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**NEOLIBERALISM, PERFORMANCE MEASUREMENT, AND THE GOVERNANCE OF
AMERICAN ACADEMIC SCIENCE***

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Irwin Feller

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ABSTRACT

The international thrust of neoliberal liberal policies on higher education systems has generally been to reduce governmental control over the operations of universities in de facto exchange for these institutions assuming increased responsibility for generating a larger share of their revenues and for providing quantitative evidence of performance. Differences in the structural and financial arrangements of the U.S. higher education and academic science system from those of other countries — especially the greater importance of private research universities and the modest share of state government appropriations in the operating budgets of public research universities — produce a different set of impacts and dynamics. Political demands for increased accountability, as in the recent, if rejected proposals of the U.S. Department of Education, would have increased government control of the operations of higher education institutions. Performance measurement systems used in some countries to allocate a portion of public sector funds for academic research are infrequently used in the U.S. Instead, these mechanisms and metrics increasingly reflect the displacement of professional and collegial decision-making by quantitatively based administrative procedures.

Introduction

In 1887 in a message to the U.S. Congress attacking free trade arguments for tariff reduction, Grover Cleveland, 22nd president of the United States, observed: It is a condition which confronts us — not a theory.

This sentiment, restated in its contemporary form — context matters — shapes the contents and structure of this paper. Predicated on familiarity with the broad international sweep of events and issues affecting government-university relationships across OECD nations, it examines the interweaving of neoliberal policies relating to the governance, missions, and financing of higher education with the adoption by

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governments and universities of performance management and measurement tools to fund and assess academic research. The conditions it cites relate to recent trends and events in the United States.

I focus on these themes for two reasons: first, because U.S. initial conditions invert those in Europe, such that putatively neoliberal higher education governance policies constitute an increase rather than a decrease in governmental control over university affairs; second, because it highlights the internal rather than external etiology and associated dysfunctional properties of putatively objective, new public management precepts.

The paper's basic thesis is that the coupling frequently found in both public policy formulation and scholarly exegesis of the impacts of neoliberal modes of governance and performance measurement systems upon academic science is analytically confounding and programmatically undesirable. It is confounding because bundling the defining features of neoliberal governance policies — deregulation; reification of markets; emphasis on competitive allocation processes — with those of performance measurement systems — if you can't measure it, you can't manage it — into a single analytical or programmatic worldview creates a situation where the sins (real or perceived) of one subcomponent are passed on to others, which may be blameless.

This bundling arises in part from loose usage of key concepts and in part from what Marginson and Considine have described as the undue influence of "simplistic outside norms of governance" (2000, p. 5). Terms such as markets, accountability, and competition are employed in such global, at times amorphous, ways as to vitiate conceptual or empirical coherence¹. This sweeping usage makes it difficult to identify and isolate the separate components of assemblages of policies, programs, and rationales, or to envision alternative, more selectively crafted portfolios.

As applied to academic science, the bundling also is undesirable because mainstream performance management and measurement systems have the potential to (a) distort the workings of competitive academic research markets consistent with and conducive to enhanced scientific productivity, and (b) substitute administrative procedures and personnel for the professional autonomy of both faculties and universities in ways that detract from and run counter to the pursuit of research excellence.

To place this thesis within a framework familiar to those writing about national higher education systems, in terms of the Clark's classic tripartite typology of comparative higher education system governance structures — bureaucratic control, market control, and professional-collegial control — it presents the shift from bureaucratic control to market control in generally positive terms, if at times fatalistically accepting the concomitant increased reliance on user fees (tuition), but presents the attendant corollary introduction of bureaucratic means of management and measurement to displace professional-collegial control as undesirable, and unnecessary (Clark, 1983; Dill, 1992; cf. Marginson and Rhoades, 2002).

Relatedly, to place the simultaneous, conceptually wide-ranging yet selectively narrow topical and geographical ambit of the thesis within the context of related work, it is close to but analytically separate from studies such as those by Zumeta (2001), Radin (2006), and Zemsky, Wegner, and Massy (2005) in the U.S., and by Geuna (1999), Nedeva and Boden (2006), Weingart and Massen (2008) and Bonaccorsi, et. al (2007) in Europe.²

The analytical and expository device of setting the analysis within the American context flows primarily from an interest in comparative analysis. Rather than emphasizing what at times is presented as trends towards convergence in national higher education systems clustered around the U.S. model, it calls attention to how differences in initial conditions among national education systems affects the impacts of nominally similar

policies. Most definitely, what its selective focus on the U.S. is not intended to do is to assert the superiority of its system of academic science and graduate education over other national models. Controversies about *Amerikansisierung* are side shows in what follows (Hochstetler, 2004).

To this point, the implicit framework for discussion has been university-government relationships. While accounting for much of what is happening, this approach underestimates the influence of events internal to the workings of universities that have led them to adopt performance management and measurement approaches similar to those being required by governments or governmentally sanctioned audit agencies. As part of recent trends toward formalized strategic planning, often tied to pursuit of international reputation and rankings, universities have come to substitute formal, quantitative performance systems for more traditional "professional" judgments of quality and performance (Priest, et. al, eds., 2002). Whether described in the U.S. as participating in the race to be the next Harvard, Berkeley, or Stanford (Kerr, 1991), or in Europe and elsewhere as attempting to ascend the rungs of the Times Higher Education Supplement or Shanghai Jiao Tong University ranking ladders, universities are increasingly seen as having become "enterprising organizations" (Weingart & Maasen, 2008; forthcoming).

Also shaping the tone of this paper is the view that for their entire analytical rigor, existing treatments of the interplay between accountability regimes and performance measurement systems tend to be lifeless. They are written from conceptual heights or empirical foothills, not from the academic trenches of faculty offices or laboratories. By not adequately describing how these new demands affect the daily working environments within which research faculty and research administrators function, they tend to abstract from, and thus miss the various ways, nuanced yet coercive at times, by which administrative imposition and control of performance management and measurement systems direct or bar faculty behaviors. To illustrate how these systems in fact work, and in part as a second best solution for the paucity in the U.S. of empirical inquiries comparable to the scholarly interest in these issues in Europe (e.g., Bruun, et. al, 2005), I cite some of my own experiences.

A final prefatory note. Writing this paper from a position as a professor emeritus, I am aware that my assessment may be seen as generational angst; namely concern, or lamentation, that the norms, mores, and criteria of one period have gradually changed, or eroded, if one wishes. My intellectual comfort in confronting this possibility is scanning the current outpouring of literature that expresses similar views, much of it authored by younger cohorts of researchers representing divergent disciplinary and national perspectives. I also am aware that I write from the perspective of one who entered the American university system in the 1960s and thus run the risk of taking as historically fixed the current dominant "standard model" of the research-intensive/Ph.D.-granting institution, whereas during this take-off stage, and even earlier, influential voices bemoaned the influence that the priorities of government agencies and funding councils could have on the research and curricula portfolios of institutions and faculties.³ Here I can only observe the staying power of path dependence: Scant evidence exists that any U.S. university that once embarked on the steep and rocky path of becoming (or enhancing its status as) a research-intensive/Ph.D.-granting institution has purposively turned around.

Neoliberal Higher Education Policies: Comparative Observations⁴

The baseline conditions and broad themes underlying the international sweep of neoliberal governance policies toward higher education and what has been termed the new social contract are well known (Neave and van Vught; 1994; Martin, 2003). They include the emergence of the mantra of knowledge-intensive economies and an associated increased importance accorded research universities within national innovation systems. This enhanced status, however, is coupled in many nations with realpolitik assessments that the costs of maintaining or achieving internationally competitive research standing for their universities, most of which are borne by national or state governments, outstrip the revenues available for this purpose (Institute for Higher Education Policy, 2007; Vincent-Lancrin, 2007; Table 3).

These themes interact to produce what is widely seen as a “neoliberal” trend among both developed and rapidly developing economies (e.g., China, India) for a “shift from regulation to the market” (Newman, Couturier, and Scurry, 2004, p. 31). The shift is from direct, detailed control of inputs historically characteristic of the bureaucratic model toward what has been termed “governance by instruments.” As described by Dill (2003, p. 4), “The new policy strategy can be seen as a ‘stepping back’ by governments from detailed centralized control through encouraging higher education institutions to be more autonomous, self-regulating and market oriented in their operations, albeit within an overall framework of government priorities.”

In general, the shift involves decentralization and deregulation of governmental control over the operation of publicly funded higher education institutions, increased expectations that universities will derive relatively larger portions of their revenues via “instructional” markets for their educational services and “utilitarian” markets for their research, and increased recourse to competitive apportionment of public funds for research based on various measures of performance.

The result has been a portfolio of national and state government policies designed to permit universities to raise funds independent of government subventions, such as the imposition of tuition or top-off fees atop established tuition maxima, sharper differentiation in the mission of universities, moves toward competitively awarded project-based funding for research in lieu of formula grants to institutions or institutes, a concomitant willingness to differentially fund universities with a view toward building steeples of excellence in graduate education and research, and employment of competitive merit-based processes in shaping these allocation decisions. A further part of the renegotiated social compact is that universities, while remaining accountable for the proper use of public funds, gain increased discretion about how to allocate these resources, but in exchange are expected/required to produce more explicit and quantifiable evidence that they are achieving agreed-upon education, research, and third mission objectives.

Expert and relevant within the specific settings in which it is presented, discourse along these lines on neoliberal higher education governance policies and performance measurement systems is too general and aggregated for purposes of comparative analysis, especially as between Europe and the United States. Finding itself surrounded and forced to surrender, in 1781, General Cornwallis’s army band played “The World is Upside Down.” The same may be said of the ways in which issues surrounding national science policies and neoliberal higher education governance policies in Europe become inverted when seen through the prism of U.S. science policy and higher education policy. Thus, as Ryan and I argue in a forthcoming essay (Ryan and Feller, forthcoming), the same analytical framework and language relating to accountability used in Europe to loosen government control over universities — a trend generally welcomed by universities, if not always their students — underlay recent efforts, described below, of the U.S. Department of Education to expand its regulatory control over American universities.

Similarly, issues of considerable policy ferment and political opposition in Europe arising from the introduction of neoliberal higher education policies — opposition to the imposition of tuition by French universities; reservations about Germany’s plans to establish a select number of elite universities — either do not appear in the U.S. setting, or appear in such a different form as to bear little relationship to what is happening on the Continent. These differences arise from the simple matter that in the US these policies represent not only what is, but also what is held to have worked.

Historically, for example, extensive, but not exclusive, reliance in the U.S. upon competitive, merit-based allocations of government funds for academic research has been associated with a concentration of Federal funds among a relatively unchanging set of universities, albeit also engendering an increase in the number

of research-intensive universities. (In FY2005, the leading 20 universities ranked in terms of academic R&D obligations received 34% of federal academic R&D; in the same year, 1,227 academic institutions received federal science and engineering support, the highest number in all but one of the previous 32 years (National Science Foundation, 2007). The attendant fierce competition — “Wisconsin’s Flagship is Raided for Scholars” headlined a recent *Chronicle of Higher Education* news story (April 18, 2008) — among U.S. universities for inputs (research funds; faculty; students) and outputs (citations; Nobel Prizes; reputation; rankings) is often treated as sanguinary, and indeed necessary for allocative efficiency (Rosovsky, 1990).⁵ Concerns about distributive equity and pragmatic, if frequently undesirable, accommodation to the needs of democratically elected legislators to demonstrate returns to their constituents, or the tactics of faculty and administrators to bypass the competitive merit review process, are accommodated by parallel allocation tracks in the form of compensatory set-aside programs or earmarks for the “have-nots” (Savage, 1999; Feller, 2001).

Another contrasting facet: With limited exception, and then primarily in mission agencies (e.g., Hatch Act funding for agricultural research), use in the U.S. of pro rata quotas or formalized quantitative approaches to allocating public research funds of the type found in the UK’s research assessment exercise (Geuna and Martin, 2003; Barker, 2007), Australia’s tying of funding to measures of research publications (Butler, 2004;) or the Netherlands’ inclusion of bibliometric data (as part of an augmented peer review process) in large-scale assessments of academic research (van Leeuwen, 2007), is infrequent. Indeed, proposals to introduce techniques along these lines are widely opposed by U.S. scientific elites, who contend that expert review based on peer review remains the gold standard for evaluating research programs (National Academies, 1999).⁶

Accountability

Accountability in democratic societies, according to Behn (2001), has at least four different meanings: (a) accountability for finances — where did the money go? Was it spent on things for which it was supposed to be spent? (b) accountability for fairness — has the government organization and its employees behaved according to the rules/procedures established to ensure consistency with democratic norms of fairness and equity? (c) accountability for the use of (or abuse) of power (a combination of accountability for finances and accountability for fairness) — have the above rules and procedures prevented or constrained the abuse of power by public officials? (d) accountability for performance — has the organization produced the goods and services, or generated the outcomes expected of it?

Identification of these four meanings is useful because it highlights the explicit addition of accountability for performance to longer-standing requirements for accountability for finance as a defining feature of recent neoliberal governance policies. (This shift is symbolized in the U.S. by the changed name and orientation of the GAO, a Congressional oversight agency, from the General Accounting Office to the General Accountability Office.) The multipart framework also is useful because it points to what Behn has termed an accountability dilemma that arises from seeking to simultaneously satisfy each meaning of the word: “The accountability rules for finance and fairness can hinder performance. Indeed, the rules may actually thwart performance” (ibid, p. 10).

This is a generic framework, however. Three further distinctions are needed to apply it to the specific setting of the American higher education system. The distinctions are analytically simple and sharp, but blurred in practice (e.g., the complexity of the interconnection among university tuition levels, faculty salaries, and research infrastructure, for example [Ehrenberg, Rizzo, and Jakusbon, 2007]). The first is between accountability in research and in education; the second, between public and private research universities; the third, between the activities of state governments and the federal government.

Figure 1 presents a simple matrix of the accountability regimes generated by these classifications. (The symbols denote the presence, absence, or problematic nature of the interrelationship between rows and columns.)

Figure 1 – Accountability Regimes for Higher Education

		Instruction		Research
		Public	Private	
State		+	0	0
Federal		?	?	+

Following is some background data about initial conditions in the U.S. to set the context within which differences in accountability regimes come into play. In fall 2006, U.S. public postsecondary degree-granting institutions enrolled approximately three times as many students as did private institutions (15.2 million vs. 5.1 million). Several public research universities (University of Washington, University of California–Los Angeles, University of Michigan) appear along with private universities (Johns Hopkins University, University of Pennsylvania, Stanford University) in top 10/20 rankings of total research and total federal academic research expenditures. Private universities, however, continue to dominate most lists of the “best”, “leading,” or top-ranked institutions for the quality of their instructional programs, both undergraduate and graduate, and for their research prowess.

By revenue sources, the U.S. system is more a privately funded than a publicly funded enterprise — private sources, including tuition and other revenues, financed 57% of institutional expenditures in 2003, compared with 43% from public sources. Public funding of higher education primarily comes from state governments.

By way of contrast, at least since the 1950s the research capacity, and its joint product — Ph.D. students — of America’s universities has been built upon and remains dependent on federal government funding of academic research. In FY2005, the federal government provided \$29B, or 64%, of the \$47.8B expended by universities and colleges on R&D. These funds are provided to both public and private universities via a complex mix of formula funding, competitive merit review, and politically charged earmarks and set-asides.

These conditions affect the potential and actual force exerted by the accountability regimes imposed upon universities by national and subnational governments. In a stylized sense, these powers consist of appropriations and regulation, with accreditation treated here as an especially relevant form of regulation. For state governments, accountability is enforced in the main via the appropriations process, largely directed at undergraduate education, and regulations (e.g faculty activity report forms), with the ambit and force of these techniques varying according to the constitutional or legislative relationship that exists between a state and its public higher education sector.

Since it provides relatively little direct funding for the general operating budgets of universities, public or private, the federal government’s pathway into the accountability thicket wends through regulatory control of the activities that enter into instruction and research (e.g., human subjects’ protection; handling of hazardous materials; student visas). Especially relevant for what follows is consideration of the importance

of "accreditation" as an eligibility criteria for the panoply of federal government programs that subsidize various aspects of university operations (e.g. student loans; construction grants; equipment grants).

Most of the current controversy surrounding the imposition of formalized accountability regimes for American universities relates to their educational mission, and even more specifically to their performance in undergraduate education. Thus the focus of attention tends to be on "learning" or "competencies," as measured by standardized assessments tests, time to degree and graduation rates, and tuition levels (Burke, J. ed., 2005). According to one survey, as of 2004, 44 states "...had initiated some form of accountability mandate — including, in some states, reports on faculty activity, legislation, and governing board requirements" (Levelle, 2005, p. 4). Some states, most notably Tennessee, Missouri, South Carolina, and Washington, also have introduced performance funding systems that tie performance on legislatively mandated performance indicators to appropriations (Zumeta, 2001). One dramatic example of this approach was the state of South Carolina's enactment in 1996 of legislation that required the use of 37 performance indicators for allocating appropriations to the state's 33 public higher education institutions (Heller, 2004, p. 56), with the further requirement that 100 percent of the state's appropriation be based on these measures by 1999. Empirically however, except in a few state-dependent and time-dependent cases, the linkages between performance measurement systems and appropriated budgets appear to remain relatively loose and limited.

At the same time, some (but not all) states have agreed to cede increased autonomy to public universities, or selected colleges within these institutions, to set tuition, salary levels, purchases, and the like. This development in good part represents a pragmatic accommodation to secular trends in which state government support of public universities has declined both as a percentage of state general funds budgets and of university general operating budgets (Newman, Couturier, and Scurry, *op. cit.*, 124-134). It is this combination — declining public sector support and increased autonomy — that creates the surface resemblance in the U.S. to the above-cited advent of neoliberal higher education governance policies in Europe. It also accounts for the recent flurry of interest and concern in the U.S. about the "privatization" of public higher education (Duderstadt and Womack, 2003; Gose, 2002).

State governments, by way of contrast, have not devoted much direct attention to the "research performance" or national rankings of universities within their borders, public or private, at least with respect to linking appropriations to specific quantitative research metrics. Not surprisingly, university presidents during their annual or biennial budgetary submissions continuously call attention to these rankings and the associated implications of losing productive research faculty to other universities if state support lags behind institutions elsewhere in what is essentially a nationally competitive market. The increasingly commented on secular erosion of the competitive position of public relative to private research universities (Geiger, 2004, Feller, 2007), suggests that the effects of these attention-getting pleas has been modest, at best. The major linkage, if such exists, between state appropriations and performance assessment arises in the form of state monitoring of how well universities are performing as sources of new technology-based economic growth, especially when fueled by funds from state programs targeted at this objective. Viewed through this filter, patents, licenses, and spin-offs, as recorded in the Association of University Technology Managers (AUTM) surveys, become more salient performance indicators than ISI recorded citations or standings in National Research Council or THES rankings (Feller, 2004).

Within the context of the U.S. system of education, the major policy shift with respect to accountability and performance measurement occurred in K-12 education, with the passage in 2001 of the No Child Left Behind Act. This legislation introduced a historically unparalleled assertion of federal government provenance over a functional domain historically funded, directed, and monitored by state and local governments (Manna, 2007).

Even though it addresses primary school education rather than academic science, I make note of this act because its fundamental underlying premises that a domain's professionals cannot be relied upon to ensure the quality of the services they deliver or to control the costs of these services pervade the findings and recommendations of the recent Commission on the Future of Higher Education (Spellings Commission). According to the Commission, the higher education system's traditional reliance on regional accrediting associations as a quality assurance mechanism, with the assessments conducted by these associations in turn based on institutional self-assessments and external, peer-reviewed-based assessments, is unduly subjective, and therefore flawed. Instead, what is needed, according to the Commission, are more explicit statements of minimum levels of acceptable performance on student learning outcomes, accompanied by increased use of data that would permit interested parties — parents, students, others — to determine whether institutions were meeting these standards. This combination would facilitate more precise comparisons of the performance of different institutions than is feasible under reputational surveys or peer reviews. In effect, the proposals constitute a shift from self-monitoring and policing by the institutions and professionals currently responsible for managing national higher education systems toward quantifiable performance objectives and measures set and monitored by government agencies or government-sanctioned regulatory bodies.

The administrative and legislative efforts by the U.S. Department of Education to implement these recommendations, including legislatively granted increased control over the criteria used by accreditation bodies in their accrediting processes, were widely opposed; private universities, which historically have exercised considerable autonomy in setting their own tuition levels and academic affairs, certainly relative to that exercised by public universities, have been especially vocal here. The proposals are viewed as a conceptually flawed and operationally trouble-ridden extension of new public management principles by which the federal government would come to exercise undue authority over the inner workings of colleges and universities.⁷

The Department's efforts were blocked by Congress in 2008 as it reauthorized the Higher Education Reauthorization Act. The Act specifically barred the Department from establishing any criteria that prescribed the standards that accrediting agencies or associations were to use in assessing institutional success with respect to student achievement. It is doubtful, though, that this (non)-action ends the debate. For present purposes, the relevant theme is the underlying analytical underpinnings: The Department of Education's proposals derive from the same general neoliberal *weltanschauung* shaping higher education policies in other countries, yet given the public-private mix of U.S. universities and its federal-state system of government, would produce an increase rather than a decrease in central government control of higher education systems,

In a similar vein, the accountability discourse at the federal level with respect to academic science sounds at times like that occurring in other countries but the words have a different meaning, and proposals derived from this discourse would have different effects. For the most part, this discourse been directed at challenges to the premise of an autonomous, self-governing republic of (academic) science (Guston, 2004). Issues such as academic fraud, financial peculations, conflicts of interest, treatment of human subjects, and the like, have called into question the capability or willingness of the academic scientific community to detect or punish violations of putative or formalized norms of scientific integrity or stewardship of public funds, thereby suggesting the need for additional external oversight and regulation.⁸

The result has been a body of legislative and administrative actions that impose new, formalized requirements upon universities to put in place administrative procedures to guard against these faults of omission and commission. Again, the trend in the U.S. relating to the governance of academic science is toward increased rather than decreased regulation. Whether one sees this as the outcome of a general philosophical and/or ideological adoption of neoliberal governance tenets or as the aggregation of a series of independent cause-and-effect actions, each appropriate for its context, is open to debate.

Performance Management and Measurement

As suggested by Behn's typology,, the conceptual bridge linking analysis of neoliberal higher education policies with that of the adoption and effects of performance management and measurement systems lies in widening the concept of accountability to include accountability for performance. As contended above, although frequently conjoined, the frameworks of neoliberalism and performance measurement as applied to academic science are temporally, logically, and programmatically separate. The adoption of performance management and measurement systems in the U.S. first by state and local governments and subsequently by the federal government, where it has been apotheosized in the President's Management Agenda, has its origins in the international diffusion across governmental and nonprofit organizations of what is termed the new public management paradigm (OECD, 1995; Kettl, 1997).⁹

The diffusion of performance management and measurement to higher education flows from yet another source. It reflects the infatuation beginning in the 1980s of academic administrators with best-practice strategic planning and management precepts modeled upon then current themes found in the corporate management literature (Keller, 1983; Bryson, 1988). This adoption took the form of substituting "rational" SWOT-type analysis and continuous quality improvement for "muddling through". Given this earlier and different root than that associated with the accountability movement, no contradiction exists in the U.S. between a university opposing externally imposed requirements to document accountability for performance by use of specific quantitative measures, while internally adopting the same measures to monitor and improve its own performance.

Externally, the demands upon academic science for documentation of research performance have increased markedly, yet at such a decision-making distance that the effects of these demands on behavior and performance remain to be systematically assessed. Beginning with congressional enactment of the Government Performance and Results Act (GPRA) in 1991 and receiving additional force following the introduction by the Office of Management and Budget (OMB) in its preparation of the FY2004 federal budget of a Performance Assessment Rating Tool (PART) to assess the merits of agency budget requests, demands upon agencies for documented performance, or results, have become increasingly pervasive features of the U.S. budget process. The rationale underlying these requirements is clearly stated in OMB's initial presentation of the PART requirements:

"The federal government spends over \$2 trillion a year on approximately 1,000 federal programs. In most cases, we do not know what we are getting for our money. This is simply unacceptable. ... No program however worthy its goal and high-minded its name is entitled to continue perpetually unless it can demonstrate it is actually effective in solving problems. In a results-oriented government, the burden of proof rests on each federal program and its advocates to prove that the program is getting results. ... There can be no proven results without accountability. A program whose managers fail year after year to put in place measures to test its performance ultimately fails the test just as surely as the program that is demonstrably falling short of success" (Budget of the United States, Fiscal Year 2004, Chapter 4, p. 47).

These requirements for proven results, though, occur at relatively high levels of decision-making and aggregation: for example, the President's budget proposal for funding for basic research at NIH, NSF, and the Department of Energy's Office of Science. Their effects of these requirements upon the conduct of academic science are complex and uncertain.. Based on participation in a number of executive, legislative, and agency-level activities related to GPRA and PART, my own, by no means universally accepted, summary assessment is that:

- a) Given the complexity of the U.S. budgetary process, and the constitutional separation of powers between the executive and legislative branches of government, the impacts of GPRA and PART on the size and distribution of federal funds for academic science are modest;

- b) Except for a manifest ideological antipathy toward civilian-oriented technology development programs (e.g. Advanced Technology Program), the PART procedure is not a binding or distorting constraint on agency R&D programs or priorities. The metrics contained in recent PART reviews of agency basic or mission-oriented research programs, as reported in ExpectMore.gov, are so diverse (and diffuse), as to permit agencies, in the main, to proffer performance objectives and related metrics that they can most readily reach (or obfuscate). They are even less binding on the executive in proposing research initiatives that strain PART's logic, evidentiary requirements, or sound technical or economic reasoning.
- c) Federal science agencies, such as NIH and NSF, have effectively buffered the impacts of these new requirements upon academic science, such that most researchers are unaware of how they may have affected budget decisions.
- d) To the extent that the requirements have affected academic science, it has largely been through added, more insistent requests from agency program managers to grantees to furnish evidence of research output (e.g. papers, citations, patents). Academics fully understanding of and experienced in keeping program managers happy, have willingly responded.

The effects of these performance requirements on academic science as one moves (downward) to the stage where academics assess the quality of science, namely in peer reviews of proposals or mid-course reviews of multi-year research programs, is an unexplored research field, at least to my knowledge. Again, based on participating in a number of proposal and center review panels for the NSF, and passing familiarity with review procedures in other agencies, my observation is that although performance, as conventionally measured by publications and graduation rates and placement of students, always weighs heavily in the judgments of reviewers, seldom, if ever, have these performance reviews included sophisticated performance measurement computations, such as of citation impact factors as are found in various assessments of European research organizations

Recognizing the limited evidentiary basis of these observations, my overall assessment is that for all the attention it has received, other than its problematic effects on funding streams to different agencies/programs, and thus to fields of science and disciplines, the federal government's recent emphasis on accountability for performance has had a limited impact on the conduct of academic science.

The same cannot be said of university initiatives. As adopted and implemented by universities, performance management and measurement systems have had and continue to have considerably more of an impact on academic science. The impacts are described in some cases in quite positive terms, as for example the observations of one university vice president for research recounting how he had used performance measurement techniques to determine relative levels of support for intercollege research centers under his budgetary control. Not all the impacts, however, have been as beneficial.

The shift from externally imposed to internally adopted use of performance management and measurement requires a concomitant shift in perspective. Performance management and measurement systems are more than instruments for monitoring performance. They also are incentive systems. They are designed to induce the behaviors that will enable the organization to achieve its stated objectives. If structured and implemented correctly, they produce the desired change in behavior; if structured and implemented incorrectly, they either have no effect on behavior or produce behaviors (and outcomes) antithetical to that which was intended.

Following Heinrich's recent analysis of the effects of incentive systems in motivating organizational achievements (2006), the relationships between and among accountability for performance, performance measurement systems, and incentives, will vary according to the following:

- a) The extent to which the behaviors of members of an organization are influenced by the set of incentives being manipulated via the performance measurement system. ("Organizations whose employees are motivated by public-service ethics and norms may be less responsive to monetary bonuses or other non-monetary forms for individual recognition for achieving high performance".)
- b) The extent to which inputs or outputs can be "observed" and thus "measured", and in turn the measures used. ("There is a strong consensus in the literature that powerful incentives are only optimal when performance can be readily measured in a straightforward way." ¹⁰)
- c) The locus of organizational responsibility for collecting and interpreting performance data. ("Monitoring and related management activities — essential to the effective functioning of performance bonus systems at multiple levels of government or organization — require substantial administrative capacity.")

Commentary on the motivational mix of "profess" and "pecuniary" ethics on the part of contemporary cohorts of academic scientists extends beyond the scope of this paper, (except to note that I have heard faculties in colleges of agriculture in land grant universities ruefully comment on the privatization of agricultural research, while others have expressed analytical and normative dismay about the despoliation of the scientific commons, all at the same time that university administrators, often at the encouragement of their faculties, laud and encourage increased patenting and spin-off activity.) The application of performance management and measurement systems by universities has clearly fallen short with respect to the other conditions, and has had harmful effects on the conduct of academic science.

Birnbaum (2000), in a scathing critique of management fads in higher education, earlier called attention to the misapplication from the private sector to higher education of the management principles and techniques that purportedly led to excellence in organizations. He noted that many of these techniques were adopted by universities just about the time they were discredited or displaced in the private sector. Moreover, introduction of these putatively "rational" management techniques into complex, interdependent structures of universities produced results quite different from that intended, or expected. Kirp likewise has noted that all the budget nostrums of the 1970s and 1980s — program, planning, budgeting systems; zero-base budgeting; total quality management; and the like—eventually found their way into higher education: "Quantitative measures carried the promise of objectivity, a clear advance over experience and intuition, seat of the pants decision-making" (Kirp, 2003, p. 110).

From an overlapping vantage point, highlighting the complexity of the interactions that underpin the functioning of a national (and transnational) innovation system, David, in commenting upon the potential that performance measurement regimes had for setting up competition of the parts against the whole following the introduction of GPRA, noted "we need not move in the direction of taking apart the very complicated system of science and technology research, which works in ways that not all of us fully understand, and making each of the bits of it compete with one another in the claims they make for the performance of the system as a whole" (1994: 297-8). But this competition is what has happened.

The University of Southern California's foray into resource-centered management, for example, according to Kirp, "unleashed the academic equivalent of a Hobbesian war of all against all" (ibid, p.118). Professional schools sought to offer general education courses to accrue the tuition revenues formerly underwriting the liberal arts colleges; colleges expanded their course offerings to compete with those offered by other

colleges; and each college had an incentive to reduce its costs for supporting campus-wide facilities and services, such as student counseling and the library. In short, according to Kirp, "Gone was any commitment to supporting the common good" (p. 118).

I have had similar experiences. As director of a university-based interdisciplinary research institute, reporting to the vice president for research, my charge was to facilitate the interests and efforts of faculty to build cross-department/cross-college teams in pursuit of external grants. The introduction by central administration of a new performance measurement system under the name of continuous quality improvement, however, created a new impediment; namely, that the system required that each award be assigned/credited to a specific unit, with subsequent period funding decisions purportedly tied to the previous period's performance. Fearful that their units would not be credited for the external research performance of their faculty, college deans, and thus department heads, began to inform/instruct their faculties not to participate in interdisciplinary projects conducted outside college administrative and accounting silos. Since the institute had played a campus-wide catalytic role in assisting faculty in developing competitive proposals, the risk-averse behavior of deans and department heads detracted then, and I believe even to this day, from the university's overall competitiveness for major external research awards. What made the situation even more dysfunctional and perplexing was that central administration officials repeatedly emphasized the importance of interdisciplinary research (and education), and that academic units did in fact receive credit for work of their faculties in interdisciplinary units. Uncertain though that this was the case, deans and heads functioned in the risk-averse manner described above. In brief, there was a palpable disconnect between intentions and understanding across administrative levels.

Another disconnect exists between institution-specific emphasis on performance measurement and the quality control criteria employed by external professional peers. I once collaborated with Duncan MacRae, Jr., a distinguished social scientist, on a study in which we employed bibliometrics to assess the flow of knowledge (more precisely, citation patterns) between mainstream social science disciplines and the field of policy analysis. In keeping with one of the original purposes of bibliometrics, namely as a means of studying the structures of science, the paper addressed a substantive scholarly debate: whether the then-emerging field of policy sciences/policy analysis represented a distinct new field that would both receive and transmit knowledge on a comparable basis with cognate social sciences, or instead was a distillate of these fields, receiving and assimilating new theories and methods, but effectively contributing little in return to enrich the intellectual capital stock of the "home" or "core" disciplines.

We submitted the manuscript to the *Journal of Policy Analysis and Management*, the leading journal in the field. The initial response from the review process was favorable — certainly on a par with several other manuscripts that I have had published in journals of comparable quality. Namely, we were asked to address a few "minor" reviewer reservations, revise, and resubmit. This we quickly did, and then resubmitted the manuscript. In the interim, the journal underwent a change in editors. The new editor's reaction to the manuscript went something as follows: "Irwin, how could you possibly rely on citations as a measure of scholarly influence. At my university, we read each other's papers!" Since the new editor was a former undergraduate classmate, an individual for whom I have always had the greatest professional respect, and the economics department at her institution then and now was ranked considerably higher than my own, I had no effective response. We withdrew the manuscript. (The manuscript was subsequently published in a journal with a considerably lower citation impact factor [MacRae, Jr. and Feller, 1998]). While not quite a sleeping beauty, the article received no attention until several years later, when it was cited by JPAM's editor in an empirically based overview of the journal's place among the constellation of policy analysis and social science journals (Reuter, P. and J. Smith-Ready, 2005).

It is less the outside recognition of the article that is relevant here than the striking contrast between the JPAM editor's valuation of citation measures and that of my home university. Approximately one month after receiving the editor's rejection letter, I, along with my departmental colleagues, received a message from

our department head instructing us to submit our citation measures for articles dating back approximately 10 years! His intention was to use these measures to document the department's improved performance, and reputational standing as part of a request to the dean, and ultimately to the provost, for additional resources, each of whom was relying heavily on such measures. The request, of course, led to a surge of usage of the Social Science Citation Index. More importantly, it led to a change in behavior in departmental promotion and tenure committees, where consulting citation indices is now an accustomed augment to reviewing an individual's résumé and solicitation of external letters.

I do not know whether the experiences cited above are idiosyncratic or representative of experiences of other faculty or academic units in other universities that have played around with variants of TQI, CQI, and related performance measurement systems. Moreover, the deleterious effects of performance measurement systems described above need not be axiomatic. Faculty promotion and tenure committees, for example, may themselves choose to compile and consider bibliometric measures on publications, citations, and impact factors, but mainly in the context of added information, still relying primarily on their own readings of the "quality/importance" of the work before them. For this salutary outcome to emerge, however, requires that academic professionals and colleagues exercise considerable control over the design, analysis, interpretation, and recommendations following upon use of these systems.

Performance Measurement and Professionalism

Performance measurement systems are not self-actuating. Someone has to install them; determine what metrics are to be employed in assessing performance; collect the relevant data; interpret these data; and set remuneration scales, such that a specified level of performance, high or low, receives a given reward. These are different questions than those typically raised about the reliability or validity of mainstream performance measures, or, to cite a specific technique, the suitability of bibliometrics for purposes of performance evaluation (van Leeuwen, 2004; Weingart, 2005). Embedded in the new public management worldview is an attack on professionalism (Radin, 2006; Norris and Kushner, 2007).

Friedson has defined professionalism as representing "occupational rather than consumer or managerial control" (2001, p. 180). It is this control that is being challenged, and according to some, already lost (Baert and Shipman, 2005).¹¹ Performance measurement systems have become components of the process by which, to use Rhoades and Slaughter's (1997) compelling phrase, faculty have become "managed professionals", steadily losing control of institutional priorities and internal resource allocations to academic administrators and non-academic professionals. These systems also can and have become quantitative artifacts available at the disposal of academic administrators to mask subjective decisions. As Birnbaum has noted, "The acceptance of a specific management system is as much a political judgment about whose interests are to be served as it is a technical decision" (ibid, p. 30). It is in the context of these views that I regard the above-cited experiences as important: They highlight the manner in which professional-collegial decision-making norms and procedures have been displaced by the new managerialism, and the dysfunctional effects on academic research that follows thereupon.

An added concern here is that the potential for misuse and abuse of performance indicators, such as bibliometrics and patent statistics, is increasing. Data mining and data visualization techniques, for example, permit increasingly large quantities of data to be sifted to detect increasingly rarified relationships; once collected, these data are now more readily depicted in visual form, making them ideal for PowerPoint presentations. At the same time, increasing analytical and technical sophistication is needed to interpret the data and algorithms used in constructing these depictions or statistics. What, after all, is a citation (or a patent) "worth"? (van Bormann and Daniel, 2008). Few U.S. universities that I studied or visited have scientometricians on their faculties, much less their administrative staffs. "Drink deep, or taste not the Pierian spring ... " is a needed admonition here.

Strikingly, early in the development of bibliometrics, its practitioners voiced this caution. As Moed and van Raan earlier noted, "We emphasize the bibliometric indicators are not to be used by non-peers since background information is necessary to interpret the quantitative findings" (1988, p. 177). Similar cautions also have recently appeared in U.S. study commissions of methodologies for assessing the vitality (and thus claims upon agency funds) of fields of science. Thus commenting on its own pilot study to use keywords to identify emerging fields of research in aging, a recent National Research Council report concluded: "The pilot study strongly suggested that if bibliometric indicators are to be used for research assessment, considerable reliance must be placed on the subject-matter experts to guide and review the work of the specialists who will perform the actual studies. Several iterations of generation and analysis of data will probably be needed before the assigned experts are satisfied with the output" (National Research Council, 2007, p. 102).

Whether these cautions will suffice to stem or correctly direct the use by universities of existing or new measures of academic research performance is uncertain. A rosy scenario here is to have confidence that the historic resiliency of research universities to episodic large-scale social, economic, and political challenges to institutional autonomy will enable them to fend off, co-opt, or marginalize the impacts of what now seem to be new omnipresent and omnipotent externally imposed requirements for accountability and measured performance. This too may pass, is one outlook.

On the other hand, recently adopted practices, and even more importantly mindsets that actively endorse or passively accept these practices, may already have become "institutionalized," such that they are accepted as norms by both faculty and administrators. The possibility of this latter scenario dominating becomes more likely if external pressures upon universities to document research performance in fact do begin to have real force. For in this case, SWOT and CQI within the university converge with GPRA and PART: Only one party's platform exists for the governance of academic science.

Conclusion

From the perspective of a U.S. former faculty member and research administrator, the precepts, and even more so, the observed and latent implications upon academic science of neoliberal governance policies relating to accountability and performance measurement contain both traditional and novel features. Accountability for performance is not a new concept (Alpert, 1985); indeed it is embedded in Mertonian scientific norms, and similarly within the procedures and criteria by which faculty and their research are continuously assessed. What is new and different is the articulation and implementation of these requirements, specifically the increased use of quantitative measures alongside of, and at times in lieu of, collegial assessments and the shift from collegial-professional to bureaucratic modes of and forums for decision-making.

The concerns expressed throughout this paper about the ways these new requirements are and may be imposed by U.S. units of government or introduced by U.S. universities co-exist with a general endorsement of several other salient features of neoliberal higher education governance policies that are controversial in Europe. In particular, I see government deregulation (over matters such as tuition levels, salary structures, and purchasing arrangements), and use of competitive, merit-based allocation processes for research funds as consistent, reinforcing, and desirable policies. Their reinforcing features are that they provide universities and their faculties with increased decision-making autonomy. This increased autonomy expands opportunities for individual and institutional entry into fields of inquiry while allocating research funds to the potentially most productive researchers and institutions. However, as with Cleveland's observation, it accepts the fact that different conditions require, or dictate, the application of these policies, however theoretically well grounded, in different ways, and likely at different rates.

A Labor Market Coda

Following is an economist's hypothesis amidst a paper cast in language and literature taken from public management and higher education. Within the context of continuing moves to adopt and implement the precepts of neoliberal governance in higher education and bureaucratically administered performance management and measurement systems, the impact of these trends upon academic science is not fixed. Instead, their current force and longer-term staying power may be related to tightness or looseness in the academic labor market.

Here the U.S. experience may indeed be informative. The 1960s has often been described as a golden age in American science, or more aptly its "greenback (dollar) age." Post-Sputnik fears brought forth surges of funding for academic research that led to a (temporary) seller's market for scientifically trained personnel, including faculty. These conditions produced not only observable improvements in hours and working conditions, but also more subtle shifts in the authority relationships between faculty and administrators, to the advantage of the former. Grant-active faculty are highly mobile. Competition among universities for faculty and the absence of any national or state barriers to the mobility of faculty remains a fundamental underpinning of the academic republic of science. Faculty unhappy with working conditions at a specific university — including excessive administrative control, whether by external political actors or arbitrary university and college administrators — can, and do, relocate to other institutions.

A recent US example illustrates this possibility. A recent Florida state law (overturned in part since this was initially written) prohibits faculty, as well as students and researchers, from using money from any source — state funds, federal agencies, and private foundations, administered by a public university or college — to travel to a country listed by the U.S. State Department. The law would have prohibited a Florida State University associate professor of history whose research specialty was Cuba's slave history from conducting the fieldwork necessary for his continued research. He moved from FSU to the University of South Carolina.

Hirschman's classic formulation of exit and voice enter here. Where alternative employment opportunities exist, exit is feasible. Voice may not always be heard, but the threat of exit widens the domain for the exercise of voice within one's existing institutional habitat, mitigating the force of mechanistic, exploitative, or opportunistic application of authority. Conversely, when academic labor markets are "rigid," because labor laws on appointments, salaries, pensions, and the like limit mobility, the impact of legislative or administrative directives, including that of performance metrics, upon academic research increases. The existence of competitive markets thus functions as a system-level line of defense protecting professional autonomy; if not guaranteeing professional-collegial control, it at least serves to constrain onerous political or bureaucratic, or administrative control. It is for this reason that the competitive market model holds such appeal for American academics, at least this one.

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NOTES

¹ "The 'market' for our purposes is the broad array of interests and influences that are external to the formal structures of both state government and higher education. Our concept of the market is thus much broader than that of economists", Richardson, et. al, 1998, p. 6.

² This selective coverage obviously omits consideration of many salient issues surrounding the theory and application of neoliberal governance policies for higher education. As examples of issues not treated or only lightly touched upon here are the assorted threats posed by neoliberal higher education policies to the roles of universities as independent, objective sources of knowledge (Rhode, 2006; Newman, Couturier, and Scurry, 2004), and the shattering by these policies of valued national social, economic, and political compacts, such as open (free or low-cost) access to higher education. Also, from research and writing fatigue, the paper omits any discussion of the "third mission"/technology transfer/engines of economic growth roles of universities.

³ In the 1930s, members of the U.S. science establishment, including the former president of the University of California, who was also then president of the National Academy of Sciences, opposed the idea out of concern that government interference with science carried more dangers than benefits. "They tended to fear government interference with the autonomy of science more than they welcomed its succor" (Geiger, 1986, p. 257).

⁴ The following sections draw freely from Ryan and Feller, forthcoming.

⁵ "American universities exist in the real world where leaders are challenged and sometimes forced to make room for — even be replaced by — newcomers. For us, the comforts of Oxford, Cambridge, the University of Tokyo, and the University of Paris do not exist. At all times there is a group of universities clawing their way up the ladder and others attempting to protect their position at the top. If one believes in the virtues of competition, as I do, one would stress the benefits of the system. That a large proportion of the world's leading universities are located in the United States I have already attributed to the effect of inter-institutional rivalry" (Rosovsky, 1990, p. 226).

⁶ "The most effective way to evaluate research programs is by expert review. The most commonly used form of expert review of quality is peer review. ... This premise prevails across the research spectrum, from basic research to applied research" (National Academies, 1999, p. 39).

⁷ In letters to the ranking and minority members of the U.S. Senate and House of Representatives, David Ward, president, American Council on Education, characterized several provisions stemming from the Spellings Commission report in pending reauthorization of federal higher education legislation relating to college prices, accreditation, and

regulation contained in pending reauthorization of Federal higher education legislation as setting undesirable precedents, having unintended consequences, and being quite difficult to implement. At the same time, reflecting the substrata pressure that pushed these provisions upwards through the policy process, segments of the public university sector, as articulated through the National Association of State Universities and Land Grant Colleges (NASULGC) and the American Association of State Colleges and Universities (AASCU), have developed a Voluntary System of Accountability. The stated objectives of this initiative are to develop a common Web reporting template that would help institutions “demonstrate accountability and stewardship to the public, measure educational outcomes to identify effective educational practice, and assemble information that is accessible, understandable and comparable” (<http://www.voluntarysystem.org/index.cfm>. Last accessed 17/4/2008).

⁸ A separate concern is that the thrusts of publicly funded academic science are overly directed by the internal dynamics of scientific inquiry — one research finding posing the questions to be addressed in the next study — and the mission objectives or policy agendas of incumbent administrations without adequate attention devoted to “public values” and the common good. Complicating matters here, the problem, as posed by Bozeman and Sarewitz, may not be one of the democratic governance of science, but of the undue bipartisan power of economic rationales for the support of science in fully democratically elected legislatures (Bozeman and Sarewitz, 2005).

⁹ “A new paradigm for public management has emerged, aimed at fostering a performance-oriented culture in a less centralized public sector” (OECD, 1995; p. 8). According to Nagel, “Among the paradigm’s central features” are decentralized decision-making and control of resources “so that authority corresponds with accountability”; “operational specification of goals through substantial investment in performance measurement”; and “accountability for performance through reliance on competition (among both public and private service providers), explicit contracts, and material incentives” (Nagel, 1997, p. 350).

¹⁰ Underlying this statement are latent debates about the Wilsonian “type” of organization that a university was, is, or should be: a production organization, a procedural organizational, a craft organizational, or a coping organization. (Wilson, 1989, pps. 159-163).

¹¹ Michael Shattock has stated this position with respect to the United Kingdom as follows: “As the United Kingdom has moved from private to public governance of the university system, the situation has changed from one where a group of academics in the University Grants Committee acted as a quasi ministry for higher education to a situation where a real minister of education, the secretary of state and the prime minister all take a close interest in higher education. It is not the purpose of these comments necessarily to deplore the change. ... However there have been consequences for the university system in the new approach. It has become clear that government policies for running universities are not dictated by a full understanding of the issues, but are externally driven by reforms that are needed to modernize all public services. This means there is a concentration on top-down performance management as defined by Government, market incentives and other approaches that define the Government’s approach to the modernization of public services in Britain. This philosophy has driven the reform of the higher education system erratically and has led to a one-size-fits-all set of solutions” (J. King, Douglass, and I. Feller [2007], *The Crisis of the Publics*, Symposium Report [Berkeley, CA: University of California, Berkeley], Center for Studies in Higher Education).