1 The Dutch higher education system

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In this chapter we describe the most important features of the Dutch higher education sector. We pay particular attention to those characteristics playing a prominent role in the remaining discussion.

1.1 Binary system

The Dutch higher education sector includes two different levels of education, *viz.* professional training (*HBO, Hoger BeroepsOnderwijs*) and academic training at universities (*WO, Wetenschappelijk Onderwijs*).[1] HBO-institutes offer 4-year programs at the Bachelor-level, and universities offer 4-year (for some disciplines 5-year) Master- and 4-year Ph.D.-programs.[2] Universities prepare students for independent scientific work in an academic or professional setting. HBO-programs prepare students to practise a profession and to enable them "to function self-consciously in the society at large".

In the wake of the Bologna-agreement[3], the Dutch government is preparing a plan to reform the degree structure in the binary system along the lines of the two-cycle Bachelor-Master system used in Anglo-Saxon countries.[4] As it stands, the plan entails the following important changes:

- Introduction of a two-cycle Bachelor-Master structure both at the HBO-institutes and the universities;
- The undergraduate Bachelor-program at universities of professional education takes four years and proposals for the length of the graduate Master-program should come from the universities of professional education themselves. Probably, the vocational Master-program will not be eligible for public financial support;
- A logical choice on the length of the Bachelor- and Master-programs at universities would be a 3+1 or 3+2 year structure. But differentiation in the length of the Master-program should be allowed. It is not yet clear to what extent Master-programs will be financially supported by the government;

[1] HBO-institutes are officially called universities of professional education. We use both names.

[2] More precisely, people who completed an undergraduate WO-program may use the title Drs. (Doctorandus), Ir. (Ingenieur) or Mr. (Meester).

[3] The Bologna-declaration can be downloaded from the web at www.unige.ch/cre.

[4] In 2000, the Education Council (*Onderwijsraad*) advised the Minister of Education on the implementation of a Bachelor-Master system in higher education. The report *Invoering Bachelor-Master Systeem in het Hoger Onderwijs* is available from the Internet at www.onderwijsraad.nl (in Dutch).

- In order to reflect the difference between HBO- and university-degrees, HBO-institutions will confer the Professional Bachelor degree and Professional Master degree, while universities will offer the following degrees: Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), Master of Arts (M.A.), Master of Science (M.Sc.), Master of Philosophy (M.Phil.) and Philosophical Doctor (Ph.D.).

1.2 Formal tasks

The Dutch Higher Education and Research Act (*Wet op het hoger onderwijs en wetenschappelijk onderzoek*, WHW), which came into force on the 1st of August 1993, regulates the role and activities of universities and HBO institutions.[5] Previous legislation assigned a central role to government, with an emphasis on regulation and planning. The new Act, which has its origins in the 1985 policy document "Autonomy and Quality in Higher Education", propagates the philosophy of steering from a distance and institutional autonomy. Detailed ex ante control by the government has been replaced by ex post control of a more general nature.

According to the WHW, the formal tasks of universities are:

- To provide academic education (both undergraduate and graduate training);
- To carry out scientific research;
- To disseminate knowledge to society.

The tasks of HBO-institutions are:

- To offer professional training;
- To carry out research relating to the education-programs.

The Open University is mentioned separately in the WHW. This institution provides vocational- and university-training in the form of distance learning.

1.3 Types of institutions

The WHW distinguishes between funded institutions (*bekostigde instellingen*) and designated institutions (*aangewezen instellingen*). An important distinction between funded and designated institutions is that funded institutions are eligible for financial support from the government, in contrast to the designated institutions. The funded institutions are listed by name in the WHW. The designated institutions are allowed by the Minister of Education to offer recognised training programs. In principle this designation is of unlimited duration, but the Minister could revoke the designation. Regular full-time students at funded and designated institutions are eligible for

[5] In addition, the WHW also applies to the academic hospitals, the Open University, the Royal Netherlands Academy of Arts and Sciences (KNAW), and the Royal Library.

student support. Finally, there are some privately funded institutions that offer higher vocational training programs but where students are not eligible for public support.

There are 13 funded universities, and one designated university (University of Nijenrode) in the Netherlands. And there are 66 universities of professional education of which four are designated.[6] Most institutions eligible for government support are funded by the Ministry of Education, but some receive their funding from the Ministry of Agriculture.

Funded and designated higher education institutions cannot freely decide on their location. They can only offer education in the city where they are established, unless permission is granted to deviate from this rule. Both the funded and the designated institutions have to fulfil requirements with respect to quality, registration, education, examinations and dissertations, and entry level. In addition, the funded institutions also have to obey rules in connection with planning and funding, personnel, the position and legal status of students and external candidates[7], and management structure. Rules in relation to titles (*e.g.* Drs., Ir. or Mr.) do not differ between both types of institutions. By-and-large, the designated institutions have (slightly) more autonomy.

The Minister of Education decides on recognition of training programs. Recognised programs are listed in the *Centraal Register Opleidingen Hoger Onderwijs* (CROHO). Private schools can only receive the status of designated institution when their programs are recognised.[8]

1.4 Funding structure

The public higher education sector receives financial resources from three pillars:

- The *first flow of funds* contains public core funding and revenues from tuition fees;
- The *second flow of funds* consists of project-based public payments allocated by the Dutch research council (NWO, *Nederlandse Organisatie voor Wetenschappelijk Onderzoek*) and the Royal Netherlands Academy of Arts and Sciences (KNAW);
- The *third flow of funds* comprises income from contract activities.

[6] It should be noted that the market for professional training has become more concentrated through scale increases (in 1985, there were 432 universities of professional education).

[7] External candidates (*extraneï* in Dutch) take examinations without having attended the institution as a regular student.

[8] Recognition is not the same as accreditation. At this moment, there is no accreditation system in use but the Ministry is considering to transform the current system of quality assurance into a system based on accreditation.

With respect to the *core funding flow*, the WHW distinguishes between funding of teaching and funding of research activities at universities. Teaching funds depend on the number of students and study performance. The public contribution to research activity is influenced by social and scientific needs, the profile of the university, and the quality of research. Public contributions are lump-sum amounts, so that institutions have the freedom to relocate their funds between various activities.

Several components of the core funding flows of universities are performance-based: core funding of teaching is partly connected to the number of graduates (50%) and the number of first-year students (13%), and core funding of research is partly connected to the number of Ph.D. dissertations and designer certificates. But the largest part of the core funds for research is predetermined. A more detailed description of the funding models for WO- and HBO-institutions is included in the Annex "Public funding of higher education in the Netherlands, performance-based models".

Table 1.1 shows the relative sizes of these flows in international perspective. From this small sub-set of countries, the picture emerges that core funding is relatively important in the Netherlands, while revenues from tuition fees and the second and third flow are relatively small (at least in the WO-sector).

Note that tuition fee payments refer to gross private contributions to educational costs. As students are often eligible for financial support from the government, net private contributions can be (substantially) lower. More on this in Section 1.7.

Table 1.1 Composition of revenues of the higher education sector, international comparison

	First flow (%)		Second flow (%)	Third flow (%)	Total (%)
	Core	Tuition fees			
Australia ('97)	48.2	14.7	5.6	31.5	100
Denmark ('97)	63.9	-	18.8	17.3	100
the Netherlands ('97)					
WO	72.1	5.5	3.4	19.0	100
HBO	69.1	17.1	-	13.8	100
UK ('97)	38.5	11.5	4.8	45.3	100
US ('95/'96)					
public	35.0	18.3	12.3	34.5	100
private	2.5	41.4	14.2	41.8	100

Note: WO stands for *Wetenschappelijk Onderwijs*, and HBO for *Hoger Beroepsonderwijs*.
Source: Jongbloed and Vossensteyn (1999), and own calculations.

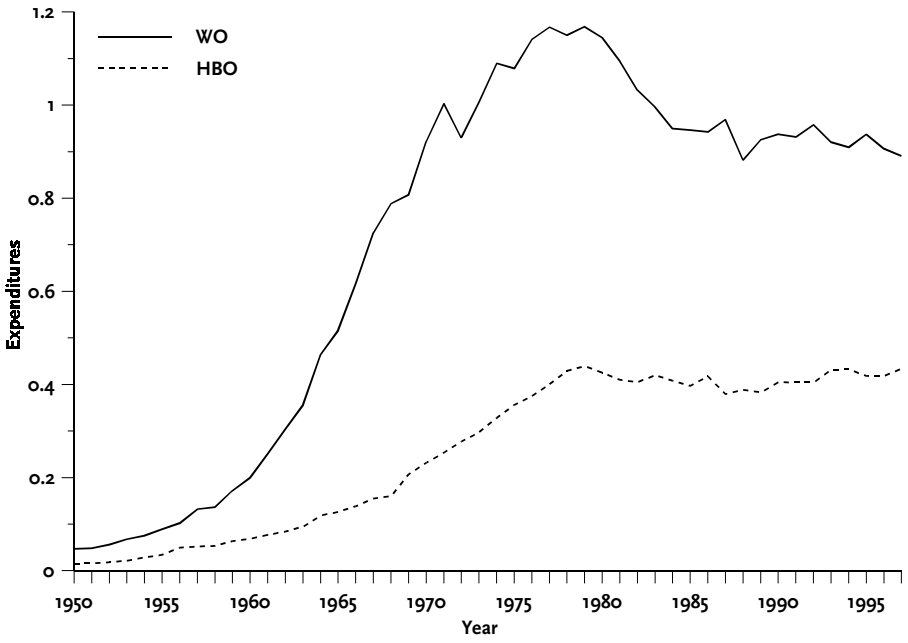
In connection with the *second flow of funds*, NWO acts as an intermediary in granting funds for separate research proposals submitted by individual researchers or research teams. Projects are funded on a competitive basis. Table 1.1 shows that project-based research council funds represent about 3% 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 1980s. It now represents about 19% of university income for teaching and research (excluding income from other services provided by universities). For the HBO-sector it is difficult to obtain figures for income from contract activities. Surveys reveal that it nowadays lies in the neighbourhood of 14% of their income.

1.5 Public expenditures on higher education

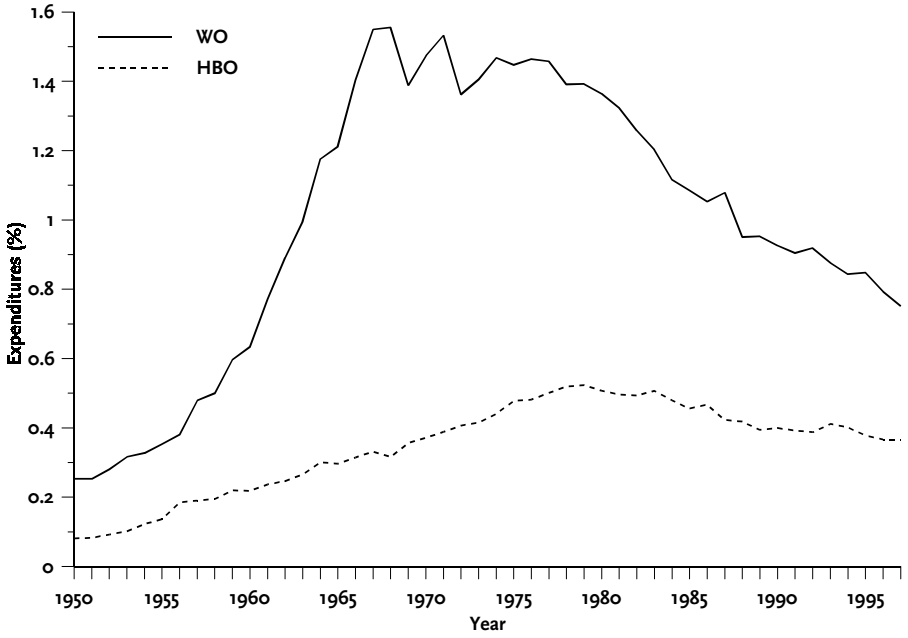
In Figures 1.1-1.3 we plot public outlays on higher education for the post-war period. Figure 1.1 shows real expenditures (in billions Dfl.), distinguished into HBO-level and WO-level. Total public expenditures have risen rapidly, especially during the sixties and seventies. Since the early eighties there is a clear change in this development. Real public expenditures on WO-training declined, and real public outlays on HBO-training were frozen. Figure 1.2 presents public expenses on HBO- and WO-training as a fraction of GDP. Relative outlays on university-training have sharply declined since the mid seventies, while relative public expenditures on HBO-training have slightly decreased since the early eighties. By-and-large, public expenditures on higher education have not kept up with GDP since the late 1970s.

Figure 1.1 Real public expenditures on HBO and WO (billion Dfl., CPI is 1 in 1950)



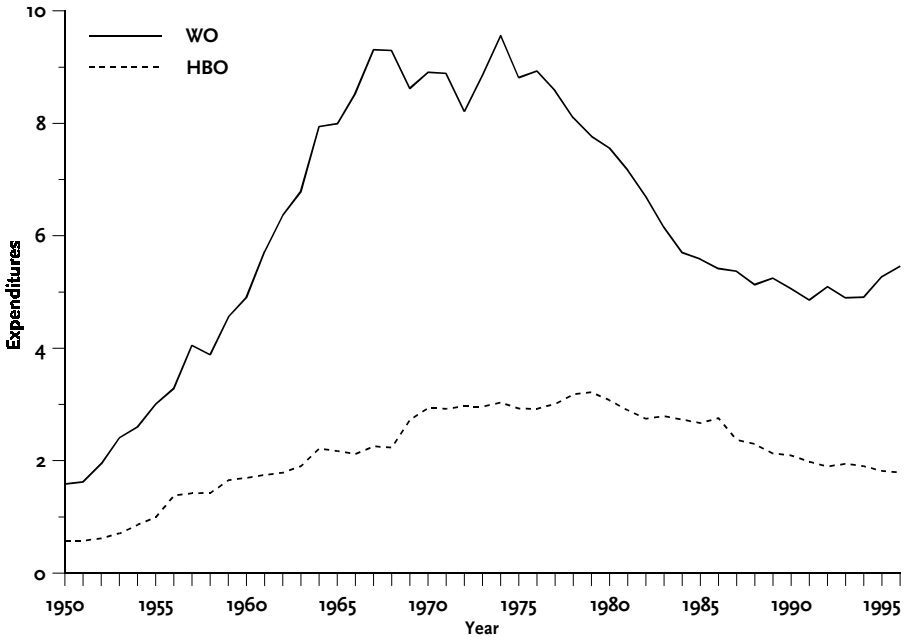
Source: Public expenditures on HBO and WO are obtained from CBS (1992), CBS-Statline, and OCenW (1999); The series for the Consumer Price Index is from CPB (1998) and CPB (2000).

Figure 1.2 Public expenditures on HBO and WO (% of GDP)



Source: Public expenditures on HBO and WO are obtained from CBS (1992), CBS-Statline, and OCenW (1999); Data on GDP are from CBS-Statline.

Figure 1.3 Real public expenditures on HBO and WO per student (thousand Dfl., CPI is 1 in 1950)



Source: Public expenditures on HBO and WO are obtained from CBS (1992), CBS-Statline, and OCenW (1999); Enrollment series are collected from CBS (1992) and CBS-Statline; The series for the Consumer Price Index is from CPB (1998) and CPB (2000).

Figure 1.3 shows the historical development of the average public expenditures per HBO- and WO-student. The inclusion of research expenditures is largely responsible for the substantial cost differences between a HBO- and a WO-student. A trend break occurred around 1975. Public expenditures per WO-student declined thereafter, but slightly recovered in recent years. And public expenditures per HBO-student slightly declined. This consolidation of public spending was supported by efficiency gains from the exploitation of economies of scale in the HBO-sector (see footnote 6).

To put these data in international perspective, we present figures on expenditures per student in a number of OECD economies in Table 1.2. These expenditures amount to an average of $10,893 per student in tertiary education for 29 OECD countries.[9] University-level training is more expensive than non-university forms of tertiary education. Average expenditures per student in the Netherlands is somewhat below the OECD average. This may partly be explained by the relative over-representation of (less expensive) students in humanities and social sciences in the Netherlands.[10] The second part of the table shows expenditures per student relative to GDP per capita. Again, the Netherlands are slightly below the OECD average and the US are on top with 59%.

Table 1.2 Expenditures on tertiary education, international comparison

	Expenditure per student (US $ converted using PPPs), 1997 Tertiary education			Expenditure per student relative to GDP per capita (%), 1997 Tertiary education		
	All	Vocational training	Scientific training	All	Vocational training	Scientific training
Australia	11,240	7,852	12,024	51	36	55
Denmark	7,294	-	-	29	-	-
the Netherlands	9,989	6,862	10,028	45	31	45
UK	8,169	-	-	-	-	-
US	17,466	-	-	59	-	-
OECD	10,893	6,765	8,252	49	34	47

Source: OECD (2000, pp. 94, 95).

1.6 Tuition fee policies

Tuition fees for regular full-time students are centrally determined by the Minister of Education and are uniform for all subjects in HBO and WO (in Dutch: *wettelijk collegegeld*). The tariff for

[9] We consider tertiary education and higher education as identical, see OECD (1998, pp. 425).

[10] About 40% of Dutch students attends a program in social sciences, against 25% in the EU; 11% of Dutch students is enrolled in engineering and architecture, while this is 15% in the EU (data from Eurostat).

regular students amounts to Dfl.2,874 (€1,304) in 2000/01. Table 1.3 shows that tuition fees have increased in recent years. The last two rows in the table show the tuition fee ratio, *i.e.* tuition fees as a percentage of the total direct cost of a higher education program. Relative private contributions have been fairly stable around 19% of average direct costs in the WO-sector, whereas the tuition fee ratio has gradually increased for HBO-programs.

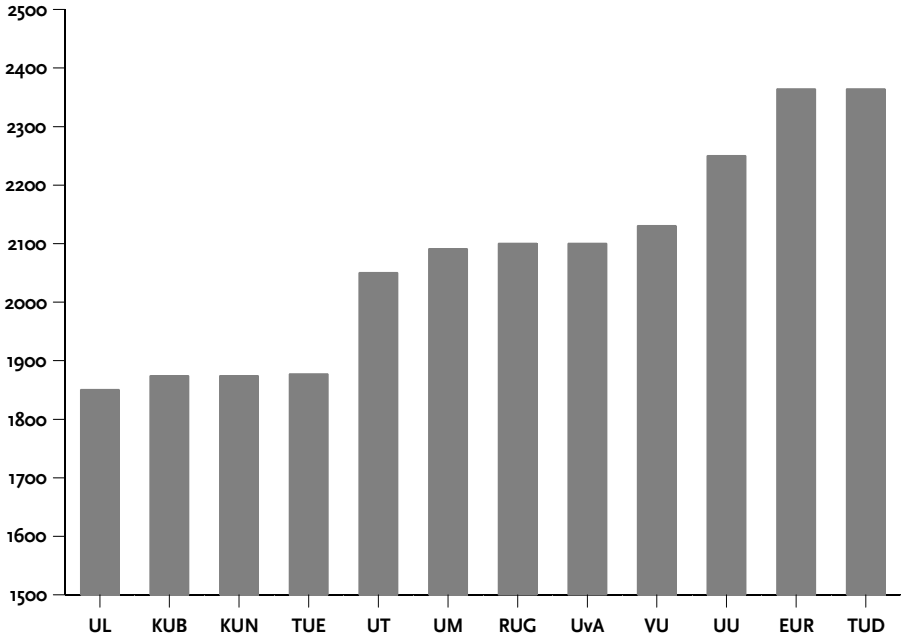
From September 1996 on, tuition fees for part-time students, students who have not completed their studies within the nominal length of study plus 2 years (6 or 7 years), and external candidates can be set by the institutes themselves (in Dutch: *instellingscollegegeld*). To see whether the institutions make use of this possibility for tuition fee differentiation, we plot the prices charged to part-time students at the 13 funded universities in Figure 1.4. Tuition price for part-time students is relatively high at Erasmus University Rotterdam and Delft University of Technology. These observations bring us to the conclusion that most universities make some use of the room for tuition fee differentiation. However, as shown by Jongbloed and Koelman (1999), HBO-institutions hardly use the possibility to set tuition fees beyond the minimum rates set by the government.

Table 1.3 Tuition fees for regular full-time students, 1994-2001

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Nominal fee (Dfl.)	2,150	2,250	2,400	2,575	2,750	2,816	2,874
Real fee (Dfl.)	2,150	2,217	2,333	2,452	2,567	2,572	2,561
Tuition fee ratio, WO	19%	18%	18%	19%	19%	19%	
HBO	18%	19%	20%	21%	22%	22%	

Note: The final two rows display tuition prices as a percentage of the average direct educational costs of a training program.
Source: The CPI is set at 1 in 1994; inflation data are from CPB (1998, 2000); Tuition fees and average direct educational costs are from OCenW (2000, 2001) and the homepage of OCenW (www.minocw.nl).

Figure 1.4 Tuition fee differentiation for part-time students at Dutch public universities



Note: Tuition fees (in Dfl.) refer to the academic year 1999/2000; Abbreviations have the following meaning: Universiteit Leiden (UL), Katholieke Universiteit Brabant (KUB), Katholieke Universiteit Nijmegen (KUN), Technische Universiteit Eindhoven (TUE), Universiteit Twente (UT), Universiteit Maastricht (UM), Rijksuniversiteit Groningen (RUG), Universiteit van Amsterdam (UvA), Vrije Universiteit (VU), Universiteit Utrecht (UU), Erasmus Universiteit Rotterdam (EUR), Technische Universiteit Delft (TUD). Source: Homepages of the universities.

1.7 Student support system

In 1986, a system of family allowances, tax facilities and means-tested grants was replaced by one system of direct financial student support through the introduction of the Student Finance Act. Although this system has gone through a large number of reforms, it still consists of the following three basic provisions:

- All regular full-time students at funded and designated institutions receive a *basic grant* for the nominal duration of a higher education program (4 or 5 years). As of the academic year 1996/97, the basic grant is called the "performance-related grant" because students receive it initially as a loan. If students show satisfactory academic performance, the loan becomes a grant.[11] The amount of the basic grant depends on the housing conditions of students. As of January 2001, the basic grant amounts to Dfl.147 (€67) per month for students who live with

[11] More specifically, students must meet the following performance requirements. In the first year, students must pass 50% of the exams, that is 21 out of 42 study points. If they meet this requirement, all initial loans become a grant. The initial loans students receive in the second, third, and fourth (and in some cases fifth) years, can be turned into a grant if they complete their study within ten years. Note that voluntary loans (*cf.* third provision) cannot be transferred into a gift.

their parents and Dfl.454 (€206) for students who live on their own. Students are free to take out less than the maximum grant to reduce the debt in case they do not meet the performance requirement;

- Students can apply for a *supplementary grant* when parental income is below some threshold (means-tested). This grant can only be received for the nominal duration of study (4 or 5 years). The supplementary grant is also subject to the performance requirements applying to the basic grant. Depending on parental income, the maximum amount of the supplementary grant is Dfl.431 (€196) per month for students who live with their parents and Dfl.467 (€212) for students who live on their own. Students are eligible for the maximum grant when parental income is below approximately Dfl.52,000 (€23,597);[12]
- Finally, students can voluntarily take up an interest-bearing *student loan* of at most Dfl.504 (€229) per month. The loans are not means-tested.[13]

Apart from the basic provisions, students are allowed to earn an additional annual net income of at most Dfl.19,500 (€8,849). Student support is reduced when they earn more. This arrangement also comprises a subsidy-element, as other groups receiving financial support from the government are not allowed to earn additional income.

Finally, students eligible for student support also receive a public transport pass, entitling students to free public transport either on working days or in the weekends (the days public transport is not for free, the transport pass entitles them to a 40% discount on all fares).

In a worst-case scenario, students could end up with a debt of approximately Dfl.90,000 (€40,840). After a grace period of 2 years, debts must be repaid within a period of 15 years with a minimum monthly installment of Dfl.100. If graduates have difficulties in repaying their monthly installments, they can ask for an annual means test. Based on that, monthly repayments can be reduced (even to zero). Any remaining debt after 15 years is acquitted. Loans are interest-bearing. As of January 2001, the interest rate is 5.18%.

1.8 Admission policies

There are some uniform requirements (set by the government) to enter higher education in the Netherlands. These admission criteria refer to the secondary school diploma: level (*HAVO* for HBO and *VWO* for university-training) and – sometimes – subjects chosen.

For university programs, an exception to this rule holds for medicine, dentistry, and veterinary science, where numbers are capped (a *numerus clausus* applies). For those subjects a lottery is used to ration places upon final exam scores. This lottery system, first adopted in the

[12] Modal income is approximately Dfl.56,000 (€25,412) in 2000.

[13] In case parent are not willing to contribute to the costs of study, students are allowed to take an additional loan.

1970s, has been heavily debated because in some occasions very talented students were not admitted. The ultimate question therefore is: should merit replace luck in gaining entrance to *numerus clausus* programs? As a result, a new selection system was implemented in 1999. The main difference with the old system is that all candidates with high grades in the final secondary education exams gain direct admission to the program of their choice. The other applicants will have to revert to the weighted lottery procedure. More recently, other changes in this weighted lottery procedure have been proposed. In particular, a small number of universities and HBO-institutions have been allowed to experiment with setting their own entrance criteria: they can allocate a small percentage of available places in study programs with a *numerus clausus* to applicants that pass specific entrance tests. In Chapter 4, we will return to this issue by looking at student selection within the US higher education system.

While there is hardly any selection of students at the moment of entrance, institutions have the possibility to give a negative advice on whether or not to continue at the end of the first year of registration. This advice can be binding at the discretion of the institution, implying that a student with a negative advice is no longer allowed to register for the program in question. This selection mechanism is actively used at Leiden University, where first-year students who pass less than 50% of their exams receive a negative advice. It is not known to what extent other Dutch higher education institutions make use of this selection opportunity, but anecdotal evidence suggests that HBO-institutions also make use of the instrument of binding advice.

1.9 Quality control

To assess the quality of teaching and research activities, the universities and HBO-institutions have set up a system of quality control. This quality control is carried out by the institutions themselves, in collaboration with external experts, through their representative bodies (VSNU and HBO-raad).

The quality of teaching in individual subject areas is assessed every six years in the university-sector and every four years in the HBO-sector. The assessments are based upon self-evaluations conducted by the faculties, reviewed by a committee of academic and professional peers that visit all institutions. On behalf of the Ministry of Education, the Inspectorate for Higher Education oversees the quality control system. To follow any actions taken as a result of the quality assurance reports, the inspectorate visits each institution. It has a role in ensuring that institutional quality control mechanisms are in place. If the Ministry feels that unsatisfactory actions have been taken by the institutions, it may withdraw its funding, although this rarely happens. Institutions (so far!) are not ranked, nor does something like an unofficial pecking order exist – at least not to the relatively uninformed outsider like a prospective student. The quality assurance reports of individual faculties are public. The reports are used by the

institutions and individual faculties (*e.g.* for public relations), and by students and parents to obtain information about particular programs or institutions.

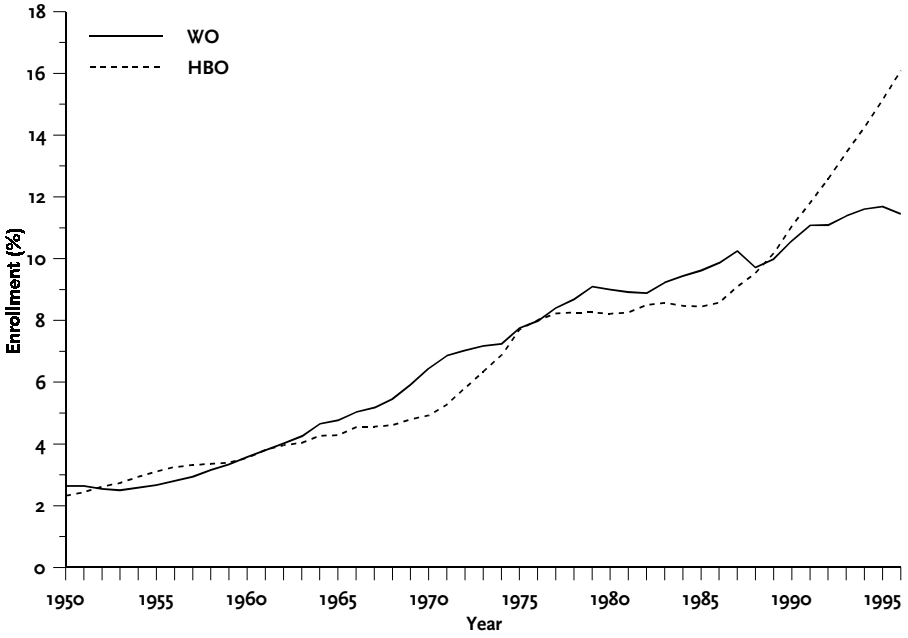
Research at Dutch universities is also subject to quality assessments through peer review. The review considers international benchmarks and the review panel usually has at least one international member (although, as is the case for teaching assessments, in practice this individual may come from across immediate borders). Although there are no direct financial rewards associated with a positive research evaluation, the ratings often do influence the internal budgeting process of universities.

1.10 Enrollment

In Figure 1.5 we plot student enrollment in Dutch higher education. Student participation in HBO-education has shown a gradual increase from about 2% of the age group 18-24 (26,000 students) in 1950 to approximately 16% (233,000 students) in 1996. Participation in university training has risen from 3% (29,000 students) in 1950 to 11% (166,000 students) in 1996. Note that student enrollment in university education was relatively stable since the early nineties, whereas HBO-participation has grown rapidly over the last ten years.

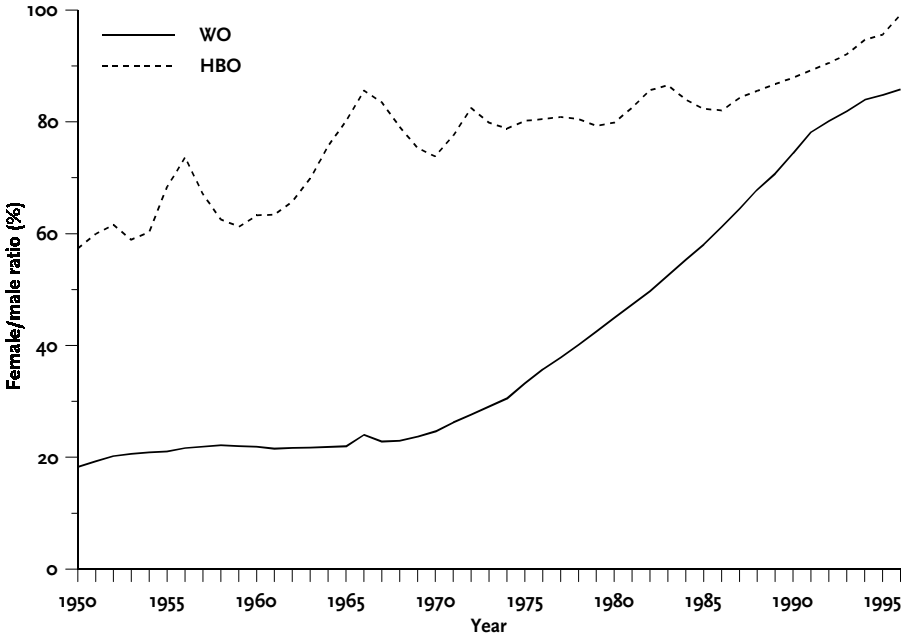
To further investigate the gradual expansion of the higher education sector in terms of student participation, we look at the gender-composition of the student population. Figure 1.6 shows the female/male-ratio for Dutch HBO- and WO-students over the past fifty years. The historical pattern of the participation of women in higher education differs between vocational and university training programs. Female participation in HBO has been larger than in WO. In 1950, the female/male-ratio was about 57% in HBO-education, compared with only 18% in university-training. By 1996, female enrollment was equal to male enrollment in HBO-training, and approximately 86% of male participation in WO. From these observations we conclude that the increase in student enrollment is largely generated by the catch-up of female participation rates to the level of male enrollment rates in higher education.

Figure 1.5 Student enrollment in HBO and WO (% of age group 18-24)



Source: The enrollment series are from CBS (1992) and CBS-Statline; The number of people in the 18-24 age cohort is available from CBS (1998).

Figure 1.6 Female/male-ratio in HBO and WO



Source: CBS (1992) and CBS-Statline.

Participation rates in tertiary education for the countries in this study are listed in Table 1.4 In the Netherlands we observe that 11% of the age group 17-34 participates in higher education, an intermediate position in international perspective. The enrollment rate is highest for the US, but systems of higher education are not perfectly comparable among countries so that we cannot draw any a priori conclusions regarding access to tertiary education. In fact, the level of some of the US colleges is comparable with intermediate vocational education in the Netherlands (*MBO, Middelbaar Beroepsonderwijs*). The 70% completion rate (the fraction of students completing their studies) in the Netherlands is of intermediate size.

Table 1.4 Participation in tertiary education, international comparison

	Net enrollment in tertiary education, age 17-34 (%)			Completion rate (%)
	All	Non-university	University	
Australia	14.9	5.1	9.9	65
Denmark	6.9	1.1	5.8	67
the Netherlands	10.7	-	10.7	70
UK	9.4	2	7.3	81
US	16.2	6	10.2	63

Source: OECD (1998, pp. 185 & 198).

Annex: Public funding of higher education in the Netherlands, performance-based models

Funding of universities

As of the year 2000, the Dutch university sector receives government funding according to the so-called *prestatiebekostigingsmodel* (PBM).

The PBM is a distribution model. The Minister determines the macro-budget for the university sector, and subsequently decides about the distribution of the macro-budget to the individual institutions. The two most important components of the macro-budget are:[14]

- Teaching component
  a. component for basic teaching facility (37%);
  b. component for certificates (50%);
  c. component for first-year students (13%);
  d. component for workplace veterinary medicine and workplace dentistry.
- Research component
  a. component for basic research facility;
  b. component for dissertations and designer certificates (*ontwerperscertificaten*);
  c. component for research centers (*onderzoekscholen*);
  d. component for excellent research centers (*toponderzoekscholen*);
  e. component for strategic considerations.

In 2000 the total budget of the Ministry of Education available for universities is Dfl.4,084.2 million. The Minister decides on the distribution towards teaching and research. The teaching component amounts to Dfl.1,461.6 million, and the research component amounts to Dfl.2,622.6 million.

- Teaching component
  From the total amount available for teaching the component for workplace (Dfl.51.4 million) is subtracted. The remaining budget (Dfl.1,410.2 million) is distributed as follows:
  - 37% for basic teaching facility, *i.e.* Dfl.521.9 million;
  - 50% for certificates, *i.e.* Dfl.705.1 million;
  - 13% for first-year students, *i.e.* Dfl.183.2 million.

  Next we describe how these amounts are distributed to the individual universities. To avoid large fluctuations in financial flows, funding is based on two-year averages of number of certificates

[14] In addition, there is a component for academic teacher-training, for academic hospitals, for allowance after dismissal (in Dutch: *wachtgeld*), and for investments.

and number of first-year students. A weight is applied to account for differences in costs of training programs. There is a low and a high tariff-group. Put loosely, alpha and gamma-studies belong in the low category and bèta, technical and medical studies in the high tariff group. The ratio used in the cost calculation is 1 : 1.5.

The component for basic teaching facility is distributed according to fixed amounts per university. This component is meant to guarantee teaching capacity independent of the number of students. In addition, it serves as an additional stabilising factor in the financial flows. This component has a historical base. Also the component for workplaces (veterinary science and dentistry) is allocated by means of fixed amounts per university.

The next table shows the distribution of teaching funds across Dutch universities according to this *prestatiebekostigingsmodel*.

Table 1.5 Funding of teaching, WO-sector (1999)

TEACHING mlj. Dfl.	Component for basic teaching facility	Component for certificates	Component for first-year students	Component for workplace	**Total**
UL	46.1	58.6	14	0	**118.7**
UU	72.1	100.8	23.6	35.5	**232**
RUG	50.9	84.4	19.2	0	**154.4**
EUR	29.2	51.9	15.3	0	**96.5**
UM	26.3	38.5	15.5	0	**80.4**
UVA	62.4	93.1	22.1	6.6	**184.2**
VU	41.3	59.9	16.8	6.1	**124**
KUN	41.4	65.6	13.7	3.1	**123.8**
KUB	16.4	31.5	8.7	0	**56.6**
TUD	68.3	57	17.7	0	**142.9**
TUE	37.4	32.2	8.9	0	**78.5**
UT	30.2	31.6	7.9	0	**69.7**
Total	**521.9**	**705.1**	**183.2**	**51.4**	**1,461.6**
	37% of 1,461.6-51.4	50% of 1,461.6-51.4	13% of 1,461.6-51.4		

Note: Abbreviations have the following meaning: Universiteit Leiden (UL), Universiteit Utrecht (UU), Rijksuniversiteit Groningen (RUG), Erasmusuniversiteit Rotterdam (EUR), Universiteit Maastricht (UM), Universiteit van Amsterdam (UVA), Vrije Universiteit (VU), Katholieke Universiteit Nijmegen (KUN), Katholieke Universiteit Brabant (KUB), Technische Universiteit Delft (TUD), Technische Universiteit Eindhoven (TUE), Universiteit Twente (UT).
Source: OCenW, www.minocw.nl/begrotin/finschema/hfd2.htm.

- Research component

  The government budget for public research comprises 5 parts. The component for basic research facility is based on a fixed amount per university. The component for Ph.D. and designer certificates is calculated from the number of Ph.D. dissertations and designer certificates per university (based on two-year averages). Two tariff groups are considered for

Ph.D. dissertations, a low tariff group (alpha and gamma) and a high tariff group (bèta, technical, medical). The ratio in the funding of low tariff dissertations, high tariff dissertations, and designers is 3 : 6 : 5. The component for research centers is allocated to the universities proportional to the sum of the component for basic research facility, the component for Ph.D. and designer certificates and the strategic consideration component (SOC, *component strategische overwegingen*) of the previous year. The component for excellent research centers is allocated by the Minister after consultation of NWO. The strategic consideration component is allocated on the basis of fixed amounts per university. This component is adjusted in order to implement PBM not involving additional expenditure for the universities. The next table shows the distribution of research funds across Dutch universities according to the *prestatiebekostigingsmodel*.

Table 1.6 Funding of research, WO-sector (1999)

RESEARCH mlj. Dfl.	Component for basic research facility	Component for Ph.D. and designer certificates	Component for research centers	Component for excellent research centers	SOC	**Total**
UL	34.6	34.9	9.2	8.9	150.8	**238.3**
UU	56	47.2	12.8	14.2	213.2	**343.5**
RUG	43.4	30.9	9.7	12.3	156.7	**253**
EUR	28.5	19.7	5.3	4.8	78.9	**137.2**
UM	20.2	13.6	3.8	3.1	75.3	**116.1**
UVA	52.7	41	11.9	12	186.3	**303.9**
VU	33	21.6	8	7.6	134.9	**205.1**
KUN	32.6	25.3	8.1	6.5	127.7	**200.1**
KUB	18	4	2.3	1.8	29.8	**56**
TUD	37	35.2	14.8	12.8	300.1	**399.9**
TUE	18.6	28	8	11	140	**205.7**
UT	18.7	23.3	6.2	5	110.7	**163.9**
Total	**393.4**	**324.8**	**100**	**100**	**1,704.5**	**2,622.6**

So the most important part of research funding is represented by the strategic research component. The name of this component is derived from the fact that the government seeks to fund "strategic" research, *i.e.* research relevant to society. This is where the quality criterion is coming to the fore. Although the Ministry of Education and the universities agreed that quality and social relevance are to play an important role in allocating this component, the universities took the view that a reshuffling of research funds would be a major intrusion on the university's autonomy. So far, the universities have been successful in avoiding any relocations. Therefore, this part of research funding is still mainly based on historical allocations (though over the years some additional allocations were made to relatively new or expanding universities). Thus, unlike teaching, most of the funds for research are not distributed on the basis of output.

From the 1998 budget on, an additional feature was introduced in the research funding model. 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. It was called the *breadth and depth* strategy. Through the first part of this compartment (the *breadth* compartment), universities were encouraged to continue on the road towards establishing research schools. So far, more than 100 research schools have been established. The aim of research schools is twofold:

- To have a structure in which researchers from different universities concentrate their research activities on certain (sub-) disciplinary fields;
- To locate the training of new researchers (Ph.D. students) in this structure. 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 (the *depth* compartment) was 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 in particular research areas. The underlying strategy for this component is to reward excellence.

The funds in connection with the breadth as well as the depth components were to be transferred from the strategic research component (*i.e.* the historic allocations described earlier). NWO, the Dutch research council, was to decide what research schools qualify for the depth support. Six research schools, all of them in natural sciences, were selected in 1998 as top research schools and qualified for additional support. This selection met with a lot of criticism, especially from the social sciences. The present (liberal) Minister of Education has abolished the depth strategy and decided to take another approach that was not targeted at large-scale research schools, but also to smaller scale groups, predominantly from the social sciences and humanities.

Funding of universities of professional education[15]

The funding model for the HBO-sector is also a distribution model with a fixed macro-budget. The allocation of the available budget to the institutions is based on the number of "education-demanding students" (in Dutch: *onderwijsvragende studenten*). The number of education-demanding students is calculated from:

$$owv = \frac{A \times NBA + U \times NBU}{Ja + Ju}$$

where:

owv	number of education-demanding students;
A	number of students and external candidates who receive a degree;
NBA	normative length of stay for students who complete their study;
U	number of students and external candidates who drop out;
NBU	normative length of stay for students who drop out;
Ja	number of years that students who complete their study have been registered at the institution;
Ju	number of years that students who drop out have been registered at the institution;

The Minister uses *NBA*=4.5 (years) as the normative funding period of people who complete their study, and *NBU*=1.35 as the normative funding period of drop-outs.

The total amount of funding is then calculated from multiplying the number of education-demanding students by a fixed reimbursement per student (for 2001 Dfl.9,850 for "p-programs" (*practicum-georiënteerd, e.g.* technical studies) and Dfl.7,615 for "g-programs" (*gamma-georiënteerd, e.g.* economics)).

[15] A detailed description of the HBO funding model is available from the homepage of the HBO-raad, www.hbo-raad.nl/beleidszaken/handboek/regelgeving/besluit.html.