

CHAPTER

13

Financing the Research University: A European Perspective

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INTRODUCTION

The climate of increasing competition which strongly influences the daily business of universities in their basic missions of research, teaching and service to society is made particularly challenging today as it has become more and more difficult for universities to secure sufficient funding. This is as true in Europe as it is in North America. While in the 1950s, 1960s and, to some extent, in the 1970s, the massive growth of universities was made possible by increasing financial support by the State, different types of sponsors and, almost exclusively in the United States, the students themselves, securing sufficient funding has now become much more difficult. This has serious consequences for universities as they are forced to adapt to their rapidly changing environment with financial resources lagging behind requirements, and, in some cases, even diminishing.

This chapter will begin with a brief analysis of the main reasons why the climate of increased competition is making securing adequate resources more difficult. After this review of the harsh reality of university funding, the chapter will analyse different methods that universities should explore and develop to diversify and increase their funding. This section will focus mainly on the European context as the institutional setting clearly differs from that in the United States. The next chapter (chapter 14) by Marye Anne Fox will look specifically at the American dimension of the question.

THE CHALLENGE OF SECURING ADEQUATE RESOURCES

In order to analyze the sources of difficulties in financing universities today, it is useful to distinguish between the expenditure and income sides of the university budget.

Expenditure side of the budget

The overwhelming cause of financial difficulties on the expenditure side of the university budget is the increasing cost of providing education and doing research. There are many reasons for this. The most important are:

- The massive growth of higher education, with a proportion of 40 to 60 % of class-age population presently studying in higher education institutions, compared with only 10 to 30 % 50 years ago, has brought much higher demands on the budgets of universities as they absorb these rapidly increasing enrolments, while avoiding a drop of education standards due to a lower staff/student ratio.
- The increasing expansion and complexity of knowledge – with more knowledge created by the present generation of scientists than during the entire previous history of science – has created a multiplication of specialization in all disciplines. Therefore, any university department now needs to have 3 to 5 times more academics for teaching and research purposes. Moreover, more and more discoveries are being made in areas where two or more disciplines overlap. Therefore, multidisciplinary approaches are becoming a necessity; however, they are more costly precisely because they require the collaboration of people from different disciplines.

The impact of these two fundamental developments has been reinforced by other factors of a more technical nature.

- *Teaching is and will largely remain labour-intensive.* Though it may seem strange that academics are teaching largely as they have for the past 100 years – with a blackboard and chalk, or at best with an overhead projector – it remains a fact that knowledge is generally transmitted face-to-face between students and teachers. Moreover, even if progress in the transmission of knowledge is greater than is apparent or is in fact accelerating thanks to greater use of the possibilities offered by information and communication technologies (ICTs), preparing the “courseware” for any sort of distance-learning course is itself very labour-intensive and therefore so costly that it is still not clear today whether it will be possible to spread the initial investment cost over a number of students large enough to have significant

productivity gains. Furthermore, it is widely accepted that the newly promoted pedagogy – based on guiding the students in their own learning efforts – is, if done correctly, more costly than traditional, *ex cathedra* course delivery. Finally, research universities are more sensitive to these realities as the proportion of their students enrolled in Master or Ph.D. programmes is greater than in higher-education institutions focused mainly on education; therefore, their students–teacher ratio is significantly smaller, contributing to even greater increases in the cost of teaching.

- *Science – “big” science as well as social sciences and humanities – is becoming increasingly costly.* According to Ehrenberg (2003a, 2003b), “... the average research-and-development expenditure per faculty member across 228 major research universities in the U.S.A. more than doubled between the academic years 1970-71 and 1999-2000, paralleling the increases in general expenditure per faculty member that took place at those institutions.” Moreover, “... despite the generous external support that universities have received for research during the same period, the average institutional expenditure on research per faculty member more than tripled. As a result, the portion of the average university’s research paid for with institutional funds rose from about 11 per cent to almost 21 per cent.” The reasons why academic institutions are bearing an increasing share of the costs of their faculty members’ research are manifold. “In particular, theoretical scientists, who in previous generations required only pencils and paper, now often need to use supercomputers. Experimental scientists rely on sophisticated laboratory facilities that are increasingly expensive to build and operate. Moreover, research administration now includes stricter monitoring of financial records and environmental-safety regulations, as well as more detailed review and monitoring of research involving human subjects.” This phenomenon, characteristic of hard and life sciences, can also be observed within the social sciences and humanities, which today require large-scale monitoring and networks of scientists representing many disciplines, as well as multidisciplinary approaches. In addition to that, the closer relationship between basic and applied research necessary to improve the transfer of technology is also a source of increased costs.
- Efforts to gain economies of scale, in particular through restructuring, greater collaboration or merger with another institution at departmental, faculty or institutional levels also involve, as has been well recognized in the private sector, major start-up costs before producing

positive results, if any, on the quality and/or effectiveness of teaching and research. In other words, any effort to become more effective and to save financial resources begins in fact with an increase in costs!

- Moreover, the climate of increased competition also makes it more costly to attract the best faculty members – junior and senior – with attractive salaries and/or better working conditions (scientific equipment, research, technical and administrative staff). The same is true of attracting the best students, crucial for maintaining and improving the level of research and the visibility of the institution.
- Last but not least, the strong presence of the State in the management (administration) of universities – despite their autonomy – does not promote cost-conscious management of the institution.

Income side of the budget: recurrent difficulties

In order to analyze the challenge to financing research universities, I shall distinguish between recurrent (long-term) challenges which will be considered in this section, and short-term difficulties which will be described in the next section.

- As the different ways and means to solve recurrent difficulties will be considered in-depth later in this volume, I shall make only a brief analysis of them here. Basically, the main challenge for universities is to persuade governments and other sponsors, public or private to give higher education greater priority. There are at least two reasons:
- For those resources originating from the public sector, which are by far the most important in public universities and also quite substantial – even though lower – in private, not-for-profit universities, higher education and research institutions are in direct competition with other responsibilities of the State. Whatever priority it wishes to give to higher education, the State is facing increased demands in the areas of social security, health, general education, transport, security, defence and, more recently, the fight against terrorism. It would therefore be a serious mistake to believe that governments and parliaments could attribute an absolute or even a top priority to higher education and research; they obviously also have to consider other societal needs. So, at best, public resources allocated to higher education and research can grow only slightly more rapidly than the average growth of the public budgets – an insufficient increase to cover the rising costs described above. The fact that higher education and research cannot be given an absolute priority has been made clear once again by recent events in the U.S.A. and within the European Union, although both regions consider that knowledge has

become a production factor as important as labour and capital. The U.S.A. demonstrated its changing priorities by allocating for military expenditure many billions of dollars – substantially more than it has ever allocated to higher education and research. The European Union is facing a serious trade-off between respecting its stability pact which limits the public deficit to 3 % of the Gross National Product and, among others, implementing its objective to become by 2010 the world's most competitive region thanks to a knowledge-based economy (see chapter 3). Difficulties in public support for higher education and research may even worsen as there are increasing signs in developed countries that many ambitious government programmes – in particular social welfare programmes – set up in relatively affluent periods over the past 40 years, are no longer sustainable.

- The other basic reason for the limited support to higher education and research is the difficulty the sector has faced in convincing the authorities and the general public that the benefits are worth the costs, in other words that investments in higher education and research yield a high return on investment, along with major cultural benefits. Another way to describe the problem is to stress that society, politicians and entrepreneurs act on the basis of a very short-term viewpoint. Fundamental research is often so abstract that it is impossible for most of the population to understand that sooner or later some of the results will be very beneficial to society at large. This is all the more difficult because the development of science also has consequences which are – in some cases rightly, in some others not – considered undesirable by a large portion of the population. These include nuclear arms and nuclear waste, chemical pollution, some types of genetic manipulation and so on. Similar misunderstandings appear regarding the objectives and methods of teaching in research universities, compared with those in vocational higher education institutions. In particular, many employers complain that the programmes are much too theoretical and that students do not acquire the type of knowledge or skills that would be useful to them in a job. This remark obviously has a grain of truth to it; however, it is clearly a short-term view as it fails to take into account the fact that the best education universities can offer is to “learn how to learn”. Finally, the university collectively has a strong tendency to behave like an ivory tower; lack of communication and even arrogance are detrimental to the credibility of academic institutions.

Obviously, the difficulties in financing research and research universities have more concrete reasons. The following seem to be the most important:

- *The competition for research money, for sponsors and for students.* Universities are not alone in their search for financial support by public agencies or private sponsors to finance research projects. Moreover, more students are aware that universities are not all of the same quality in the discipline that is of interest to them, so naturally they try to enrol in one of the best departments. Finally, where tuition fees are paid, differences in fees from one institution to the next affect students' choices of their place of study.
- *The difficulty research universities face in obtaining from agencies supporting their research projects the full cost of the research, rather than just the marginal cost.* Indeed, in most cases, the research subsidies cover the expenditures incurred for additional expenses (research staff, special equipment and current expenses) and only a small proportion of the overhead costs for office or laboratory space, equipment, as well as the salaries of the head of department and support staff, although those are substantial. The best proof of this situation is the criticism of unfair competition that private laboratories often make against university laboratories, as the former have to cover all costs linked with their research activities. The same argument applies for courses set up for lifelong learners. It is in general difficult for universities to charge the full cost of running these programmes.
- Finally, it is more difficult than it appears to *diversify the sources of funding for research and teaching.* The reason is that, as we shall see in the next section, they are interdependent. For example, potential private sponsors are often reluctant to support public universities, arguing that they already pay high sufficient taxes to the State; or the State, and in particular the minister of finance, is reluctant to concede tax exemptions for donations to university activities, complaining that the cost of universities represents an important charge on the expenditure side of their budget.

Income side of the budget: short-term difficulties

The ongoing difficulty in financing research universities mentioned above has recently been made more acute because of the poor economic situation in 2001 to 2003. Most national economies, after having benefited in various degrees from ten years of continuous and, in the United States, rapid growth are now suffering from a very low growth, or have even fallen into recession. Moreover, after reaching spectacular new highs in 2001, the stock markets suffered a very severe crash, which decreased the average value of stock by

approximately 50 %. Also, both phenomena are largely interlinked, and this combination has deeply affected the traditional financial sponsors of universities. Due to the slowdown of economic activity and to the activities linked with the stock market, the public sector experienced a strong decrease in growth in revenues or even an absolute decrease. The public sector has therefore been encouraged to reduce the rate of growth of its expenditure and, in some cases, even the level of public expenditure. The impact of such policies has been all the more dramatic where the public bodies are forced by law to balance their budgets, which is often the case at the second or third level of public entities (American states, Swiss cantons, local authorities). The harsh consequences of these budgetary cuts – many American states are prime examples – are perhaps a useful reminder that part of the extraordinary increase in public revenues could have been put aside to prepare for the inevitable arrival of weaker economic conditions at a later stage of the financial cycle.

The poor economic situation affects not only public revenues, but also revenues originating from contracts with private business. In a recession, firms are invariably reluctant to invest; therefore, they tend also to reduce research contracts they pass to universities.

- On another register, in countries like the U.S.A. where firms, trust funds and individuals are encouraged to donate money to charities, culture and education, the falling value of assets now makes people think twice before making donations. Moreover, universities that have been able to accumulate an endowment fund – in a few institutions, these funds are worth many billions of dollars – are directly affected by the drop in the value of assets; they have to reduce support to their own research projects or to gifted students from modest backgrounds studying at the university. This in turn has an impact on expenditures and revenues.
- Although it concerns the expenditure side of the budget, it is important to point out that universities are often too slow in adapting their expenditures to falling revenues and, when they do make the necessary changes, these often have negative consequences on the career development of young scientists. This is due to the fact that universities function on the basis of huge fixed capital in the form of buildings and scientific, as well as IT, equipment and a lot of manpower. As the senior positions have been granted tenure, those most affected by austerity measures are the young scientists employed on limited contracts. Apart from the social cost of laying off staff, such actions have the effect of cancelling years of human investment by universities, as it is often impossible for those affected to return to academia

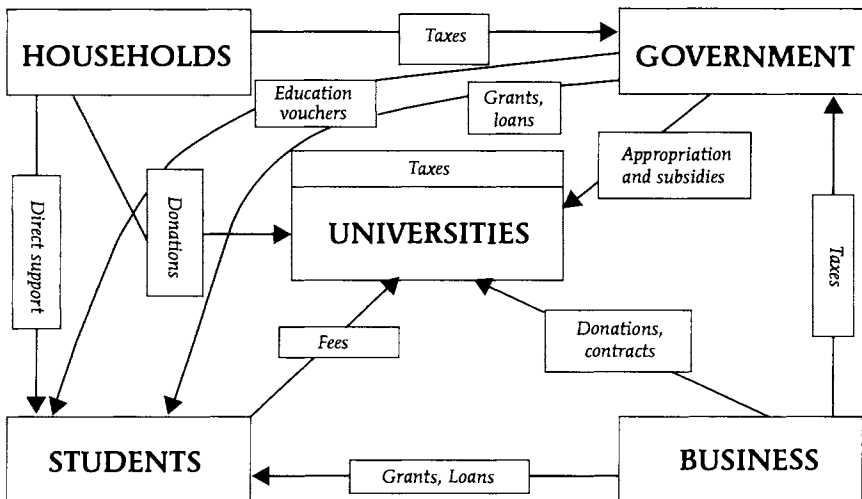
when the situation improves because a new generation, which has just finished their Ph.D.s, is offered any available research positions.

REMINDER OF THE BASIC PRINCIPLES

The position of universities in the economy

As the preceding analysis of difficulties suggests, it is essential, in order to conceive a realistic strategy for improved university financing, to have a very clear idea of the position of universities in the circular flow of revenues and expenditures of the economic system. Figure 1 illustrates this, showing clearly the rigid constraints on university financing (Weber, 1997, p. 363). Just as the resources available to government depend on the taxes paid by households and the business sector, so the financial resources available to students and universities depend on the resources that government, households and businesses agree to set aside for higher education and research. This is a fact that should encourage university leaders and faculty members to be realistic when they request funding.

Figure 1: Position of Universities in the circular flow of revenues and expenditures within any economic system.



If we look at the respective role of the different agents, we can see that:

- Governments are financed by taxes paid by households and businesses, and give financial support to higher education and research by

allocating money to universities (appropriations and subsidies) or to students (grants and loans, or education vouchers),

- Households directly support students, in general their children,
- Business either supports students by giving them loans or grants or directly supports universities with donations and contracts,
- Students may be invited to pay fees; however, in addition to the direct support from their families, they can receive either grants, loans or education vouchers from the State, as well as grants or loans from business.
- Finally, universities are funded through appropriation and subsidies from the State, donations and contracts from the business community, fees paid by students and donations from households. Moreover, they can benefit from the return on investment of their own wealth, if any.

Basically, if we stick to this level of generalization, there is no other way to finance a university. This means two things:

- In a given economic situation, any increase must come from the acceptance by government, business, households and students to assign a higher priority to higher education and research, which means that they have to reduce their priority for other areas, or that, in a situation of economic growth, the different agents must accept that universities take advantage of part of the benefit of that growth.
- If there is no such acceptance for an increased level of priority for higher education and research, the different sources of university financing are obviously narrowly interdependent. In other words, if in a given economic situation, one agent decreases its financial effort in favour of universities, this must be compensated by an increased effort on the part of other agent. For example, if the government reduces its effort, it has to be compensated by a greater effort by students, households or business. Vice versa, if students are invited to pay higher fees, this may induce the government to reduce its own effort.

Main differences between Europe and the U.S.A.

One of the very positive contributions of the Glion Colloquium is that it helps the participants and the readers of the books from both sides of the Atlantic to learn about the situation in the other continent or countries, allowing them to benefit from the experience of others. As it will appear clearly from the contribution in the next chapter from Marye Anne Fox, there are serious differences between the U.S. system and the European sys-

tem and, within Europe, between the British and Irish systems and those from continental Western and even Eastern and Central European countries.

- The greatest difference is certainly the *coexistence in the U.S.A. of public universities* – that is universities supervised by a political body and largely financed by it – *and private universities*, which are independent of the State and get the greatest part of their financial resources from students fees and donations; the latter nevertheless receive public money, principally through their research projects. If the private universities are traditionally not-for-profit, we have seen in recent years the creation of numerous “for-profit” teaching institutions and the development of trans-border education, by which public or private non-profit institutions often set up for-profit branches abroad.
- Another important element is the fact that many U.S. universities can decide on the quality and quantity of their students, which improves the efficiency of their teaching programmes.
- All American students – in private as well as in public universities – pay *students’ fees* which can reach very high levels in the best private universities, whereas, in continental Europe, the fees paid by students are generally rather symbolic, that is less than 5 % of the average cost of the education they receive. This situation is about to change in England where the government is proposing to allow universities to charge up to £3,000 a year.
- Unlike the United States, in Europe, in particular in continental Europe, *donations* to universities are relatively unimportant. Therefore, European universities, in particular continental institutions, do not have an endowment fund or, if they have one, it is very modest. The most frequent situation is the creation of specific foundations which may then support university research or other university activities related to the objectives of the foundation. Many of these foundations are in general independent of any university institution and tend therefore to finance projects on a competitive basis related to their objectives and criteria. The reasons for this unsatisfactory situation are complex. One is certainly the long-standing tradition that giving to charities does not extend to culture and education. Another reason is that in most European countries, donations by individuals to educational institutions are not tax-deductible; often, only corporations can benefit from such tax deductions. Moreover, there is no “alumni” culture in European universities: students come and go, and no institutionalized links are set between the institutions and their graduates, so that they cannot be invited to contribute to

make donations to their former institution and would probably refuse to do so, as European students do not identify with the institution where they have studied to the same extent as U.S. students do.

- *The relationship of universities with industry* is also less developed in Europe than in the U.S.A. Even if European universities have numerous research contracts with industry, those contracts cover the marginal cost of a research project and only part of the overhead cost; however, it is rare that they contribute to financing the institution. Moreover, in Europe the policy of protecting the intellectual property of university research is at an early stage, which means that no or very few resources accrue to universities through this channel.
- *Research contracts financed by European national governments and the European Union* are certainly important; however they do not reach the level of contracts financed by the U.S. departments of defence or energy, or the National Institute of Health (NIH).
- Finally, the ambition of European countries and the European Union to create a European Higher Education Space and the European Research Area (see chapter 3) will not be financially neutral. It is very probable that the implementation of the Bologna process will contribute to an extension of the duration of studies and the ambition to create the most competitive economy in the world by 2010 will require more resources: the European Commission would like European States and enterprises to allocate one additional percentage point of Gross National Product to research, which implies the training of more than 500,000 additional researchers.

SECURING RESOURCES FOR THE EUROPEAN RESEARCH UNIVERSITY

The above analysis suggests clear ways and means to increase funding of research universities. It is obviously very useful for European universities to search for solutions looking at the American example, without, however, losing sight of the many differences in cultural and institutional backgrounds. We shall therefore now underline ways and means that European research universities should explore and implement to increase their financial resources. I shall consider four areas of action likely to improve the financial situation for European research universities (see also Thyss-Clement, Balling and Weber, 1997). The first one aims at increasing the level of priority given to higher education and research by politicians, business people and the general public. The three others suggest ways for universities to increase their own resources or spend them more efficiently.

Better position research universities politically

The first and principal measure that universities should take is to make all possible efforts to increase the level of priority given to higher education and research and to each institution, by politicians, business people and the general public. In Europe, where public funding dominates, such efforts should be aimed first of all at increasing the political priority given to research and research universities. The strategy should be a general strategy of communication to convey the importance of research and research universities, as well as the strong collective and individual return on investments in human capital and research. This strategy should be adapted to the targeted audience: the general public, politicians, businessmen and women and students.

- *Developing a communications strategy aimed at the general public* implies actions such as organizing open days about science, taking advantage of selected events to inform the public, offering programmes of lectures aimed at the general public, developing “question-and-answer” forums on the Internet, writing specific contributions for the media, etc... The aim is to reduce as much as possible the gap between the university and the general public, and to demonstrate the huge volume of scholarship accumulated by universities, whose staff can make a major contribution to important social issues. It should be explained that the knowledge and methodologies accumulated by academics are highly effective in explaining the world around us and in solving problems. However good they are, ideas and principles will not be sufficient to convince politicians; universities should therefore take the initiative in drawing up and signing agreements of goals with their government, fixing the principal lines of action for the next 4 to 5 years in contractual form. They could also consider persuading the government to guarantee the appropriation to universities in a formula that incorporates indicators of the main sources of expenditures. However, these two methods, which can be used to make the financial contribution of the State to universities transparent and binding, will have a positive impact only if they are well conceived; otherwise, they may be rather counter-productive, reducing the autonomy of university leaders or linking university funding to criteria which are not, or are no longer, relevant.
- Universities should *lobby political parties, members of parliament and of governments*, in particular to make them aware of the importance of knowledge creation and transmission for the competitiveness of the country and of the region, as well as for improving the welfare of the country and its inhabitants. In other words the objective is to con-

vince them that an increase in higher education and research funding will contribute to accelerated economic growth, falls in unemployment, improvements in public policies and, last but not least, a better cultural background for the whole society.

- Finally, universities should also *focus their communications effort on businessmen and women and their associations*. Strangely enough, many – I dare say even the majority of – entrepreneurs are not aware or do not want to know that fundamental research is a necessary precondition for technological progress, or that a university education, compared with a more vocational training in teaching and vocational colleges, is a much better preparation for learning throughout life, and that this has become a necessity for all because of rapid changes in technology and knowledge itself.
- European universities should also make a much greater effort to *attract good students*. This means fighting the tradition of considering students as a burden. The future potential of research at any research university depends largely on its ability to enrol good students in its Master and Ph.D. programmes and to retain the best of them in its research teams.

Such a communications strategy is certainly easier to describe than to implement. Indeed, universities are generally rather self-centred and slightly arrogant, therefore less inclined to approach their present and potential partners in the public and the business sectors in order to convince them of their importance for society at large, as well as potential students to convince the best of them to enrol in their institution. Therefore the first thing to do for the leadership of each institution is to persuade members of institution itself that these actions are necessary.

Although all these actions are needed, we should be realistic. If it was easy to convince political bodies to upgrade the priority given to higher education and research, this would have been done long ago. Moreover, the numerous other responsibilities of the public sector are also represented by their own lobbies, which do everything possible to gain a higher priority for their area of concern. Therefore, it is almost certain that even increased communications efforts will not be sufficient to gain funding for all financial needs and increasing costs at the university. This is why European universities must also take measures to diversify their sources of funding and to try to exploit those potential sources of revenue they have generally ignored until now.

Student tuition fees

Compared with the American situation, the potential source of additional revenues which seems, at least at first sight, the most appropriate for Euro-

pean universities is to introduce or increase significantly students' tuition fees. There are strong arguments in favour of this policy, but also serious difficulties and concerns.

Charging tuition fees has at least three clear advantages:

- On a purely financial basis, it would bring important additional resources to each institution, depending obviously on the level of fees. It seems reasonable to assume that European universities could raise fees up to a level of 10 to 30 % of the average student's annual cost, the latter being computed as the total university cost divided by the number of students. This would obviously be a burden for the students or their parents. However, we should not lose sight of the fact that this sacrifice is small compared with the private rate of return on the individual student's investment. Moreover, the amount paid for tuition represents only part of the total cost paid by a student, which is equal to the sum of the tuition fees, the cost of living during studies and the opportunity cost of forgoing any income or higher income during studies.
- From an economic point of view, charging fees contributes to a better allocation of resources. Students who have to pay for their studies – even if it is only a small part of the costs they generate – are encouraged to be more rigorous with their study choices and to work harder. Reciprocally, students who pay for their studies are in a stronger position to insist upon the relevance and the quality of the programmes offered to them. This means that universities that raise relatively high fees need to make sure that the quality of the education they provide is in line with the individual's investment.
- Moreover, considered from the social justice viewpoint, charging tuition fees eliminates or reduces the regressive impact of free education on income distribution. This means for economists that free higher education creates income redistribution from the "poor" or the "modest" to the "rich", that is contrary to the direction usually aimed at by social policy. Despite political efforts over a number of decades, this undesirable phenomenon continues because the proportion of low-income-class children studying at university remains very much smaller than the proportion of children from better-off families. Now that in Europe higher education is financed mainly by taxes, many citizens on low incomes are paying taxes – even though at low levels – to cover public expenditures, including higher education, although it is unlikely that their children will go to the university, with therefore the likelihood of obtaining higher revenues in the future.

Inversely, students of high-income families are over-represented at universities and can expect higher salaries during their career.

- Finally, charging fees forces foreign students, whose parents do not pay any tax in the country, to contribute to the financing of a public service they consume, which benefits those residents who pay taxes.

As mentioned above, there is a strong political resistance to charging significant tuition fees. One of the reasons is the tendency for politicians and politically sensitive citizens to confuse a political objective, that is (almost) unanimously accepted – that there should be no financial barrier to access in university for all those who have the capacity, in other words no discrimination based on families' financial situations – and the mean to reach this objective, which for many is free higher education. In other words, higher education is wrongly considered politically as a public good, which it is not. For a public economist, the two characteristics of a public good – that is the possibility of excluding those who are ready to pay the price and the absence of any rivalry between users – are not met (Weber, 1997, pp. 42-44). Therefore, there is no necessity to provide it for free, as long as access to all capable students from low-income backgrounds is made possible through targeted support, in particular grants and loans, and that due account is taken that the effort made by those studying has a positive impact even on those who do not (in technical terms, produces some external benefits).

This confusion between the political objective of access without financial discrimination and the belief that this objective requires higher education to be provided free of charge has negative consequences in that the positive contribution of fees for a better allocation of resources, as well as the regressive income distribution impact, are neglected. Consequently, there are very strong arguments for formulating another policy mix in order to satisfy the access objective, without the inconvenience of the means, free higher education. The obvious solution is to charge tuition fees, and simultaneously to take special measures to help those whose access would be prevented because of the fees. The solution is to develop a grant and loan system in favour of deserving students from low-income families in order to cover not only their cost of living during their period of study, but also the fees they have to pay. There are many different ways to develop a grant and loan system, but this is not the place to do it. Moreover, although it has nothing to do with the fee question, it appears that free higher education and/or a generous grant and loan system are not sufficient to induce a significantly higher proportion of low-income students to go to university: proactive measures, which concern in particular primary and secondary school, appear to be indispensable.

Although I consider that introducing or increasing students' fees has become a necessity for European universities, there is one danger which must

be resolved before going ahead. This danger, identified by many observers and taken into account very seriously by many rectors' conferences and individual universities, is the likelihood that the State would grasp this opportunity to reduce its own contributions. As appears clearly in the circular flow of income and expenditures in Figure 1, university studies can be paid indirectly by households and business through the taxes paid to the State or directly by the students, as well as by households and business through tuition fees and other support to the university or to students. In a situation of strong competition between different public sector requirements, we cannot exclude the possibility that the State decides to disengage, at least partially, from tasks which can be paid directly by the beneficiaries – especially in this case where it is easy to identify them – and to continue supporting activities whose beneficiaries are much more difficult to identify, such as defence, security and general administration.

Further measures on the income side of the budget

The first two ways to increase university funding developed above – convincing the State, business and the general public that higher education and research are an important public investment and introducing or increasing tuition fees – seem to me to be potentially the two most rewarding measures. However, this does not mean that university leaders should neglect other initiatives (Clark, 1998). On the contrary, it is wise to have an extensive strategy, as additional resources, even if modest, add up, contributing to the finances of the institution. I shall briefly enumerate them without much comment as the lack of these resources has been analysed before when describing the shortcomings of the present system. Furthermore, these other measures speak for themselves.

- Develop an appealing institutional culture covering staff and students and, in particular, create a circle of alumni who should be informed of the development of the institution and, from time to time, invited to make a special contribution for a specific project or to the specially created endowment fund. We should however be aware that increasing student mobility might make this increasingly difficult.
- Lobby parliaments and governments to persuade them to adapt the fiscal system in order to exempt from taxation individual income or company profits donated to universities.
- Promote donations from businesses and foundations to universities, research projects or students; use these donations to finance specific activities or to create an endowment fund.

- Increase revenues from business-like activities, in particular by renting premises (lecture halls, sport facilities) when not used for university activities and by organizing special teaching programmes.
- Intensify the collaboration with industry and governments by taking research contracts.
- Make better use of the accumulated intellectual property by patenting research results and creating start-up enterprises.

Indispensable accompanying measures on the expenditure side of the budget

As mentioned at several points, it would be unwise to believe that these measures to increase the financial resources of the research university will miraculously produce a huge increase in revenue. Even if progress is made, university financing will remain a permanent challenge for university leaders. Therefore, it is essential to make better use of the scarce resources. This means facing many sensitive questions, in particular:

- Fixing clear priorities (and secondary objectives) and better positioning the institution in order to reinforce what is being done well, to search for economies of scale and, whenever possible, an optimal size at each activity level;
- Paying more attention to the selection (whenever possible) and even the recruitment of students, in particular at Master and Ph.D. levels;
- Better governing and managing the institution by improving its organization, the decision-making process and by implementing rigorous management tools;
- Using incentives to encourage and reward – instead of using constraints and hierarchical pressures. In universities, as in no other institution, the innovation potential is to be addressed among the entire staff body, and separated from considerations of hierarchy. It is therefore indispensable that the goals and activities of all concerned should converge. Experience shows that it is extremely difficult to reach this collective effort in imposing decisions hierarchically (Weber, 2000). On the contrary, it appears that a lot more can be achieved by using stimulating measures, for example by offering additional resources to those units or teams working along the line of the objectives set up by the institution. However, these incentives should be used reasonably to avoid creating internal inequalities.

CONCLUSION

Even if the present situation in European universities seems less acute today than in the United States, the financing of research universities on both sides of the Atlantic will become more and more challenging due to increasing costs and competition. Finding new resources requires a change of attitude by politicians, students, business people and the general public, as well as much tougher management, based on clear priorities. All this has been known for ages. In this respect, there is little room for reinventing the way European universities are financed. However, there is a difference: the time has come to transform discourse into action!

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