6. The Netherlands

6.1 System characteristics

The Dutch Higher Education and Research Act (WHW), which entered into force on 1 August 1993, regulates higher education, teaching hospitals and academic research in the Netherlands. Previous legislation provided to a large extent for ex ante regulation and planning, assigning a central role to government. The new Act, which has its origins in the 1985 policy document 'Autonomy and Quality in Higher Education', propagated the philosophy of steering from a distance and autonomous educational institutions. The guiding principle of this document and the new Act is to give the institutions greater freedom of policy, within the parameters laid down by government. Detailed ex ante control by the government has been replaced by ex post control of a more general nature. The government remains responsible for the macro-efficiency of the system and intervenes only where necessary (selective control) in order to ensure that funds are employed effectively and that intended results have been achieved. Quality control is exercised by the institutions themselves, using external experts (in teaching and research assessments), and, on behalf of the government, by the Inspectorate for Higher Education.

The Dutch higher education system is a dual system and consists of 13 universities and 63 institutions offering higher vocational education. The latter, the so-called HBO-institutions, are comparable to the German Fachhochschulen or the British (former) polytechnics, although the official length of their study programmes is longer: four, instead of three years. The 13 universities consist of a number of classical universities, three technical universities and one agricultural university. Their task is teaching and research, plus related services. The Netherlands also has an Open University offering distance education. HBO-institutions are primarily occupied with teaching, although some are increasingly engaged in applied, contract research.

University students aim for a final qualification that is comparable to the Master's degree. Almost all programmes have an official duration of four years. Medical programmes (including veterinary science) take a further two years, dentistry and pharmacy require one extra year. However, all programmes will lead to a degree after four years, for the extra years (in the subjects just mentioned) a professional qualification (degree) is awarded. A PhD degree can be obtained after completing a dissertation, which officially takes research lasting four years. Research trainees are not regarded as (post-graduate) students, because they are part of the university staff and are paid a salary. However, recently the possibility was created for universities to take on PhD students, who will receive a grant. Another postgraduate qualification is the so-called designer-certificate, awarded to after two years of post-graduate training in special engineering programmes offered by the technical universities.

HBO-students completing their studies receive a qualification that is comparable to a Bachelor's degree. Some HBO-institutions offer their graduates the possibility of upgrading this to a Master's degree. This involves a full cost fee (there is no government funding for this) and one extra year of study, usually partly in a British university (polytechnic).

At present (1996/97) the HBO-sector is the largest, with 259,500 students enrolled either full-time (84% of the students) or part-time (16% of enrolments). The university sector has some 160,300 students (full-time: 94%; part-time: 6%), including the students that have used up the time allowed to them (usually 6 years) to be registered as a student. For the latter two options remain: they can either be registered as an *auditor* (with no entitlement to student support; paying a higher tuition fee than ordinary students) or as an *extraneus* (no possibility to receive teaching and only allowed to take examinations; not entitled to student support and paying an examination fee). The number of auditors in universities (in 1995/96) is 14,800; the number of extranei is 7,700.

The growth in the number of 'ordinary' university students has slowed down recently. In fact, the number has been falling for the last two years. This phenomenon is mainly due to demographic trends and partly to new governmental student aid policies. For the HBO sector, enrolments recently have stabilised. However, for this sector the government still predicts some growth as a result of its policies announced last year. For the future, HBO-graduates will be prohibited from taking up a state-funded university study.

6.2 The budget of the institutions

The income of universities and HBO-institutions derives from three so-called flows of funds. Apart from these, there are tuition fees and examination fees paid by students. The first flow of funds includes the basic block grants allocated for teaching, research and related activities. For HBO-institutions the block grant only covers teaching tasks. The first flow of funds also contains a number of specific (targeted) allocations, the most important one being the compensation for unemployment benefits which are paid by the institutions themselves to laid-off staff members. If we exclude the grants paid to academic hospitals (which co-operate closely to universities), the first flow of funds to universities for 1998 (in Dutch guilders: Dfl) is Dfl 4,334 million, with the block grant accounting for 91% of this amount. For HBO-institutions the corresponding amount is Dfl 2,685 million (95% of this is block grant).

The first flow of funds (i.e. the core funds) is supplied by the Ministry of Education, Science and Culture. Agricultural institutions (one university and six HBO-institutions) receive their grant from the Ministry of Agriculture. The way the block grant is calculated and built up is described in the next section. Although difficult to determine, we estimate that 36% of university core funds are for covering the cost of teaching and 64% are for research activities. In practice, though, universities are allowed to determine their own distribution of funds over teaching and research. They can also make their own distribution over faculties, departments and institutes.

The second flow of funds are allocations for research allocated through the Dutch research council NWO (Netherlands Research Organisation). This research council pays salaries of researchers (and support staff) working either in NWO-institutions (40%) or in universities (60%). It also contributes partly to other costs (mainly investments), however the larger part of material and overhead costs are to be paid by the receiving university. NWO acts as an intermediary in granting funds for separate research proposals submitted by (teams of) individual

researchers that seek funding for their projects. Projects are funded on a competitive basis. Research council funds represent about Dfl 255 million of university income.

The third flow of funds concerns contract research and contract teaching carried out for government, non-profit organisations, private companies, charitable boards, and the European Community. For universities this supplementary source of income has been growing fast since the early 1980's. It now represents about 15% of university income for teaching and research (that is: not counting income from other services provided by universities). For the HBO-sector it is difficult to obtain figures for income from contract work. Surveys reveal that it nowadays lies in the neighbourhood of 8% of HBO-income.

For all modes of attendance a tuition fee is required, which is equal for HBO and university students. The rate is highest for auditors (primarily 'slow' students): Dfl 3,480 (Dfl); for full-time students it is Dfl 2,575; for part-time students it equals Dfl 3,480. The extraneus fee is Dfl 2,575. Fees are not fully compensated by the government (as is the case for UK students). However the student budget calculated for the system of student support includes an allowance for tuition fees. During recent years, full-time fees were raised considerably, while all other fees (e.g. for auditors and part-time students) were liberalised, meaning that institutions are free to set their own level for liberalised fees.

Overlooking the income from recurrent funds to universities and HBO-institutions (excluding academic hospitals, interest, and other revenues from activities not related to research or teaching) the following shares can be calculated (see table 6.1).

Table 6.1: Sources of funds of universities and HBO-institutions

source of funds	universities		HBO-institutions	
block grant and other core funds	73%		74%	
tuition fees	7%		18%	
research council grants	5%		-	
contract teaching, contract research		15%		8%
total	100%		100%	

For universities' and HBOs' capital costs, the government also has a budget available. From 1994 (HBO), respectively 1995 (universities) on this budget is integrated into the recurrent (block) grant. HBO-institutions and universities nowadays own their buildings and land. The HBO-institutions had to 'buy' their property from the government (through loan financing) and from 1994 on receive a part of their block grant (i.e. per student) funding as a compensation for capital costs. Universities received their estate property from the government at zero cost. To cover all maintenance and investment costs from 1995 on they have to rely on their block grant (lump sum), which was raised in 1995 through the inclusion of the university investment budget (Dfl 170 million). However, universities argue they require at least Dfl 300 million annually to reasonably cover infrastructure costs. On the other hand, they are free to buy and sell property and operate on the capital market.

6.3 Funding mechanism

The funding of universities and HBO-institutions takes the form of a central government grant, calculated on the basis of a general formula. The yardsticks applied in the formula relate to the nature, extent and implementation of the institutions' activities, i.e. mainly teaching and research. The central government grant is fixed by the Minister for each institution. For reasons of calculation, the budget is separated into a teaching component and a research component. Higher education institutions have been funded since the early 1980s by means of a block grant. Along with the introduction of the WHW act, the funding formulas for determining the size of the central government grant to institutions were amended; for the university sector a new, highly simplified funding model came into existence for the 1993 budget. For the HBO-sector, recently a number of simplifications were carried out. For the near future, also a revised model is expected. In the final section of this chapter we will discuss future plans for the funding mechanism.

We will now discuss the method used for the calculation of the teaching and research parts in the basic government grant (first flow of funds). The method is called HOBEK, which is short for ' 'higher education funding' (*hoger-onderwijsbekostiging*), and is largely formula-based.

6.3.1 Teaching

For university teaching the HOBEK-model allocates two components:

- a teaching part, based on student and diploma numbers;
- an interweaveness part.

Through the first, formula-based part, funds are allocated to universities on the basis of the number of registered students and the number of first (Master's) degrees and professional (e.g. physician, dentist) degrees. Only students that have been registered no longer than the normative length of their programme (usually: four years) qualify for funding. This implies that students in their 5th or 6th year, as well as auditors and extranei, are not funded. Students that are in the so-called second phase of their medicine, dentistry, veterinary science and dentistry programmes are funded only for the normative period (two years, one year) of this phase.

The tariff per student and the tariff per diploma is the same. There is a distinction between two categories of students and diplomas, namely programmes in arts, humanities, law, social sciences and languages on the one hand, and programmes in science, engineering, agriculture and medicine (including dentistry, pharmacy and veterinary science) on the other hand. For the former (the 'inexpensive' subjects) the tariff is Dfl 5,000; for the latter (the 'expensive' programmes) the tariff is 50% higher: Dfl 7,500. Thus, universities receive four times Dfl 5,000 for a registered Economics student and another Dfl 5,000 if he/she manages to obtain a Master's degree. A time lag of two years is applied: for the 1995 budget, registered students and diplomas for the academic year 1993/94 are used in the calculations. Therefore, no average (e.g. over a three-year period) is used. This feature, which is currently in discussion, may lead to sudden changes in a university's (teaching) funds.

In 1995, total student-plus-diploma funding amounts to Dfl 870 million, which is about 23 per cent of HOBEK funding. One has to note that this part of funding is not open-ended: a reduction

factor is applied if this HOBEK component exceeds the budget that is made available by Parliament for this part of the universities' teaching costs. Therefore, the HOBEK model is a distribution model, not a 'claim model'. Rising (teaching) performance does not lead to a higher budget for the sector as a whole. However, it may lead to some universities improving their relative funding position vis-a-vis each other. The available teaching budget is increased annually by taking account of inflation and pay rises in the higher education sector, while it may be reduced to implement cut-backs. For the year 1995, the resulting reduction factor was 0.98.

The second part of the teaching budget is called 'interweaveness', as it is included to allow for the fact that academic research and academic teaching to a large extent are intertwined. The existence of this seemingly odd feature of the HOBEK model dates back to discussions in which a combined funding model for the HBO and university sector was proposed. In these discussions, which also addressed the funding tariff per student, it became clear that university teaching was considerably more expensive than HBO-teaching. The interweaveness component therefore was introduced to allow for this fact. This is the reason to discuss the interweaveness component as part of the teaching component of HOBEK.

The level of the interweaveness component is dependent on the combined amounts of the teaching budget and the research budget (see below) per university. It is a 14 per cent (one-seventh) 'premium' upon the student-plus-diploma funding and the research funding. In 1995 the interweaveness component represents about 13 per cent of HOBEK funding. Because, as we will see, a part of a university's research allocation is fixed, a part of the interweaveness allocation is also constant (i.e. independent of student or diploma numbers).

6.3.2 Research

The allocation of research funds to universities nowadays consists of three separate components:

- education related research
- funding of PhD-programmes
- strategic research.

The teaching related research allocation is a basic allocation to each university that intends to express the fact that research is a prerequisite for university teaching. The allocation of this component accordingly depends on the teaching load and the teaching programmes in each university. For the university sector as a whole, a maximum of 15 per cent of available research funds is used for allocations under this heading. The allocation is calculated by using a formula: it is a 40 per cent premium on the teaching tariffs. Therefore, the available budget for this component takes place in proportion to the teaching budgets (excluding interweaveness) of the universities.

The combined effect of the teaching component, the teaching-related research component and the interweaveness component leads to the fact that the tariff per unit (student or diploma) in the inexpensive programmes is Dfl 8,000. This amount (which excludes the tuition fee) consists of the following components: 5,000 (the basic teaching tariff); 2,000 (= 0.4 * 5,000; for education-related research), and 1,000 (= 0.2 * 5,000 due to interweaveness, which in turn is built up from

two components: a one-seventh mark-up on the unit teaching tariff and a one-seventh mark-up on the education-related research tariff per unit; thus, a total mark-up of 1/7 + 1/7 x 2/5 = 0.2). The corresponding calculation for the expensive programme rate leads to a unit tariff of Dfl 12,000.

The second component in the research funds is an allocation based on the number of PhD degrees awarded (again, a two-year lag is applied). It is a compensation (premium) for doctoral work carried out by graduates in universities. Two rates apply: a rate of Dfl 60,000 for 'inexpensive' doctoral theses (e.g. in social sciences and humanities), and a rate of Dfl 120,000 for expensive ones (in exact, technical, and medical disciplines). In the 1995 budget Dfl 245 million is allocated in terms of PhD-related research funds. This is some 6.5% of the total HOBEK allocation. If the number of PhD degrees increases, funds will be transferred from the strategic research component (see below).

The third, and most important part of research funding (in 1995: Dfl 1,760 million; 47 per cent of the HOBEK allocation) is represented by the strategic research component. This component represents some 75 per cent of the 1995 HOBEK-research funds allocated to universities. The name of this component derives from the fact that the Ministry intends to fund research that has strategic relevance, meaning 'relevant to society'. The Ministry and the universities have agreed that quality and social relevance are to play an important role in allocating this component. However, universities regard a reshuffling of research funds a major intrusion into their autonomy and so far have been able to avoid reallocations. Thus, this part of research funding is still based mainly on historical allocations, with over the years some additional allocations made to relatively new or 'growing' universities. Thus, unlike for teaching, most of the funds for research are not appropriated in a normative way.

The latter, of course, is due to the character of research: research activities can hardly be captured in terms of volumes and prices. However, in the past, attempts were made to incorporate incentives into the funding mechanism in order to capture and steer somehow the outcomes of research. An important attempt was made in 1983, when the system of 'conditional funding' was introduced. The goal of this system was to enhance quality and coherence in university research and to assess the relevance of research to society. To this end, university departments (faculties) had to draw up research programmes that should conform to the following conditions:

1. a sizeable scale of the programme (at least five full-time equivalent of researchers involved);
2. the programme should extend over five years; and
3. the quality of the programme was to be examined by independent, external peers, selected from the disciplinary fields.

One of the basic ideas of this was to have differences in research quality translated into funding decisions. However, due to the opposition of universities this was aborted. The research budget of each institution in 1983 was more or less maintained and frozen for the ensuing years. In this way the conditional funding system lost part of its bite, although from that year on university faculties were much more focused upon generating research output and revealing that output, as a means of justifying the public funds granted to them. A negative effect of the system was its contribution to the idea that for academics research is the most important part of a university's activities and

the main determinant of a university career.

From 1993 on, the universities have agreed to have their research programmes examined in a system of peer review (i.e. by international committees of independent experts in the respective disciplines). These research assessments are carried out every six years under the auspices of the Association of Universities in the Netherlands, an organisation that looks after the interests of the university sector. The goal of the assessments is to look at the quality of research programmes in terms of scientific productivity, scientific relevance and scientific long-term viability. The assessments produce ratings for each university, however not as a single rating but as qualification on a number of dimensions. Because the assessment reports are published, they perform an important accountability function and are used as input in the formation of a university's research policy. However, unlike in the United Kingdom, the results are not used as inputs in the Ministry's decisions on research funding. The same holds for the results from the assessment of the quality of teaching. For this, the VSNU also carries out peer reviews.

6.3.3 Developments

For both sectors, universities and HBO-institutions, the funding formulas are output-oriented, rather than input-oriented. Where necessary, the outcomes of the funding models are adjusted to stay within the limits of the overall budget for higher education and research. Student numbers as such do not qualify for funding, because in both sectors the normative length of the programmes is taken into account. For universities, due to the relatively large size of the strategic research allocation, the share of HOBEK-funds that directly is tied to student numbers, diplomas or PhD-degrees amounts to 46 per cent of the HOBEK-allocation. The other 54 % is more or less historically determined and thus represents a constant amount. The research funding components only for some 25 per cent are tied to quantitative measures. The largest part of the research budget is allocated to universities on a historic, or rather incremental, basis. Unlike in the Scandinavian countries and Germany, teaching and research are not funded on a separate basis. The Humboltian idea, that academic research is a prerequisite for teaching, still affects the method and level of university funding.

Before 1993, when HOBEK was introduced, a considerably more differentiated and complicated model was used for the funding of universities. It included more tariffs (staff/student ratios), more components and led to separate budgets for personnel (academic and support staff) and material costs. Moreover, it had been adjusted (by bringing in more details and correction factors) during the period it was in use (1984-1992). The present HOBEK model is very simple in structure. It makes a distinction between cheap and expensive 'performance units' (students, degrees), and personnel and other costs are integrated into the funding tariffs. The combined allocations for teaching and research in the first flow of funds are handed over to the universities as a block grant - a lump sum, which can be spent at the institution's own discretion, provided the legal tasks are performed adequately.

For the HBO-institutions, almost the entire teaching allocation is formula-based. There are no floors in the allocation, except for special arrangements taken for the funding of art schools and a few teacher training institutions. Just like HOBEK, it also leads to a lump sum.

The HOBEK model is a distribution model, not a 'claim model'. The outcome of the funding model is 'adjusted' to make it correspond to the overall budget available for education and research. Therefore, rising performance in terms of student numbers, graduate output, or research output does not automatically lead to a higher budget for the sector as a whole. Instead, it leads to some universities improving their relative funding position at the expense of others. This characteristic of HOBEK gradually became to be regarded as undesirable. In 1995, the Minister of Education announced a change in the funding mechanism. The Minister and the universities agreed that the outcome of the allocation formula should not produce budgets that are too sensitive to changes in student numbers. For instance, although the additional funding for an extra student is 5,000 guilders for an arts student, the combined effect of the mark-ups and multipliers in HOBEK leads to a marginal revenue of (at least) 8,000 guilders per student (not counting the tuition fee). In many cases this marginal revenue per student will be lower than the marginal cost per student. So the HOBEK model includes incentives for the universities to recruit additional students. This may induce (some) universities to become 'student hunters' and may lead to budget reallocations among universities. This type of behaviour will have undesirable side effects in terms of redundant staff and, consequently, unemployment allowances.

In order to establish a more stable allocation mechanism for the university sector and to prevent universities from 'competing for students', the Minister of Education at first announced the idea of 'capacity funding'. In a system like this, in bilateral negotiations between the Ministry of Education and each individual university a long-term fixed output ('capacity') in terms of graduates and research is agreed upon and translated into a budget. However, this idea was abandoned as it was deemed to include too few incentives that will encourage performance and quality. For the 1997 budget as well as the 1998 budget, a transitional version of HOBEK was used as a funding model. After many rounds of discussion between the Minister and the VSNU, the following amendments to HOBEK were accepted by the universities (in May 1996):

- the interweaveness component is 'frozen' and transformed into constant allocations (i.e. in relation to the previous year's value) per university;
- the education-related research component (15% of research funding) is also made student- (and diploma-) independent;
- in the teaching compartment (i.e. the student plus diploma funding) the weight attached to the number of students is lowered from 80% to 10%; the weight attached to the number of diplomas drops from 20% to 10%. The remaining part of the teaching component (80%) is 'frozen';
- in the PhD- and designer certificate-related research component a moving average is used.

It has to be stressed that the revised HOBEK model (called STABEK, denoting a stable funding model) is only a temporary model, primarily intended to accomplish a non-competitive situation and an atmosphere in which institutions will look more at their internal situation instead of looking at competitors. The idea is that more attention is to be paid to improving the quality of teaching. To this end (and also to partly compensate cut-backs) the Minister has set aside the pool of funds for *Quality and Consumability*.

For the 1998 budget, an additional feature was introduced in STABEK. A two part compartment for strengthening the system of so-called Research Schools in the Netherlands was added to the three, already existing research budget compartments. In line with ideas expressed earlier by the Minister for Education (e.g. in the Science Budget), through the first part of this compartment, universities are encouraged to continue on the road towards establishing research schools. Currently more than 100 research schools have been established, covering all disciplinary fields. The aim of research schools is to have a structure in which, firstly, researchers from different universities concentrate their research activities on certain (sub-) disciplinary fields and, secondly, the training of new researchers (PhD students) is located. This strategy, based on arguments of scale and synergy, seeks to strengthen and improve the quality and profile of university research in general. The second part in the research school compartment is targeted at supporting those research schools which are considered to be among - or show potential to become part of - the best research institutes in the world. The underlying strategy for this component is to reward excellence. For the 'general' as well as the 'excellence' component the amount of funds available is Dfl 100 million, transferred from the strategic research component (described earlier). NWO, the Dutch research council, is to decide which research research schools qualify for the 'excellence' support. However, up to now, no formal criteria have been disclosed and, for the 1998 budget, both the general and the excellence component for each university are allocated in relation to the other (HOBEK/STABEK) research allocations per university.

In the recent (September 1997) Higher Education Policy Paper (called HOOP 1998), the Dutch government expressed plans to strengthen the performance element in the funding system, at least as far as the teaching component (including the so-called interweaveness part) is concerned. The idea is that universities will receive funds for teaching on the basis of:

- the number of diplomas produced by universities;
- the number of first-year students (freshmen) enrolled in universities;
- a fixed amount per university, independent of enrolments or diploma numbers.

At least half of the budget will be based on achievement, the first item in the list. Achievement is measured in terms of diplomas, i.e. Master's degrees (the final examination). A moving average will be used for measuring the number of degrees. The weight attached to degrees used to be less than 20% in the days of HOBEK.

On the basis of the first year enrolments, 25% of the teaching budget is allocated. The underlying rationale for this component is that students are believed to base their choice of university on the quality of the programs offered by the university. However, this reasoning may not be valid in a non-transparent higher education market and students may use other selection criteria.

The third component in the above list is a constant allocation per university, representing 25% of the total teaching budget. This element is to provide stability in funding for the universities.

Also included in the HOOP document is a passage that expresses the government's wish to steer university research more into directions determined by the needs of society. In the present funding system, only some 25 per cent of the research budget is tied to quantitative measures. The largest part of the research budget is allocated to universities on a historical, or rather incremental basis. In the HOOP document it is expressed that priorities identified in society should have

consequences for the research areas covered by universities. This plan is very controversial, not just because of the question how “society relevance” criteria can be made operational, but also because of the consequences in terms of reallocations between universities and the ensuing unemployment benefits.

The Minister of Education envisages an important role for the Dutch Research Council (NWO) in deciding what priorities should guide university research. To this end NWO should receive a larger budget: Dfl 500 million should be transferred from the first flow of funds to the second flow of funds. The transfer will be spread out over a number of years to prevent any disruption to university operations. The result would be that the NWO budget is doubled, and the funds that the universities obtain directly from the government for carrying out research will decrease by about twenty percent. NWO then would distribute the funds among the universities on the basis of both quality and social relevance criteria. Thus, NWO would have a greater role in the implementation of a research policy that aims to embed scientific and technological research further into trade and industry, organisations and public awareness.

The policy seeks to create an effective balance between independence and social orientation in research. The NWO Act will be amended to enable the organisation to carry out its role to the full. However, it should be stressed that this plan was received with severe criticism from the part of the universities. Again, the university sector considers it to be another attempt by the government to introduce closer steering. The VSNU recently (December 1997) came up with its own plan for repositioning university research. The VSNU rejects the plan to transfer more money to the second flow of funds (i.e. NWO). The VSNU puts forward the idea of having an international jury of experts have a say in distributing a substantial part of the research funds among competing university research proposals. The jury would have to observe closely the outcomes of the renewed research assessment exercises carried out among university departments. However, in September 1998, the new Minister for Education abolished the plans for a transfer from the first flow of funding to the second flow of funding, thus preventing the NWO budget from doubling. The new NWO criteria are still on the table, though.

The atmosphere in which all of this is taking place cannot be characterised as very friendly. The fact that individual universities are responsible for paying unemployment benefits to previous employees out of a subsidy that has proven to be insufficient makes negotiations difficult. The same holds for the universities’ responsibility for the maintenance of buildings and infrastructure. Both ‘decentralisation’ operations have put a heavy load on the universities’ operational budget. For the period 1992 - 1998 the deficits resulting from both operations are estimated to amount to Dfl 100 million and Dfl 130 million, respectively. On top of that, the VSNU has calculated that the core funding of universities (including tuition fee income) has fallen some Dfl 280 in real terms in the same period, due to cutbacks on higher education and insufficient compensation for inflation and general salary increases. Going back in time even further, the VSNU estimated that during the period 1981-1992 the real core funding per student has fallen 29.7 percent.

Controversy not just exists because of financial matters, but also because of regulation issues. Examples of the latter are the Quality and Consumability Fund, the policy with regard to Research Schools, and the policies with regard to the steering of research programs. Also worth mentioning are the frequent changes in regulation concerning student financial aid, and the regulations surrounding the approval of new academic programs.

6.4 University income from other activities

In section 6.2 it has been stated that overlooking the income from recurrent funds to universities (excluding academic hospitals, interest, and other revenues from activities not related to research or teaching) the share of contract research and contract teaching in total funding is 15%. If interest and other revenues from the third flow of funds are included this share increases to 23% (in 1993). The third flow of funds is becoming more and more important for the Dutch universities, as may become clear from the figures in table 6.2.

Table 6.2: Development of the third flow of funds from 1985 till 1993 (Mil. Dfl.)

1985	1996	1987	1988	1989	1990	1991	1992	1993
296	370	425	472	549	667	788	945	937

Source: Ministry of Education, Culture and Science, 1995.

6.4.1 Organisation and funding of medical training

In the Netherlands, there are eight university hospitals. They receive a part of their budget (e.g. in 1993 24.2%) from the Ministry of Education, Culture and Science. University hospitals get the largest part of their total revenues from fees for the treatment of patients. The funding of the Ministry of Education, Culture and Science is meant for the training of medical students and for carrying out medical research. The training of doctors, dentists and other medical practitioners takes place in a symbiotic relationship with the treatment of patients in university hospitals. Medical students and medical research are funded according to the regular university funding formulas as described in section 6.3. The ratio between the budget for medical teaching and research is 1:3. Table 6.3 shows the total budget of the academic hospitals related to the payments of the Ministry of Education, Culture and Science (MECS) during the period 1985-1993.

Table 6.3: The total budget of university hospitals related to the funding of the Ministry

	1985	1986	1987	1988	1989	1990	1991	1992	1993
total budget (in million Dfl)	2261	2395	2390	2448	2620	2781	3364	3675	3812
of which from MECS	560	593	547	491	510	545	729	816	922
MECS funding as a % of total budget	24.8	24.8	22.9	20.0	19.5	19.6	21.7	22.2	24.2

Source: Ministry of Education, Culture and Science (MECS), 1995.

In table 6.4, an estimate is given of the financial contribution of the Ministry of Education, Culture and Science to the total revenues of the university hospitals in the coming years.

Table 6.4: Intended funding of university hospitals by the Ministry (Mill. Dfl.)

1998	1999	2000	2001	2002
850	874	885	897	904

Source: Ministry of Education, Culture and Science, 1997.

6.5 Issues indirectly related to funding

6.5.1 Staff issues

6.5.1.1 Characteristics of staff employed

In this section information will be presented about staff employed at Dutch universities. Table 6.5 gives an impression of the distribution of staff over functions and gender. In table 6.6 a distinction is made between tenured and non-tenured staff.

Table 6.5: Staff at Dutch universities at 31-12-1996 by function and gender (in fte and %)

	Male	Female	Total
Professors	2315 (95%)	111 (5%)	2426 (100%)
Senior lecturers	2433 (93%)	190 (7%)	2623 (100%)
Lecturers	4756 (81%)	1106 (19%)	5862 (100%)
Other grades	7118 (66%)	3673 (34%)	10791 (100%)
Non academic staff	11839 (53%)	8630 (42%)	20469 (100%)
Total	28461 (67%)	13710 (33%)	42171 (100%)

Source: VSNU, 1997.

Table 6.5 shows that, at the end of 1996, 49% of total staff was non-academic. Total female staff as a proportion of total staff is 33%. The proportion of female non-academic staff is much higher (42 %) than the proportion of female academic staff (23%). Especially the proportions of female professors (5%) and female senior lecturers (7%) are remarkably low. In general it can be concluded that women chiefly practise the lower paid non-academic jobs within the Dutch universities. From table 6.6 it becomes clear that during the period 1990-1996 the proportion of tenured staff has increased from 68% to 73%.

Table 6.6 Tenured and non-tenured staff (in fte) as a proportion of total staff

Year	Tenured staff	Non-tenured staff
1990	68%	32%
1992	68%	32%
1994	70%	30%
1996	73%	27%

Source: VSNU, 1997.

6.5.1.2 Academic staff by type of activity

The international comparative study on the academic profession sponsored by the Carnegie Foundation (Enders and Teichler, 1995) gives information on the time spent by academic staff on activities like teaching, research, administration, services and other activities. In table 6.7, a distinction is made between periods during which classes are in session and periods when classes are not in session (no classes).

Table 6.7: Percentage of time of academic staff spent on different activities

Teaching		Research		Service/administration	
Term	No classes	Term	No classes	Term	No classes
39	23	33	46	28	31

Source: Enders and Teichler, 1995.

The table shows that Dutch academic staff on average spends relatively much time on teaching, even during periods when no classes are given. If we recalculate the figures in order to attribute the administrative and other activities to teaching and research activities, multiplying the term figure by 7/11 and the non-term figure by 4/11, we arrive at an estimate of the time spent by academic staff on teaching and research: 47 per cent is for teaching while 53 per cent is on research.

6.5.2 Student related issues

6.5.2.1 Student choice and institutional funding

The number of students has an impact on the university budget in two ways. First, because students have to pay tuition fees, changes in the number of students over the years influence the income of institutions through this channel. A few years ago, the direct relationship between governmental grants allocated to the institutions and the revenues institutions received from tuition fees was abolished. Although the national funding budget partly reckons with the revenues from tuition fees, the level of government grants allocated to individual institutions is not related to its tuition income.

The second way in which the number of students affects the university budget, is through the general funding formula. As described above, one parameter of the funding formula concerns the number of students enrolled. Today, about 10% of the budget allocated for teaching and teaching-related research is influenced through the number of students. However, since the total government budget for the universities is fixed, the influence of a change in student numbers is limited on the national level. However, a change in enrolment will positively or negatively affect the funding level of an individual institution when the change is relatively larger in this university compared to other universities.

Finally, the different tariffs applied to students in cheap and expensive studies may influence the university budget if the relative distribution of students over these two categories of studies changes as compared to this distribution in other institutions.

6.5.2.2 Tuition fees

In the Netherlands, a tuition fee is set for both the university and the non-university sector. The amount is equal for all full-time students. In recent years, the amount of the tuition fee was increased annually. At this moment (1988/89), full-time students pay a fee of Dfl. 2.750. Students not eligible for student financial support are charged at different rates, varying between institutions and type of enrolment, full-time or part-time.

6.5.2.3 Access, selection and student support

Admission to higher education by law is open to all qualified for higher education. However, a small number of programmes have an entrance restriction. The number of students for these programmes is limited because of labour market considerations. Most of the courses with an enrolment restriction train people for specific jobs and are vocationally oriented. Numerus clausus is applied to some subjects because of labour market considerations (universities: biology, medical studies; HBO's: veterinary management, physical therapy, ergo therapy and some other therapy studies, tourism, industrial design, journalism and social juridical service; further some institutional fixi are applicable). Only a very limited number of candidates cannot enter the higher education programme of their choice and apply for a study place through the weighted lottery system.

Recently, a new selection system for the numerus clausus programmes has been discussed. It is expected that in 1999 a new selection system will be implemented. The main difference with the present system will be that all candidates with an average grade of 8 or higher in secondary education will be directly admitted to the programme of their choice. The other applicants will have to go through a weighted lottery procedure.

Student support in the Netherlands consists of grants, loans and supplementary grants. All students receive a basic grant amounting monthly Dfl.125,- for students living at home and Dfl.425,- for students living away from their parents' home. Students may voluntarily take out a loan of maximum Dfl.750,- monthly. Dependent on parental income students may also be eligible for a supplementary grant (Dfl.395,- at maximum). Since 1996 students receive their grant as an initial loan. If they meet a study progress requirement of 50% of the first year exams and get their final degree within the nominal duration plus two years, this loan will be regarded as a gift. Otherwise, students will have to repay all the financial aid they have received during study. No indirect sources of student support are available for Dutch students, except for cheap meals and subsidies on study books and participation in student life.

6.5.3 Quality assessment

The quality assurance procedure developed in the Netherlands in 1986–1990 has acted, historically, as a role model for developments in a number of European countries. Systematically, it is a prime example of 'horizontal' evaluation procedure, i.e. it applies to the level of study programmes (not the faculties or the higher education institution). It does so in a nationally comparative way by incorporating all programmes in a certain disciplinary area in a single external evaluation process (they go 'horizontally' through all higher education institutions). The procedure starts with self-evaluation exercises performed within the study programme that result in self-evaluation reports, containing a description of the programme and analyses of a number of quality aspects, covering input, process and output. The self-evaluation reports of all programmes in the discipline are collected by the visiting committee, which is appointed for this occasion by the Dutch Association of Co-operating Universities (VSNU). A visiting committee consist for the largest part of academic colleagues from the same discipline but different institutions than the

persons to be evaluated (‘peers’, hence ‘peer review’), but may include representatives of the profession or of graduates’ employers as well.

The visiting committee studies the reports, visits the study programmes, on the basis of these experiences evaluates them according to their strengths and weaknesses and gives recommendations for improvement. It does not give a summary rating, nor does it make a ranking of the programmes. Such evaluation procedures are organised for each programme of study once every six years. For the self-evaluation reports, detailed guidelines are given by the VSNU. One of the subjects to be covered is the internal quality management, in which students are expected to play a role, namely in regular evaluations of individual courses, and in less frequent evaluations of (aspects of) the whole programme.

Students can play a role also — but need not do so — in the internal process of self-evaluation in the framework of the VSNU quality assessment. Student involvement through filling in evaluation forms or taking part in other internal evaluation activities can be seen as a minimum standard achieved all over Europe — although in all European countries the frequency and intensity of student evaluations differ strongly from one higher education institution to another.

The Dutch quality assessment procedure’s “role model” function was relevant especially in the years around 1990. In 1993, however, some refinements were made in the procedure for the university sector. Amongst these refinements was that since then, visiting committees (consisting of about five members in total) normally include one student representative. This person often is a Ph.D.-student from a related type of study programme, or a recent graduate. The inclusion of a student representative in meetings of the visiting committee as well as in the writing of its public, national report, is the most extensive involvement of students in official, national quality assessment procedures in Europe.

6.5.3.1 Implications of the quality assessment for funding

If university programmes over a longer period show poor results regarding their quality, both in teaching and research, which will also show up in the evaluation procedures, then the Minister of Education is allowed to withdraw public funding for this programme. However, until now, this situation has never occurred.

7. Portugal

7.1 System characteristics

The Portuguese higher education system distinguishes between university education and polytechnic education. The polytechnics are supposed to be more vocationally driven than universities. In addition to the distinction between universities and polytechnics, the higher education system can be separated in a public and a private sector. The public university sector consists of 13 public universities, one Open University and a non-integrated school. The public polytechnic sector includes 16 polytechnics, some polytechnic schools and a network of nursing schools, three health technology schools (physiotherapy, radiology, hygiene, etc.), a school of Tourism and Hotel Trade, and a School of Art Preservation and Restoration. These institutions fall under the responsibility of the Ministry of Education. Some other schools fall under the authority of other ministries, e.g. the Military Academy, the Air Force Academy, the Naval School and the Higher Police School.

The private and co-operative sector is more difficult to characterise, because it is under continuous change. As from 1986, a few private universities and a great number of other private higher education establishments were authorised. The latter are also called non-integrated (generally local) schools. These non-integrated schools often offer both university and polytechnic education. In 1994, the freedom to create private and co-operative higher education schools was given legal expression by a Decree-law, which defines the State's supervisory powers regarding the quality of education taught and the possibility of allocating funds.

In university education, the following degrees can be awarded. After completion of a 4 to 6-years basic university programme, one can be conferred the degree of ‘licenciado’. A more advanced level in a specific field of study and the capacity of conducting practical research can be awarded with the degree of ‘mestre’ (master). Finally, one can be awarded the degree of ‘doutor’ (doctor), which represents a high cultural level and the capacity to undertake scientific research in a specific branch of knowledge. The degree of ‘doutor’ is only conferred after a successful defence of a thesis and after having passed additional examiniations.

At the institutions of polytechnic education two types of degrees are conferred. The first degree of ‘bacharel’ shows evidence of a scientific, technical and cultural education, and is awarded at the completion of study programmes with an average duration of 3 years. The degree of ‘bacharel’ qualifies to proceed studies leading to the ‘Diploma de Estudos Superiores Especializados’ (DESE). These DESE study programmes concentrate on specialised fields of study and have a duration of 18 months to 2 years.

Between 1987 and 1991, enrolment in higher education sharply increased, mainly caused by loosening the official entrance requirements. In particular, the private sector grew enormously during this period (by 250%). The public sector grew by about 40%. The policy to let the higher education system grow so rapidly was driven by the sharp increase in the demand for higher education and to save the private sector from bankruptcy. However, in the 1990s, the number of

applicants for higher education still far exceeds the number of places available. But the re-introduction of minimum standards for application to higher education reduced the number of new applicants. As a result, the number of applicants that were denied access decreased from about 40.000 to 15.000 recently. Most private institutions and the peripheral and prestigious public institutions now even have some difficulties to fill the places available.

7.2 Budget of the institutions

The State is the main source of income for the Portuguese higher education institutions. The Ministry of Education annually negotiates the funding system of public universities with the Council of Rectors, within the framework of the funding formula.

In addition to the state's guarantee to make sure that universities have the funds necessary for their operation within budgetary limits, the families of the students are also an important participant in funding higher education. They directly contribute to education by paying tuition fees for both secondary education and higher education, with the purchase of textbooks and school materials, and by paying for the costs of living of their studying children. According to a new law, accepted in 1997, the tuition fees for public higher education are set at US$300,- annually. This revenue can be spent by the institutions according their own interests.

Universities prepare and submit their own budgets. The distribution of public funds among the various universities takes into account the overall national planning approved for higher education and the objective situation of each university. This planning is based on specific criteria like the types of courses taught, the number of pupils enrolled, the nature of research activities, the stage of development of the institutions and the expenses involved in running them.

The universities are free to allocate their own revenues among its various organic units according to the institution's general interests and in compliance of the respective statutes. The financial autonomy of institutions was strengthened through a new law in 1997.

7.3 Funding mechanism

The annual budget for education is determined by a funding formula negotiated by the CRUP and the CCIST with the Ministry of Education since 1994. There is no direct relationship between the funding of institutions and the results from the quality assessments. Universities and polytechnics get their annual budget (running costs) as a lump sum, which they have to distribute among the institutional units according to the general interests of the institution.

Up to 1994, the annual budget was allocated to the institutions on the basis of historical data. Consequently, the distribution of funds was biased in favour of some of the institutions. A new funding formula was introduced in 1994 to ensure that the budget of each institution would converge into a standard value, calculated with the same rules to all higher education institutions. The funding formula translates the goal of adjusting the actual situation of each institution towards a situation that meets the criteria of the 'future standard budget'. The adjustments will have to be made within a maximum period of seven years. It is envisaged that after this seven-

year period, some output elements will be included in the funding formula. This new framework should also stimulate the search for other funding sources.

The new funding formula aims at a pluriannual planning and funding structure. As a result, objectives and goals defined in accordance with the social interest of the institutions are expressed in programme-contracts, as well as the pluriannual funding logic. It is expected that a strict execution of the programme-contracts will lead to the realisation of the convergence between the institutional situations as defined in the general governmental strategy.

The whole operation is led by a number of guiding principles, like the societal interest attached to priorities set, the autonomy of the institutions, continuity, responsibility, a good utilisation of staff, institutional equity and progressive adjustment to approach the desired scenario.

The governmental funds provided to the universities and polytechnics distinguish between running costs (mainly for teaching), research and investments. The running costs are allocated to the institutions by means of a funding formula. This includes a part of the funds available for research, which is actually called 'research connected with the training of the teaching staff'.

7.3.1 Teaching

The funding model of the government applies only to the courses and attendance level included in the agreement between the institution and the government. The allocations are meant to guarantee the provision of the courses agreed upon. Apart from the funding of these courses, the programme-contracts may also include appropriations for special activities and research connected with the training of teaching staff.

For each course a specific level of funding is calculated, based on attendance and the following indicators:

1. the budgetary structure expressed by distribution of 'personnel costs' and 'other operational costs'
2. the 'teacher / student' ratio
3. the 'non-teaching staff / teacher' ratio
4. the standard composition of the teaching staff
5. the expenditure and structure of the central administration, based on the 'central administration staff / student' ratio.

For each of these indicators, some target values have been defined. However, since the funding of institutions is in the middle of an adjustment process, the final targets can only be achieved through a gradual process (which may last seven years at most). At the beginning of the process, a 'normal situation' concerning the indicators mentioned above was defined for each institution. The programme-contracts serve as a strategic logic that will lead to the 'normal' situation within a period of 5-7 years. In cases of a situation below the norm, a strategy of progressive improvement has to be followed. In cases of a situation above the norm, a strategy of progressive reduction has to be followed.

The funding formula starts with the assumption that the ideal budget of a higher education institution accounts for 80% 'personnel costs' and for 20% 'other operational costs'. In a later

phase, the division of these percentages will be changed into 75% and 25% respectively.

The annual teaching budget for an institution in year x is calculated by applying the following funding formula:

$$OE_x = OP_x + \alpha_x \cdot \Delta_x + \sum_i A_{i,x}.$$

where:

OE_x = corrected budget of the institution for year x (corrected budget stands for the adjusted value of the budget in year (x-1), including the sums allocated for the remuneration upgrade of that year.
OP_x = standard budget for year x.
OPP_x = standard budget for personnel costs in year x.
OT_x = tendential budget in year x, which coincides with the corrected budget of year x-1 but taking into account the increase in the number of students (based on the differences in the forecasts for the academic years x-1/x and x-2/x-1.
A_1 = additional term corresponding to special structures identified in the programme-contract.
A_2 = additional term designed to ensure the basic funding of research connected with the training of teaching staff.
A_3 = additional term which accommodates particular situations.
B_1 = additional term which accommodates the additional expenditure as a result of promotions and progression in the career of teaching staff, as well as the corresponding rebalance of the other operational costs (80%/20%).
B_2 = additional term which accommodates the remuneration and meal allowance of the civil services.

The corrected budget (OE) is based on the standard budget for year x (OP) and the difference between the standard budget and the tendential budget (Δ).

The standard budget for year x is dependent on the standard budget for personnel costs (OPP), as is shown in the following equation:

$$OP_x = OPP_x \cdot 1{,}25 + \sum_i A_{i,x}$$

$$OPP_x = \sum_i C_{xi} \cdot A^i_{x-1/x}$$

where:

C_{xi} = the average cost per student in year x.
$A^i_{x-1/x}$ = the expected number of students to be funded in the educational field i and the school year x-1/x.

considering:

$$C_{xi} = C_x \cdot R_{xi} + (R_{xi} \cdot R'_{xi} + R''_x) \cdot C'_x$$

$C_x = V_{x-2} . (1 + AV_{x-1}) . (1 + MP_{x-1}) . (1 + MP_x) . (1 + MO_x) + SR_{x-1}$

$C'_x = V'_{x-2} . (1 + AV_{x-1}) . (1 + MP_{x-1}) . (1 + MP_x) + SR_{x-1}$

where:

C_x = the average cost of a teacher in year x.
C'_x = the average cost of non-teaching staff in year x.
V_{x-2} = the average updated remuneration of a teacher, calculated as the division of the total of the teachers' remuneration by the number of FTE teachers (at the 31st of December in year x-2).
V'_{x-2} = the average updated remuneration of a non-teaching staff member, calculated as the division of the total of the non-teachers' remuneration by the number of FTE non-teaching staff (at the 31st of December in year x-2).
AV_x = the general remuneration updating rate in year x.
MP_x = the increase of promotions (raise of category or of remuneration echelon) in year x.
MO_x = the rate for the estimation of other personnel costs (e.g. social security and health care)
SR_x = the estimation of the average meal allowance for year x.
R_{xi} = the FTE teacher/student standard ratio of the field of study i in year x
R'_{xi} = the FTE non-teaching staff/student standard ratio of the field of study i in year x
$R"_x$ = the central administration personnel/student standard ratio in year x

V_{x-2} and V'_{x-2} are calculated for each institution.

The standard budget for other operational costs accounts for 25% of the personnel standard budget, which means that the standard budget for year x is:

$OP_x = 1{,}25 . OPP_x$

As indicated above, the budget that is calculated for each institution (OE) is not only dependent on the standard budget (OP), but also on the difference between the standard budget and the tendential budget:

$\Delta_x = OT_x - OP_x$

When the tendential budget is larger than the standard budget ($\Delta x > 0$), then the standard budget is used instead of OT_x ($\Delta_x = 0$). When it happens that:

$A_{x-2/x-1} > A_{x-1/x}$, then $OT_x = OE_{x-1}$.

Finally, α_x is defined as the multiple convergence factor, which is used to gradually adjust the actual budget allocated to the institutions to the standard situation envisaged, by reducing the influence of differences between the tendential budget and the standard situation (Δ) over the period 1996 to 2002.

The weak point in the funding formula is that it is not dissuasive enough against overstaffed situations, since the standard budget of a given institution shall be the same independently of the relation between the personnel costs and other operational costs. Therefore, some additional measures have been considered, like:

- financial consequences in cases when institutions do not meet the goal fixed at 80% personnel costs and do get a negative evaluation;
- forbidding institutions that are overstaffed to hire new people;
- to include in the programme-contracts annual limits for the annual percentage of appropriations to be spent on personnel costs in order to ensure the convergence before the expected deadline.

Differences between academic subject groups

The funding method used for allocating funds to universities differentiates on the basis of the subjects offered by each university. The differences are expressed through attaching different standards to the teacher/student ratio and to the support staff/teachers ratio according to field of study. In terms of the funding formula as explained above, the R (standard teacher/student ratio) and R' (standard non-teaching staff/teacher ratio) influence the level of costs per student in year x, which on its turn influences the standard budget for personnel costs and the total standard budget for year x in general. In the following table, the standard teacher/student ratio and support staff/teachers ratios are presented for the universities by discipline.

Table 7.1: Standards for teacher/student ratio and support staff/teachers ratio per discipline

Discipline	Teacher / Student (R)	Support staff/Teachers (R')
Medicine, music	1 / 6	0.85
Music	1 / 6	0.45
Veterinary	1 / 9	0.85
Science, technology, pharmacy	1 / 11	0.75
Agriculture, silviculture, fisheries	1 / 11	0.85
Architecture	1 / 12	0.5
Fine arts	1 / 12	0.6
Education, teacher training, psychology, sports, in-service training, journalism	1 / 12	0.45
Teacher training – sciences	1 / 11,3	0.75
Teacher training - languages, geography	1 / 15,3	0.45
Teacher training – mathematics	1 / 14	0.45
Teacher training - arts, social sciences	1 / 17,3	0.35
Computer sciences	1 / 14	0.65
Mathematics	1 / 15	0.45
Economy, management, commerce, business, administration, tourism, geography, languages	1 / 17	0.45
Arts and social sciences	1 / 20	0.35
Law, political sciences	1 / 25	0.35
Postgratuate level – medicine	1 / 5	0.75
Postgratuate level - science, technology, pharmacy, agriculture, serviculture and fisheries		0.75
Postgratuate level – other	1 / 13	0.45

7.3.2 Research

Research is funded through several sources in Portugal. There is a lump sum allocated directly by the Ministry of Education to every institution as part of the funding formula as described above, which determines about 6% of the annual funding of the institutions. The institutions can use this sum according to their own interests and priorities. However, the amount of this allocation is rather limited, so it is difficult for the institutions to establish their own scientific policy on the basis of this grant.

The second source of research funds is the Ministry of Science and Technology which allocates lump sum grants to research centres and institutes related to a university. This type of funds is meant for the basic running expenses of research and is granted on a pluriannual basis, but with an intermediate quality evaluation. In principle, every university research centre can apply for a contract as an 'Associate Centre', which is valid for 5 years. This type of contract can be successively renewed if the results in the quality assessments are satisfactory. The Ministry of Science and Technology also awards money to research projects on a competitive basis. In 1995, most competencies in the area of research were brought under the authority of the Ministry of

Science and Technology. Through the selection of research topics, the Ministry expresses its major influence on the direction of the national research policy. At the moment, the resources available for fundamental research are relatively generous, which partly stems from European social funds available, and partly from the expansion of public expenditure in Portugal as a result of a general economic upswing.

7.3.3 Developments

The major development to be referred to here concerns the transitions phase that characterises the funding structure of Portuguese higher education at the moment. Between 1996 and 2002, the funding system will be gradually changed from a system based on historical allocations towards a situation in which each university will receive its grants on the basis of a standard budget based on the number of students, the nature of the courses and some additional indicators. For reaching this situation, the influence of the difference between the tendential budget (the actual allocations of the previous year) and the standard calculated budget is reduced annually from about 80% in 1996 to 0% in 2002. According to the level of the difference between the tendential budget and the standard budget of an institution, two adjustment rates are used to come to the standard situation in 2002, as presented in table 7.2.

Table 7.2: Adjustment rates to come to the standard situation

	$\Delta < 30\%$	$\Delta > 30\%$
1996	0.740	0.805
1997	0.600	0.740
1998	0.450	0.600
1999	0.300	0.450
2000	0.150	0.300
2001	0.000	0.150
2002	0.000	0.000

Note: Δ is the difference between the standard budget and the tendential budget.

7.4 University income from other activities

Until recently, Portuguese universities were hardly involved in activities besides their core tasks of teaching and research. As a result, practically all funds for teaching come in as governmental funding through the formula described above. Also in the case of research, Portuguese universities and the research centres attached to them are getting into the phase of developing contract activities outside the regular funding mechanism. Because the contract and service activities were scarce up to now, no statistical data are available in this field.

7.4.1 Organisation and funding of medical training

Medical training takes place in medicine faculties, usually located at a hospital or in its nearby

surroundings. Training of students in medicine-related subjects is according to the regular university funding formula as described above. The few university hospitals in which medical students are trained, are funded and administrated in the same way as the other hospitals. They get some additional funds for providing the teaching infrastructure. The patients pay a small fee for the treatment done by the medical trainees (who start doing treatments after the third year of study, but mostly in their sixth and last year). These fees are probably used to pay for the material used during the treatments. All medical schools are until now public, with the exception of some nursery schools, and a private dentistry school at Lisbon and at Porto. Further financial linkages between medical schools and university hospitals are not clear.

Since it is recognised that there are several advantages in a close relation between research/teaching and practice, most of academic staff of medical schools also work in hospitals (and not only in the case of university hospitals). This is also possible because Portuguese teachers are not obliged to be exclusively working on a public university. Academic staff may teach in private institutions as well. In the most attractive areas this happens quite frequently, although there are some efforts to restrain these type of activities. An excuse for this situation is found in the relative low salaries of public university academic staff.

7.5 Issues indirectly related to funding

7.5.1 Staff issues

Concerning staff issues, it has to be mentioned that data are only available for the publicly run institutions. Data for the private institutions are not available. The total number of staff at public institutions of higher education is shown in table 7.3

Table 7.3: Staff at Portuguese higher education institutions

	1994	1995	1996
Academic staff	12980	13441	13896
Universities	10079	10430	10581
Polytechnics	2901	3011	3315
Support staff	8664	9072	9211
Universities	6855	7413	7474
Polytechnics	1809	1659	1737
Total	21644	22513	23107
Universities	16934	17843	18055
Polytechnics	4710	4670	5052

Source: Amaral *et al*., 1996.

Note: Excluding data for private institutions and the universities of Madeira and Azores.

The proportion of staff that holds permanent positions is very small. This is caused by the fact that tenure at Portuguese public universities exists in a mixed way. A normal academic career starts at 23-4 years old (with a BA). People then have 4 years to complete a master's degree or an equivalent qualification. After that, they can take 6 years to complete a PhD. These deadlines can be postponed to a maximum of 2 years. After five years of teaching as a PhD, people can apply

for a tenured position. However, the number of tenured academics is very low and almost restricted to full professors (which is the highest level on the academic ladder) or associated professors (the level between full professors and those having a PhD). In case a tenured position is not awarded, people can get successive contracts of 5 years (which can be renewed).

As far as the distribution of time of academic staff among teaching and research is concerned, some attempts have been made to define an estimate for the distribution between the two main activities (teaching and research). However, there are no complete data on that. The statutes of the academic career indicate a proportion of roughly 60% of the time spent on teaching and 40% on research. Nevertheless, this legal determination is possibly far from reality. In terms of career, the research activities are much more visible, because the research output is predominantly taken into account in academic appointments. It is therefore generally known that most academics spend more than a half of their time on research activities.

7.5.2 Student related issues

7.5.2.1 Student choice and institutional funding

The public funding formula includes the number of students enrolled at each institution and in each discipline. By calculating the standard budget for personnel costs, the average costs per student are important as well as the expected changes in the student population from one year to another. Furthermore, specific standard staff/student ratios are applied for calculating the average costs per student. Finally, students are funded at different rates according to the field of study.

7.5.2.2 Tuition fees

The tuition fees are very low at public institutions. Students have to pay a tuition fee that stems from 1948, which is comparable to ECU 9 (1200 Escudos) on an annual basis at present. Proposals have been made to increase the tuition rates. It is sometimes argued that, because higher education leads to substantial private benefits for graduates, it is not fair to subsidise higher education from the tax-payers money. Because mainly people from the middle- and higher income classes attend higher education and as a result have the highest future income potential, they are indirectly subsidised by people from low income groups. Until now, the strong student unions have managed to resist the introduction of higher tuition rates.

At private institutions the situation is different. Students have to pay tuition fees up to about $300 monthly. About 40% of the students attend private institutions. Because particularly people from the well-to-do families succeed in attending public institutions with very low tuition fees, it is felt that there is a lot of inequality in sharing the costs of education in Portugal.

7.5.2.3 Access, selection and student support

Access to higher education in Portugal is not open for all. First of all, the state annually decides on the number of student places available at each institution and programme. In addition, since 1996, students have to meet a minimum score at the final examination of secondary education. Students who do not meet this minimum requirement are not admitted to public and private

institutions. However, public institutions, that are the most attractive to students because they offer the best labour market perspectives, even raised the admission standards above the requirements set by the state. At the moment it is proposed to change the system of a general *numerus clausus* for all public higher education programmes. Its is argued that a number of institutions can manage a larger intake of students and that for a number of programmes a larger intake would not be harmful in terms of employment perspectives of graduates.

As far as student support is concerned, every public higher education institution has a Student Welfare Service financed from the state budget. This service is responsible for the administration of financial assistance and scholarships, student accommodation, catering and other services available for students. Students from families with low income can be exempted from the payment of tuition fees and can apply for a scholarship. In 1995/96, about 17% of the students received a scholarship with an average amount of ECU 1400 (183000 Escudos) per year. In order to remain eligible for a scholarship, students are required to show proof of their schooling and study success. The amount of the scholarship depends on the financial circumstances of the student and his family. The idea of setting up a loans system has failed so far. Portuguese students in public higher education may additionally benefit from child allowances and tax rebates through their families.

7.5.3 Quality assessment

In 1994, a system of quality assessment was implemented by law. This system is based on internal evaluations of which the reports are submitted to the external visiting committees. This system aims at promoting quality and informing Portuguese society on the performances of the institutions. In addition it provides credibility and unity in the higher education system, it acknowledges organisational effectiveness and enhances the higher education institutions' network. Students play a minor role in the evaluation process of programmes. A few student representatives are consulted in the evaluation processes.

7.5.3.1 Implications of the quality assessment for funding

Even though there is no direct linkage between public funding and the results of the quality assessments, these assessments can be a powerful tool in regulating the system. In case of successive negative evaluations, or if an institution fails to implement recommended improvements of the visiting committee, the Minister of Education may take action. The Minister is allowed to decrease the public funding to an institution, to suspend the registration of the degrees conferred and to withdraw the permission to confer degrees.

8. Sweden

8.1 System characteristics

The educational system in Sweden was previously strongly centralised with national education policy determined by Parliament and implemented by the Ministry of Education and Science. The assisting bodies, the National Board of Education for schools and the National Board of Universities and Colleges for higher education, were abolished in 1990 and 1992 respectively. These authorities had the responsibility for national planning of education in co-operation with representatives of the respective systems of education, which meant that education was the same all over the country. There were few private institutions. Education was open to all categories of people, free of charge and with favourable state study assistance.

In 1977 a far-reaching reform of the higher education system took place with the creation of an integrated and uniform system for all types of tertiary education, broadened admission policies for higher education, widened geographic distribution of higher education and the creation of recurrent educational opportunities. New measures to strengthen links between higher education and research and to create closer ties between education and other areas of society were taken. In 1979 Sweden introduced a numerus clausus for higher education, which has made admission to most study programmes highly selective. In the 1990's education at all levels has become more decentralised. A new reform of both upper secondary school and higher education was launched in 1993, with e.g. fewer prescribed programmes in both secondary school and higher education, a new degree system in higher education etc.

Since the restructuring operation of 1977, as has been stated above, the Swedish higher education system is a unitary system (called Högskolan). In 1997 there were almost seventy higher education institutions in Sweden. Public higher education comprised 10 universities, 7 independent colleges of art and 17 university colleges. In addition to that, the county councils ran 18 colleges of health and a college of music. Finally, 13 private higher education were existent. It is expected that in 1998 practically all colleges of health will be incorporated into state-run institutions. In the academic year 1996/97 there were about 300,380 individuals registered in higher education. The universities (including the specialised professional institutions) served some 160,610 full-time equivalent students. University colleges were responsible for 89,140 students. Health colleges and art colleges registered 17,120 and 2,070 students respectively. In the 1990's the number of individuals applying for higher education programmes has increased year by year, and there are insufficient places to meet the demand. It is estimated that roughly 60% of all those who apply in any particular term had to be refused a place in higher education in 1997. There is, however, considerable variation between different study programmes and institutions.

There is no distinction between university and non-university higher education in Sweden. However, there are long-term programmes designed to train scientifically oriented professionals and prepare them for research in the field, and short-term programmes designed to train

professionals capable of performing or supervising tasks with a high vocational content. Also, there are single-subject courses enabling the students to combine their own studies, mostly theoretically oriented and preparing for research in the major subject.

In the 1977 reform, study programmes were organised in five sectors:
- technical;
- administrative, economic and social work;
- health;
- teacher training;
- information, communication and arts.

At the same time, postgraduate education was organised in scientific disciplines in accordance with the traditional faculties, which are also the basis for the 1993 organisational structure (see below): pharmacy, philosophy, humanities, laws, mathematics-natural sciences, medicine, dentistry, social sciences, technology, technical-natural sciences, theology, agriculture, forestry and veterinary medicine.

The Ministry of Education and Science is responsible for the national higher education policy. The allocation of funds takes place through the budget proposal made by the government and accepted by Parliament. Until 1993 a central planning agency (National Board of Universities and Colleges, or Universites och Högskoleämbetet) was responsible for drawing up the budget and the admission of students. In 1993 another major reform took place, which represented a drastic change from the regulatory framework of 1977. Reforms were carried out in order to create an open system of higher education (freedom of entry for private competitors, who, after meeting quality criteria, are also accepted for funding), a system of quasi-contracts between government and universities, performance related lump-sum funding, external quality assessment and audit, deregulation, and more managerial governance.

In the 1993 reform of higher education, higher education institutions have been given increased autonomy in organisation of studies, admissions, use of resources and general organisation. The new degree system provides greater freedom for the students to devise their own studies. Diversity and competition between higher education institutions is a new element and incentives for improved quality are given through the new financing system as well as the work done at the Department of Evaluation and Quality Audit within the National Agency for Higher Education. The Agency also gives advice to the Government in matters concerning accreditation of academic degrees and the right of certain university colleges to establish professorships. Independent universities and university colleges will be recognised by the Government and obtain the right to award degrees and/or receive state subsidies and for their students to receive study assistance. Diplomas from all kinds of higher education institutions recognised by the Government have equal official value. Three types of degrees can be conferred. First of all, the University Diploma, which can be awarded after at least 2 years of full-time study. Bachelor degrees are awarded for programmes with a duration of at least 3 years of full-time study, and finally, Master's degrees are conferred for programmes lasting 4 years of full-time study. In addition to that, about fifty professional degrees can be awarded for which specific objectives have been stated in the Degrees Ordinance.

The planning system changed from detailed plans by parliament to a system of quasi-contracts between government and universities, where the government specifies a maximum available budget and leaves multiple options open for the university to achieve this maximum. Below, we will describe how the budgets connected to these contracts are calculated and how they are related to performance measures.

An external quality agency was set up to carry out quality assessment and quality audit functions. After the shift of government in 1994 this merged in 1995 with another agency to form the National Agency for Higher Education (Högskoleverket), with a wider mission to produce an overall picture of how the universities develop and to make policy recommendations (see above). The primary responsibility for quality improvement is with the individual universities, which are obliged to present a plan and be open for audit. Deregulation measures meant that a large number of issues previously decided by the government and the former national bureau for universities are now decided by the universities. This primarily concerns the composition of study programs (under the government-imposed general framework of bachelors and masters degrees), admissions procedures, career patterns for academic staff, the appointment of professors and internal organisation. More powers are given to the (government appointed) Vice Chancellor.

8.2 The budget of the institutions

It is estimated that total expenditure for higher education was SEK 37.6 billion in 1996. This figure includes SEK 7.2 billions in terms of study grants to students in higher education, and SEK 2,3 billions on account of private institutions. This means that universities and university colleges spent some SEK 26.8 billion on education and research/postgraduate degree programmes. Since 1994/95, considerable savings have been made in basic higher education, primarily by reducing the compensation paid for FTE students and the annual performance equivalents. The compensation per year-student for most of the educational fields has fallen by around 17 per cent in real terms during that period.

Expenses are covered by government grants and external income. As in other Nordic countries, there are no tuition fees in Sweden, except for a small fee paid to the student union for social services, et cetera. Direct state and regional authority grants accounted for about 60% of the resources of the institutions. The remaining portion comprises external resources for contract work provided by research councils[6] and sectoral bodies, together with local authorities and county councils.

In relation to other countries, higher education in Sweden has a more relaxed funding situation and has escaped the financial turmoil which other systems experienced during the eighties. From about the mid-eighties its resources have in fact been growing, in spite of a decrease in the budget for all educational sectors. The institutional budgets have kept up with the inflationary pressure.

[6] In Sweden there are six research councils: the European Commission-Research and Development Council (EC-R&D council), the Swedish Council for Planning and coordination of Researh (FRN), the Swedish Medical Research Council (MFR), the Swedish Natural Science Research Council (NFR), the Swedish National Board for Industrial and Technical Development (NUTEK) and the Swedish Research Council for Engineering Sciences (TFR).

On July 1st, 1993 a new allocation system was introduced for the funding of the basic higher education (that is: excluding research and postgraduate education). The previous input- (cost-) oriented system was replaced by a goal- and performance oriented system. In March 1994, initiatives were developed in order to alter the financing of arts colleges. Nowadays there are eight arts categories, but they apply only to a few schools each. More importantly, in January 1994 ideas were developed in order to incorporate the allocation of building, construction and equipment funds into the formula used for allocating the funds for current expenses. These measures were executed in the academic year 1995/96.

Funds are made available as a lump sum. Year-end balances may be kept and carried over to the next budget-year. Deficits have to be covered by the institutions themselves. On the basis of figures for actual student numbers and student results at the end of the year, the final institutional allocation is settled with the budget (see below).

8.3 Funding mechanism

Until the 1975-77 reform, the system of higher education was collegial, with the administrative and political power mostly in the hands of full professors. Swedish universities and professional schools with permanent research funding were run by the tenured staff from which the governing board and its chair, the rector, were drawn. Academics recruited the decision-making boards in accordance with professorial criteria. The colleges without permanent research resources were run by a rector or a board appointed by the government.

The major institutional reforms in the seventies led to extensive decentralisation and the introduction of external participation in the decision-making bodies. The 1975-77 higher education reforms decentralised several major functions including the allocation of money which was granted in broadly specified budgetary appropriations. These reforms also resulted in teaching and research (together with postgraduate studies) being separately funded. The rationale for this division was that the government wanted separate policies within these two areas.

Education policy since the middle of the 1980's has continued to emphasise decentralisation, and much of the decision-making power has been transferred from the national to the local level. The 1983 reform gave the universities and colleges more autonomy to determine their internal decision-making structure. This change allowed for greater local variation in the number and types of intermediate level bodies both within institutions and at the basic departmental level. The reforms of 1987 and 1988 decentralised much of the financial decision-making in the higher education sector. In the past the funding system was highly centralised, and budgets specified particular items and areas. After the reforms, the funding was changed to broad programme budgeting, and since the late 1980's the institutions are free to decide for themselves how to best use the money they are granted.

In addition, all universities and colleges can now introduce (and also abolish) life-time or temporary professorships. The power to create new tenured and non-tenured professorships from the institutions' budgets has rested with the institutions themselves since 1982. A large number of new professorships, permanent ones as well as shorter-term adjunct professorships, have been created, mainly in engineering, the natural sciences, and medicine. The developments at the local

level were rapid once central co-ordination gave way to decentralised planning: The number of new professorships created by the institutions themselves far outnumbered the number of professorships introduced by the central authorities. Some of the non-permanent professorships are funded through external sources (funding that is not part of the state institutional grants).

The greater freedom that Swedish institutions have when it comes to finances, personnel planning and organisation has a price. Some of the traditional academic freedom has probably disappeared. Since the institutions have the legal responsibility for their own staff and laboratories, etc. they have to find money, one way or another, to finance the operations. This can be said to limit traditional academic freedom and may have contributed to the fact that the humanities are not as well financed (and sciences and technology are better financed) than in the other Nordic countries.

Since 1990, higher education funding has been awarded on the basis of three-year budgets. This means that the entire grant is reconsidered every three years on the basis of extensive evaluation data on various aspects of system performance. In between, a yearly appropriation is decided upon by means of standard operating procedures. The formal development of the higher education budgetary system reflects the new emphasis on decentralisation and evaluation. Since 1993 the three-year budgets have been based on the number of active students at each institution (see below).

Above it has been made clear that since 1977 the funding of teaching is separated from the funding of research. This means that there are separate grants, earmarked for teaching and research. Below we will discuss the funding mechanisms for teaching and research.

8.3.1 Teaching

The new funding system that has been in operation since 1993, is based on an Educational task contract negotiated between the Ministry and each state university and university college. In these contracts, the three-year objectives of the institutions are stated and more elaborated into detail for the next fiscal year. The “educational task contracts” (as they are sometimes called) for 1998 contain the following objectives:

- the minimum number of degrees
- the minimum total number of FTE students
- the fields of study in which the number of students is to increase or decrease
- the programmes in which the share of women or men is to increase
- the follow-up to be made in the Annual Report
- special assignments

Based on the targets formulated in the educational task contracts, the preliminary allocation of teaching funds is based on the results achieved at each institution on the first two of the items listed above:
A. the number of credits accumulated by students during the academic year;
B. the number of students.

It is important to know that the Swedish educational programmes are offered in the form of a

series of single subject courses, out of which students can build up their own programme. Final qualifications may require different amounts of credit points, which are prescribed in examination regulations. Depending on the effort to be undertaken, each subject course, if passed successfully, leads to a specific number of credit points. The number of students is expressed in full-time equivalents. Roughly, one week's work leads to one credit point and, as the Swedish academic year consists of 40 weeks, in one successful year a student can accumulate 40 credit points. Consequently, in calculating students, one FTE student is a student who during one year has been registered for courses adding up to 40 credit points. One FTE study result has been achieved if the student has earned 40 credit points during the year. A student who has earned only 30 credit points has achieved a 0.75 FTE study result.

Both regarding the number of students enrolled and the number of credits accumulated, the targets are mentioned in the educational task contracts, based on which the institutions get their preliminary budgets.

In addition to this funding base, the number of students and credits accumulated is rewarded at different rates. The different rates originate from differences in the costs of study per cluster of disciplines. The tariffs consist of an overhead tariff and an activity (i.e. direct teaching costs) tariff. The different tariffs can be found in table 8.1.

Table 8.1: Tariff (in Swedish Crowns) per student (fte) and for student performance (year-load, i.e. 40 credits), academic year 1995/96 and fiscal year 1998

	1995/96		1998	
area	student tariff	performance tariff	student tariff	performance tariff
Humanities, theology, Law, social sciences	14024	14242	13343	13968
Science, engineering, Pharmacy, health stud.	37858	33600	36037	32953
Dentistry c.s.	34589	41724	32724	40921
Medicine	46597	58874	44025	57740
Education*	27263	33299	25781	32658
Miscellaneous	31806	26579	30274	26067

* Excluding the practical part of teacher training

Source: Högskoleverket (1997); Eriksson and Fritzell (1998).

The tariffs were determined on the basis of a special investigation into the cost of the basic higher education. This investigation determined the cost of teaching, services and overhead in the cluster of law and humanities as well as in some social science subjects. This was used as a basis to which weights were applied for determining the tariffs of other subjects. For both funding bases five tariff categories plus a 'miscellaneous' category are distinguished. Taken together, the student tariff and the performance tariff generate the yearly per capita allocation for a full time undergraduate student (in each of six categories) that has succeeded in collecting 40 credit points.

The annual teaching budget T for institution i in year t is calculated by applying the following formula (which, for the sake of clarity, disregards adjustments due to compensation for price inflation):

$$T_{i,t} = (S_{i,1,t}*TS_{1,t} + C_{i,1,t}/40*TC_{1,t}) + (S_{i,2,t}*TS_{2,t} + C_{i,2,t}/40*TC_{2,t}) + ... + (S_{i,6,t}*TS_{6,t} + C_{i,6,t}/40*TC_{6,t})$$

where

:

$T_{1,t}$ teaching budget for institution i in year t

$S_{i,j,t}$ number of full time equivalent students in institution i enrolled in programmes belonging to cluster j (j=1,...,6) in year t

$TS_{j,t}$ tariff per full time student (overhead plus direct teaching costs) in programmes belonging to cluster j (j=1,...,6) in year t

$C_{i,j,t}$ number of credits accumulated in institution i in subjects belonging to cluster j (j = 1,...,6) during year t

$TC_{j,t}$ tariff per annual performance equivalent in subjects belonging to cluster j (j = 1,...,6) during year t

The grant for undergraduate education is allocated as a block grant. This means that the universities are free to spend the grants as they see fit. The student tariff includes a compensation for capital costs (including rents for the university buildings).

As stated above, the total amount of money made available for teaching is laid down officially in a contract, negotiated between the Ministry of Education and each individual higher education institution. The contract runs over a three-year period. The contract states the maximum number of (full-time) students the government is willing to fund and the minimum amount of student results the government is expecting. Tied to the student numbers and the student results is the maximum teaching budget granted to the higher education institution for each year during the contract period. The education contract also provides for extra resources intended for special tasks, for instance for giving courses in ‘small’ programs such as egyptology, seismology and celtic languages or for developing courses in new fields (e.g. environmental technology).

The results shown during the three-year period form the basis for negotiations about the new three-year contract. The only condition tied to the spending of public funds in this respect is that the long-term goals of the education contract have to be fulfilled. To give institutions flexibility between fiscal years and to facilitate their long-term planning, institutions are allowed to transfer unused parts of the budget or surplus students to the next fiscal year. Institutions can only save grants or FTE study results that correspond to a maximum 10% of the budget.

The teaching budget is based on projections of student numbers. However, institutions are free to take on more students, though this will not affect their budget.

8.3.2 Research

As mentioned above, the funding of research is separated from that of teaching. For research, the allocation system dating back to the reforms of 1977 is still in place. Research funds for covering costs of research staff are allocated incrementally by the Ministry of Education. Next to the direct research funds, there are indirect funds allocated through Research Councils that supply funds to researchers on the basis of project proposals. Competing proposals are judged by peers. The

allocation of funds for investments, interdisciplinary projects and information systems is supervised by a co-ordination board of the different Councils. Apart from Research Councils, also private institutions allocate considerable research funds to the universities.

In the 1994/95 fiscal year, revenue for research and postgraduate research training at Swedish universities and university colleges was SEK 13.9 billion. About 55 per cent of these resources took the form of government faculty allocations and other R&D allocations. The remainder came from research councils, other government authorities and public utilities, local authorities, companies, etc. The overwhelming proportion of R&D resources (98%) went to universities and institutions with permanent research resources.

8.3.3 Developments

Roughly two-thirds of the institutions' core budget (teaching and research grants, excluding Research Council allocations) is based on a formula. The formula contains an output-(performance-) based part and an input-based part. The input-element of the formula should - in view of the government - make institutions more demand-driven. The performance (i.e. student results) element included in the formula is given a higher weighting than the input (i.e. student load) element for 4 out of 5 main subject areas (see table 8.1). On average 60% of the teaching funds is based on the number of credit points gained by students, while 40% is based on the number of students. The ratio 60/40 is a political compromise between 70/30 and 50/50 (with 70/30 perhaps being proposed to leave room for compromise).

Plans to include a quality premium into the new (1993) allocation model were abandoned. Originally the former government wanted quality premiums of in total 5% of the teaching budget to be introduced. These were to be distributed on the basis of the universities' mandatory plans for quality improvement. The present government opted for a model without the quality premium, but where quality audit findings will be used in the regular budgetary process. However, it is still unclear how these will be used.

A thorough investigation of the effects of the 1993 funding arrangements was commissioned by the government. The so-called RUT93 Commission that evaluated the 1993 reform published its findings in 1995. Earlier there had been a report by a committee on the funding of universities (SOU 1994). So far, all institutions seem to have produced sufficient outputs, although no-one knows what would have happened if they had not. Some universities, like Gothenburg University, have chosen to increase their student volume far beyond their obligations. Most have made some increases to make sure they reach the specified outputs. All in all this amounted to roughly a 10 per cent increase of the 'system'. The new government kept the idea of 3-year budgeting. There have been some minor adjustments to the assignments or contracts for each university. During the contract period there is a kind of check on yearly results. However, this is mainly through the fact that budgets are yearly and new decisions are made every year. In the budget of January 1995 the government explicitly argued that universities had large amounts saved from year 1 and 2, which they were 'allowed to keep'. In other words, there was no reduction for year 3. It is important to note that cut-backs were not part of the agenda.

A reported effect of the funding system is that university departments pay more attention to drop-outs, try to track them and persuade them to continue their studies. This seems to question the cliche that concern for others is stronger when market mechanisms are absent. A similar effect is reported on quality audit and assessment: more attention is paid to evaluating current activities and, hence, making improvement possible. This so far counters the widely felt fear that a performance related funding arrangement would bring about lower standards. A reported consequence is that the general status of teaching is rising in relation to that of research.

8.4 University income from other activities

Apart form regular funding from the government for teaching and research (also through Research Councils), Swedish universities also receive financial resources for activities like contract research and contract teaching. The average share of income from contract activities differs between institutions with a considerable amount of research funding and institutions with only a small research capacity. The relative share of the contract activities is about 4% on average at the universities with substantial research funds. In universities without major research activities, the proportion of funding from contract activities is about 8%. However, substantial differences exist between universities, ranging from 1% to about 34%. The income from contract research is at about the same level as the income from contract teaching activities, although here also differences between institutions are apparent. Universities with large research funds are more involved in contract research, whereas universities with a smaller research budget concentrate on contract teaching.

Both contract research and contract teaching activities show a large variety of clients. Most of the activities are commissioned by industry, national authorities, regional authorities and international organisations. The national and regional Swedish authorities fund about 50% of the contract activities.

8.4.1 Organisation and funding of medical training

Sweden invests relatively more in medical research than many other countries. The strong position of Swedish medical research can be explained both in terms of historical traditions and by the position of the Karolinska Institute as a leading international medical research centre. This reputation plays a large role when research funds have to be distributed.

The university hospitals are funded from two sources, the Landstig (Regional governments) and the state. The state funds (‘ALF-funds’) are so-called *compensatory* funds provided for teaching and research activities done by hospital staff members. The teaching and research part taking place in university hospitals is funded by the central state, whereas the funds of the regional governments cover the medical/health care part of the university hospitals. No other hospitals are included in the data of the National Agency for Higher Education (Högskoleverket). Appropriations for clinical education and research are provided by the state as lump sums to the universities responsible for education and research in medicine and dentistry. The universities then compensate the regional governments for clinical education and research taking place in the

university hospitals.

8.5 Issues indirectly related to funding

8.5.1 Staff issues

In 1997, the total number of FTE staff employed in higher education was 44,750. Of these, 21,060 FTE staff was involved in teaching and research, which is about 47%. About 36% is technical and administrative staff. In addition, 6,200 posts were defined as post-graduate posts (14%). Finally, 3% of the staff were librarians.

At present, no data is available on the proportion of academic staff with tenured positions. However, it has been indicated as one of the items to be studied in the near future.

8.5.1.1 Academic staff by type of activity

The time spent by academic staff on activities like teaching, research, administration, services and other activities is presented in table 8.4 (based on Enders and Teichler, 1995). The figures are separated for periods when classes are in session and for periods when classes are not in session.

Table 8.4: Percentage of time of academic staff spent on different activities

Teaching		Research		Service/administration	
term	no classes	term	no classes	term	no classes
38	16	32	49	30	35

Source: Enders and Teichler, 1995.

This table shows that Swedish academic staff on average spends roughly equal amounts of time on teaching, research and other activities during term time. However, during periods when no classes are given, they spend most of their time on research. If we distribute the third column in the table over teaching and research (assuming that administrative and other activities mostly relate directly to their teaching and research activities), we can recalculate the figures and arrive at an average distribution of 44/56 for the ratio teaching/research over the academic year. For this, the values for term time activities were multiplied by 7/11 and the values for activities during off-term time by 4/11 (in order to compensate for the lengths of both periods over the year).

8.5.2 Student related issues

8.5.2.1 Student choice and institutional funding

As can be read from the description of the national mechanism of funding universities, the number of students plays an important role in the budget allocated to the institutions, as well as the number of study credits earned by the students.

8.5.2.2 Tuition fees

As we already mentioned, in Sweden, higher education is for free. Students do not have to pay tuition fees.

8.5.2.3 Access, selection and student support

Admission to higher education is rather selective in Sweden. About one third of the annual number of applicants are denied access. To be admitted to higher education, candidates have to meet general criteria applicable to all studies and to specific demands for certain study programmes. The general criteria are decided by parliament, the specific ones by the institutions themselves. The general criteria are an upper secondary diploma, or four years of working experience and knowledge of the English language at the level of two years upper secondary education in combination with an age of 25 years or older. In addition, the outcomes of an aptitude test provide satisfactory entrance qualification. The specific entrance criteria set by the institutions often concern a certain level of knowledge in specific fields required specific programmes. Universities have full autonomy to decide on such criteria. Since 1993, universities have been allowed to apply specific tests or interviews on an experimental basis to select students.

Concerning student financial support, we mention that the system was changed in 1988. The system of mainly loan contributions to students independent from their parental income was changed into a system with an increased emphasis on student grants. Until 1988, the basic grant students received covered only 5% of their total costs. Since then, all students eligible receive a grant covering about 30% of their costs. The amount granted is SEK 1900 monthly (for a nine-month period). The rest of the aid is provided as a loan. The maximum loan amount is SEK 4955 monthly (also available for nine months). About 30% of the students does not receive any aid because their personal income is too high. Most of them are part-time students who have a job on the labour market. In order to remain eligible for financial support, students have to show a study progress of 75% - 100%. The study progress requirements depend on the programme a student is enrolled in: traditional university studies and engineering programmes require 75% study progress, more vocationally oriented programmes require a 100% score. The rate of study progress is assessed every semester.

Indirect student support by way of child allowances or tax benefits is not available. However, students may benefit from subsidies through facilities like student housing, sports facilities and subsidised health care.

8.5.3 Quality assessment

The Swedish quality assurance system consists of two main procedures. One is the programme evaluation for accreditation (a 'horizontal' review), but that is a one-time experience for each study programme. The other, more important one, is the regular audit of universities and colleges by the independent state agency *Högskoleverket*: this is a 'vertical' procedure, for the moment in a four year cycle (the first cycle runs over 1996 -1999). As an audit system – in the sense of the British quality audit – the object for the evaluation is not the quality as such in programmes, courses, research etc., but the nature and implementation of higher education institutions' quality enhancement activities. The teams that make up the external input in this evaluation consist of two or three well-established academic leaders, one person from industry or public administration and one student (from another institution than the one being audited). This new procedure is, together with the Dutch external evaluation procedure, the only one to involve students to such an extent.

There are no direct linkages between the results of the quality assurance system and the funding of universities.

9. United Kingdom

9.1 System characteristics

The higher education system in the United Kingdom (i.e. England, Wales, Scotland, Northern Ireland) nowadays has a unified structure. After the abolition of the binary line in 1992, all polytechnics, central institutions (Scotland) and a few colleges of higher education obtained university status. Today there are 52 'old' universities (36 in England, 6 in Wales, 8 in Scotland, 2 in Northern Ireland) and some 107 'new universities' (33 former polytechnics and 51 PCFC-colleges in England, 9 polytechnics/colleges in Wales, 14 central institutions in Scotland). More than 40 of the former polytechnics and colleges have changed their name to university. In total, there are over 180 higher education institutions, including a number of further education colleges, teacher training institutions and LEA-maintained institutions.

For UK students, a distinction can be made according to the level of the course taken. Undergraduate students have the intention of achieving a first degree (BA or national certificate). The Bachelor's degree takes three years of study (in Scotland four years). Some former polytechnics and colleges offer higher national certificates and professional qualifications, most of them after two years of study. Postgraduate courses lead to Master's and PhD degrees or postgraduate diplomas, certificates and a range of professional qualifications. The most common higher degree is the Master's degree, which can be distinguished into a taught Master's (MA, MSc, or MBA) degree (that can be obtained usually after one year) and a research Master's (BPhil, MPhil) - two-year - degree. Doctorate programmes, leading to a PhD-degree, usually take three years of research work.

There are three modes of attendance: full-time, sandwich and part-time. Full-time and sandwich students usually study more than 21 weeks per year. If one applies a weighting factor of 0.35 to part-time students, figures for 1994/95 show a number of enrolments of students based in the UK and other EC member states that stands at 1,313,800 (excluding Open University students). The number of students domiciled overseas, other than the EC, stands at 75.9 thousand. The total number of enrolments at UK institutions stands at 1,389,600 in 1994/95. This represents an increase of 43% between 1990/91 and 1994/95. 246,500 of these enrolments are at postgraduate level, 836,800 at first degree level, and 306,400 at other undergraduate level. The number of full-time enrolments is 907,400; the number of part-time enrolments is 482,200.

The rise in higher education enrolments is a prominent feature of the UK system. It has strongly been supported (even 'commanded') by the government. From 1986 on, the participation rate for the reference 20-24 age group rose from 22% to today's level of roundabout 33%. Expansion of higher education was far greater than expected in the Government's plans. In view of this, the Government announced a policy of 'consolidation' under which controls on the growth of student numbers would be applied in order to limit public expenditure. The Secretary of State has asked the respective funding agencies (Higher Education Funding Councils) responsible for

England, Wales, Scotland and Northern Ireland to control the number of students whose fees are compensated by Local Education Authorities (LEA's) and to limit the funds available for growth. This situation represents an example of the way the UK government has increasingly tried to steer its higher education institutions.

9.2 The budget of the institutions

Until 1992 the Universities Funding Council (UFC) and the Polytechnics and Colleges Funding Council (PCFC) were responsible for the funding of universities and polytechnics. In 1992, regional (i.e. for England, Wales, Scotland and Northern Ireland) independent, non-departmental Higher Education Funding Councils (respectively HEFCE, HEFCW, SHEFC and NIEC) were established. A Further Education Funding Council was installed for the colleges of further education.

Universities and colleges receive an annual grant from their Funding Councils that is largely determined by formula (see next section). The grants enable them to carry out teaching, research and related activities. Funds are provided in the form of a block grant. Institutions are free to distribute this grant internally at their own discretion, as long as the funds are used for the purposes for which they are provided. The rest of the Council (exchequer) grant is made up of an Equipment and Furniture grant and a grant issued by the Computer Board (now Joint Information Systems Committee).

The most recent and comprehensive statistics on the income of UK higher education institutions refer to the academic year 1995-96. The HESA finance record shows the following results for the English institutions (universities and colleges). The total recurrent income equalled £8,745 million. This total income came from a number of sources. The major part of the funds (41%), originating from the Department for Education and Employment (DfEE), was provided through HEFCE in the form of block grants (£3,553m). Income from tuition fees for regular students coming in through the Local Education Authorities (LEAs, which also originated from the DfEE) amounted £1,021m, which represented 12% of the recurrent income. The Office of Science and Technology distributed £446m through the Research Councils, representing 5% of the HEI's budget. The rest of the budget consists of funds coming from private sources, such as Other Research Income (£558m, or 6%), income from UK Charities (£290m, 3%), Overseas student Fees (£431m, 5%), Residences and Catering (£595m, 7%) and Other Income (£1,851m, 21%). This latter category can be subdivided into Other Fee Income, particularly from part-time students (£667m), Income from Non-Research Services (£394m), Endowments (£216m) and finally Other Operating Income (£574m).

On the subject of tuition fees, we mention that in 1990/91 the balance in public funding was shifted from the cash-limited recurrent grant to tuition fees to encourage institutions to recruit more students. In 1991/92, the uniform fee level was replaced by three band levels, rewarding recruitment for laboratory/workshop and clinical courses over classroom based courses. To slow down expansion, in 1993/94 tuition fees were pegged at 1992/93 levels and those for classroom based subjects were reduced by 30 per cent. Government funding to compensate institutions for this lost fee income was transferred to the Funding Council's recurrent grant. In 1994/95 tuition

fees were reduced by 45 per cent to encourage consolidation of student numbers and - once again - an amount (£647 million) was transferred to the Funding Council's recurrent grant.

9.3 Funding mechanism

Below, we will discuss the calculation of the Funding Council's grants for teaching and research. Because the funding mechanisms of the different funding councils broadly look alike, we will here concentrate on the funding of universities in England, as carried out by the Higher Education Funding Council for England (HEFCE). The amount of funding distributed by the HEFCE is presented in table 9.1 for the most recent years.

Table 9.1: Recurrent grants for higher education (£ million)

	1995/96	1996/97	1997/98	1998/99
teaching	2270	2224	2380	2694
research	636	638	704	829
capital	353	173	*	*
other related funds	301			
non-formula funding		270	306	334
flexibility margin		14	15	10
total	3560	3319	3405	3867

* From 1997/98 onwards, capital funds are incorporated in the core-allocations awarded to the institutions.

The funds for teaching, research and related activities are largely formula-based. The formulae take account of the size and activities of individual institutions and the quality of their research. In distributing funds for teaching and research, the HEFCE aims to maintain diversity and increase opportunities, encourage efficiency in the use of public funding, to maintain and enhance quality, and to provide stability in the funding from year to year.

The formulae (to be described later on) were introduced in 1993/94. For the 'new' universities it replaced the 'competitive tendering' model that had been used for the funding of polytechnics from 1989 onwards. For the university sector, an experiment with competitive tendering in 1991/92 failed and was replaced by a 'core plus margin' approach (see below). In the tendering system the polytechnics were invited to place bids for extra student places, on top of the places already funded through the block grant. Institutions could determine their own prices (tariffs) per student (for the respective subject areas). Apart from the block grant and the extra funds received through tendering, polytechnics were allowed to recruit so-called fees-only students. These are students for which the institutions receive only tuition fees and no further council funding. Thus, competitive elements were introduced into the funding system. This met with a lot of criticism from the part of the institutions, although simultaneously it led to a considerable increase of enrolments in polytechnics.

In the period leading up to the abolishment of the binary divide, two research assessment exercises had been carried out in the 'old' universities, respectively in 1986 and 1989. These were executed

in order to align progressively the research component of the council grant with quality assessment ratings. In 1992 the third assessment took place, covering all institutions of the former UFC and the former PCFC. The results of this exercise (i.e. the quality ratings per academic subject area) were used as inputs in the new research funding formula.

We will now discuss the formulae used from 1993 onwards in the process of allocating funds to institutions. It is important to note that funds for teaching, funds for research and income from tuition fees are separate and independent parts of the institutional allocation. The formula for teaching funds is price- (or efficiency-) oriented, the formula for research is quality-oriented, and the 'formula' for tuition fees is volume-oriented.

9.3.1 Teaching

The HEFCE determines the available funds to be distributed for teaching from the overall amount available for higher education. This is subsequently distributed among institutions by using a so-called 'core-plus-margin' approach. In this approach the core is the part of an institution's grant for teaching that is based on the budget allocated in the previous year, thus providing financial stability. The core funding in the academic year 1997/98 makes up £2,346m, which represents 98% of the funds for teaching. The margin (£34m) represents the part of teaching funds intended for the funding of additional student places, the development of infrastructure and the support for specific initiatives in teaching. The margin is allocated on the basis of competition. However, also the core is indirectly affected by competition, as will be shown below.

The calculation of the core funds awarded starts with information provided by each institution on the distribution of its teaching funds and student numbers over the respective cost centers, the so-called funding cells. These cells are defined by 11 academic subject categories (ASC or fields of study), two modes of study (full-time & sandwich versus part-time) and two levels of study (undergraduate & postgraduate-taught versus postgraduate research). All in all there are 44 (11 x 2 x 2) funding cells. The academic subject categories are defined as follows:

ASC 1: Clinical subjects (e.g. medicine, dentistry, veterinary science)
ASC 2: Subjects and professions allied to medicine (e.g. nursing, social work)
ASC 3: Science (e.g. biology, physics, non-social psychology, agriculture)
ASC 4: Engineering and Technology (e.g. materials, electronics, mechanics)
ASC 5: Built Environment (e.g. architecture, planning, environmental technologies)
ASC 6: Maths and Information Technology (e.g. statistics, computer science, maths)
ASC 7: Management (e.g. business, accountancy)
ASC 8: Social science (e.g. economics, geography, law)
ASC 9: Humanities (e.g. languages, classics, history)
ASC 10: Art, Design and Performing Arts (e.g. drama, fine arts, music)
ASC 11: Teacher training and other Education

Because each institution is free to internally spend the Council grant over its cost centres, it is up to the institution to decide how much grant to allocate to each funding cell. The number of cells in

which any institution receives funding is determined by the mix of subjects and courses offered, the types of students taking the courses and the different levels of study. Now the Average Unit of Council Funding (AUCF) can be calculated for each institution, by dividing the amount of Council funding in each funding cell by the number of UK and EC students in that cell. Thus, the 'public cost' per student place can be compared between institutions for each funding cell, leading to a ranking of institutions. This allows a competitive element to be introduced.

The HEFCE in its policy statements stresses that the AUCFs should not be interpreted as representing the cost of teaching students in any particular category. They are a reflection of how each institution chose to spend its (current) grant within a constrained competitive process (for the next year's grant).

On the basis of the AUCF-outcome and its place in the ranking, the HEFCE decides how the institution's core funds for a particular academic subject area will be adjusted and how much it will receive in terms of margin (extra) funding. Core funding in each cell is affected by two factors:

- an upward adjustment to take account of the Government's estimate for inflation (2% for 1999-98) to produce inflated core funds;
- a downward adjustment, which takes account of the relative cost to the HEFCE (as measured by the AUCFs) of supporting teaching in that institution.

For each cell, cheaper institutions (those with lower AUCFs) are rewarded by receiving a smaller downward adjustment than more expensive institutions.[7] The adjustments are currently in the range of -0.5 to 3.5 per cent in cash terms. The efficiency gain (imposed on inflated core funds) is not only justified by the fact that institutions over the years can profit from rationalising their 'production process', but also is affected by the fact that the HEFCE has to limit grants in order to stay within the budgetary ceiling imposed by the Secretary of State.

Apart from the core funding, institutions receive a so-called margin funding. Margin funding is distributed in three components: by use of a formula, through 'core proposals', and through 'non-consolidated funds'. Originally the plan was to distribute part of margin funding on the basis of an assessment of teaching quality by the Funding Council. However, this plan was abandoned.

Formula-based margin funds are distributed competitively. The Council first decides on the amount of funds available and then the distribution of this sum between funding cells. Those institutions with the lowest AUCFs will receive the highest proportionate increase in their funds as margin funding. The sums of money are then converted into student numbers using the individual AUCF for each institution in each cell. These are then added to the current year's student numbers supported by the Council to determine the following year's student numbers. In the present period of consolidation there are no funds available to expand full-time student numbers. In addition, the Council has decided to provide no funding for growth in part-time provision in 1997-98 as well.

Margin funding through 'core proposals' is distributed to institutions that bid for additional student places in certain areas of teaching. Past examples include support for higher education in geographically remote areas and two year vocational diploma courses in science, engineering and

[7] In practice, a frequency distribution of AUCFs is constructed for each funding cell.

technology. Institutions can bid for money for core proposals in funding cells in which they are not currently active. The name ‘core proposal’ derives from the fact that funding allocated to institutions whose bids are successful is incorporated into their core funding for the following year. Additional full-time and part-time student numbers were allocated in 1997-98. £8m of the £2,380m core funding was for increases in part-time students in science and engineering and restructuring of initial teacher training. In addition to the core funding, £5.4m was allocated through bidding for funded places on high quality science and engineering courses, in areas of the country underprovided by higher education provision.

The part of margin funds that is supplied in the form of specific infrastructure funds is also called ‘non-consolidated funds’. It is supplied in some years to institutions in order to develop their infrastructure. These funds are distributed evenly to institutions in proportion to their core funds, but are not carried forward to the following year’s core. In 1997-98, the HEFCE awarded £ 34 in terms of ‘non-consolidated margin funds’.

As regards the funding contract between an institution and the Funding Council, we note that the latter expects institutions to teach a minimum number of students for the available grant. This is stated in a funding contract. The contract states the number of students for which core funds for teaching are provided and also states the number of ‘margin’ (i.e. additional) students. If an institution registers fewer than this number, part of the grant will be withheld according to the shortfall in numbers. Previously, a shortfall in one subject area could be compensated by an excess in another area. From 1994/95 onwards, institutions may also be penalised if they over-recruit students receiving publicly funded tuition fees. However, institutions are allowed to accept fees-only students on a cost-covering basis (primarily by taking in overseas students). For the year 1997-98 the total contract student numbers in terms of full-time equivalent students funded by the HEFCE was 879,000.

The funding contract also notifies institutions of the maximum numbers of award holders they may recruit: these are the maximum aggregate student numbers (MASN). This is the mechanism used by the Government to control the total amount paid by the Local Education Authorities in fees. The total MASN allocated in 1997-98 was around 737,000.

Since 1993/94, the Funding Council has engaged in quality assessment of teaching. This is achieved through a rolling programme of assessments by subject, which includes institutional visits. Where quality is found to be unsatisfactory, the institution is allowed up to 12 months to remedy the situation. An institution with a subject that remains rated unsatisfactory after two visits by the Funding Council’s assessors will have the relevant part of core funding (and student places) immediately or successively withdrawn.

9.3.2 Research

Public funds for research are provided under the dual support system: the Funding Council contributes to the salaries of permanent academic staff, premises and central computing costs, and Research Councils provide for direct project costs and make a contribution to indirect project costs. There are six Research Councils, funded by the Government through the Office of Science and Technology. They support research in their fields of interest, both in their own establishments

and in universities. In the period 1992-1995 funds were transferred from the Funding Council's block recurrent grant to the Research Councils to enable them to meet more of their direct costs and to contribute to the indirect costs (overheads) of their projects. As far as Funding Council (UFC or HEFC) funding is concerned, we note that, especially as a result of the research assessment exercises, research funds are tied increasingly to research productivity and research quality. These exercises, by means of peer review, lead to a rating of the different research subject areas. The assessments have led to a series of selected cut-backs and a reshuffling of research funds.

We will at this stage disregard Research Council funding, and now discuss the funding of research by the HEFCE.

The HEFCE is committed to promoting excellence in research. For this purpose, it allocated £704m in 1997-98 to institutions under two main headings:

- quality-related research (QR) funding;
- generic research (GR) funding.

Quality related funding concerns the predominant part of the funds (£684m, 97%); Only £20m was spent on GR.

For quality-related research funds the volume and quality of research is decisive. Sums of money are made available within each of 69 subject areas, also known as Units of Assessment (UOAs). The amount of QR-funds allocated to each institution within each subject is proportional to a volume measure multiplied by a quality measure:

Amount = Quality x Volume

The quality of research is established by peer review in a Research Assessment Exercise (RAE), conducted every three or four years. In 1996, the most recent research assessment took place. In the RAE each institution was awarded a rating, on a scale of 1 to 5. The research ratings are converted into a funding scale, ranging from 0 to 4.05. Ratings 1 and 2 attract no funding, while a rating of 5 attracts approximately four times as much funding as a rating of 3b for the same volume of research activity. The HEFCE can vary the relationship between the RAE ratings and the quality measure applied in the funding formula to make research funding more or less selective.

In order to devise a single overall unit measure, the volume of research is measured in each UOA using five separate components weighted as follows:

- research active academic staff (1 x number of full-time equivalent research staff)
- research assistants (0.1 x number of FTE research assistants)
- research fellows (0.1 x number of FTE research fellows)
- postgraduate research students (0.15 x number of postgraduate research students)
- research income from charities (0.25/25000 x average of two years' income from charities)

The data for these five components are updated annually, except for the data on research active

academic staff which are collected as part of the RAE. Research active academic staff is the most important measure of research volume, making up about 69% of the QR allocations.

The procedure for calculating the QR allocations to each institution is as follows. First the total volume of each unit of assessment is calculated, leaving out volume in 1 or 2-rated departments. Each of the units of assessment is then classed into three categories: high cost laboratory and clinical subjects; intermediate cost subjects; others; with cost weights of 1.7, 1.3 and 1.0 respectively. The amount of money for each unit of assessment is proportional to the product of the volume and cost weight, indicating target quanta. Then for each unit of assessment the funds are distributed between the individual institutions in proportion to their quality-adjusted research volume. Finally, the total QR funding for each institution is provided as the sum of the individual allocations calculated for each unit of assessment.

Generic research (GR) funds is a component of research funding that is targeted at encouraging institutions to bring in income from contract research. This income is called 'qualifying income'. GR was introduced only recently (1994); it came in place of a research component called Contract Research. The Contract Research (CR) component intended to reward an institution's success in attracting contract research income from outside sources (excluding Research Councils and charitable bodies), especially European Community research contracts. Moreover, by taking account of the overhead recovery rate, CR also rewarded institutions that were able to cover their overhead costs in doing contract research. CR was replaced by GR, which rewards collaborative research projects. Collaborative research is a type of contract research where the institution retains the intellectual property and publication rights to the related research. It therefore is research that does not have a single beneficiary and is regarded by the Government as important in its policy of wealth creation. The amount of GR available is distributed between the institutions in proportion to their qualifying income.

9.3.3 Other funding by the HEFCE

The HEFCE recognises that not all teaching, research and related activities can be adequately supported through formula funding. Therefore, apart from the recurrent funding for teaching and research, the HEFCE supplies other related funding for a wide range of purposes, including the additional costs of operating in the London area; liabilities inherited by institutions previously under local authority control; copyright libraries; museums, galleries and collections; and minority subjects. This type of non-formula funding concerned £321m in 1997-98, some 9% of the recurrent funds supplied through the HEFCE. These funds are reviewed regularly and, wherever appropriate, are either phased out or incorporated into formula-based allocations. Within this budget, £15m was available for special initiatives (e.g. continuing education, library developments, special programmes), transitional arrangements and non-formula funding research initiatives in 1997-98.

The Funding council also funds capital expenditures, to help institutions maintain and develop their estate (land and buildings) and their equipment. Formerly, capital grants were provided separately from other recurrent grants. However, since 1997-98, capital grants have been incorporated in the core-allocations awarded to the institutions. These funds may be used by the

institutions for estates expenditure and equipment purchase, and - from November 1994 on - also to service loans for new capital projects.

9.3.4 Developments

Funding higher education in the UK has undergone quite a lot of changes in the past decade and a half. The current 'grip' of the government on its higher education sector represents a major change from the autonomous (some would say: elite) status of (especially) the university sector in the years before the Thatcher-regime. The government has introduced competition among institutions, called for improved information on the quality of teaching and research, and especially required value for money in the use of scarce public resources. Thus, accountability and efficiency were (and still are) the key words in education policy. Between 1989 and 1994, public funding per student was reduced by 30 per cent, but because enrolments increased by 50 per cent during these years, the income of the institutions increased. From 1995 onwards, the government continued the reductions on funding per student but also put a cap on any further expansion in student numbers.

The role of the funding councils in these matters has not been confined to financial planning and provision of funds, but also was extended to the area of quality assessment. In research funding a high priority is given to selectivity, rewarding quality. The funding of teaching is aimed at providing stability (through a core plus margin approach) to the institutions and - at the same time - forcing them to drive down the cost per student. Although many of the policy instruments used (still are) met with a lot of criticism, evidence suggests that quality has been maintained.

When the government expenditure plans at the end of 1995 indicated a further annual reduction of funds, at least until the year 2000, many universities threatened to induce supplementary student fees of their own in order to remain solvent while providing higher education of satisfactory quality. This was the background against which the Dearing Committee was set up in February 1996. Their major task was 'to make recommendations on how the purpose, shape, structure, size and funding of higher education, including support for students, should develop to meet the needs of the United Kingdom over the next 20 years.' The results of the Dearing Committee and the proposals to introduce a general tuition fee of £1000,- to be paid by the students themselves will be discussed later on.

In addition to the Dearing Committee, a number of practical problems with the current funding formula made that the HEFCE came up with proposals to apply some changes in the funding method for teaching and research in 1996.

Problems with the funding system focus upon the size of the 'efficiency gain' and the unavailability of sufficient and realistic funds (Margin Funds) for additional student places. Because of the prominent role played by the AUCF in allocation decisions, it is very important for institutions to make good calculations of the cost for each type of student, per subject, level of study, and mode of attendance. This poses some problems, especially where presenting the relative cost of full-time students versus that of part-time students is concerned. Making teaching funds depend more on performance (output), instead of costs (inputs) would lead attention away from this. However, in turn this would require a thorough revision of the study programmes and the institutional organisation.

There is also criticism from the part of those institutions that do not have sufficient facilities

(buildings, etc.) to teach additional students. What's more, additional student places are funded against the institution's own AUCF. Therefore, institutions have little means to actually 'invest' in improvements of teaching quality. A side-effect of the system of quality assessment in teaching and in research concerns the cost and bureaucracy surrounding evaluations of this kind.

In order to provide some solutions for these and other problems, the HEFCE proposed a new funding method for teaching as well as for research. Concerning the funding method, it proposed to establish four basic levels of resource, which will determine standard prices. Variations from these prices will be permitted for a variety of agreed factors, like study-mode, student characteristics and institutional factors. To help institutions estimate the number of FTE students enrolled, a national credit unit system will have to be developed. This way of funding would enable the HEFCE to identify institutions that were underfunded previously and those which were overfunded. Their present funding would be compared with the funding due under the model, and adjustments made over an agreed period.

In addition, the HEFCE proposed to change the funding formula for research. It considered a block grant, which institutions can use at their own discretion. Institutions must account for their use of research funds in annual reports to the HEFCE. A number of principles will be applied in the distribution of funds, First of all, quality and selectivity as measured by the Research Assessment Exercise will be used as a basis of competition. Second, a balance has to be found between various objects. Third, the Council wishes to be one of the many funding sources for research, next to other funding agents. Fourth, the HEFCE seeks to allocate its funds in ways that are consistent with the institutions' research missions. Finally, the allocation of funds must serve the national needs. The major characteristics of the new funding mechanism should be competition, diversity in research subjects, stability and continuity as well as flexibility, and finally transparent and workable for the institutions.

These proposals have been part of the public debate on funding of higher education. However, the Dearing Committee, which reported in July 1997, attracted most attention in the public debate. Its report was particularly concerned with the question of the immediate threat to the quality of higher education if additional funds are not forthcoming. Dearing therefore examined the long-term prospects for bringing new funds into higher education. It was found that the only realistic source for the kind of funding that is needed was the students and their families. In particular, those with higher education qualifications were considered to be the main beneficiaries from higher education in the form of improved employment prospects and pay.

The new Labour Government accepted the Dearing analysis and came up with its own proposals. First it said that students have to pay tuition fees up to £1000 per year, depending on parental income. In addition, tuition should be free for students from lower income families. These ideas have been worked out and are implemented starting from the academic year 1998-99. Furthermore, the additional costs should be balanced by increased loans which have to be repaid through an extended time-scale. From 1999-2000 onwards, student support will consist of student loans only. Finally, the repayment of loans will be income contingent and reimbursed through the tax-system.

9.4 University income from other activities

In section 9.2 it was already shown that the higher education institutions receive funding from many different public and private sources. Table 9.2 (next page) provides insight into the various sources of income of English HEIs. Based on this information, apart from the regular funding of HEIs, the relative importance of other activities can be indicated. It has to be mentioned here that the fees charged to regular full-time students were paid by the Local Education Authorities (LEAs) and thus made part of the regular governmental funding structure of institutions until 1997-98. Starting in 1998-99, regular students will have to pay for tuition fees themselves. The additional income of institutions can be separated into five categories.

First of all, English HEIs are allowed to attract additional students on top of the minimum target number of student places for which the institution gets its regular funds (core plus margin funding from HEFCE). However, the additional students have to be fees-only students that pay tuition fees at a cost-covering rate. Most of these students come from overseas. In total, the fees paid by these students make up almost 5% of the total income of the institutions. In addition to that, part-time students are obliged to pay tuition fees which are not taken care of by the LEAs. They do not have to pay a full cost-covering rate. But still, the revenue of institutions from these is about 3% of their total income. Finally, institutions derive income from tuition fees for non-credit bearing courses and further education non-advanced courses, from teaching students from other institutions and from grants made by research councils and other bodies in support of the training of research students. In total, almost 3% of the income of the institutions come from these types of fees.

From the perspective of research income for activities which are not funded by the regular research grants coming from HEFCE and the Research Councils, a number of other sources can be identified. First of all, over 3% of the institutional income comes from UK based charities, including research grants and contract income from all charitable foundations, trusts, etc. Furthermore, institutions derive over 6% of their income from other research activities funded on a temporary (contract) basis by UK government bodies at central and decentralised level and from UK health and hospital authorities. Grants from UK industry, commercial companies and public corporations determine almost 2% of institutional revenues, while EU sources cover over 1%. Still 1% of total income comes from research activities funded by non-EU overseas commissioners and other principals.

Contract teaching activities and other services rendered by English HEIs make up 4,5% of their budget. These include all validation fees for courses such as run by other institutions, income in respect of the provision of Teaching Company Schemes, all grants for teaching and other non-research services for government bodies, health and hospital authorities, industry and other firms, EU and other overseas organisations.

The fourth category of income concerns money institutions derive from sources for all kinds of activities, like catering and residences, organising conferences, selling specific services to local authorities or health authorities (including the funding of any employees of the institution, including some posts in academic teaching), etc.

Finally, institutions may take part of their income from endowments, like investments (for specific purposes) and interest received on net surpluses. This determines about 2,5% of their budget.

Table 9.2: The income of English universities and collegeges by source (in £ million)

Source of income	1994-95		1995-96	
	amount (£m)	as a % of total income	amount (£m)	as a % of total income
HEFCE (originating from the DfEE)	3512	42,9%	3553	40,6%
LEA Fees (originating from the DfEE)	989	12,1%	1021	11,7%
Other Fee Income	905	11,0%	1098	12,6%
overseas student fees	*386*	*4,7%*	*431*	*4,9%*
part-time fees	*218*	*2,7%*		
non-credit bearing course fees	*144*	*1,8%*		
other fees & support grants	*157*	*1,9%*		
Research Councils (Office of Science and Technology)	417	5,1%	446	5,1%
UK Charities	268	3,3%	290	3,3%
Other Research Income	517	6,3%	558	6,4%
UK government bodies, health & hospital authorities	*193*	*2,4%*		
UK industry, commerce and public corporations	*130*	*1,6%*		
EU sources	*115*	*1,4%*		
other overseas sources	*48*	*0,6%*		
other sources	*31*	*0,4%*		
Income from Non-Research Services	344	4,2%	394	4,5%
course validation fees	*10*	*0,1%*		
teaching companies	*14*	*0,2%*		
UK government bodies, health & hospital authorities	*87*	*1,1%*		
UK industry, commerce and public corporations	*60*	*0,7%*		
EU sources	*25*	*0,3%*		
other overseas sources	*8*	*0,1%*		
other sources	*138*	*1,7%*		
Other Operating Income	1041	12,7%	1169	13,4%
residences and catering	*546*	*6,7%*	*595*	*6,8%*
grants from local authorities	*2*	*0,0%*		
income from health & hospital authorities	*110*	*1,3%*		
released from capital grants	*17*	*0,2%*		
income from intellectual property rights	*3*	*0,0%*		
other general income	*362*	*4,4%*		
Endowments & Interest receivable	199	2,4%	216	2,5%
Total Income	8191	100,0%	8745	100%

Source: HESA finance record 1994-95 and 1995-96, English HEIs.

9.4.1 Organisation and funding of medical training

Only a limited number of universities (19 in the UK) have undergraduate clinical medical schools,

of which 12 have undergraduate dental schools. All medical training is provided in partnership with the National Health Service (NHS). In addition to that, universities provide most of the clinical and basic medical science research and universities' clinical academic staff contribute to patient care, particularly in the more specialised aspects of hospital medicine and dentistry.

University clinical academic departments are often situated in, or are very near, NHS hospitals. Dental hospitals are only found in association with dental schools. Most clinical teaching takes place in these 'teaching hospitals', often called 'university hospitals'. An important part of clinical teaching and training is also carried out in district general hospitals and in the community.

Health ministers have the responsibility, through the NHS, to provide facilities and access to patients for clinical teaching and research. Clinical academic staff employed by universities undertake teaching and research, but also provide services and care for NHS patients and have honorary NHS contracts for this purpose. But also the other way around, clinical staff of university hospitals employed by the NHS also contribute to teaching and research and normally have honorary university appointments. Some staff are jointly appointed by the NHS and the university. Health authorities and NHS trusts, which have a significant commitment to teaching, must appoint university members.

The sharing of staff time and facilities between the universities and the NHS is known as "*knock-for-knock*", which is a system of uncosted mutual assistance. However, these informal arrangements will break down as a result of new agreements between the universities and NHS within the framework of an improved sense of accountability and the introduction of more effective costing systems for both parties involved.

Universities undertake most of the basic medical research. Clinical research is expensive but it underpins the UK's high international reputation for academic medicine and dentistry. The relationship between universities and teaching hospitals is regarded crucial to this success.

Senior clinical academic staff employed by universities and holding honorary NHS consultant contracts are responsible for about 30% to 40% of the patient care provided by consultants in university hospitals. In dental hospitals, there can be an even greater input into patient care.

Clinical staff of universities is paid on the same scales as NHS staff in recognition of the crucial role they play in patient care. An essential feature of the partnership between the universities and the NHS is the substantial number of clinical academic posts and units that have been set up and funded by the NHS.

The funding of medical and dental education is complex. There are three main streams of government funding: the education department, the health department, and the Office of Science and Technology. This plurality of sources has advantages but also means a division of political responsibilities. The Department for Education and Employment allocates its basic funds through the HEFCE in the form of a block grant to each university. These funds are meant for teaching and research, just like the regular funding allocated to universities. The HEFCE funding for medical or clinical students is based on a fixed rate for each student. In the first years of study, the rate for medical undergraduate students is about £5.300, while in the later years, the clinical phase of the study the rate is about £12.000. These amounts per student are awarded to the universities running the medical programme. These resources are spent on the salaries of the clinical and other staff employed by the universities in medical and dental schools and on the facilities for teaching and research in clinical academic departments. In addition, university medical and dental schools benefit from tuition fees coming from the ministry through the LEA's

and in the future coming from the students themselves.

In addition to the research funding from the HEFCE, medical and dental research is also supported by the Office of Science and Technology, which allocates research grants through the Research Councils. In case of the medical and dental schools, most research grants are provided through the Medical Research Council.

The Department of Health, mainly through the NHS, provides money to university hospitals in the form of general resources, R&D contracts and Service Increments for Teaching and Research (SIFTR). Funds are allocated to meet the additional costs which university and other teaching hospitals incur as a result of providing facilities and support for clinical teaching and research. These special allocations to teaching hospitals are intended to enable them to compete with other general hospitals for healthcare contracts in the internal market. These funds enable these hospitals to be more generously staffed, so as to provide time for teaching and research. They also help fund special hospital facilities needed to cope with more complex cases, innovatory treatments and greater use of diagnostic and other testing facilities. The NHS also funds the universities by funding a number of clinical academic posts.

Apart from these general public funds, university medical and dental schools receive income from medical charities, industry, the EU, and other contracts. There is hardly any fee income paid by the patients themselves, unless it concerns private treatment via NHS routes, for example, if patients have fertility treatment.

All in all, patient care, clinical teaching and clinical research are generally carried out by clinical NHS staff with teaching responsibilities or by clinical academic staff with honorary NHS contracts.

Starting in the academic year 1998-99, students in a number of medical areas (nursery, midwifery and professions allied to medicine) will be solely funded by the NHS, and no longer by the HEFCE. As a result, part of the funds from HEFCE will be transferred to the Department of Health (NHS). However, HEFCE funding for research in nursing and professions allied to medicine will not be affected by the transfer.

9.5 Issues indirectly related to funding

9.5.1 Staff issues

The major expenditure category of higher education institutions concerns the payment of salaries of personnel. The structure of the personnel contracted at universities may therefore have a considerable impact on the level of expenditure. Personnel can be divided into different categories, such as different age categories, academic versus non-academic staff, by type of function (e.g. professors, lecturers, senior and junior researchers), etc. Here we will present information on some of these items as far as information is available. In addition, we will elaborate on the distribution of time between teaching and research related activities.

9.5.1.1 Characteristics of staff employed

Concerning academic staff, a distinction can be made by grades of employment, like professors, lecturers, etc. Table 9.3 provides insight into the distribution of academic staff according to their

academic position.

Table 9.3: Academic staff by grade, UK 1994-95

	Professors	Senior lecturers & researchers	Lecturers	Researchers	Other grades	Total
full-time	7424	18766	42925	26393	7144	102701
part-time	295	1099	4658	2715	3235	12020
Total	7719	19865	47583	29108	10379	114721

Source: HESA staff record, 1994-95.

From this table it can be seen that the Lecturers form the largest category of academics in British higher education, followed by researchers and senior staff members. This indicates a major involvement with teaching in British higher education institution. This distinction will be further elaborated on in the next section.

However, no data are available on the number of staff with tenured positions.

9.5.1.2 Academic staff by type of activity

From an international comparative study published by Enders and Teichler (1995), we can derive the time spent by academic staff on activities like teaching, research, administration, services and other activities. We have separate figures for the period when classes are in session (*term*) and for periods when classes are not in session. Table 9.4 presents the data.

Table 9.4: Percentage of time of academic staff spent on different activities

teaching		research		service/administration	
term	no classes	term	no classes	term	no classes
36	13	33	56	31	31

Source: Enders and Teichler, 1995.

We conclude that academic staff on average spends roughly equal amounts of time on teaching, research and other activities during term time. However, during vacation periods, they spend most of their time on research. If other activities are attributed to teaching and research, and if we take account of the duration of term-time and non-term time (7, respectively 4 months), we can calculate that academic staff on average spends 40 per cent of its time on teaching and 60 per cent on research.

9.5.2 Student related issues

9.5.2.1 Student choice and institutional funding

The institutional budget is partly influenced by the number of students. The funding contract between the institution and the HEFCE states that the institution has to teach a minimum number of students for the available grant. The contract states the number of students for which core funds for teaching are provided and also states the number of 'margin' (additional) students. If the

institution enrols fewer students, part of the grant will be withheld according to the shortfall in numbers. Institutions may also be penalised if they recruit more students for which they receive publicly funded tuition fees than the contract states. However, institutions are free to accept additional 'fees-only students' on a cost covering basis. The more 'fees-only students' they recruit, the lower their AUFC will be, which will have a positive influence on next year's budget.

9.5.2.2 Tuition fees

Up to 1997/98, the level of tuition fees were considerable in the UK, varying between £1.300 - £4.985, depending on the discipline. However, for British full-time students these fees were paid by the Local Education Authorities (LEAs), which implies that the students themselves do not have to pay. Other students had to pay the fees themselves or even a full-cost covering rate.

As a result of the Dearing Committee, the tuition system will be changed, starting in the academic year 1998-99. In principle, full-time students will be charged £1000,- annually, which they will have to pay for themselves. However, students from low-income families will be (partially) exempted from paying tuition fees. The students will get the opportunity to take out a loan for paying the fee. The repayment of these loans will be income contingent.

9.5.2.3 Access, selection and student support

Although governmental policy aims at enlarged participation, following higher education is regarded as a privilege. There is no such thing as a right on higher education and selection is rather rigorous. The number of applicants is about 430.000 annually, while only 250.000 places are available at the moment. Because of their autonomous status, the universities have responsibility for the selection of students. They decide on the criteria themselves, which even may differ from department to department. Decisions are made in a subjective manner and universities are not obliged to explain the reasons for admission or rejection.

To regulate admission and prevent that one applicant may hold more than one study place, a national admission system is in action. This national system also guarantees that all potential students are aware of the rules applied by all universities and that there is a standardised time schedule. The national system is also of importance to regulate participation in relation to the national funding mechanism. Government funds a fixed number of study places per university and study programme. If a university takes in more or less students than the number determined, this will have budgetary consequences. Therefore, a well functioning admission system is quite important. Practically all candidates have to compete for a study place through the selection procedure.

Student aid is provided in the form of grants (awards) and loans. Depending on the status of full-time student and on parental income, students may be eligible for *mandatory awards*. The maximum amount for independent students living in London is £2.105 annually and for students outside London £1.710. Students living at their parents' home may receive £1.260 at most. *Discretionary awards* are admitted to students not eligible for mandatory awards. For instance, if they are part-time students. Of the total number of students, 75% receive an allowance. In principle, no direct relationship is made between the provision of student financial support and the performance of students. However, students have to be enrolled in a full-time higher education programme in order to be eligible for financial assistance. Students who fail to pass all exams of

an academic year, are expelled from their institution and therefore are no longer entitled to any student support. As such, students indirectly have to meet a 100% annual study progress demand.

Student loans are available to all students. There are no income restrictions. Amounts differ for independent students living in London, independent students outside London and students living at home. These three groups may take up an annual loan of £2.035, £1.645 and £1.260 respectively. Only 41% of the students took a loan in 1992/93. However, at the moment (1997/1998) about 63% of all students takes out a loan. On top, students in severe financial need may apply to *Access Funds* or *Hardship Funds*, from which they may receive allowances. In practice, the total amount of grants and loans together is often inadequate to fund students. Students take part-time jobs and accumulate debts in the form of bank over-drafts.

In principle, students are supposed to receive a parental contribution. About 44% of university students benefit from living at university accommodations. For the former polytechnic students this is 17.5%. However, rents do not differ very much from rents for accommodation on the private market. Students cannot benefit from other social allowances.

As a result of the Dearing Committee, the system of student support will be changed for students who first enrol in 1998-99. For these students, the amount of grants will be substantially decreased and compensated by an increase in loan financing. In the academic year 1999-2000, all grants will be replaced by a system of loan-funding only. The repayment of loans will become income contingent. Graduates with an income above a certain threshold will have to pay 9% additional taxes over the additional income above this threshold. The amount of debt will annually be corrected on the basis of the Retail Price Index. Therefore, the real interest rate will be zero.

9.5.3 Quality assessment

With respect to the United Kingdom, we must limit ourselves to the pre-1998 situation, because the exact working plans and procedures of the new, unified quality assessment agency are not yet fully known. Between 1992 and 1998, two quality assurance systems were operational in the UK. One was a 'horizontal' quality assessment, along the same principles as in the Netherlands, but operated by the funding councils. The funding councils' involvement implied:

1) a focus on summary judgements (from 'excellent' to 'unsatisfactory') rather than improvement-oriented recommendations to the study programme. This was necessary, because the evaluation outcomes were used to inform budget decisions.
2) external reviews by semi-professional evaluation teams made up of academics on secondment to the funding councils and from former higher education inspectors. Students are not included in these teams.

The other system was the quality audit, a 'vertical' procedure to review the university's quality assurance mechanisms. This procedure was owned and co-ordinated by the association of the universities (CVCP). The emphasis in this audit procedure was on how the university discharged its responsibility to monitor and enhance the quality of its study programmes. Given this more or less managerial character, the external review teams did not contain students.

9.5.3.1 Implications of the quality assessment of teaching for funding

The quality assessment procedure regarding the quality of teaching may affect the funding position of institutions, or specific programmes at particular institutions. The HEFCE has a statutory duty to ensure that the quality of higher education is assessed in all the institutions it is funding. This is achieved through a rolling programme of assessments per subject, including institutional visits. Where quality is not approved, the institution is allowed up to 12 months to remedy the position. If the provision of education remains unsatisfactory, core funding and student places for that subject will be withdrawn.

9.5.3.2 Implications of the quality assessment of research for funding

Part of the research funds coming in are directly linked to the quality of the research conducted at each institution or departments of it. The quality of research is assessed by peer review in a Research Assessment Exercise (RAE) conducted every three or four years. The rating scores and the quality weights attached to each assessed unit during this RAE influence at what rate the unit will be funded for the period to come (the procedure has been described in more detail in section 9.3.2).

10. Comparative overview

In the preceding chapters of this report, a number of issues related to the funding of universities in eight West-European countries have been presented in detail. In this chapter we will provide a brief overview and draw attention to the major differences, similarities and trends. This chapter will be structured along the following lines: 1) public funding of universities, 2) university income from other activities, 3) the organisation and funding in medical sciences, 4) staff issues, 5) student related issues, and 6) quality assurance.

10.1 Public funding of universities

In almost all of the countries analysed, the higher education sector consists of universities and more vocationally oriented institutions. However, some variation can be identified concerning the relative importance of the two parts. In some countries, like Germany, Sweden and the United Kingdom, the university sector is the biggest sector, in other countries, e.g. Flanders and the Netherlands, the vocationally oriented institutions enrol the biggest share of the students.

In this study, we predominantly focused on the university sector. For some countries, a further distinction can be made between so-called public and private universities. However, in almost all countries where private universities are existing (France, the Netherlands, Portugal and Sweden), the private universities are also receiving substantial public subsidies or are even funded in the same way as public institutions, except for Portugal.

Concerning the level of public funding, it can be stated that in all countries direct government contributions constitute the major share of the funding of universities. Particularly because research is primarily executed in the university sector, the universities in most countries observed take the largest share of the public means available for higher education, as pointed out in table 10.1.

Table 10.1: The relative share of universities in the public budget available for higher education (excluding and including research grants from research councils)

	DK	Flanders	France[1]	Germ[2]	Neth	P	S[3]	Eng[4]
% of HE budget	48%	53%	63%	75%	62%		94%	100%
incl. research grants	68%	59%		78%	64%		96%	100%

Notes: 1) For France, the proportion of expenditure of universities in total higher education was taken.
2) In Germany the universities include *Medizinische Einrichtungen* and *Kunsthochschulen.*
3) Excluding expenditure for student financial support.
4) Since 1992, higher education in the UK is a unified system of universities and polytechnics.

In our study, the mechanism applied for allocating public funds to the universities has been studied in detail. In order to come up with a brief summary of the most important similarities and

differences between the funding models of the eight countries studied, the countries will be compared on the basis of the major general characteristics of the models. This comparison is shown in table 10.2.

Table 10.2: Comparative overview of the funding of universities in eight Western European Countries

	budget form	budget period	teaching and research	basis of funding for teaching	capital funds	different tariffs for teaching by subject group
Denmark	lump sum	1 year transferable	separated	output	separated	yes
Flanders	lump sum	1 year	separated (partly integrated)	input	separated	yes
France	lump sum	1 year	separated	input	separated	yes
Germany	line item budgeting	1 year	Grundmittel integrated	input	separated	no (no tariffs used)
Netherlands	lump sum	1 year	partly integrated	mix of input and output	integrated	yes
Portugal	lump sum	1 year	separated	input	integrated	yes
Sweden	lump sum	annual budget within 3-years contract	separated	mix of input and output	integrated in lump sum	yes
UK	lump sum	1 year	separated	input	integrated into current funds	yes (reductions per subject category)

Source: CHEPS, 1998.

From table 10.2 we can conclude that in most countries the universities receive their public funds by way of a lump sum (block grant). This means that they have relatively much authority on how to spend the public funds. However, this spending freedom has also to be put into perspective. Because the major share of university expenditure concerns the payment of salaries, and because the personnel structure is difficult to change, a big part of the university budget in practice is fixed. But as far as universities have the authority to make their own decisions on how to allocate their funds over various departments and tasks, they can actively attune their human resources policies towards their own strategies and goals. This statement does not hold for France, since most of the academic staff of French universities is directly selected, appointed and paid by the Ministry of Education.

Germany is the only country in which the allocation of funds is strongly regulated by the central authorities and earmarked to certain tasks and items. From that perspective, the spending

freedom of German universities is relatively small compared to other countries.

Concerning the budgeting period, it can be deduced from this table that in most countries the grants allocated to the universities are annually decided upon. This means that some variation will exist in the universities' budget every year. However, the variable part of the allocations is limited. The budget allocated to universities in most countries depends on changes in student and graduate numbers in preceding years. Therefore, the budget is roughly in line with the university's activity level, unless serious drops in student/graduate numbers occur. Nevertheless, general governmental saving measures can generate financial uncertainties on the institutional level.

Only in Sweden, contracts spanning three years are used in order to create relatively stable financial conditions for the institutions, but the final amounts of the grants still are determined annually.

In most of the countries analysed, the budget for teaching is determined separately from the budget for research. A major part of the research funds is distributed through the so-called research councils on a competitive basis. In Flanders, Germany and the Netherlands, the basic funds allocated to the universities comprise allocations which are simultaneously for teaching and research. This can be regarded as an expression for the interrelatedness of teaching and research in universities. In Flanders, the basic funds received by the universities are for teaching and teaching-related research activities. This latter category of activities takes about a quarter of this budget. In Germany, the *Grundmittel* universities receive are meant for both teaching and basic research. In case of the Netherlands, the funding model for teaching includes a purely teaching component and a so-called interweaveness part. This latter part of the basic funding allows for the fact that academic teaching and research to a large extent are intertwined. This part only covers about 13% of the basic funds. The major part of the basic public research funds, however, is determined separately, but, as in Flanders, the build-up of these funds does not prescribe the use of funds.

In Flanders, Germany and the Netherlands the universities can also apply for public research grants provided through the research councils. The size of this part of ('targeted') research funding can be deduced from table 10.1.

Keeping in mind that 'performance based' funding is one of the most important economic topics concerning higher education, it is surprising to see that still many countries employ an input-oriented funding model for teaching. Funding models are called input based, whenever the variation in public funds mostly depends on student and/or staff numbers. Output-oriented funding models focus on the number of degrees or credits awarded. Only the Danish funding model can be called output-driven, whereas the Dutch and Swedish funding formula integrate some input and output criteria. The English situation is a bit exceptional, because a university is basically paid according to the number of students. But by enrolling full fee paying students, institutions can lower the relative costs per student, which will have a beneficial influence on their rate of funding in next years. Thus, efficiency is rewarded in the funding system.

Whereas the funding for teaching is mainly input driven in most countries, research funding in most countries integrates more competitive and output oriented criteria. At least the funds allocated through the research councils are given to the best applicants of the tendering procedures.

Capital grants more and more are becoming integrated into the general block grants allocated

to the universities. This trend is in line with the trend of making universities responsible for their own infrastructure, like buildings and equipment. In a number of countries, the responsibility for maintaining capital goods has been transferred to the institutions in recent years. These policies form part of the general approach of giving universities more autonomy.

A final characteristic of the funding of universities, which received special attention in this report, concerns the use of differentiated tariffs for allocating public funds to universities. Here we aimed at getting an answer on how governments deal with the funding of class-room based and laboratory-based disciplines. Do they differentiate between expensive and cheap study programmes and how are such distinctions elaborated in practice? As can be concluded from our study, all countries analysed somehow make a distinction into cheap and expensive programmes. In the Netherlands, this distinction is rather straightforward by placing study programmes into two categories: cheap programmes, funded at lower rates per student and graduate, and expensive programmes, funded at a higher rate per student and graduate. In most other countries, a more differentiated tariff structure is used, allowing for different tariffs for up to 20 different disciplines (in Portugal) or 44 different funding cells (in England).

10.2 University income from other activities

Traditionally, universities in most countries have been mainly funded by the national governments. The degree of private funding is relatively low. Exceptions are the private universities, for instance in Portugal and the Grandes Écoles in France, which derive a substantial part of their income from tuition fees.

One of the major trends in the funding of higher education in Europe (even world-wide) is an increasing substitution of public funds by income from private sources. As national governments are reducing the relative funding level for higher education, universities and other higher education institutions are increasingly involved in getting income from other sources, e.g. generated through tuition fees or contract activities and consultancy.

Tuition fees are gaining importance in a number of countries and are being discussed in others. However, in countries where tuition fees are charged for publicly funded institutions, the rates are part of central regulation. Students can also be compensated for paying fees, e.g. through the national system of student support, like in Flanders and the Netherlands. In England, the Local Education Authorities fully compensated the tuition fees of regular students. However, from the academic year 1998/99 onwards, students have to pay the charges (of £1000 annually) themselves. Students from lower-income families are exempted from paying fees or are charged a reduced rate.

Although we did not focus on longitudinal data concerning the funding structure of universities in this study, it can be stated that universities are becoming more market-oriented. The involvement of universities with industry and non-profit organisations is growing. This results in a lot of so-called contract activities. Research groups more and more participate in tendering procedures, in which they actively seek externally funded research. In addition, the educational market is widening, particularly in the field of postgraduate courses. Therefore, universities are increasing their supply of postgraduate courses and modules which are ‘sold’ for profitable market prices. In addition, universities also try to expand their share on the strongly growing consultancy market. Individual academics and research groups are increasingly involved in selling

their expertise outside the universities.
However, as can be read from the previous chapters, the major part of the university budget still derives from the central and regional or local governments. The distribution of the revenues of institutions according to source is shown in table 10.3. It has to be noted that the percentages are calculated on the basis of our information on the budgets of the institutions and the income from other than core-activities. In some cases we had to make rough estimations.

Table 10.3: Major sources of income of universities as a percentage of total income (1995/6)

Source	DK	Fl	F	G	Nl	P	S	Eng
public funds	94%	ca.90%	60%	97%	70%	ca.95%	96%	57%
basic public funds	78%	ca.74%	-	84%	66%	-	82%	41%
research councils	16%	ca.16%	-	13%	4%	-	14%	5%
(tuition) fees	0%	ca. 5%	9%	0%	7%	ca. 2%	0%	24%
contract activities	3%	-	31%	3%	15%	-	4%	11%
other income	3%	ca. 5%	-	-	8%	ca. 3%	-	19%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: CHEPS, 1998.

Note: For Portugal the private universities are excluded.
Public funds can also include part of the tuition fees, as is the case in England. It has to be noted that other income may also include contract activities for governmental bodies at all levels.
- = no data available

Particularly in countries like Denmark, Germany, Portugal and Sweden, where no or hardly any tuition fees are charged, the income from external source still is relatively low. On the other hand, in countries where tuition fees play an important role, such as the Netherlands and the UK, the fees are fully paid (UK) or partly compensated for (NL) by the official authorities. In the case of France, it has to be reminded that the expenditure of staff employed by the government, which concerns the major share of all university staff (ca. 80%), is not included in the higher education budget. This is probably the most important explanation for the high level of income from fees and contract activities of French universities.

However, one has to note that the public research infrastructure, e.g. the existence of large public research organisations outside the universities, also have an influence on the shares of public and private funds of universities. Nevertheless, it can be read from this table that the British universities are the most market driven ones.

10.3 Organisation and funding of medical training

In many countries, the organisation and funding of training in medical sciences is rather complex. This is caused by a number of complicating circumstances. First of all, part of the training of medical students (the practical part) takes place in hospitals, often called university hospitals. In addition, medical doctors also take a role in teaching students, whereas medical academic staff have a task in patient care and scientific research, which partly takes place in hospitals. Even medical students have a role in patient care. Finally, university hospitals offer part of the teaching

infrastructure for students. These circumstances make the financial linkages between universities and university hospitals very complex.

Not for all countries included in our study, a clear insight into these relationships between universities and university hospitals could be given. However, the general impression is that on the one hand universities are paid for educating medical students at a relatively high rate. Part of these funds will be transferred to the university hospitals as a compensation for the use of specific facilities. On the other hand, university hospitals are generally funded at a higher rate as other hospitals, because they have to offer additional facilities for the training of medical students, for doing scientific research and for investing in expensive modern equipment and research experiments. Another interesting finding is that it is quite common in most of the countries observed that academic medical staff is partly employed at the medical departments of the universities and partly at the university hospitals.

10.4 Staff issues

Staff issues have been addressed in this report because it concerns the major expenditure item in the universities' budgets. The number of personnel and the distribution of staff over different categories may have a considerable impact on the relative level of expenditure of universities and on their flexibility to cope with changes in their environment. Differences in staff structure may give some rough indications for explaining differences between countries in terms of cost structure and the focus of the activities of universities.

Some characteristics of the staff structure have been addressed, such as the distribution over academic staff and non-academic staff, full-time and part-time staff, tenured staff and temporarily employed staff, and the time spent on teaching versus the time spent on research. As far as information is available, these items are addressed in table 10.4.

Table 10.4: Characteristics of the staff structure in West-European universities

Characteristics	DK	Fl	F	G	Nl	P	S	Eng
Academic staff	53%	56%	55%	44%	51%	60%	61%	-
Non-academic staff	47%	44%	45%	56%	49%	40%	39%	-
Full-time staff	80%	77%	-	61%	73%	-	-	87%
Part-time staff	20%	23%	-	39%	27%	low	-	13%
Tenured academic staff	80%	-	90%	-	73%	low	-	-
Temporary academ. staff	20%	-	10%	-	27%	-	-	-
Time spent on teaching	55%	-	57%	33%	47%	60%	44%	40%
Time spent on research	45%	-	43%	67%	53%	40%	56%	60%

Source: CHEPS, 1998.

From this table it is clear that the proportion of academic staff in most countries is a bit over 50% of total staff employed. The majority of staff is in full-time employment, ranging from 73% to 87%. As far as information is available, the relative share of staff holding tenured positions ranges between 73% to 90%. This implies that the human resources management of most universities is rather inflexible. In addition to that, quite some variation is identified concerning

the time spent on teaching and research. The time spent on teaching varies from 33% in Germany to 60% in Portugal.

10.5 Student related issues

Concerning the funding of universities, also some 'student related issues' are worth mentioning. First of all, we discuss to what extent choices of students may have an impact on the funding of universities. Particularly the importance of student numbers in the funding formula for teaching (and research) is important for this. This issue has already come up in our overview of the funding formulas in section 10.1.

Most of the countries analysed use an input-oriented funding formula. However, the relative role of students in this formula is not equally large in these countries. For instance, the university budgets of Belgium, Portugal, the UK and, since 1996, the Netherlands are primarily based on the budgets granted in the previous year. Here, changes in student numbers are translated into budget changes.

In the case of France, the Netherlands (pre-1996) and Sweden, university budgets vary along with the number of students enrolled (within the official duration of studies).

Three countries (partly) use an output-oriented funding method: Denmark, the Netherlands and Sweden. In Denmark, the public funding for teaching fully depends on the number of courses passed by students. The Dutch and Swedish way of funding represents a mix of input and output funding. In the Swedish funding formula, the tariff per student is about 15% higher than the tariff per full-time equivalent of credits earned. As a result, the number of students is slightly more important than the number of credits. However, the universities negotiate on a triannual basis the maximum number of students funded and the minimum amount of credits to be funded, which gives both the government as well as the universities some financial stability.

The second way in which student choices matter is that in most of the countries a sort of a tariff catalogue is used. As a result, the proportion of expensive and cheap students is translated into university budgets.

A third item by which student choice may have an impact on the income of universities is through tuition fees. Some countries do not charge tuition fees, Denmark, Germany and Sweden. In Portugal, students at public universities only have to pay a very low rate of tuition fees, but the rates at private institutions are substantial because these do not receive any public funds.

In the other countries analysed, students have to pay tuition fees. However in Flanders, France and the Netherlands, the level of the public grants to the universities stands in direct relationship to the amount the institutions receive from tuition fees. In the case of the French private sector, students have to pay almost full cost covering fees and thus, student choice matters. However, the French private institutions are very selective. They do not have a policy of increasing revenues by taking in extra students. In the UK, universities may benefit the most from charging fees. For regular full-time students, the tuition fees are paid by the LEAs and subtracted from the basic governmental grants. However, universities are encouraged to take in additional full-fee paying students (fees-only students), generating additional income and affecting positively the next year's level of public funding.

Finally, student support is generally considered to have some impact on the individual choice

to enter higher education or not. In this respect, the financial facilities provided to students to meet the costs of study (tuition, books, etc.) and the costs of living can have an impact on the demand for higher education. Particularly in countries where access is open for all who qualify for higher education and where student numbers determine the level of public funding, student support may indirectly influence the number of students and as such the level of grants allocated to individual universities. This is the case in Flanders, the French public universities and the Netherlands.

10.6 Quality assessment

On the topic of quality assurance, it can be stated that in all countries observed, a national system of quality assessment of teaching (and research) is in operation. Many countries use a system of self evaluation complemented with external peer review. The role of students in the assessment procedures is relatively small, but in most countries a few students and graduates are asked for their opinions by the external review committee.

The financial implications of the outcomes of the quality assurance process quite often are vague. In most countries, if the quality is repeatedly considered to be unsatisfactory, the government can withdraw its funding. In the UK, this linkage is explicitly made between the results of the quality assessments and the funding provided to the institutions. If quality is not approved, the UK institution will have to remedy the situation within 12 months, otherwise the core funding and/or student places will be withdrawn. However, in none of the countries, such measures have been taken yet. The mere threat is enough.

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