

# Modelling and motivating academic performance

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There is a simple, economic story told about the motivation of agents in general, and of academics in particular. The story informs us about the motors of action and about the levers whereby action can be controlled. The motors of action, in particular the motors of academic effort, are provided by people's economic interests: their interests in the accumulation of the sorts of goods that can be traded, the sorts of goods that have a cash value. The levers whereby action can be controlled are provided by those factors which we can manipulate so as to affect the economic interests of the agents we wish to influence.

Much of the debate on the organisation of higher education and advanced research has turned, implicitly or explicitly, around this economic story. On the one hand are the bureaucrats and planners who think, or are believed to think, of academics as instantiations of the economic model. On the other are the traditional champions of the university, who argue that the story fails to recognise the vocational and dedicated nature of the academic life. The one group represents academics in the mould of *homo economicus*, the other in the mould of *homo heroicus*.

In this paper we wish to make a number of points that are designed to undermine the ground of this gladiatorial contest; the full development of the points must be undertaken elsewhere. In the first section we make some points that suggest that the economic model is not the whole story about academics. In the second section we add a number of considerations which suggest that the heroic model is also part of the story. And then in the third section we look at the implications for strategy of this mix of models; we ask whether this mixed account of the motors of academic life has implications for the levers whereby academic performance can be controlled. But in arguing that academic motivation is part economic, part heroic, we do not mean to say that there are not other parts to it too. By way of emphasising that point we go on in a fourth section to discuss the desire for regard and honour as a motor of academic life, and we comment on the strategic significance of that motivation: we mention some levers whereby that motor can be activated. We think that there is great room for research on this aspect of academic motivation, and motivation in general. *Homo economicus* and *homo heroicus* have tended to distract attention from *homo socialis* among those concerned with institutional design. The paper concludes with a short section on the practical implications of the points made.

Throughout our discussion we shall assume that teaching, research and scholarship are what the universities are supposed to produce and that 'betterness' in teaching, research and scholarship is a meaningful notion. We shall take it that 'betterness' is understood in the terms deployed when we make professional judgments as to the qualities of candidates for positions, or the relative strengths of various departments. We do not claim that such academic notions of quality or of what the universities are supposed to produce are entirely uncontested. There is, for example, a suggestion in some quarters that current 'reforms' of university arrangements are motivated in part to re-orient university activities to ends other than academic quality: ends such as

national economic growth, or 'national purposes' more broadly conceived. However, we shall here assume that performance both of individual academics and of the system as a whole is to be reckoned in academic terms.

## Homo Economicus in Academe

Protagonists of the economic model claim for it that it predicts human behaviour better than any other model of comparable generality and simplicity. Let us suppose, for the purposes of the argument, that all agents, academics included, are motivated predominantly by considerations of personal financial gain. Would we expect universities as they are currently organized to produce the outputs required of them? Would we expect teachers to be conscientious, researchers industrious, scholars diligent, under existing arrangements, if their main object is personal wealth?

Clearly, many elements of the sort of incentive structure we would expect to see for agents so motivated are already in place. Criteria for appointment, promotion and tenure (in those places where tenure is awarded on the basis of criteria that include performance) are all 'performance related.' A person wishing to have the highest lifetime earnings will be led to teach reasonably well, try to produce interesting and/or worthwhile research and so on. To fail to do so is to court missing out on promotion, or alternative job offers, all of which typically bring higher lifetime income.

It should be noted that specifically Australian institutional arrangements are not all that matter here. If, as seems plausible, academics are relatively mobile internationally, then individuals may be induced to be active publishers because publication record is a relevant criterion in the international (US, say) market which they may wish to enter. On the same basis, we might explain why many full professors in the Australian case who have tenure and hence cannot be fired for lacklustre performance and who have no prospects of increased salary for outstanding performance, may nevertheless find it in their expected economic interests to produce research output of the best quality: they may want to leave themselves the option of a good job in the US.

But even allowing for the international dimension, these observations will only apply to most academics for a part of their career. Once academics have satisfied their aspirations with regard to the level and location of job they hold, the current system would cease to provide them with economic incentives for doing their best. The *homo economicus* model would predict, implausibly, that we ought not to find such academics doing anything more than the very minimum required in the way of teaching and research. We ought not to expect any of them to be 'productive'.

Let us overlook that failure, however, and suppose that we can 'explain' the performance of most 'productive' academics in terms of this simple *homo economicus* model. But what of the activities of academic decision-makers? What of the activities of heads of departments, deans, vice-chancellors, and electoral and promo-

tions committees? Clearly, if academic authorities and their electoral and promotions committees are not motivated to choose the candidates who are best on academic grounds, then rational candidates will have no incentive to be productive. The system depends on academic decision makers being motivated to sustain the quality of the system. Can this be explained in *homo economicus* terms?

In the case of teaching, there may be an argument of the following kind on offer. Decision-makers (departmental heads and electoral committees and vice-chancellors) desire larger student numbers because larger student numbers mean more staff and larger resources to manage, and larger resources in total mean larger discretionary sums over which the departmental head (or department) has control. To the extent that better teachers attract more students, then there will be an incentive to appoint the best teachers.

Research activity is more problematic here. It is very difficult to explain how a head of department (or Dean's or Vice-Chancellor's) command over resources depends on the quantity and quality of research output, and hence why the decision-maker would prefer active and high quality researchers. Or at least, this is so unless the department/school's access to total research funding is tied reasonably closely to research output. This connection has traditionally been very loose in Australian universities: the major component of universities' research budgets is that embodied in staff salaries (up to one third of salary is imputed for staff research activity in the standard calculations), and this component falls like the rain on the productive and unproductive alike. It is notable that one ambition of some projected 'reforms' of research funding has been to prise that component loose and reallocate it across persons in the light of their research productivity.

What is the upshot of these considerations? One obvious lesson is that the Australian system is not in general designed to provide optimal economic incentives for academic performance. But a second lesson is also important. We believe that the level of academic performance is much better in the Australian system - this need not be a very flattering comment - than the *homo economicus* model would predict or explain. And so we also draw the lesson that model cannot be the whole story about academic motivation. In the next section we reinforce this lesson by considering some points that favour the *homo heroicus* story.

## Homo Heroicus in Academe

It is common, both in discussions of the behaviour of academics and in the literature on models of human behaviour, to set against the *homo economicus* model the model of 'man as angel'. In the academic context, the claim is that one can rely on a love of the life of the mind to maintain productivity in universities: that academics conceive of their activities as a vocation and that they are led to produce the 'academic output' required of them by a natural inclination to adhere to the requirements of what they perceive as their academic duty.

It is clear that there is much to this view. Intellectual curiosity and the pedagogic inclination are entirely natural phenomena; we do not require an elaborate system of incentives to bring them into play. To want to understand, simply for its own sake; to want to set others right when one knows something that they do not (or when they believe something that just ain't so); these are familiar enough in ordinary life. And indeed, for much of human history, these natural instincts have been sufficient to sustain much of the world's intellectual life. A significant number of history's intellectual giants have been persons of independent means who indulged

in intellectual pursuits entirely as a leisure activity.

Of course, this observation is not sufficient to imply that 'appropriate' levels of scholarship/research/higher education would be forthcoming in the absence of full-time professionals, any more than it is to assert that an 'adequate' output of musical performance or football would necessarily arise in a world composed entirely of amateurs. It is, though, important to recognize two things. First, that academic activity is akin to the arts or to sports in that the terms of the pursuit are, in large measure intrinsic to it, and exist independently of the particular 'demands' of 'consumers', whether these be students or politicians or the community at large. Second, that academic activity would be pursued to some extent by its devotees whether or not there was someone around to crack the whip if they did not.

Both points deserve some elaboration. The first point connects with a distinction, important and yet unfamiliar in much of the relevant literature, between the 'consumer' (or 'purchaser') and the 'patron'. The consumer and patron are alike in providing the resources by which the producer is enabled to continue to produce: there is an exchange of a sort in both cases. But the nature of what is at stake in the exchange is radically different in the two cases. One way of focusing on the difference is to consider the proposition (occasionally voiced by our colleagues) that, when it comes right down to it, the government 'has a right' to tell the universities what to do because, after all, the money that pays our salaries is the government's money. We think that the government would have that right if the government were properly construed as a 'consumer' of the university's services but not if it were properly construed as a 'patron'.

Consider an artistic analogy. When I buy a Van Gogh original, there is a sense in which it becomes mine: I can do with it what I like. There is another sense however in which the painting will never be mine: it will always remain a Van Gogh; it will not become a Pettit, or a Brennan! In the same way, the government may ultimately pay the salaries of academics but it does not thereby come to own the product. Thus it does not have the right to call this paper its own (supposing, against the odds, that it would want to); the paper remains, for better or worse, a Brennan and Pettit one.

Or take a sporting analogy. The fact that Bob Hawke pays for the Prime Minister's Eleven to play against England presumably does not give him the 'right' to instruct the captains on who should bowl, or on the batting order or on the field placement. Still less does it give him the 'right' to run onto the field and declare that some batsman is to have a second chance after being bowled simply because Bob would like to see him continue batting. And this would be so even if Bob had paid for the match out of his own pocket rather than the resources of the fisc. The game, and the players as participants in the game, have their own integrity, and the customer is not always right: the rules cannot be changed at will without destroying the game, even if the spectators want the rules changed in that instance. The academic enterprise is somewhat like cricket in this respect, and unlike much that is standard grist for the economist's mill. What is the 'best' mouse-trap may be decided by market demand: that is best which most consumers want most. Such a test does not properly apply to cricket, or science. This fact sets limits on what 'interventions' in academia are possible without the effective destruction of the enterprise.

The second point to emphasize is that we do not normally suppose that we need to pay players according to the numbers of runs scored or catches held or wickets taken in order to induce teams to try to win, or players to do their best. The professional cricketer (artist, musician etc) receives financial support which is

conceived simply as a means to enable him/her to pursue his/her cricketing activities on a full-time basis. True, some sports do, at the highest professional levels, have special incentives/rewards for goals scored, marks taken etc.; but these are very much the exception, and as far as we know, there is no evidence to suggest that performance is superior on those occasions where there is a 'man of the match' award than where there is not. As professional sportsmen and sportswomen, and as professional artists and musicians, are expected to try their best, even when there are not differential rewards for those who excel, so it may generally be plausible to expect academics to try their best in the absence of such incentives.

We think that these two points, and other considerations which they call to mind, support the view that the *homo heroicus* model has at least some application in academic life. There is something about the academic activity, as there is something about sporting and other activities, which makes it peculiarly crass (as well as false) to think that the whole truth about people's motivation in the area is captured in economic terms. There is something about the activity which leads us to expect the presence in many people of a natural inclination to conduct it to the best of their abilities: to expect the presence of spontaneous virtue.

The sporting analogy points up one aspect of the 'virtue' model that is worth noting: that the actor's motives are less central than their actions. Striving to do one's best in a cricket match is not necessarily driven by a vibrant sense of duty: it is surely more likely that the striving derives from a love of the game for its own sake. And equally, what we naturally describe as 'academic virtue' may as much be driven by a mere taste for learning (a kind of 'on-the-job-consumption') as by a keen sense of academic or more general public responsibility. Considerations of duty and on-the-job consumption may well motivate different academics in varying degrees. But it does seem clear that both are likely to be present in much greater degree in the university (or somewhat analogous institutions like the church) than in the garbage collection or the used car industries.

### The policy implications of a mixed model

We are prepared to grant, as a matter of the merest common sense, that people in general, and academics in particular, are moved in some part by economic considerations. The points made in the last two sections suggest that equally they may be moved in part by purely academic considerations. We turn in this section to the relevance of such a mixed model of motivation for the debate about university reform: the debate, more generally, about how we should design our institutions of higher education and advanced research.

Unfortunately, much of the debate over university reform reduces, one way or another, to a disagreement over whether the *homo economicus* model or the *homo heroicus* model of university behaviour is the appropriate one. The heroic school insists that the university can be pretty much left to run its own affairs. The economic school counters with the claim that academics will simply take it easy unless fairly fine-grained economic incentives are in place. We think this is unfortunate because we believe that the terms of the debate are inappropriately drawn. Absent a complication discussed below, it is irrelevant whether virtue or economic interest predominates in describing academic behaviour, if the purpose is to design institutional arrangements that will encourage better performance. Absent that complication, the presence or absence of academic virtue does not bear on the question of whether more extended reliance on economic incentives would elicit more conscientious performance.

The upshot of our mixed model of motivation would appear to coincide with the upshot of a purely economic model. Even if academics are only partly motivated by economic considerations, we can apparently expect to improve academic performance by fine-tuning economic incentives appropriately. Given our discussion in the section before last, we can apparently expect to improve academic performance in Australia, for example, by honing the economic incentives available. But we should not be too hasty, for matters are more complicated than they seem. There is one important question which the mixed model of motivation raises about such economic fine-tuning, a question that would not arise if academics were pure instantiations of *homo economicus*. Institutional designers need to consider this question, even if they should not be totally inhibited by it.

The question is whether more extended reliance on economic incentives can undermine such virtue as is present in the system. However well or badly the current system works our object ought to be to make it work better. Greater reliance on economic incentives will do this, assuming that academics are at least partly motivated by economic considerations, unless introducing them reduces the amount of virtue in the system. The enlightenment ambition in institutional design, from the American Founding Fathers to Adam Smith's invisible hands, was, as Alexander Hamilton put it, 'to make interest coincident with duty' (Federalist Papers No. 72). One does not need to deny the force of duty as a motive for action in order to make that ambition sensible. One does need to check, though, that in designing institutions in this way one does not diminish the force of duty as a direct spring of action. Three points, then, that bear directly on the matter.

First, there can be no response to market-like incentives if the rewards and punishments are unconnected to performance, are connected in some vague way which leaves agents uncertain as to what activity is required of them, or are connected indirectly in a manner that may distort what academics do. An arrangement that leaves the judgment of performance to some judge (head of department or dean, say) but in respect of which the judge's determinations are unpredictable will generate no response from agents in the direction of superior performance. An arrangement that rewards the number of pages published may well reduce the ratio of ideas to pages or simply increase the number and size of journals (and hence reduce the quality of what is published). Such a system would work to undermine what academic virtue requires, not to reinforce it.

Second, it may be suggested that payment undermines virtue directly. An act which the agent sees to be virtuous he/she may cease to identify as such once payment is made for it. Verily, he/she may say, I have my reward. Thus, the moral motivations that induce him to do x disappear once x is directly bought. This is in part what Titmuss has in mind with respect to blood. The spirit of reciprocity underlying 'the gift relationship' disappears once a market for blood is introduced. In this sense, the system of virtue and the system of market incentives are mutually exclusive: the enlightenment project of bending interest to duty is unworkable because once so bent, duty as a force disappears. If this were so, then there would be some point in comparing a 'pure virtue' with a 'pure interest' system. But the conflict can be easily overstated. We do not, for example, see the fact that promotion is based on superior performance, and that promotion involves increased salary, as undermining virtue in any significant way.

Thirdly, and more subtly, the shift towards greater reliance on economic incentives may change the composition of the academic workforce away from those motivated by virtue towards those motivated by economic gain. One who does not much enjoy academic pursuits but who can certainly churn out the papers will

be led to apply for academic positions if pay is more closely related to research output. Over the long haul, the resultant shift towards professionals and away from devotees (amateurs, in the original sense) seems likely to have effects on what the profession comes to value, on the nature of what is produced, and ultimately on the very content of 'knowledge' itself.

Of course, even if there were an element of tension between the 'institutions of interest' and the 'institutions of virtue' (whether on the basis of the considerations just mentioned, or otherwise), that tension would not make a decisive case against the institutions of interest. That is, the academic quality of aggregate university output may be higher when salary is more closely tied to performance, notwithstanding some loss of academic virtue as we have defined it. It is nevertheless clear that any loss of virtue is a matter to be reckoned with in designing genuine institutional reforms. We draw attention to it as a consideration which is naturally highlighted by the mixed model of academic motivation supported by our discussion in the last two sections.

### Homo Socialis in Academe

Enlightenment social theory is a major source of the claim that virtue on its own is not an adequate basis for the organisation of society. If men and women were angels things might be different but, because they are not, we seek to bolster the operation of duty with stronger or more reliable motives: with the sorts of motives mobilised, for example, under 'invisible hand' mechanisms. The enlightenment tradition has often emphasized the role of economic interests in this connection, and the discipline of economics has increased that emphasis. But we would like to draw attention to other interests besides the economic which also received attention from enlightenment thinkers. These represent other factors, in addition to the economic and the heroic, in the motivational make-up of ordinary mortals.

The interests we have in mind are social rather than economic. They are directed, not to my income or consumption, but to the attitudes that others take towards me. The attitudes I prefer others to take towards me may involve affection, gratitude, appreciation, admiration, recognition, or whatever. In general they are attitudes of acceptance and regard. Enlightenment social theory took up an old tradition in maintaining that apart from an interest in economic gain, people also have an interest in social regard: an interest, as it was often put, in honour. We endorse that tradition, and we think that it is a pity that economics has so dominated thinking on matters of institutional design that theorists and policy-makers often ignore this feature of human motivation. In paying attention to *homo economicus*, even occasionally to *homo heroicus*, they have tended to overlook the presence of *homo socialis*.

It can hardly be doubted that a desire for honour and regard plays a critical role in the operation of academic institutions. The approval of one's peers (and of one's reputational superiors) is a driving force for almost all active researchers: and to seek that approval, academics will frequently labour long and hard, even when, as in the Australian case, the prospect of financial reward is remote. Frequently, for example, academics will reject an offer involving promotion at an institution with an inferior reputation and with inferior colleagues, in order to remain at an institution whose reputation is higher and collegial environment superior. And it is not for nothing that publications carry the name of their author(s); in a system in which agents were motivated solely by 'virtue', by the pure love of the game, results could be published anonymously, and researchers would simply have the internal satisfaction of having contributed to knowledge. But in a system of anonymous publications, much less, we predict, would be produced. In other words, the desire for honour plays a role over

and above that of economic interest or of virtue."

Now, honour like interest involves the assignment of rewards and punishments; it is an incentive system in the economist's sense. But the currency of rewards and punishments is different; and that fact makes for some important differences between the economy of honour and the economy of interest. One significant difference is that honour is inalienable. A can transfer cash to B in such a way that the cash becomes B's; B can then spend it as she wishes without further consideration of A. It is this alienability that makes the market system, the system of complex exchange, possible. Honour is not like that. A could, to be sure, publish his/her articles under B's name, and allow B to enjoy the reputation that properly attaches to A's. But any such manoeuvre depends on an act of deceit. Once discovered, the honour re-attaches to A and B is bereft: no full alienability is possible.

This fact limits the extent to which the system of honour can be modified by explicit policy, whether by government or the academic institutions themselves. The system of honour is, in that sense, perhaps a better example of a Smith-Hayek 'spontaneous order' than is the market. Specifically, whereas economic resources can (relatively) readily be redistributed among persons and reallocated among alternative activities via appropriate taxes and transfers, honour is much less amenable to transfer: it tends to stick where it hits.

But this is not to say that policy can do nothing. There are a number of ways in which institutions might be designed to mobilise the interest of academics in honour: specifically to mobilise that interest with a view to securing better performance. Amalgamations and re-organizations operate on honour by influencing to some extent the peer group to whom the agent appeals for social approval. The intention, for example, in structuring departments and schools in some of the more recently established Australian universities along multi-disciplinary lines was to achieve a distinctive kind of collegial life. Such collegial life was to be secured not merely by exposure to ideas and analytical methods that were unfamiliar, but also by requiring those who wished to secure academic prestige at the local level to convey their ideas to colleagues in terms those colleagues would understand. The experience of those experiments, and in particular the tendency to fracture into disciplines, indicates that any such 'artificial' determination of peer groups is no easy matter: peer groups are either chosen by people for themselves or are determined by virtue of earlier disciplinary training. Nevertheless, it seems clear that, within limits, determination of the pond in which the frogs will croak is one dimension over which policy may exercise some influence.

A rather more significant dimension of policy choice in the honour system lies in the differential suppression or publication of strategic pieces of information. The incentive system based on honour, like that based on economic interest, requires monitoring. For fear of shame to motivate performance, the agent must be capable of being observed, and the more likely observation is, the more potent the motivation. Analogously, for the love of fame.

There may appear to be a significant difference in the operation of shame and fame (the negative and positive sides of academic honour) in this connection. In the shame case, the agent is naturally reluctant to be observed, and some resources may have to be expended collectively or regulations put in place to enforce observability and/or to lower monitoring costs. In the fame case, the agent seeks social approval by virtue of her/his actions, and so will be led to perform publicly: to bear, as it were, the monitoring costs herself/himself.

Or so it seems. For it is worth noting, on reflection, that it is typically less honourable to seek fame than to acquire it 'naturally'. Thus seekers after fame may well prefer some arrangement under which they are compelled to publicize their actions, or in which monitoring/observation costs are reduced. In the academic setting, for example, even the most productive or frequently cited persons are reluctant to endure the full cost of deriving (accurate) citation indexes or publication counts; even if the exercise were worth doing to establish their own eminence, the fact that they had done the exercise for such obviously self-serving reasons would be sufficient to reduce significantly the honour that might otherwise accrue.

In sustaining the system of honour, then, in mobilising shame and fame as more potent incentives for academic performance, the generation of relevant information concerning the performance of academics and the departments and institutions to which they belong may well have to be collectively pursued. A group like the AVCC no less than a government department, if it desires to improve performance, may seek to publicise that relevant information. FAUSA could well have a role to play in such matters. Producing the Egon Ronay guide to universities, and the league table on research, ought to be activities which those who care about academic quality are keen to support.

But it is essential to recognize that producing and publicising such information need not carry any implication that economic resources should flow to the higher performers. Here, as in the virtue case, there is a question as to whether the payment of financial rewards undermines the effects of fame and shame. If such payment does not undermine the system of honour, optimal institutional design would require financial rewards to go to the highest performers. If it does undermine the system of honour, then it will be necessary to work out the best balance between financial and other rewards.

In fact, at least over some range, the incentive systems of interest and honour would seem to be reinforcing. As argued by Adam Smith, wealth may be desired not so much for its own sake as for the prestige that it affords.<sup>10</sup> As Smith saw it, the attraction of 'wealth and greatness' is connected to the differential sympathy that the person of wealth excites. And there is perhaps a more direct connection. Financial reward acts as a signal of performance, and often a fairly public one, and hence becomes a basis of derived approbation based on the quality that the financial reward signifies. In those academic departments in the US., where differential increments are awarded according to perceived performance, differences in salary that are minuscule (even allowing for their permanence) can engender very substantial rivalry because they signal what the decision-maker (department head or whatever) thinks of the recipient's quality. A few dollar's difference between my increment and an immediate colleague's can be the source of intense depression or exultation. Equally, the fact that professors are paid more than senior lecturers does not seem to undermine in any way the greater prestige that professorial status brings. On the contrary, both professorial status and professorial salary are recognition of superior performance, and it is in fact doubtful whether the higher prestige of being a 'professor' would be as great if professorial status did not carry higher salary.

We do not seek to deny that there may be conflict between honour and interest over some range and in some settings. For one thing, honour is in many contexts parasitic on virtue: in many cases, acts are honourable because they are virtuous. If payment undermines virtue, therefore, it may also undermine honour. To take the Titmuss case again, it cannot be a proper object of social approval to be a 'blood-donor' when one is paid for one's blood at

what is commonly perceived as a fair, commercial price. We accept, then, the conceptual possibility of a conflict between interest and honour, and the institutions that exploit them. But in practice, we do not think that significant conflict arises in the academic case. The prestige of being a Harvard professor would not seem to be much diminished by paying Harvard professors higher salaries, or salaries more finely tuned to academic output.

### Conclusion

Are most academics in the Australian university system "free-loaders", wallowers in mediocrity and sloth?

This question is what most people, both pro-reformers and anti, seem to have seen as the central one in deciding the case for or against institutional reform. Certainly, much of the debate has taken the form of rival claims on the matter, often asserted with great vigour. Properly interpreted, this is a debate over the "motors" of academic life, about what it is that drives individual academic performance. But it is a debate whose terms are ultimately misconceived. For the question as posed is simply irrelevant to the reform issues. The question of institutional design is really a matter not of motors, but of levers (to pursue our mechanistic analogy). The critical question is not so much whether Australian universities under current arrangements work well or badly, but whether they can be made to work better. To answer that question we need only to know what levers are available to change academic performance, and the discussion of motors is useful only to the extent that it alerts us to possible levers that might be pulled, possible motivations that may be given more or less play to secure superior outcomes.

In this paper, we have outlined three possible motors for academic performance, all of which we reckon are in play to greater or lesser extent in different individuals but all of which we believe to be important springs of academic action (and inaction). These motors are characterized by the motives on which they rely: individual economic interest; academic virtue; and academic honour or regard.

These different motives suggest mechanisms that can be used to secure superior academic performance, different levers as we have dubbed them here. The economic levers are familiar. Perhaps too much so, for they have come to be seen as the sole mechanism for changing academic behaviour. Our chief object in this paper has been to point to a much richer range of devices by which academic performance may be enhanced. Many of these devices are in place and operative, but they are invisible to those who put their microscope to the economic eye. There are costs to such limited vision. In some cases, levers to engage economic motives may undermine the operation of alternative mechanisms. But even when this is not so, scope for increasing the effectiveness of the "non-economic" levers is overlooked.

On the specific issue of performance measurement, we are inclined to the view that if performance measurement appropriately conducted and reasonably authoritative it can work to improve performance even if the measures carry no resource implications for individual researchers. The publication performance indicators has a potentially significant role in soliciting academic performance by augmenting and refining the academic honour attached to good performance and the shame attached to poor. Anyone who believes such effects are negligible simply does not understand how the academic system works.

### Notes and References

\* Barry Hindess has reminded us of the interesting case of Nicholas Bourbaki, the French mathematician-collective, from the mythical University of Nantes, who published major work in foundational mathematics during the 1950's and 1960's. Membership of the collective was at the time a closely guarded secret and we believe it remains so, though conjectures as to the identity of the participants abound. Here was a case in which academic virtue prevailed without any support from academic honour, and the exceptional rareness of the case itself supports our claim. Three questions about the Bourbaki case are worth posing. One involves the institutional structures of French academic life. Would the Bourbaki phenomenon have been as likely in an environment in which research resources and income were closely tied to (identified) research output? The second revolves around the motives of the Bourbaki participants. Did they reckon that identification and

the forces of academic prestige and/or academic shame were inimical to the production of one's "best work"? The third involves the fact that Bourbaki was a collective (of size indeterminate): the participants could have published anonymously (or under a pseudonym) as individuals, but chose to exploit the opportunities for honour within the group. In that sense, the Bourbaki case may not be as much an exception to our account of the role of honour as an engine of academic behaviour that it first appears. (Other cases of anonymous publication, such as "X's" paper in Dacdalus on the future of post-reform USSR, seem to have been motivated by a desire to protect the author in the particular case).

\*\* The standard citation here is in Chapter I, Part IV of *The Theory of Moral Sentiments*.