PERFORMANCE FUNDING: PAST, PRESENT, AND FUTURE

Abstract

This essay discusses the origin of performance funding, the expectations initially held for it, its evolution in terms of human capital and agency theories, why it works, and why it fails. The essay also investigates the apparently declining interest in performance funding and analyzes reasons for it, including a series of problems that have become chronic. The essay concludes with a discussion about the future of performance funding.

Introduction

Nearly two decades ago Guy Neave (1988) introduced the phrase "the Evaluative State." At that time Neave was reflecting on a variety of practices and policies that had been installed to assist universities and, more often, the states that supported them, to cut the higher educational suit to fit the public purse cloth by quantitative measurement. That was a time of firm belief that participation in higher education would “push” economic growth, and in turn advance social equity. Governments in that belief favoured supply-side subsidies and de facto monopolies by public colleges and universities. Also at that time, most of the “performance” measures, although flawed, were accepted as temporary but necessary rough justice.

A decade later Einhard Rau (1999) presented a small but important paper that asked: "Performance Funding in Higher Education: Everybody seems to love it but does anybody really know what it is?" The title of Rau's paper was telling. By the turn of the century, practices that previously had been tolerated on an assumption that they were ephemeral and would go away, were not only still in use but were also more popular, at least among governments and other agencies that provided public subsidies to higher education. Moreover and perhaps more importantly, Rau's research indicated that despite
a decade of experience, mainly of the trial and error variety, performance funding was poorly understood and, in the views of many, still seriously flawed.

Even the language of performance funding is problematic. Performance funding, performance indicators, benchmarking, best practice, incentive or “set aside” funding, performance budgeting, performance reporting, performance agreements or contracts -- they all seem at once to be different and the same. In addition to not knowing exactly what performance funding is, we are not certain that it works, why or why not.

An Illustrative Anecdote

The purpose of these introductory comments is to locate performance funding in a larger context of the structure and purpose of public higher education. Performance funding is not a new idea, except perhaps in terminology. One could argue that it is typical of any principal-agent relationship that surrounds a production function for which there is a public subsidy. One could further observe that what is labeled "performance funding" at the beginning of the 21st century is not substantially different from enrolment-sensitive funding formulas that were first devised at the beginning of the 20th century, or the PPBS budgeting schemes that were introduced in the 1950s.

Let us take a series of events in the Province of Ontario as an introductory example (Lang, 2005). The province has a system of "key performance indicators" (KPIs) that are used to allocate less than two per cent of the operating funding available to the province's colleges and universities. The emphasis here is on the word performance. To understand this we have to return to some of the broad economic ideology that a conservative government brought to the post-secondary education sector when it took office in 1995, much of which a liberal government that followed left in place.
The fundamental spending question for any government, indeed for any public institutions like universities, is "How much is enough?" This question becomes more essential and more difficult as the availability of public funding becomes more constrained. Although there are many opinions about why funding is constrained and whether or not it ought to be, the reasons are unimportant here. The point is that as long as funding is limited, decisions have to be made about when, in the case of post-secondary education, enough capacity, or enough quality, or enough breadth, or enough distribution has been funded. Scale, breadth, quality, and distribution, when added to efficiency, constitute the basic factors in the political economy of a system of higher education. When resources are limited, how can an efficient balance be struck among those factors?

In the for-profit sector, this question usually is answered by signals from a market. As Simon Marginson (1997) and Henry Hansmann (1999) have demonstrated, there can be markets within a public sector too. But for most public universities, there is, at most, a quasi-market, and usually less than that. For universities, like most public institutions, the majority of funding usually comes from sources other than those persons who actually receive the goods or services that the institutions provide. As high as university tuition fees have become in the eyes of some, they still are not true prices in the sense that they do not indicate the real cost of the education that they nominally purchase. The same is true of heavily endowed private universities. If students (or, for that matter, employers and politicians) do not know the real cost of education they cannot know its net economic worth and relative social benefit, and they usually don't.
What does this little exposition of market behaviour have to do with performance indicators and performance funding, and a particular event in one Canadian province? It explains why the province's conservative government began its first mandate with a particular interest in de-regulation and higher user fees. The idea was to bring as much market behaviour as possible to the public sector, and then to let the respective markets thus created answer the "How much is enough?" question.

For universities, however, the markets were still imperfect. Even as tuition fees rose, the real cost and, in turn, the real net worth of various programs remained difficult to discern. De-regulation was really re-regulation as programs were placed into new categories to which different fees and fee regulations then were applied. But fee differentiation, unlike the provincial funding formula of the day, was based more on prospective earnings of graduates than on the costs of production. In effect, output defined input insofar as fees were concerned. Students as consumers still could not apply a reliable market test. Moreover, and much to the consternation of a government ostensibly committed to free markets, students as consumers seemed to be making their very worst market choices about educational programs that were being offered by private post-secondary vocational school sector. For that sector, rates of employment were dropping while their rates of loan default were rising. An economist would say that students were facing a “moral hazard” in an asymmetrical market.

What was to be done? The government's answer was to supplement the information about market choices, and here is the key point, by introducing performance indicators, which were formally termed "Key Performance Indicators" or KPIs. The basic idea behind the key performance indicators was that students as consumers needed to
know more about the province's colleges and universities. When Michael Spence (2001) received the Nobel Prize in 2001, he was asked by a journalist "whether it was true that you could be awarded the Nobel Prize in Economics for simply noticing that there are markets in which certain participants don't know certain things that others in the market do know?" The answer, of course, was yes: the degree of asymmetry, if not simple, was surprising. In economic terms, the market for higher education is highly asymmetrical. This is exemplified by research on college choice that reveals erroneous but forceful perceptions that applicants have about the selection process (Lang and Lang, 2002).

Thus the original idea behind the Key Performance Indicators was to strike a balance of information between buyers and sellers in a market for higher education. That being the objective, the first deployment of performance indicators in Ontario was for the purpose of public information. The reasoning was that if the information provided by performance indicators was added to the information already available in the market from universities and colleges, students would then make better choices, and, in theory anyway, select programs and institutions with higher employment rates, lower default rates, and so on.

The next step in the evolution of performance indicators in Ontario was to cast the indicators as standards or benchmarks. As public information, the performance indicators displayed results in ranked order, but there was no indication of what amounted to satisfactory or unsatisfactory performance. So, complicated break points were introduced at which some funding liabilities -- but not rewards -- would come into play. This use of performance indicators as standards did not really add much to public information. In fact, they never were really explained to the public.
At about this time the government introduced a program called ATOP (Advanced Technology Opportunity Program) that was designed to induce colleges and universities to expand their capacities in certain areas like computer engineering, and to induce students to select those programs over others. What does this have to do with our discussion of the evolution of performance indicators and performance funding? The answer is "a lot" because ATOP was an implicit repudiation of the government's market cum key performance indicators experiment in higher education. The government in practical effect, if not conscious admission, decided that it could not trust the market to balance supply and demand in areas that it believed were critical to economic growth. The market had to be "fixed" and the means that the government chose were those that one normally associates a kind of performance funding usually called “payment for results.” The performance indicators ceased to be instruments for informing students as consumers. Without modification the indicators were re-deployed as "carrots and sticks" financial incentives in a centrally planned regulatory system.

The ATOP program thus coincided with the next step in the evolution of performance indicators and performance funding in the province. The primary purpose of Ontario's Key Performance Indicators would no longer be to inform students as consumers or to set standards. The purpose was to provide a basis for allocating a portion of annual operating funding. Two per cent of the provincial operating grant to universities was set aside for allocation on the basis of annual performance as measured by the Key Performance Indicators. Although their purpose again changed, the indicators themselves did not.
Perhaps this evolution of ends but not means should not be surprising. Governments also are buyers in the higher education market (or perhaps in two higher education markets because research follows a different production function). To the extent that governments provide supply-side subsidies to colleges and universities in order to increase productivity and stimulate economic growth by means of investments in human capital. In the case of the ATOP program the government decided, market signals notwithstanding, that the provincial economy required more graduates in certain science and technology disciplines, and deployed a regime of performance funding to ensure that institutions and students would behave accordingly.

Compared to other jurisdictions, Ontario's use of performance indicators could be construed in different ways. Their purpose could be to influence institutional behaviour without direct government intervention, and thus with a healthy respect for institutional autonomy. Or their purpose could be to allocate funding more reliably and more forcefully than funding formulas can. The proof of the pudding is in the eating. Just as public subsidies and private endowments discount and disguise tuition fees as prices, the amount of funding attached to the Key Performance Indicators in Ontario bore no particular relation to the costs that colleges and universities had to incur in order to alter their performance according to the indicators. This fact suggests that, using Ontario as an example, the real point of indicator-regulated performance funding may be more to influence institutional behaviour than to measure institutional behaviour, and in turn to promote compliance with government policies aimed at cost efficiencies in units of output, the cost of student loan defaults, and satisfying labour market demand.
The example of Ontario is, unfortunately, illustrative of some difficulties that seem to be inherent in performance funding generally. There were three sets of objectives, some explicit and some implicit. There were four or more distinct audiences. There was, however, only one small set of indicators. Not only did one size not fit all, it was not possible to discern whether the size applied to a shoe, a boot, or a sandal. There are two lessons here. First, it is impractical to speak generally about performance funding, as if there were only one version of it. The second is that, although performance funding and performance indicators are different as functions, the two must match-up when used together. It is something like a problem in translation between two languages.

**The Lexicon of Performance Funding**

It is not possible to discuss performance funding as if it were a single-cell public policy organism. There are several subsets, the most common of which are performance set-asides or earmarks that reserve small proportions of public subsidies for higher education to be paid out on the basis of pre-determined and purpose-built metric targets, hence performance indicators. Funding thus reserved is an entitlement and in that sense potentially open-ended. Institutions do not compete with one another for these funds. It is not a zero-sum contest. The ultimate public policy objective is to influence or modify institutional behaviour by means of financial incentives. In certain cases, primarily in Europe, this form of performance funding is called payment for results or performance agreements. This is the model that was recommended for New Brunswick (2007). The certain cases often involve numbers of graduates. In terms of public policy a distinction is drawn between the rate of graduation and the number of graduates. Set-aside performance funds are paid-out only when a specified number of students graduate. The
basic metric for performance indicators in these cases is some version of degrees awarded, usually at the program level.

There is, however a competitive version of performance funding. This looks a lot like the set-aside model, but with an important difference: it is a zero-sum contest. Examples from Canada are a fund that was set-aside in Ontario for the expansion of graduate programs, and one that was set aside in Alberta for undergraduate expansion. The Alberta plan was not only zero-sum; there were financial penalties for institutions that failed to compete satisfactorily (Barnetson, 1999). The performance indicator metric was graduate student enrolment. The metric and the funding for it was fixed. Institutions competed for that fixed number of funded student places. The World Bank promotes and underwrites this type of performance funding in countries with relatively limited discretionary resources to direct to the development of colleges and universities (Salmi and Hauptman, 2006).

Some jurisdictions, the State of Texas for example (Ashworth, 1994), have used bundled performance set-asides. Under this arrangement incentive funding is accessible by universities in response to a collection or “bundle” of several indicators. This allows each university to use the performance indicators and consequent funding for purposes of strategy and planning as well as budgeting because the financial outcomes of responding to the various indicators can be modeled.

Performance contracts are the one form of performance funding that typically does not offer additional funding. In Spain, Switzerland, and two American states public universities have entered contracts with governments to trade decreases in public funding for increases in autonomy. The idea is that greater autonomy will expand the universities’
access to alternative sources of funding, and greater differentiation through a form of “portfolio management” (Foster, 1983). Government sets and retains control of standards of quality through performance indicators that the universities must meet to continue their eligibility for reduced but otherwise unregulated public subsidies. The functional role of the contracts and indicators is thus fiduciary.

Although technical, there are two fundamental aspects of performance funding – especially set-asides and payments for results -- that affect their effectiveness in terms of the institutional behaviours that they engender. The first aspect is not so much about performance indicator algorithms as it is about the source of the funds that the algorithms allocate. If the funds available for allocation are new or additive, the incentive is truly a carrot that institutions may, literally, take or leave according to their autonomous judgement. If, however, the funds available for allocation come from existing public grants to colleges and universities, the incentive may be as much a stick as a carrot, and as such will be harder for institutions to ignore, regardless of their missions.

The second factor that affects the effectiveness of performance funding in modifying institutional behaviour is the match between the amount of funding that us set aside and the “performance” or other behaviour that any given incentive is put in place to engender. If the match is inaccurate or deficient performance funding will fail. Let's again use rates of graduation. To improve rates of graduation a college or university might take several steps that involve additional expense, for example, more academic counselling, writing labs, math labs, teaching assistants, and financial aid. The list could be longer, but the length of the list of measures that might be taken to
improve rates of graduation is not the point. The point is the cost of the list. If the amount of funding set aside does not reflect, at least approximately, the cost of the institutional performance for which the formula calls, the incentive will be ignored, as it often is (El-Khawas, 1998; Rau, 1999; Schmidt, 2002; Schmidtlein, 2002; McColm, 2002).

If we return to the example of Ontario we see a version of *performance funding in which the funding is not public*. In that case performance indicators were at one step deployed to produce market symmetry and inform student choice of programs and institutions. The ultimate effect on institutions was financial as tuition fees followed the students’ choices as did existing enrolment-sensitive grants. The state used its regulatory power instead of its fiscal power to produce, it hoped, a desired public policy result or performance.

*Matching performance funding* is an arrangement somewhat similar to performance funding in which the funding is not public. Governments in order to leverage private funding offer to match charitable gifts that as *de facto* endowments are restricted to purposes designated by the state instead of donors. Funding is set-aside for each purpose, and not released until matching private gifts are actually received. Funding may either be a fixed amount (hence the competitive version of performance funding) or open-ended. The consequent performance funding is thus a mixture of public and private funding.

*Performance indicators*, as the example of the Province of Ontario demonstrates, are not necessarily or always associated with *performance funding*, at least not directly. A jurisdiction may deploy performance indicators without deploying performance funding,
and *vice versa*. This use of performance indicators alone is often called *performance reporting* and may be installed for several different reasons. These reasons may have nothing to do with funding, but some do. As in the case of Ontario's initial installation of performance indicators, their purpose may be to "level the playing field" of an imperfect higher education market by injecting information that otherwise might not be available to students as consumers, or might not be available at all. Students may then make choices that affect institutional income. This, of course, assumes that students are financially literate, which they often are not (ACUMEN, 2008; McDonogh, 1997; Sedale, 1998; Usher, 2005).

*Comparison, best practice and benchmarking.* Benchmarking in higher education is an import from business in the for-profit sector. In the view of some, although benchmarking did not originate in higher education, it has become a virtually mandatory practice for colleges and universities (Alstete, 1995). Benchmarking is the subset of comparison that focuses mainly on process (Birnbaum, 2000). “Best practice” could also be called “best process.”

Benchmarking for best practice, because it focuses on processes, is the most laborious utilization of performance indicators. It can also be the most risky. It is laborious (and, in turn, expensive) because of the large amounts of data that must be collected and statistically analyzed (Gaither, Nedwick, and Neal, 1994; Lang, 2002). It is risky, because, in the absence of a corollary effort to insure that best practices are drawn from institutions that are peers, there can be no assurance that what is a best practice in one institution can be a best practice in another (Lang, 2000). As Robert Birnbaum (2000) observed, when that happens, the conversion of a benchmark into to
performance indicator is for practical purposes useless funding purposes. When benchmarks are drawn from true peers, their financial effect is primarily on costs and efficiency. In other words, institutions find ways to reduce cost. There could be an effect on performance funding if, on the basis of comparative benchmarks, governments adjust performance funding to provide incentives that better match better the performances that they wish to promote.

**Inputs, Throughputs, Outputs, and Outcomes: The Anatomy of Performance Funding**

Critics of performance funding often claim that it only about outputs, and in turn that it is only about those outputs that can be conveniently measured. There are instances in which those assertions are borne out. In fact, however, performance funding is more complex, involving a variety of inputs, throughputs, and outcomes, as well as outputs. The table that follows is an expanded version from a study that was conducted by Bottrill and Borden (1994) and developed further by McColm (2002). This table is not inclusive. It is not meant to be. There are literally hundreds of performance indicators for higher education (Taylor, Meyerson, and Massy, 1993; Taylor and Massy, 1996). The purpose of the table is to describe the texture and variety of performance indicators. It is possible to over-generalize about performance indicators. Performance indicators are different because they measure different performances, only some of which are outputs, and because they serve multiple purposes.

<table>
<thead>
<tr>
<th>Input Indicators</th>
<th>Process Indicators</th>
<th>Output Indicators</th>
<th>Outcome Indicators</th>
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<tbody>
<tr>
<td>market share of</td>
<td>student workload</td>
<td>graduation rate</td>
<td>employer satisfaction</td>
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<td>applicants</td>
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<td>with graduates</td>
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<td>student:faculty</td>
<td>persistence and</td>
<td>number of graduates</td>
<td>job placement of</td>
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<td>ratio</td>
<td>retention</td>
<td>passing licensing</td>
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<td>funding per student</td>
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<tr>
<td>faculty workload</td>
<td>student evaluation of teaching</td>
<td>rate of PhD completion</td>
<td>graduate satisfaction</td>
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<tr>
<td>amount of space</td>
<td>peer review of curricula</td>
<td>research publication</td>
<td>patents and royalties from research</td>
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<td>quality of space</td>
<td>peer review of teaching</td>
<td></td>
<td>research citations</td>
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<td>percentage of faculty with doctorates</td>
<td>peer review of research</td>
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The table is also important because, in terms of causality, it demonstrates that the connections between performance funding and the institutional behaviours that they are supposed to engender are more often than not indirect. Let us take the table's several research indicators as examples. The number of faculty who hold earned doctorates is an input to the research production function, just as research grants would be. Their input was the expense of the research. Performance funding can be attached to input for two purposes. The first would be to act as an incentive to engage in more research. But because so little funding is allocated on the basis of performance, we see another less obvious but more forceful purpose: to leverage other funding to underwrite an otherwise unaffordable public policy objective.

Next, the process of research can be measured by peer review. The research process -- in terms of either quality or efficiency -- can be the same regardless of the significance of the results of the research. The throughput was the process by which the paper was produced. When performance funding is attached to throughput or process we see a quite different purpose, which is essentially to modify institutional behaviour and encourage putative best practice. It is when performance funding is deployed in this way that it tends to promote monocultures and undermine diversity. The mismatch of funding
to purpose is most troublesome in terms of process and throughput because it is these performances that actually incur costs.

The most common measure of research output is the rate of peer reviewed publication. Applying performance funding to outputs is a relatively simple concept: you get what you pay for. This is the application of performance funding that is most often associated with accountability, compliance with regulation, and value for money measured in terms of cost-benefit.

One might expect the performance indicator continuum to stop with outputs, but there is another step: outcomes, which can be thought of as measures of the significance or added value of research. Ideally, we should most want to link performance funding with outcomes, which in turn amounts to value for money measured in terms of quality, significance, and influence – in other words, with the difference that performance makes. This, however, is the purpose that performance funding is least capable of fulfilling. Here is why. First, this is the area of performance funding that is most damaged by the “one size fits all” homogeneizing effect of performance indicators. Performance indicators, at their very best, rarely measure quality reliably. This why commercial surveys and rankings of universities – like U.S. News & World Report and Maclean’s – in actual effect substitute reputation for quality. When quality is directly measured apart from reputation, the metrics usually based on research performance (Lang, 2005). As Robert Martin (2011) wisely reminds us, higher education is “an experience good . . . whose quality is unknown prior to purchase.” This shifts the centre of gravity in terms of “how much is enough?” to input and process.
Second, it is this use of performance indicators that most assumes a market for university education. In the public higher educational market the results of performance measurement as assumed to influence student choice, private philanthropy, and funding for research – all of which as sources of funding for universities are far more significant than even the most generous performance funding schemes. Again we see performance funding as a financial matching device by which governments, as minority partners in the enterprise of higher education, seek to leverage and influence the behaviour of the majority partners.

Of the four elements of performance funding *cum* performance indicators, it is most important to understand process. The sub-title of James Scott's *Seeing Like a State* (1998) explains the special significance of process in understanding performance funding. The sub-title is *How Certain Schemes to Improve the Human Condition Have Failed*. Scott did not discuss performance indicators and performance funding explicitly, but if he had, he might have described them as "social simplifications" under his heading "limits of measurement." Scott presents a series of plans that not only failed to improve the human condition but also made it worse, for example, the Soviet collectivization of agriculture. Performance funding is not on that scale but it may nevertheless be a social simplification that is subject to the limits of measurement. The key to each of the fiascoes that Scott dissects was a failure to understand process. For example, Soviet central planners did not have enough knowledge of how certain crops were grown to know which ones would be successful under large-scale collectivized agriculture and which ones, regardless of political or economic ideology, could be grown only on small-scale family farms. In terms of Scott’s metaphor, what the state “saw” and what the farmers
“saw” were different. In terms of information the situation was asymmetrical: state saw a political control and compliance process while the farmers saw an agricultural process.

This lesson about process and the sight of the state can help us better understand performance funding. The rate of graduation provides a good example. It is a performance indicator in most performance funding schemes, and it is a lot more complicated than it at first seems to be. The graduation rate is an indicator of productivity in an input-output sense, which is how it is normally used. There are three inputs: 1) the public subsidy, 2) the private subsidy (tuition fees), and 3) the actual investment of institutional resources as an expense. In terms of economic policy – that is, the expansion of human capital – the ultimate indicator is not the rate of graduation. It is the number of graduates, which is usually measured by degrees held by adult or working-age population. In that case the rate of high school graduation is the arithmetically most powerful factor because it determines the population that is eligible to become post-secondary graduates. If performance funding were confined strictly to input and output, as a means of improving expanding human capital and advancing social equity it might arguably be more effectively directed to schools to increase their rates of graduation.

The process dimension of the rate of graduation does not begin with what otherwise might seem obvious: quality of teaching, class size, academic services, and so on. It begins with the selection of students for admission. The most straightforward and least costly means of improving rates of graduation are to raise standards for admission and introduce more selective and more predictive selection processes. After that, improvements in instruction, academic services, financial aid, and other interventions come into play. The simple measure of rate of graduation does not necessarily “see” these
processes. Moreover, the measurement may misconstrue the process. For example, an increase in the rate of graduation that was induced by raising standards for admission would not be the result of any actual change in an institution's educational performance or in the ultimate supply of human capital, but it would nevertheless be rewarded with performance funding.

Another example of the state’s inability to “see” process can be found in the Ontario’s initial attempt to deploy performance indicators without performance funding. As previously discussed, in that case the government through the lens of market capitalism assumed that students would choose colleges and universities differently if they had more and better information about institutional performance as measured by three indicators: rate of graduation, rate of graduate employment, and rate of default on student loans. The scheme didn’t work; students did not use the information and did not change their patterns of choice. The fact that the government did not “see” the process by which students chose colleges and universities was not due to a lack of information about the process. There is plenty (McDonogh, 1997; Hossler, Schmit, and Vesper, 1999; Lang and Lang, 2002). Instead, the lack of sight was due to the lens, or what Scott called the “hieroglyphics of measurement” that can cause governments to over-simplify and over-unify processes that are neither simple nor uniform.

The Track Record of Performance Funding

Beginning in the mid-1990s the Nelson A. Rockefeller Institute of Government conducted a series of surveys of the use of performance funding in the United States. The deployment of performance funding grew rapidly from 1979 to 2001, at which time it was in place in some form in 21 states. However, between 2001 and 2009, five states
discontinued the practice; none has been added since (Midwestern Higher Education Compact, 2009). Also, of the remaining 15 states where performance funding is still in place, two use it for two-year colleges only. Thus, as of 2012, performance funding for universities was in use in only 12 or 13 American states, or in less than two thirds of the historical high. Its use, however, is stable or increasing for community colleges (Dougherty et al, 2011).

In approximately the same period in Canada, two provinces -- Alberta and Ontario -- introduced performance funding. In both of the Canadian cases, although performance funding remained in place, the amounts of funding allocated on the basis of performance were reduced to nearly negligible levels.

The Rockefeller Institute, in speculating about the leveling off or actual decline in the use of performance funding in the United States, said that:

The volatility of performance funding confirms the previous conclusion that its desirability in theory is matched by its difficulty in practice. It is easier to adopt than implement and easier to start than to sustain. (Burke, Rosen, Minassians, and Lessard, 2000)

What makes performance funding volatile? One explanation has already been mentioned: the amounts of funding associated either with performance funding generally or with specific performance indicators usually do not correspond with the cost structures of the performances that are being measured and putatively rewarded. For example, given the efforts that a university would have to exert in order to raise rates of graduation -- smaller classes, enhanced academic services, supplementary financial aid -- the costs that the university would have to incur might be greater than the additional income that those
efforts would generate. This is a greater problem if the purpose of performance funding is to modify institutional behaviour by means of incentives. If the purpose is compliance or accountability, the problem is less serious.

Also in terms of cost structures, performance funding often fails to take into account the fact that universities have long production cycles and variable economies of scale. For example, the typical undergraduate program takes four years to complete; many programs take longer. For that reason universities are something like super-tankers: it takes a long time to change their direction, even when they are willing to change in response to financial incentives. Let us again take the rate of graduation as an example. First, the rate of graduation is not a simple sum of annual retention rates. Most graduation rate performance indicators are not calculated until one or two years after the normal program length, for example, after the sixth year for a four-year program. This allows for the inclusion of students who "stop out" or temporarily switch from full-time to part-time status, but who nevertheless eventually graduate. Thus, even if a university makes every possible authentic effort to increase its rate of graduation, the results of those efforts will not be seen until several years later. But performance funding universally operates annually. This means that a university must incur costs long before it receives supplementary "performance" revenue to cover those costs, and even then usually partially instead of fully.

Even the delayed recovery of costs is problematic. One of the reasons most often cited for the disinclination of some universities to take performance funding seriously is uncertainty about the future (Burke and Modarresi, 2000; Callahan, 2006; McColm, 2002). Will the definition and calculation of performance indicators change over time?
Will the amount of funding attached to performance change? Will new indicators be introduced that offset older indicators? These concerns about stability are not unfounded. In Ontario, for example, the performance funding cum performance indicators program changed four times in eight years.

Some jurisdictions deal with the problem of costing by limiting the number of indicators so that the performance funding available to each indicator will be higher and therefore closer to a reflection of the actual costs of the performances that it measures. This, however, creates a Catch-22 problem. As the array of performance indicators narrows, the indicators cover less of each university's total performance, which in turn makes the measurement of institutional performance less reliable and performance funding less influential. Context is crucial in appreciating the complexity of this problem. With one exception, no Canadian province or American state has ever allocated more than six per cent of its total funding for post-secondary education through performance funding. The one exception – South Carolina – suspended its performance funding program in 2003. Some allocate as little as one per cent. It is difficult to imagine any manipulation of an array of performance indicators that could realistically match the performance measured with the actual costs of that performance. Not one of the stakeholder groups surveyed by the Rockefeller Institute -- from state governors and legislators to deans and chairs of faculty senates -- thought that the amount of funding allocated by performance funding was too large. The almost unanimous consensus was that funding was too small, but the surveys also report no plans to increase the allocation (Serban, 1997) In some cases it has become smaller (Burke and Minassians, 2003).
What lessons can we learn from trial and error? As the Rockefeller Institute reported on the basis of its annual surveys, just under 40 per cent of the American states that once deployed performance funding have abandoned it (Burke and Minassians, 2003). Sweden, the Netherlands, and Australia introduced various versions of performance funding, only to either abandon them or change them fundamentally. South Africa makes the most extensive use of performance funding. Australia, which was initially an example of replacement instead of abandonment, ended up with an arrangement that was basically performance budgeting instead of performance funding. Under that arrangement, a uniform national system of performance indicators was replaced by a system that allowed each institution to select and declare its own performance indicators in periodic performance agreement negotiations with government.

An examination of the experience of the American states that installed performance funding and later discontinued it, and of those states that in the same period kept it in place indicates some factors that lead to success or failure. A notable but mixed conclusion was that performance funding worked in jurisdictions in which the performance indicators emphasized quality or outcomes, and did not work where the emphasis was on efficiency or input-output (Burke and Modarresi, 2000). But even the track record in terms of quality is not promising. Of the 38 public universities that are members of the American Association of Universities, only seven are in jurisdictions that at one time or another deployed performance funding. On the 2013 Times Higher Education Supplement ranking of the world’s top universities only one university from a North American performance funding jurisdiction ranked in the top 50. Six were in the top 100, and nine in the top 200. As Pike's (2004) research demonstrates, infusions of
resources do not necessarily improve performance or signify quality in higher education. Frederiks and Westerheijden (1994) came to a similar conclusion after studying the results of performance funding in the Netherlands. So did the studies of Shin and Milton (2004) and Sanford and Hunter (2011).

Efficiency was particularly problematic in terms of the measurement of administrative cost and faculty workload (Burke, 1997). Most notably all the universities that in the latest Rockefeller Institute survey of American states reported deployment of performance funding in the future as being “unlikely” or “highly unlikely” cited lack of funding as the reason. In total 65 per cent of all responding states were in the “unlikely” or “highly unlikely” categories. Only six per cent were in the “likely” category. Four states that had had performance funding in place for several years reported plans to suspend it due to fiscal constraint (Burke and Minassians, 2002). If performance funding really reduced cost and improved efficiency it would counter-productive to hold it in abeyance in times of fiscal constraint.

The track record of performance funding seems to depend on the following conditions:

- Performance indicators are carefully chosen, definitive, and neither too numerous nor too few.
- Institutional diversity is preserved and mission recognized.
- Government priorities are stable and for the long-term.
- Funding is realistic relative to the expected performances.

(Stein, 1996; Ewell, 1998; Burke and Modarresi, 2000)
What is interesting about this list is that it could apply just as aptly to formula funding generally as to performance funding specifically (Serban, 1998; Lang, 2005). It is not far-fetched to say that certain kinds of funding formulas are essentially collections of performance funding indicators. Some performance funding schemes, like the example of Texas, comprise performance indicators that are virtually identical to those that one would expect to find in a composite funding formula.

Here we learn another lesson about performance funding. “Bundled” or “composite” performance funding runs the risk of “pooling.” Institutions, sometimes for good reason and sometimes not, offset bad performances in certain areas with good performances in others. Some “weighted” institutional ranking schemes implicitly encourage such behaviour. The public policy antidote is performance funding in which funds are set-aside or contracted for performance by performance and indicator by indicator.

This type of funding is illustrative of a working distinction between outputs and outcomes. Within a bundle some indicators may measure output, either in response to economic policy, social policy, or productivity, while others measure outcomes as expressions of quality and are aimed at changes in process. Another example is the Research Assessment Exercise (RAE) in the UK that is used to allocate research funding to universities. The RAE focuses exclusively on outcomes and in practical effect allows institutions to define input and process as they choose. Performance funding under the RAE is deliberately skewed to favour outcome performance over actual cost (input + process) and output as a an expression of volume, which also is essentially a nominal driver of cost. (El-Khawas and Massy, 1996)
This type of funding – whether one labels it performance funding or formula funding -- has another dimension that sometimes, despite its effectiveness, makes it less attractive to government. In some jurisdictions governments and funding agencies are becoming wary of performance funding. There are two reasons for this: one political and one financial. The political reason is that this form of funding, some governments are beginning to realize, can work in two directions. If a specific performance target is set, is benchmarked, is visibly measurable by a performance indicator, and is financed by earmarked funding, the effects of inadequate funding can be measured as well institutional performance. In other words, the government's performance as a funding agent becomes visibly measurable too. More to the point, it may just as easily become a political liability as an asset.

The other reason is that a tight, realistic, and predictable fit between performance indicators and performance funding generates what amounts to entitlement funding. In other words, the more successful performance funding is in terms of raised institutional performance, the more it costs. Open-ended funding schemes make governments nervous, especially those in tight fiscal circumstances (Wildavsky, 1975; Blakeney and Borins, 1998). This perhaps explains the growing preference that the Rockefeller Institute's surveys reported for performance budgeting over performance funding. The preference is significant. In the institute’s most recent survey states were asked about the likelihood that they would adopt either performance funding or performance budgeting in the future. Only five states said that it was “likely” that they would adopt performance funding, while 13 said that performance budgeting would be their likely choice.
Since it was government that initiated the interest in performance funding, it should not be surprising that, after 30 years of deployment, it is government that is most satisfied by the track record so far. Universities are the least satisfied, mainly because of the inherent incapability of performance funding to recognize and support diverse missions, and because of the lack of symmetry between the economic assumptions about performance funding and the actual fact of university cost structures and functions. Other stakeholders -- system administrators, governing boards, "buffer" agencies, donors -- are in between. At all levels, there is concern that performance funding promotes monocultures that undermine diversity. This concern, it is important to note, arises when performance funding works, not when it doesn't. Given the fundamental objectives of performance funding, performance funding works when universities respond to it by modifying their behaviours and, ideally, by internalizing the priorities and causal relationships that the intersections of performance indicators and performance funding represent. We know that universities often do not respond in these ways, and why.

The response seems to have been greatest in those jurisdictions in which performance funding was not preceded by formula funding or some other form objective, systematic budgeting for higher education. South Carolina is the American jurisdiction that used performance funding the most, and whose budgeting processes prior to the introduction of performance funding were highly political and incremental. As the president of one university in the state said about the pre-performance funding era, "As long as I can remember, legislators financed higher education by poking money through a hole in the fence." (Schmidt, 2002) However, the South Carolina model has come to be regarded as a failure because it came to have so many different indicators and standards
that it confused institutional behaviours that it sought to modify. (Salmi and Hauptman, 2006). The degree of satisfaction with performance funding is thus relative, depending on the alternatives available to it.

**Some Chronic Problems of Performance Funding**

**Aggregation:** Finding the right level of aggregation is as essential as it is difficult in the successful deployment of performance funding. Michael Porter, in an often cited paper in the *Harvard Business Review* said that “diversified companies do not compete; only their business units do.” (Porter, 1996) This applies to universities and many colleges. They are very diversified. If we examine individual performance indicators carefully, we see that most of the "performances" that the indicators measure do not really operate at the institutional level. In Ontario, for example, one has to look only at the results of annual surveys of graduates that has been conducted for nearly a decade to see the extent to which indicator performances vary by program. The variability statistically is greater than it is when measured by institution (Ontario Graduate Surveys, 1999-2008). But it is at the institutional level at which the arithmetic of performance funding operates. This phenomenon is becoming more pronounced as more universities and colleges deploy various forms of “incentive-based budgeting” (Priest at al., 2002).

Is this a problem to be solved or a lesson to be learned? As a problem it is unsolvable, at least by any currently known form of performance funding. Programs are diversified for good reasons. In the case of professional programs, third-party regulators (of which government often is one) have powerful influences on the structure and content of programs. There is plenty of evidence that program structure and anticipated
employment have strong effects on retention and graduation. (Angrist, Lang, and Oreopoulos, 2006; Adams and Becker, 1990; Lang et al., 2009)

Let’s say that the absence of institutional differentiation is an institutional behavioural problem that a system could solve by deploying performance funding. Should it be? Here we enter an unfortunate and fundamentally untenable middle ground between system performance and institutional performance. There are two lessons to be learned here. The first is that performance funding can have externalities. In simple economic terms an externality is a consequence of an activity between two parties – let’s say here a government as a principal and a university as an agent – that has an unintended effect on other parties or “performances.” In this case, using rate of graduation as an example, if program diversification were reversed by the incentive of performance funding students might end-up with less curricular and program delivery choice, and employers might end-up with graduates whom they regard as less well-prepared.

The second lesson to be learned is that some indicators as “reporting” information for public policy work at the system level. But at that supra-institutional level of aggregation performance funding does not work. It cannot. For advocacy purposes universities and colleges might argue that if they had more funding their retention and graduation rates would rise, but there is virtually no probative evidence of a causal connection that would justify such nominal performance funding.

Matching Performance Funding with Performance: Performance funding as an incentive to change institutional behaviour works when performance funding matches, at least approximately, the cost of performing. That sounds like common sense,
but it is the shoal on which performance funding most often founders. It founders for three reasons.

The first is that states confuse the outputs and outcomes that they hope performance funding will achieve. Let’s take the graduation rate again as an example. There are three reasons for the state to desire higher rates of graduation. The economic objective is to expand the supply of human capital. The social objective is equity through access to higher wages and, in some countries, higher standing. The budgetary or cost objective is to realize a cost advantage by producing graduates at a lower unit cost. (The benefit advantage would have been to produce higher quality graduates at the same unit cost.) Each of these objectives requires a different standard of measurement. More significantly, each requires a different amount of funding. “Mix and match” will not work. Pooling does not work either (Martin, 2011). In some jurisdictions in which this problem is recognized governments rationalize the mix and match practice by assuming that institutional autonomy and “block grants” will enable individual institutions to offset negative mismatches between performance and the cost of performing according to one performance indicator with a positive mismatch according to another indicator. This is indeed a rationalization. It becomes even more so in undifferentiated systems, like Ontario, in which institutions with different missions are expected to conform to the same indicators.

The second problem is the notion that performance funding can be an incentive. The idea itself is not unsound. In execution, however, there is difficulty in funding an incentive as a true incentive. By definition an incentive should generate new funding. In other words performance funding should be truly additive or supplementary. It should not
be the result of reallocation through which one source of funds supplants another. Algorithms of performance funding can be highly complex but the difference between performance funding that supplements and performance that only supplants is instantly apparent to institutions, who in turn accordingly behave or not. It is a mug’s game.

The third problem is cost, which to some degree is an amalgam of the problem of confused objectives and the problem of incentives that fail to generate truly new funds. Logically performance funding as an incentive can be less than the average unit costs or even less than the marginal unit costs of a given behaviour or “performance” if it generates truly new funds. In other words, it is “extra.” This is the logic that most states apply in determining the scale of funding to be allocated by means of performance indicators. It makes performance funding seem affordable. If performance funding is financed by re-allocation it seems even more affordable.

For a time in the history of performance funding this worked for government and for institutions. This can be explained in two ways. The first is that public subsidies as a proportion of total funding for colleges and universities was relatively high when the deployment of performance funding was rising towards its apogee. (Derochers, Linehan, and Wellman, 2010). Howard Bowen (1980) was right when he said that cost in higher education is elusive because institutions spend all the revenue that they generate. They do not seek and cannot identify inherent costs. Costs rise to meet revenue, hence the unfortunate but appropriate term: “cost disease.” Thus it was possible, although neither certain nor admitted, that for a period of time a university could achieve a performance funding objective by spending marginally amounts that were equal to or even less than the marginal performance income.
The second, but not mutually exclusive, explanation is that it is relatively recently that colleges and universities have begun to understand their costs fully. Although Activity-Based Costing (ABC) was in use in private firms in the early 1980s, it was not deployed by colleges and universities until the late 1990s. The Lumina Foundation’s Delta Cost Project began in 2008. Its first report spanned the years between 1998 and 2008. The Center for College Affordability produced its first report on costs in 2011 (Gillen, Denhart, and Robe, 2011). Responsibility Center Budgeting/Responsibility Center Management (RCB/RCM) which uses a variant of ABC on the cost side and then attributes revenue to costs centres was widely practiced in public universities by the latter half of the 1990s (Lang 2002). Most of these dates coincide with the decrease in the use of performance funding. Thus when we now talk about performance funding matching the costs of performing, colleges and universities know at lot more than they previously did about the costs of the various performances for which performance funding indicators call. In other words, they now can “do the math,” which in many if not most cases means a realization that marginal performance funding is less than the marginal cost of performing.

Cost Functions, Equitability, and Adequacy: Although the concept of elasticity is normally associated with prices and markets it has an application to performance funding too. Performance funding is almost always linear. It doesn’t have to be, but it is. Each one percentage point rise in a performance indicator generates the same funding. Because colleges and universities now know more about costs they know that not all performance increases are equal in terms of cost. All other things being equal, an institution starting below the average, for example again, rate of graduation of its peers
will find the marginal cost of a one percentage point increase in the rate lower than would an institution that started above the average. For the first institution the performance funding incentive would be elastic. For the latter it would inelastic. Thus governments should not be surprised when performance funding produces diminishing returns at higher unit costs. Another way of expressing this phenomenon is to observe that the costs of increasing performance under some indicators proceed according to step functions, instead of linear functions.

This can lead to an equity versus adequacy problem. A putative advantage of performance funding is that it is equitable. Any given institution within a system or jurisdiction can attract funding by improving its performance. More to the point, that institution will generate the same performance funding as will another institution that improves its performance by the same amount and according to the same measurement. That is equitable. But the marginal revenue/marginal cost equation may be different for each of the two institutions. It may be adequate for one and inadequate for the other.

This is a problem for jurisdictions that aim to improve system performance among institutions of widely different sizes and missions. In terms of system performance the state should want performance funding to be at least adequate for those institutions with, first, the largest enrolments and, second, the lowest rates of performance to begin with. That would produce the greatest return from the public subsidy and would result in the greatest improvement as measured by the respective performance indicators. But it would be visibly inequitable. This is a particular problem that demands that performance funding be truly “new” and not the result of re-allocation.
Multiple Principals/Multiple Agents: A reasonable case can be made that performance funding could have been invented to address a principal-agent problem between states as principals and universities as agents. Principal-agent relationships become problematic when the following conditions are present:

1. Agent and principal have different objectives, or at least construe the same objectives differently.
2. Principals have conflicting or incompatible objectives.
3. Information is asymmetrical in which case the principal lacks information about the agent’s behaviour or outcomes of that behaviour.
4. Information is asymmetrical in which case the agent lacks information about the principal’s objective, including asymmetry caused by the principal’s underfunding the nominal objective.
5. Principal and agent have different attitudes towards risk.
6. Agents can guarantee process but not outcome while principals can guarantee only input and control the choice of agent.

As each of these conditions becomes more pronounced and, in particular, the more perceptions of objectives diverge, the higher the likelihood that the goals or input of the principal will not result in the desired output or performance of the agent. This is not an entirely new idea in higher education. Adam Smith in 1776 in The Wealth of Nations spoke directly about the principal-agent problem which, he argued, explained the counter-productive effect of endowments as incentives for professors. The autonomy that most universities enjoy invites disagreement about objectives and, sometimes, misinterpretation of asymmetrical information. Agency theory categorizes the problem in two parts: “adverse selection” and “moral hazard.”

Adverse-selection occurs when the principal makes a “wrong” or poorly informed choice of agent. In the case of public university systems, especially systems that are undifferentiated, it is practically impossible to correct such choices. In economic terms
the state as principal cannot “exit” and thereby put competitive pressure on institutions to perform better or differently (Hansmann, 1999; Hirschman, 1978).

The reverse also is possible. A university may make an imprudent or uninformed choice of principal, as in the case of charitable gifts that have backfired. Donors are becoming more frequent principals, often with the encouragement of government. This in turn engenders further confusion. While institutions see donors as principals governments may see them as agents whose private wealth may be leveraged to replace public subsidies as incentives. This is the public policy concept that underpins government “matching” programs that function as de facto performance funding.

Moral hazard occurs when an agent pursues objectives other than the principal’s. For example, a university as an agent may choose to focus on research rather than teaching in order to improve its reputation or to obtain additional funding from other sources, who may in effect behave as principals too. There are two ways of thinking about moral hazard. One is to assume that “full information” is available to both parties, and either or both parties limit access to it or otherwise make it inaccessible. The other is to assume that full information is not available regardless of the behaviour of either party, as is normally the case in direct incentive funding for research.

When performance funding was introduced much of agency theory of the principal-agent problem was indeed theoretical insofar as higher education was concerned. Government, as a principal, provided or otherwise controlled nearly all funding received by public colleges and universities. Universities, as agents, were largely centrally-controlled or “top down.” There was one principal and one agent.
Today many public universities are “public” only in the sense that they are eligible for state funding. For example, the University of California at Berkeley receives only 12 per cent of its funding from the State of California. The comparable figure for the University of Michigan is only 23 per cent. As governments for various reasons cut-back funding for higher education they became minor shareholders and created a financial vacuum into which other principals were drawn, sometimes as a matter of public policy that encouraged universities to seek alternative sources of income. Different principals have different objectives. If they have different objectives they will, for good reason, expect different “performances” from universities as their agents, and devise different performance funding incentives and indicators. This results in a moral hazard that cannot be corrected by symmetrical information. All information may be “full” and accurate but different for each participant. Universities as agents are forced to trade-off among principals or, more particularly, among their principals’ performance indicators.

Universities have also changed in ways they perform as agents. They have become de-centralized in budgeting and planning, and have brought more stakeholders into governance. Some stakeholders, for example fee-paying students, are in practical effect principals. Agency as measured by several commonly used performance indicators has moved from the institutional level to the faculty level. Deans instead of presidents thus are becoming the real respondents to performance funding incentives. Some universities that have introduced incentive-based budgeting already reflect this by attributing enrolment-driven costs and revenue, including performance funding, proportionately into various categories of cost – for example registrants by program, registrants by course (actual instruction), and graduates by program -- each of which
could be measured by a different performance indicator. For research, agents are principal investigators, organizationally even more distant from the central administration.

**The Future of Performance Funding**

The future of performance funding for colleges and universities is easier to foresee generally than specifically. Some general assumptions, however, are highly probable. Governments neither will or nor should become less interested in accountability, with which performance funding is often closely associated. Given the track record of performance funding, governments will recognize that its cost-effectiveness is problematic if not dubious. Performance funding that is installed to change institutional behaviour by incentive is too expensive, often does not produce desired results (Sanford and Hunter, 2011; Shin and Milton, 2004), and so small that colleges and universities sometimes ignore the incentives or find them too costly to comply with. (Callahan, 2006; McColm, 2002; Cooke and Lang, 2009).

Further declines in public funding for higher education will further weaken the impact of public performance funding on university behaviour as resource dependence shifts to other sectors: corporate and private philanthropy, students and parents, foundations, and “private partners” – all of whom will seek “performances” that advance their interests. At the same time, however, the role of performance reporting will grow because in terms of accountability it has a broader audience. Indicators will not be new, but their broad and universal propagation will be.

If these assumptions come to pass, as some already largely have, other less probable changes may follow. States may realize that allowing universities more
independence may promote differentiation and responsiveness more than performance funding can. Some voices are beginning to argue that public systems of higher education too big, too highly centralized, and too complex to be micro-managed successfully (Callan, 1994; MacTaggart, 1996; Gaither, 1999; Berdahl, 2000). James March (1978) used the phrase "limited rationality" to describe the inability of large, centralized organizations to make universally competent decisions. Public universities, expressly because they are public, are typical of what Scott (1998) called "complex inter-dependencies" that cannot easily be reduced to the schematic system-wide visions that performance funding often represents. There is considerable evidence that institutional performance can be promoted by allowing or even forcing greater institutional discretion. (Clark, 1998; MacTaggart, 1998; Maxwell et al., 2000; and Altbach, 2004). In that case, governments may continue to use performance funding, but will allow more permutations and combinations among performance indicators in order to encourage independence and promote diversity over isomorphism, as already appears to be happening in some American states (Dougherty et al, 2011).

There may be a retreat from the imposition of system-wide "best practices" by the use of performance indicators as benchmarks. Ironically, the strongest incentive for universities to seek best practices may not be the incentive of performance funding specifically but the reduction of funding generally, which in turn will shift the focus from revenue to cost. Jurisdictions in order to improve system performance by means of performance funding may choose to begin with system-level benchmarking in order to direct performance funding to those areas in which performance most trails comparable performance in other peer jurisdictions. Individual institutions might be similarly wise to
use peer benchmarks but for a somewhat different reason. If there are equitability – adequacy problems, and if in terms of elasticity institutions need to know to what extent they would gain or lose from spending more to qualify for performance funding, they will first need to know where they stand on each indicator relative to their peers. In this case it will essential that peers are systematically selected and periodically recalibrated (Lang, 2000).

Finally there is the possibility of a shift from supply-side subsidies to demand-side subsidies, as is already being discussed in the UK where the government speaks about “funding students instead of institutions.” Performance funding and performance indicators are to a considerable degree artifacts of supply-side public subsidies. Such subsidies make necessary some kind of “contract” between principal and agent with specified terms of performance, which in their basic form aim to ensure efficient and productive utilization of a public investment already “sunk” and otherwise irrevocable, hence the emphasis that performance funding puts on productivity and efficiency. A switch to demand side subsidies could make performance indicators less necessary. There are highly regarded economists – for example, Alison Wolf (2002) and Paul Krugman (2011) who, having analyzed the past decades of expanded higher education, now argue that economic growth “pulls” education instead of being “pushed” by it. Two states – Texas and Nebraska – that were early adopters of performance funding are reconsidering it in light of evidence that the correlation between investments in higher education and economic growth is dubious (Vedder, Robe and Denhart, 2012; Lindsay et al., 2012). Demand-side public subsidization will logically follow and evoke a very different view of performance funding and call for different indicators of it, with the result, perhaps, that
institutions will lobby governments to earmark funding for “performances” that they can – they will argue – uniquely provide.

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