like focus on the essential processes that universities themselves employ for assuring academic standards. Therefore, primary attention should be paid to the institutional processes for designing and approving new course modules and programs of study, reviewing academic programs, maintaining the equivalence of grading and marking standards within and among subject fields, evaluating teaching, assuring the effectiveness of student assessments, and identifying and sharing best practices for sustaining and improving academic standards among all academic programs. It is worth noting that these same collegial processes are likely relevant for assuring academic standards in all types of universities, whether public or private, traditional or distance-based.

A third design consideration is the appropriate methodology for these external reviews. The most effective and legitimate instruments in the views of academic staff possess characteristics similar to those exhibited by the Teacher Education Accreditation Council in the US (El-Khawas 2010), the accreditation and quality processes of the General Medical Council in the UK (Harvey 2010), and the ABET international accreditation process in applied science, computing, engineering, and technology (Prados, Peterson, and Lattuca 2005; Volkwein et al. 2007). These external subject reviews all strongly emphasize a culture of evidence-based decision-making within institutions that would be directly applied to the improvement of academic programs. Accordingly, they place much weight on assessing the validity and reliability of institutional measures and mechanisms for assuring the quality of teaching and student learning.⁵ In several of these assessments, the external peer reviewers are carefully trained, supported during the review process by professional staff, and employ systematic, standardized procedures and protocols.

A final issue in the design of academic quality assurance regulation is the predictable problem of “regulatory capture” (Laffont and Tirole 1991), whereby those whose interests are affected by the relevant regulation gain influence over the regulatory agency and promote their private interests over those of the public. Simply stated, who guards the guardians? The typical policy response to this question is to require a public evaluation of the academic quality agency itself as a means of protecting the public interest by effective regulation (Dill 2011).

⁴ The issue of evaluating academic subjects as part of university academic audits has been a particularly contentious issue in the UK, but the failure to do so undermines the effectiveness of the external audits. Logically, the only valid means of assessing the effectiveness of teaching or instruction is to evaluate its impact upon student learning. Similarly, the only valid means of evaluating the effectiveness of a university’s processes for assuring academic standards is to investigate their impact upon and the responses by academic subjects or programs. This is the approach taken in the academic audit process in Hong Kong.

⁵ Note that for an individual member of the academic staff to invest time and effort in collective actions to improve student learning, he or she needs to make a rational calculation of the benefits of such a decision. However, in many universities, information on the summative learning produced by academic programs is of questionable validity and reliability or is not available. This “second order” collective action dilemma makes improving the collegial processes for assuring academic standards within universities especially challenging (Dill, 2007). Therefore, external evaluations of the validity and reliability of university assessments of student learning, as well as of the active use of this information in the collegial processes governing the quality of academic programs, could provide a valuable incentive for institutional assurance and improvement of academic standards.

However, the evaluations of national academic quality assurance agencies have, to date, often been controlled by the agencies themselves in co-operation with associations of agency professionals and/or selected representatives of the regulated universities. This type of evaluation may lack independence, often fails to employ a suitably relevant and/or robust method of validation, and generally ignores the critical issue of the efficiency of external quality assurance regulations (Blackmur 2008). Since QA agencies are essentially regulatory bodies, the public good would, therefore, likely be better served if the effectiveness and efficiency of external academic quality assurance agencies were evaluated by established, respected, and truly independent national evaluation or audit agencies similar to the Government Accountability Office in the US, the National Audit Office in the UK, and the Auditor General of Canada.

In sum, better information on the quality and performance of academic programs could make a valuable contribution to protecting the public good if public policies provided incentives for their valid measurement and effective use by academic staff in the core collegial processes for improving and assuring academic standards within universities. As Pascarella and Terenzini concluded in their exhaustive review of the available empirical research on teaching and learning in higher education (emphasis added):

Assessment of department-specific learning outcomes can be a useful vehicle for change. *Assessment plans and activities developed and approved by faculty* can provide an empirical foundation of systematic and ongoing rethinking, redesigning, and restructuring programs and curricula. For faculty members, trained to be skeptical about claims, evidence is the gold standard in the academy, and they are unlikely to adopt new ways of thinking or behaving without first being convinced that the new pedagogies and organizational structures are better than the old. In addition, *the findings of assessment studies specific to faculty members' academic units will generate more interest and action than general or institution-wide evidence.* (2005, 648).

RESEARCH

A second area of higher education policy that reflects the assumptions of the new institutional economics is performance-based funding, or contracting for research. Performance-based funding of university research, based upon output indicators such as publications and citations, has been implemented in a number of OECD countries. The most prominent example of this approach is the Research Assessment Exercise (RAE) in the UK. Evidence suggests that performance-based funding of research has increased the productivity as well as the quality of UK academic research, stimulating latent capacities for research that previously were not efficiently organized (Henkel and Kogan 2010; Hicks 2008). In the OECD nations that have adopted performance-based funding, many universities are now reporting a more strategic approach to their research efforts, with marked improvements in the internal organization and management of research programs and activities (Dill and van Vught 2010).

It is likely that this improvement in university research programs is due not only to recently implemented research policies, but also to the general reductions in funding for publicly supported universities that have occurred in conjunction with the massification and expansion of higher education in many countries. As a consequence, universities in some of our case study countries (Dill and van Vught 2010) have become highly motivated to pursue alternative sources of revenue for their research programs and therefore have been required to develop the research centres and internal research management processes necessary to survive in this more competitive market.

However, performance-based funding has other reported impacts on university research (Hicks 2008). There is concern that the focus on peer-reviewed publications may suppress excellence, inducing a certain homogenization of research at the upper levels. Furthermore, the emphasis on publication counts encourages some researchers to become more calculating in their publication patterns, slicing their research into smaller topics and more numerous articles. The benefits of performance-based funding in Australia and the UK also appear to have been discontinuous, creating a one-time shock to the overall system; this initially motivates increased research productivity in all universities eligible for the funding, but appears to dissipate over time (Beerrens 2009; Crespi and Geuna 2004).

Performance-based funding also contributes to an observed stratification of universities, concentrating research in those institutions with richer resources, larger numbers of internationally recognized academic staff, and well-established reputations (Dill and van Vught 2010). There are also particular challenges involved in designing effective performance-based funding policies for university research. These include the need to continually adjust the output indicators in order to address the complexities of academic research, the high costs of monitoring university research performance externally, and the already noted difficulties of controlling cross-subsidies of research by teaching in a complex organization like the university, which produces the multiple outputs of teaching, research, and public service.

In addition, the global attention awarded to the RAE has distracted policy-makers and analysts from attending to alternative research assessment approaches. For example, the Netherlands has also implemented a system of peer-based research assessments for its universities. But unlike the RAE, it is not based primarily on research publications – it included from the beginning international peers – and it is not tied to university research funding. Instead, every six years, each university conducts an external peer review of its research programs involving internationally respected researchers (Jongbloed 2009, 2010). These reviews follow a Standard Evaluation Protocol (SEP) designed by the universities themselves in concert with national research organizations. The SEP evaluates the academic quality, scientific productivity, and long-term vitality of each research program, with implications for the management of research and the training of doctoral students. The research assessments use a variety of information sources, including on-site interviews, university self-reports, and bibliometric evidence. The evaluations are made public, but do not inform government funding.

Research suggests that these evaluations have had positive impacts on research productivity and research citations, as well as on improvements in each university's practices for managing research, that are similar to the much more highly publicized performance-funding system in the UK (Jongbloed 2009, 2010). And the more qualitative and collegial process implemented in the Netherlands has not produced the same degree of acrimony and divisiveness in the Dutch academic profession, nor has it contributed to a similar degree of research stratification among universities, as in the UK.⁶ In addition, and in direct contrast to the RAE, the

⁶ However, an important difference between the Netherlands and the UK is that the former has also retained a binary system of higher education featuring polytechnic institutions, which do not receive funding for basic research or research doctoral education. This polytechnic system has absorbed a substantial amount of the recent growth in higher education enrolments in the Netherlands. The maintenance of this binary line has arguably also helped sustain institutional differentiation in the overall Dutch system, providing incentives for the polytechnics to be more efficient and more fully focused on their educational mission and having less need for research stratification in the university sector. In contrast, the elimination of the binary line in the UK and Australia has increased incentives for the above-noted costly academic "arms race" for research prestige among all of the existing and newly named universities, and this has likely contributed to cost inflation and less emphasis on effective teaching and learning in the university sector. This issue of the appropriate design of a higher education system and its implications for university efficiency has also been raised in Canada (Skolnik 2005).

system in the Netherlands has experienced fewer changes in design, is likely less costly to run, and arguably provides more nuanced and useful information to each university as a means of improving its research activities. As such, the Dutch research evaluations will likely continue to make, over time, an effective contribution to improving the academic research enterprise.

In addition, the nature of information on academic research may also be relevant to achieving the allocative efficiencies expected of policies promoting greater competition among universities. For example, recent econometric studies in the US suggest that university research funds allocated through competitive peer review by the National Science Foundation are associated with research publications and patents, but increases in university research support by industry are positively associated with research output only when competitively awarded federal research funds remained dominant (Adams and Clemmons 2009; Foltz et al. 2005). In sum, US corporate support for university research may not be efficiently allocated.

Similarly, our research (Dill and van Vught 2010) suggests that in the more globally competitive economy, many sub-national governments in federal systems such as Australia, Canada, Germany, and the US are increasingly investing in research at their local universities as a means of stimulating regional economic development. But analyses of state funding of university research in the US states of California and Pennsylvania (Geiger 2010; Zumeta 2010) suggest that local governments frequently lack the “honest broker” institutions with strong norms for scientifically based selection of both university research priorities and projects. Instead, they “scatter” their funds in response to the demands of local stakeholders for immediate job creation in business and/or permit users to be too closely involved in defining the nature of the research.

Finally, both of the US state cases suggest that the more political orientation of sub-national governments may lessen incentives to conduct truly objective and independent evaluations of the effectiveness of regional knowledge transfer policies and university research investments. Therefore, as countries seek to encourage more diverse sources of financial support for publicly funded universities, national policies that clearly identify, through rigorous peer review, centres of excellence in research may provide valuable information (a market signal, if you will) that could help lead to more socially beneficial investments in academic research by sub-national governments, corporations, and other research patrons.

A final example of national higher education policies being influenced by the new institutional economics is the attempt to create innovative marketable goods by the reallocation of intellectual property rights. The much mimicked Bayh-Dole legislation in the US was motivated by a desire to speed knowledge to market. Therefore, the rights to patent and license government-funded academic research were reallocated to universities through new laws intended to increase university incentives for technology transfer. This policy was never expected to create a major new source of funding for higher education, but the adoption of similar policies in other countries has motivated many universities around the world to create technology transfer offices as a means of “cashing in” on their research outcomes.

Our analysis suggests that the majority of universities in the OECD countries (Dill and van Vught 2010) are at best breaking even, and many are suffering net losses, from their investments in technology transfer offices and affiliated activities. While many universities hope that their technology transfer investments will produce significant revenues over time, the institutions that substantially benefit from patenting and licensing are the established, world-class research universities. Even in these institutions, there tends to be a natural limit to the amount of revenue earned from technology transfer, because patents and licences are influential on innovation and profits in a relatively small number of industries and technical fields, biotechnology being the best-known example (Cohen, Nelson, and Walsh 2002).

One unintended impact of public policies emphasizing intellectual property rights as a means of stimulating technology transfer is their possible negative influence upon the core processes of academic science (Geiger and Sá 2009). By increasing incentives for universities to patent and license their discoveries as a means of raising revenue, some theoretical results and research tools that have been publicly available to other scholars and researchers are now being restricted. This constriction of open science, what has been termed the “tragedy of the anticommons” (Heller and Eisenberg 1998), may in fact lessen the economically beneficial “spillovers” for society that have been a primary rationale for public support of basic academic research.

PUBLIC SERVICE

While the education and research missions have long been two expected roles of the university, the third, or public service, mission is now receiving greater emphasis in national higher education policies because of the assumed connection among university research, technical innovation, and economic development (Dill and van Vught 2010; Zomer and Benneworth 2011). The link between the university and economic development did not clearly emerge until the second half of the 19th century, when the insights of academic research were applied to the improvement of agriculture in a number of countries (Lundvall and Borrás 2004). Denmark’s development of the Agricultural University in Copenhagen in 1856 and the Agricultural Research Station in 1883 disseminated effective farming practices throughout the country and facilitated the development of the successful Danish dairy industry. The Morrill Act, signed into law by President Abraham Lincoln in 1862, initiated the US federal policy supporting land-grant universities and agricultural extension stations and is frequently credited with the economic successes of US agriculture. The earliest science-based industry developed in late 19th-century Germany from university-based research (Murmans 2003). The increased financial support for organic chemistry at German universities by the federal and state governments, and the adoption of new laws protecting the patent rights of private businesses, were principal reasons why German industry led the world in the production of synthetic dyestuffs and organic chemical products until World War II.

A strong case can be made that “knowledge transfer” through university adult and continuing education, public access to the expertise of academic staff, and university cultural events in all subject fields including the humanities and social sciences provides measurable cultural, democratic, and economic benefits for society (Benneworth and Jongbloed 2010). But contemporary higher education policies have tended to place a “one size fits all” emphasis on technology transfer – the commercialization of university scientific knowledge by business. However, even if one focuses on the economic benefits of university research in the natural sciences and engineering, policies that emphasize the “hard” outputs of academic research may undercut effective economic development. Comparative research involving Finland, Japan, the UK, and the US (Lester 2007) suggests that the technology transfer processes favoured by many national higher education policies – i.e., patenting, licensing, and new business formation – were not the most significant university influence on economic development. While some “global” universities produce scientific artifacts that are transferable worldwide, effective technology transfer for most universities is a more local process and depends upon the nature of industrial development occurring in the regional economy.

Universities do contribute to the creation of new businesses, but much more commonly, they help to upgrade mature industries, support the diversification of existing businesses into new fields, and assist in the transplantation of industries. In these roles, traditional publications,

the provision of skilled science and technology graduates for the regional economy, and technical problem-solving with local business and industry through consulting and contract research are much more significant channels for influencing technical innovation than patents and licences (Cohen, Nelson, and Walsh 2002; Agarwal and Henderson 2002). Universities also play a crucial role by providing a “public space” (Lester 2007) in which, through meetings, research conferences, and industrial liaison programs, local business practitioners can discuss in a non-collusive fashion the future direction of technologies, markets, and regional industrial development.

This contribution to regional development is potentially a role that all comprehensive and technical universities, not just world-class institutions, can perform. Again, a critical factor in designing effective national policies for regional development is a more nuanced understanding of the role that information plays in technology transfer. Most influential in local innovation are the “softer” knowledge-transfer processes such as publications, meetings, consultants, and the hiring of new PhD graduates, whose added expertise is a primary means of transferring academic knowledge to industry (Cohen, Nelson, and Walsh 2002).

Policies encouraging this type of local and regional focus would provide incentives for universities to focus less on their possibly wasteful investments in conventional technology transfer and more on developing a strategy for encouraging innovation in their region, as illustrated by policies adopted in the Canadian province of Ontario (Wolfe 2007) and by the national government in Finland (Nilsson 2006). Such policies would encourage universities to better understand the development and circumstances of local industry, their own research strengths, and the most appropriate channels for aligning their capabilities with the needs of the local economy (Lester 2007). The Finnish Centre of Expertise Programme offers one well-regarded national example of developing universities as nodal points in regional networks of innovation by helping them better integrate their research expertise with local industry and business along the lines suggested here (OECD 2007).

CONCLUSION

Over 40 years ago, when I successfully completed my doctoral degree, the president of the University of Michigan personally awarded me my doctoral hood. In the US, the folds of that hood contain a vestigial “pocket” symbolizing the role of market forces in the medieval university because that is where scholars were paid directly by their peripatetic students. Today, in contrast, despite the increasing marketization of contemporary higher education, there is little evidence that the public good would be better served by encouraging each student to assemble an academic program through individual choice of modules or courses in the way that she or he might shop for the best meat and vegetables for dinner. Instead, given the necessary uncertainty and complexity of academic knowledge, the most beneficial university education for students as well as for society consists of academic programs that have been designed by, and whose academic standards are assured through, the collective actions of knowledgeable university professors. In sum, the most effective institutional framework for assuring the public good in higher education still appears to be the collegial mechanisms by which members of the academic profession themselves monitor, socialize, and reinforce the values essential to effective university teaching, research, and public service.

In her Nobel Prize lecture, the collective action theorist Elinor Ostrom (2010) similarly argued that market forces and the rules of the state are not the most effective institutional arrangements for governing, managing, and providing complex public goods. Instead, she has attempted to identify design principles that permit individuals to voluntarily address collective

action dilemmas. These basic principles include the self-organization of governance arrangements, the importance of face-to-face communication among peers for increasing trust, and the active collective monitoring of valid measures of performance. In my preceding analyses, I have tried to suggest – through contemporary examples such as the research doctoral rankings in the US, the academic audit process in Hong Kong, the research assessment process in the Netherlands, and the regional development initiative in Finland – how comparable principles might inform the design of public policies that will assist universities in improving the collegial processes necessary for assuring the public good in the new age of academic globalization.

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