

FIFTH ANGELO COSTA LECTURE

The European Space of Higher Education: Incentive and Governance Issues

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This lecture offers thoughts on some issues concerning the effective development of the European space of higher education currently being pushed by the twin forces of the Bologna process and the Lisbon declaration of the EU. It is pointed out that the USA example is a good reference point but cannot be imitated mechanically, given the more segmented reality of Europe. It is noted that the European space could develop first at the graduate level and that the competition for students through reputation effects may play an essential role. The significance of policy initiatives for promoting reform is emphasized. Finally, matters of governance and of incentives (including tenure) are identified as key factors of reform [JEL Code: I20; I21].

1. - Preface

It is most appropriate that I begin by expressing my absolute delight at being here today and my heartfelt thanks to the *Rivista di Politica Economica*, to Confindustria, and to Professor Gustavo Piga for the invitation to deliver this fifth Angelo Costa lecture. This is no mere protocol declaration. While I am, first and foremost, an economic theorist, the fact is that I have spent the last five years of my life, ending just three weeks ago, in politics. True, I was in a relatively technical side of politics, my responsibilities being in the field of universities and research. One could

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say that I was a glorified sort of dean. Be as it may, politics is not the best environment to develop theories. It is a pity because interesting problems jump to you everywhere, yet the necessary peace of mind is missing.

To repeat, and in consequence, I must thank you wholeheartedly for giving me the opportunity to go back to academic talks. I do not know, however, if I will succeed. Political speeches, my trade of the last five years, are very different beasts from academic talks. In contrast with the latter, in political speeches there are no points to be gotten by being clever, or original, and it is a terrible *faux-pas* to direct one's words to the three people that matter. In fact, one has to become a specialist in the constant repetition of platitudes. The depth of the contribution ends up being measured by the intensity, and the distribution, of the repetition of two or three very simple messages. Also, if you allow me to indulge in a modicum of cynicism, in politics, again in contrast with academics, you should not recognize your sources (unless they are safely dead). Rather, you steal ideas and make everybody believe they are yours. What is the point of attributing them to your political opponents? Finally, in a political speech you should try to express yourself with elegance but, God forbid, not with precision. A good political message should appear clear and definite but if it is well crafted it will have the virtue that, if read carefully, it can be made to say approximately the opposite of what it seemed to express at first flush.

That said, let me be clear that I will aim today at an academic talk, a light one though.

To repeat, my interest these last years have been in higher education and research policy. In today's talk I'll try to list and reflect on a number of issues that I have come to the conclusion are key to the development of higher education in Europe and that deserve, therefore, scrutiny by economic analysts. But I will not carry out the analysis. My contribution, if any, will be pre-theoretical. Occasionally I will call my remarks «conjectures» but in general they are no more than members of a list of, I hope, interesting problems.

My political responsibilities have touched on a small corner of Europe, Catalonia. It would not make sense that I concentrate on the specifics of Catalonia. I will focus, therefore, on Europe, in the belief that my own experience and problems are not totally idiosyncratic and that in many respects they are typically European (or typically south-European). But, probably, this is only partially true and the risk is present that my remarks may appear to you somewhat alien. If so, I present my excuses.

2. - Europe and the USA

While Europe is not the same thing as the European Union (it is much richer than that) it is natural these days when addressing matters related to the economy of knowledge in Europe to start from the somewhat grandiose 2000 Lisbon declaration of the Executive Council of the Union in which it was manifested the will of Europe to become «the most competitive knowledge based economy in the world». The objective had to be attained by 2010. It shall not. But no matter, it is a challenge worth having, if not for 2010 then, say, for 2015. After the declaration it was soon clear that the Lisbon commitment (and the subsequent Barcelona objective of a 3% investment in R&D over GNP) should imply a major effort by all the agents involved in the economy of knowledge, and, in particular, by the universities. By and large, the European universities (in Salamanca and Graz), and their political counterparts (in Bologna, Prague and Berlin) have, at least nominally, accepted with *gusto* the gauntlet thrown to them at Lisbon.

It is a commonplace observation that the USA has a superb system of higher education and research. There is controversy about the quality of initial and medium education. Many people believe that in this dimension Europe resists very well the comparison. But in higher education the verdict is in favor of the USA. This suggests that if, as Lisbon prescribes, the European objective is to overcome and leap over the USA, then there should be things that we can learn from the American experience. On this judgment I concur. Yet, the marching orders can be pushed to a naïve extreme and

become a wholesale recommendation to erase our reality and substitute it by one directly replicated from the American model. I do not think this is possible, and I would even question if it is desirable. Let me begin by explaining why, and move then to the things that effectively we could adopt, in the understanding, however, that this adoption does not need to be an easy matter since every single case where copying could be helpful has to be fitted to an environment that it is, overall, very different from the American.

In a nutshell the main reason why the naïve approach can not work is because the functioning of the American system is essentially intertwined with the remarkable geographical and linguistic homogeneity of American society. The USA population is diverse in many characteristics but it is not segmented in the way that Europe is. I do not know if Europe will end up like the USA. I would not say this is impossible. But if it happens the relevant time-span will be one of centuries, certainly not of decades. And for the centuries I'll stick to the well know dictum of J. M. Keynes: in the long-run we are all dead.

Let me consider a particularly illustrative example. In the USA there are many colleges and universities. Yet, there is a strong hierarchy among them, especially when it comes to research. How many excellent universities are there in the USA? How many research universities? Fifty, a hundred? In any case, a number that, relative to the population and relative to the number of universities and colleges, is not large. The concentration of research activity in the USA is phenomenal. If not for other reason that funding in Europe is mostly a matter of the States and in the USA it is a matter of the federal government (here I refer to the "final" funding, the one that makes the difference for world excellence) this concentration is not to be expected in Europe. This may be regarded as a handicap but I would submit that the real challenge for Europe is to transform this possible weakness into a strength. The fact that every state, every region, sometimes every town, is very ambitious for its higher education and research assets has to become a factor of strength, even of comparative strength. A system more decentralized than the American has dangers but it also has factors of progress. At any rate, this is what

we have and I am arguing that the situation is not hopeless. We can have an excellent higher education system without becoming American, preserving our Europeaness. But we will have to work at it. Reform, deep reform, will certainly become necessary.

3. - The European Space of Higher Education

The university, from the point of view of the social interest, has a double mission: it must train the future generations (in a broad sense that includes helping transform the young into free and thinking persons) and it must contribute to the advance of knowledge. Both things are important to every particular society. One could abstractly think of a social organization where both functions are exercised separately, and, in fact, there have been situations that have approached this abstract model. My view, however, is pretty conventional. I think that the system of organization of teaching and research of a society should include institutions that only do research, may include — but I am not absolutely convinced about this — institutions that are essentially only teaching institutions (in the USA there are many of those), and, first and foremost, has to include institutions like the modern university, that do both. Teaching and research are, in the aggregate, complements. From the standpoint of the social research objective it would be a considerable waste not to demand research from a collective, the university teaching staff, singularly prepared for the task. From the standpoint of the training objective it stands to reason that the potential for excellent training can be much reinforced by an environment of creativity where the frontiers of knowledge are being relentlessly pressed forward.

Let us agree, therefore, that the social objectives for the higher education system are well understood and that, as indicated, they include an efficient provision of an adequate mix of education and innovation, or, if you wish, of teaching and research. What will be the characteristics of a good public policy oriented to this objective? The accomplishment of an aim of excellence will depend on three factors: (i) the structure of the inter-relationship

among universities — the “market” so to speak — has to be efficiency-promoting; *(ii)* the objectives and aims of the management structure of individual universities have to be aligned with the social interests and the goal of efficiency; *(iii)* the human factor is essential to the effective functioning of a university. Organization, of course, matters. But an organization will not accomplish much if, for whatever reason, the people in the organization (in the university context this applies especially to the academic personnel), are unresponsive. It happens sometimes in Europe that we are a bit shy in recognizing this fact and prefer to celebrate the institution, the center or the research group over the particular teacher and researcher. I believe this is a mistake. The individual academic is key. He or she needs to be well motivated and engaged. Incentives are, therefore, very important.

I shall now review some issues concerning the first point, the structure of the market. Afterwards I will move to the topic of the governance of institutions and then to the matter of incentives for the academic staff of the universities.

I will admit to a prejudice. Namely, I believe that it is good and healthy that there be competition among institutions of higher education. But I am afraid that to justify this opinion I can, at this point, appeal only to American examples or to anecdotal European stories. It would be nice to have theorems or, at least, some theory. It is plain that the «market» of higher education is not an economic market in any rigorous economic sense. In fact, the recent debates on the role of higher education services in international trade (in the WTO negotiation-rounds context) indicate that not even in the USA there is strong support for the idea of transforming the field of higher education into a real economic market. The book of Derek Bok (2003), who used to be President of Harvard University, *Universities in the Marketplace*, makes interesting reading in this respect. So we have here an interesting research topic: what is the meaning of the term “competition”, if any, that fits, as a desirable characteristic, the higher education field.

I venture the conjecture that the competition to attract students will play a central role in the answer to this question. I

would also guess that we will then conclude that in Europe there is too little of this competition.

A note of caution is due here: for the competition for students to be important it is necessary that it occurs for the right reasons. For example, it would not be acceptable that it be based on making it easy to obtain a degree. I would say that for the competition to be beneficial it has to be based on reputation effects that generate rewards in the professional markets (at least in the more economically oriented ones). A more refined version of the conjecture would then include the claim that forms of competition not based on reputation will not be efficiency enhancing.

As for the insufficiency of this competition in Europe, I have already observed that there is a real segmentation in the European higher education markets. This is particularly so at the undergraduate level. In graduate studies there are some important exceptions, notably in business education. I will come back to this shortly. The segmentation is a consequence of many factors. There are, for example, linguistic reasons. But there is also the fact that public universities are heavily financed by their fiscal jurisdictions and it is natural to expect that those will have a preference for providing services to their constituents and taxpayers. It is possible, however, that this factor does not need to be an insurmountable difficulty. Multilateral agreements may help and the USA experience is encouraging.

Additionally and more importantly: even within particular states and jurisdictions, Europe has not yet developed muscular reputation effects. We are still, on the whole, dominated by a generic culture of credentialization where what is important is to have a credential to exercise, or to open the way to exercise, a profession and it is much less significant who the issuer of this credential is.

It would be inappropriate, I suppose, not to make here a reference, even if brief, to the so-called Bologna process. My opinions on this process are mixed. I believe that everything this process deals with is important. The configuration of a European space of higher education will be immensely aided by the usage of similar systems of weights and measures, comparable standards,

and the possibility of mutual learning. Any step forward in these directions is, therefore, good. Yet I have the feeling that there are many important aspects which are not touched upon in the process. I allow for the possibility that they are not touched upon as yet and that it is all a matter of good political tactics. I think, in particular, that there is not enough emphasis on graduate studies, on research and on the need to develop competition. It is doubtful to me how far one can go just with the currently fashionable evaluation and accreditation exercises¹. These can be effective at generating competition if they are carried out by non-involved parties. This means, ideally, not by universities and not by governments. I am afraid that there is little room left. But, let us be optimistic, and hope there is enough for the development of a secondary reputation market. By this I mean institutions capable of conferring reputation because they themselves have reputation, in particular a reputation for independence. In the segment of graduate education this seems to be working in the field of business education (especially at the MBA level) where there are many rankings but some carry more weight than others.

Let me go back to the undergraduate — graduate issue. It seems to me that many considerations suggest that the construction of a European space of higher education does not need to develop in a symmetric manner at all levels. It is logical to surmise that it will advance much more quickly at the graduate level and that perhaps we should concentrate on this for the foreseeable future. It shall not be simple, but everything (linguistic and financial issues, for example) is going to be simpler at that level. A segment of the graduate level is the training of researchers — in short — the Ph. D programs. This segment can benefit from the fact that there is in Europe a parallel move towards the development on a European Research Area. An interesting question is if purely graduate European-minded institutions (graduate schools) may emerge. We already have some pre-figurations — an example in Italian soil is the European University Institute in Fiesole, that it is not only European minded but European owned.

¹ See UNESCO (2002).

In the USA there are some, but not many, purely graduate institutions. This may be read as a non-encouraging precedent for an European parallel. However one could argue that because of the considerable segmentation of the undergraduate field — a characteristic so different from the USA — European wide graduate schools would make special sense in Europe. While the need may be there, the truth is that there is a serious funding problem. Those things are not cheap. As with the European University Institute at Fiesole maybe the initiative could come from the European Union, but this is not likely. Also, it may not be desirable. Too many strings attached. Independent, even private initiatives are, however, not impossible (again, business education provides some examples).

4. - The Governance Issue

Let me now concentrate on the problem of the individual institution and, more specifically, on the governance issue.

It is a commonplace observation that universities are complex organizations. But they are not just any complex organization. To begin with, universities constitute an ancient organization type. As an institution probably only the church survives from earlier times. Obviously, there are universities that are very recent but, by and large, the pattern of organizational legitimacy for these carries the acceptance of the traditional mold in a number of basic characteristics. One of these characteristics is the role of the doctoral degree as a credential for teaching. Another is the one that interests us now: at least in the European context, universities enjoy a high degree of self-government. The precise degree varies from country to country or from university to university. It may depend greatly, for example, on the nature, private or public, of the institution. The self-government trait — often recognized under the term of “university autonomy” — has its foundations in the principle of academic freedom and grew naturally from the desire to protect the university institution from political interference. It could appear that, in a fully democratic world, academic

freedom can be guaranteed through norms, statutes and *quasi-judicial* systems, and that, therefore, there is less need for self-government. Maybe so, but in a matter as fundamental as this it is probably better to lean over backwards and be conservative. Do not expect, therefore, that what comes is a proposal to do away with self-government. In one form or another self-government will remain, and it is good that it does.

Yet, the desirability of maintaining self-government does not mean neither that all forms of self-government are equivalent, nor — and this is a key remark — does it imply that a self-governing university will have its objectives, or, better, its decisions, automatically aligned with the social objectives. I am afraid that if I now go into a detailed description of the many distortions that can occur I will offend some component or other of the university community. So I will leave it to your analysis and imagination. Or, even better, I leave it to the casual observation of your surroundings. Lucky you if you do not find any illustrative example at hand.

We have, therefore, a serious problem: that of finding ways to induce an appropriated trade-off between the respect of the principle of self-government (or, better, the principle of autonomy) and the overall efficiency of the organization.

It could be argued that for the dominant type of university in continental Europe — the public university — there is a straightforward approach to the problem. Public universities are, to a large extent, publicly funded. Hence, if we think of the public authority as the principal and the university as the agent, the principal could try to enforce the adequate behavior of the agent by means of a contract. Something along these lines is being increasingly done by state and regional principals in Europe; often under the French originated name of “contract-program”. The extent that this approach can work is a matter that deserves careful theoretical attention. I believe that the asymmetric information problems, undoubtedly present, will not be insurmountable. After all, the principle of accountability is widely invoked and accepted by public university authorities. I think that the real limitation, and a possibly very serious one, lies

elsewhere: namely, in the impossibility to rule-out renegotiation. Or, expressed in another manner, in the non-enforceability of mechanisms where universities may be severely penalized for deviant behavior. In a sense, a university is “too big to fail”. Behind the public subsidies there is the education of youngsters. Penalizing the university is tantamount, in consequence, to penalizing the students, and this may not be acceptable. It is, therefore, safe to assume that public universities can count with a solid base-financing, more or less linearly related to the amount of teaching services offered. Simplifying greatly, we could hypothesize that public financing has a second component that can effectively be contracted. Think, for example, on the funding of research infrastructure as dependent on research results or on well assessed research projects. The issue is then if the extent of this conditional funding is sufficient to induce the “right” behavior. My impression is that, currently in Europe, this amount is insufficient and that, therefore, the self-government imposes real limitations on policy. But I do not dare a prediction on how far we are from a reasonable target area.

Consider an example that it is particularly relevant and that illustrates well an important contrast between the USA and Europe. Say that you have a university for which it is desirable that it disposes of an excellent mathematics department (maybe it is the only university in the country with such a department; hence it has to be good). However the math department is mediocre. What will happen? The answer in the USA will be that red lights will flash in the President or the Dean office and that the wheels will begin to turn for a process that in all likelihood will lead to an improvement of the situation². Unfortunately, the answer in Europe — where self-government is strong — is: probably nothing will happen. It is true that in Europe we could have a sort of contract that said: «if the Department is not good it will not get research funding». This may even be enforceable. The problem is that the Department may not feel that this is any sort of penalty because, anyhow, perhaps there is in that department no interest

² See BOWEN W. - SHAPIRO H. (1998); or LEVIN R.C. (2003).

whatsoever in research. There is another lesson in this example: the university is not a single agent but a community of agents which aggregate behavior does not have the coherence of a single agent. The self-government works more as a strategic game where different players have different possibilities to make, or to block, decisions. In his classic work on the *Entrepreneurial University*, Burton Clark (1998, p. 5) puts it well: «Traditional European Universities have long exhibited a notoriously weak capacity to steer themselves». This, the inability to make decisions, is a big component of the governance issue.

At this point the following question suggests itself: Who will be the decisive agents of change for the necessary reform of the European university? Because of the governance issue I do not think that we can rely exclusively on the universities themselves. The private and non-government sector can surely play a role, especially in the development of exemplary initiatives. But given the scope of the field of higher education it is most unlikely that this suffices. It remains the public authorities and their policy initiatives. Maybe this reflects my own bias and experience but it is from public policy (not necessarily from “big” initiatives) that I would expect the push for change.

Let me however conclude with a note of warning: The line of thought I am pursuing goes, in rigor, beyond simply objecting to the «weak capacity to steer themselves» of the universities. Indeed, I’m taking the public authority to be the principal and the university the agent. This means, in particular, that the objectives ideally to be enforced are those of the public authority. Therefore, the government “knows best” and, by definition, the principal does not make mistakes. Hence, unless the objectives of the university coincide with those of the public authority, the evolution of the university should not, ideally, be stirred by the university itself. I admit that all this is a bit hard to swallow. Governments are not perfect. If among you there are political economic theorists I am sure that you can contribute some reasonable insights on how to proceed with the analysis. But I must confess that I do not have them. With this note of due caution I will push forward.

5. - Incentives: Teaching vs. Research

The delivery of the services of the universities, teaching and research, is resistant to mechanization. Consequently, universities are labor intensive organizations. In addition, the labor is highly qualified and embodies considerable amounts of human capital. The human capital, often, is not very specific, so that it has attractive outside options. All together, it is a context where productivity is bound to be heavily influenced by incentive schemes. I would now like to address some issues concerning those. In particular, matters of compensation in this section and of length of contract in the next one.

Let me suggest a very simple model of joint production of teaching and research by an individual academic. There are five independent variables: human capital (essentially, accumulated training), talent for teaching, talent for research, effort in teaching and effort in research. Of course, there is an aggregate (inequality) restriction on the vector of efforts. The two talent variables are genetic. The production of teaching services depends positively on human capital, the talent for teaching and the effort on teaching. Likewise, the production of research depends positively on human capital, the effort on research and the talent for research. A precision is necessary in reference to the meaning of the expression "teaching services" since for every amount of effort the quality of the product will depend, so to speak, on the amount of teaching hours. Thus, in what follows I take the teaching hours as fixed so that there is a one-to-one relationship between teaching effort and quality of teaching. For fixed level of capital, there is a key difference between teaching and research that concerns the role of talent and effort: the marginal rate of transformation along the talent-effort isoquant makes effort comparatively more valuable in teaching, and talent comparatively more valuable in research. Oversimplifying, we could say that quality of teaching is fundamentally a matter of effort, and thus it is open to any individual no matter what his, or her, natural teaching talent, while quality of research requires, beyond effort, an essential component of talent.

Let us assume that everybody has the same amount of capital. Lack of human capital does not seem to be the limiting factor in the European landscape. Say that effort and talent are perfectly observable. However, and perhaps because of the prevalence of egalitarian norms, the hiring institutions, the universities, cannot offer contracts that depend directly on talent. Hence the institutions will offer contracts that may depend parametrically on observable fixed characteristics (for example: teaching and research record) and where payment is a function of two variables: teaching effort and research effort. In principle, and other things equal, every contract offered by the institutions will have a set of takers (this set will depend on the outside options). Among those the institution will choose the candidate that it considers best. The optimization exercise — this, of course, would need to be made more precise — will then also apply to the choice of the incentive schedule.

I suppose it is natural for a pre-theoretical discussion to formulate conjectures. In this case the conjecture will be the following: for reasonably specified models it will be the case that an institution that values teaching and research will tend to choose relatively high research talent and rely on incentives for the teaching objective. Said it in another manner. Consider two extreme (surely suboptimal) situations. To attain a given teaching — research combination the institution can choose first a high teaching talent to, practically speaking, guarantee good teaching without much expense of effort, and then rely on incentives to reach the desired research level. Or it can focus first on research talent and rely on the incentive part to guarantee the teaching objective. The conjecture is then that this second alternative is superior to the first. This is relevant for the European debates for an interesting reason. The idea to choose the academic staff mainly by its research potential is controversial in Europe and it is less practiced than in the USA, or at least less practiced than in the elite institutions of the latter. It is not exaggerated to say that in many instances European universities recruit initially by teaching needs (I do not dare to say by teaching excellence) in a somewhat haphazard way. Then, in the best of cases, they have

elaborate incentive schemes to stimulate research and, most often, not so developed ones with respect to teaching. What I am suggesting is that this is the wrong approach: an institution will do better being somewhat single-minded in selecting for research talent and implementing then incentives schemes on teaching to induce high teaching effort. Most well trained people can, if they work at it, offer decent to excellent teaching. The parallel remark is not true for research.

A claim is often heard in Europe that the American challenge is taking our universities towards an overemphasis on research and to the neglect of teaching. I have no sympathy for this view which, if prevalent, is tantamount to conceding American superiority and abandoning the Lisbon resolution. But for the reasons just presented I concur that, side by side with the incentives for research, there should be incentives for good teaching. I do not agree, incidentally, that the quality of teaching is less observable than the quality of research. Certainly, the published papers, the citations, *etc.*, are objective data but the foundation of the construction is the process responsible for the acceptances for publication, that is, the evaluation by peers. If subjective elements of this nature (but probably much less subjective than students evaluations!) are also allowed I do not think that the evaluation of teaching effort should be so difficult. After all, don't we all know who the excellent teachers in our surroundings are?

6. - Incentives: Tenure

Continuing our analysis of the academic contract another interesting topic concerns the length of the contract, and, more in particular, the issue of tenure. Tenure represents a degree of stability superior to the best situation in the surrounding labor markets. This is certainly so in the USA³. In Europe where, by and large, legislation is much more protective of jobs than in the USA the added guarantee is often the practically absolute gua-

³ See CHAIT R.P. (2002).

rantee provided by a civil service position. In addition, the temporary tenure track contract (on which I shall comment in more detail in a moment) is much less prevalent in Europe than in the USA. In Europe it tends to be the case that the non-tenure contract is no more than a temporary short-term contract.

The optimal length of academic contracts should be a prime object of theoretical study⁴. Several remarks are in order: *(i)* an appropriate analysis demands that the problem be put in a larger context and that it be studied jointly with the rewards and incentive structures; *(ii)* From the point of view of a single institution it would be worthwhile to study the nature of an optimal academic employment contract. In particular, this could involve the determination of a level of tenure selected from a possible continuum (a continuum could be specified via, for example, severance payments); *(iii)* going beyond an individual decision problem it would also be of interest to analyze the equilibrium problem in a competitive field of institutions. An example of the relevant questions to pose is: to what an extent the appeal to tenure by different institutions is mutually reinforcing? Another is: what are the optimality properties of equilibria with different levels of tenure?

I am afraid that if I leave matters at this point I am being excessively non-committal. So, perhaps it is indicated that, eschewing the term “conjecture”, I reveal some of my priors. I would not be surprised if the results of the analysis went mainly in the direction of recommending levels of tenure that go beyond, but not much beyond, the level of stability and permanence implicit in a standard indefinite labor contract with no special termination clauses. At any rate, the level would be far from the infinite severance payment through which one could formalize a civil service contract. However, when, as in US, standard labor contract carry with them a low degree of guarantee of permanence it may happen that this “optimal” tenure contract is substantially better.

To pursue the discussion let me call «strong tenure» the civil service contract and “weak tenure” the standard indefinite labor contract. In a context where academic freedom considerations are

⁴ See CARMICHAEL H.L. (1988).

important I would regard the availability of strong tenure as of paramount significance. If they are not, perhaps because they are solidly in place, I could formulate some reservations that I would imagine would also emerge from a full fledged theoretical analysis: (i) From the point of view of incentives it is important that institutions — universities, but also research centers — be the principals of the employment contracts of their employees. Strong, but not weak, tenure tends to detach the employee from the institution; (ii) perhaps not in theory, but certainly in practice, strong tenure tends to be associated with a set of permanent rights to certain academic activities (teaching in certain fields, for example). This is bound to introduce a serious degree of rigidity in the management of the institution.

I would like to make a final remark on the concept of tenure-track. The tenure track contract is well developed in the US and it is one of the features that probably bear imitating in Europe. In the face of it, it is simply a temporary contract. But it is much more than that. The tenure track contract conveys (very often only implicitly, but quite reliably) a commitment to an evaluation and to tenure if the evaluation is positive. It is important to realize, if we think on importing this American feature, that there is a world of difference between offering someone a contract that terminates in five years, and nothing else, and offering a contract for five years that will be continued (and, moreover, this time with much increased permanence) if an evaluation comes up positive. I dare to suggest that the availability of tenure-track schemes will turn out to be an essential feature of a well ordered contractual system.

7. - Conclusion

It is time to conclude. I will do so with three quick and predictable remarks (platitudes?): (i) As has been done with the firm, the box of tools of modern microeconomics has to be brought to the study of universities and research institutions. And it is im-

portant that policy be inspired by this analysis⁵; (ii) even relaxing the target date the Lisbon commitment will not be easy to reach. But it should not be abandoned. From the political point of view it is the most promising avenue (more than Bologna that just now, as an afterthought, is beginning to mention doctoral studies and research) to unbound, at every corner of Europe, a process of reform guided by a powerful demand of quality, competitiveness and excellence; (iii) in this talk I have not said that more resources should be devoted to universities and research. This would certainly be the issue if one felt that, from the allocational viewpoint, universities lived at the feasibility frontier. But I do not think this is the case and, therefore, there is much room, I believe, for fruitful efficiency analysis. At any rate, and for the record, let me mention that fulfilling the Lisbon commitment and meeting the American challenge will require more resources (especially in graduate education). Given the European fiscal realities, a good fraction of these resources will have to come from the mobilization of non-government and private financial sources⁶.

⁵ See DEWATRIPONT M. *et AL.* (2001).

⁶ See CLARK B. (1998).

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