

Swedish Universities & University Colleges 1997

SHORT VERSION OF ANNUAL REPORT

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HÖGSKOLEVERKET
National Agency for Higher Education

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SWEDISH UNIVERSITIES &
UNIVERSITY COLLEGES 1997

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Introduction

This summary of the *1997 Swedish Universities and University Colleges Annual Report* gives an outline picture of higher education activities in Sweden, in both quantitative and qualitative terms. The Report provides a basic description of the academic structure in Sweden, and the regulatory framework under the heading *Higher education in Sweden*. Subsequent sections of the report summarize developments prior to and including 1997 fiscal year and cover state, regional authority and private universities and university colleges. Analysis in the Annual Report is based on information obtained from a number of sources, including the annual reports published by Swedish universities and university colleges and statistics produced by Statistics Sweden.

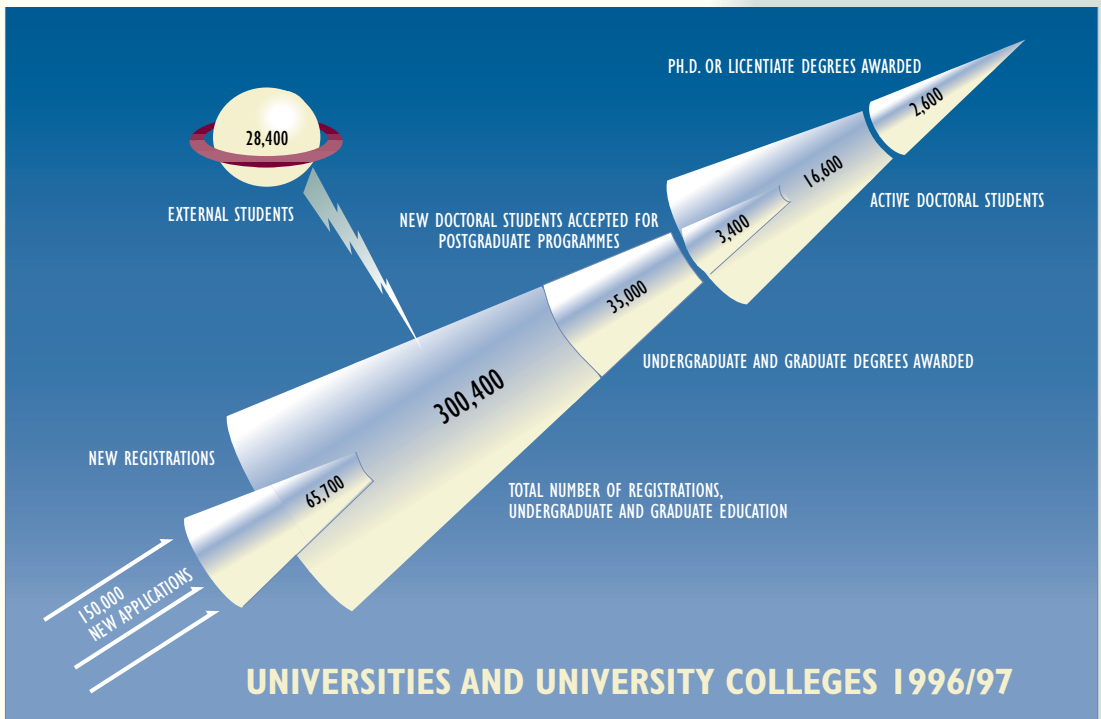


Fig. 1.

Higher education in Sweden

BRIEF RETROSPECT

The expansion of institutions of higher education

As in other countries, higher education in Sweden has expanded during the second half of the twentieth century. With more and more people having the opportunity to study at colleges and universities, higher education is no longer reserved for the few.

In the mid-1940s, higher education in Sweden was provided at the universities of Uppsala and Lund, at the university colleges of Stockholm and Gothenburg and at a number of specialized professional institutions of higher education in the fields of medicine, economics and technology. As the result of a number of consecutive central government commissions, higher education has then been subsequently expanded. The university colleges of Stockholm and Gothenburg became universities in the late 1950s. University branches were established in Karlstad, Linköping, Växjö and Örebro during the second half of the 1960s to absorb some of the powerful growth in the number of students. Universities were established in Umeå in 1965 and in Linköping in 1975. Higher education and research in the field of technology were established in Luleå in the early 1970s. The reform of 1977 transferred tertiary institutions and programmes in the fields of care and education to the higher education sector. At the same time a number of small and medium-sized institutions of higher education were established in various parts of the country.

More and more students in higher education

In the early 1950s, the number of students attending universities and professional institutions of higher education was 16,000. The number of new students enrolling annually was 4,000 and the number of degrees taken was 3,000 per year. (The data include postgraduate

students and are given in round figures.)

In the academic year 1996/97, there were 300,380 students in basic higher education. 65,700 of these were new students. The number of degrees taken was 35,000. There were 16,550 active postgraduate students. 3,400 of these were new to postgraduate studies, and 2,560 licentiate degrees and PhDs were taken.

At the same time, the growth in the number of students in higher education between 1950 and 1997 has varied greatly throughout the period. In the 1950s the number of students in higher education doubled. The greatest expansion occurred in the 1960s. At the end of the 1960s there were over three times as many students in higher education as at the start of the decade. The number of degrees taken also increased by the same proportion. The reform of higher education in 1977 extended the definition of higher education and the number of students increased still further. Following this, during the closing years of the 1970s and most of the 1980s, the number of students in higher education remained constant, on the whole. At the end of the 1980s a new period of expansion commenced which has continued throughout the 1990s. Between 1990 and 1997, the number of students in basic higher education increased by 55 per cent.

The reforms of 1977 and 1993

The higher education system has been reshaped by two comprehensive reforms in 1977 and 1993. In conjunction with the reform of 1977 practically all post-upper-secondary education was brought together under the overall concept of higher education. The volumes and location of higher education and the organizational structure of the institutions was then regulated in some detail by central government from 1977 to 1993. For instance, Parliament decided the number of student places to be allocated to every general study programme and institution of higher education.

In the early 1990s yet another reform of higher education was initiated. A new Higher Education Act and a new Higher Education Ordinance came into force on 1 July 1993. This reduced the detailed influence of central government and a decentralization of decision-making was implemented. The reform meant that central government—once it has laid down certain goals and guidelines that are mainly financial in nature—transfers decisions about the



Fig. 2. Swedish Universities and University Colleges run by central government, regional authorities and private interests.

orientation of the programmes of education in basic higher education to the institutions of higher education themselves in the form of three-year education assignments. Every institution of higher education functions as an admissions agency and takes decisions on the admission of students on the basis of certain general guidelines. An important objective of the 1993 reform of higher education was to give students a greater opportunity of choosing courses for themselves and combining them into a degree. A degree ordinance stipulates the degrees that may be taken.

A new system of allocating resources to basic higher education was introduced as of the academic year 1993/94. Institutions of higher education are now allocated resources based on the number of students registered and their academic performance rather than on the basis of the planned volume of education as was previously the case.

Also the organizational structure of national agencies in the higher education sector has been modified in the 1990s. Institutions of higher education answer directly to the government. On 1 July 1995, the National Agency for Higher Education was established as the national agency for matters concerning institutions of higher education. The agency has responsibilities in relation to follow-up and evaluation, issues of quality and educational innovation, supervision, protection of legal rights, study information and international matters within the higher education sector. The National Admissions Office to Higher Education is another central agency that is primarily funded by the institutions of higher education themselves. It coordinates the admission of students, looks after purchasing operations and provides legal advice. The National Board of Student Aid administers various forms of study support for students in higher education.

THE HIGHER EDUCATION SECTOR TODAY

In the fiscal year 1997 there were some seventy institutions of higher education in Sweden whose governing bodies were run by either central government, regional authorities or private interests.

In 1997, the state-run part of the higher education sector comprised 8 universities plus the Karolinska Institute and the Royal

Institute of Technology, 7 independent colleges of art and 17 university colleges including the newly-established University College of South Stockholm, as well as the Stockholm Institute of Education and the Stockholm University College of Physical Education and Sports. In addition higher education was organized on behalf of the Gotland College of Higher Education and the Organizing Committee for the University College of Malmö.

18 colleges of health sciences were run by county councils, as was the Ingesund College of Music.

Chalmers University of Technology, the Stockholm School of Economics and the University College of Jönköping were run by private sector governing bodies. There were also 10 smaller private institutions of higher education with the right to award certain degrees of basic higher education.

In recent years a number of colleges of health sciences have been incorporated into state-run institutions of higher education. In 1998 practically all colleges of health sciences are expected to be incorporated into state-run institutions of higher education.

RULES RELATING TO BASIC HIGHER EDUCATION

The higher education reform of 1993 meant that the general programmes (lines) of education that were previously laid down by Parliament were abolished. Central government no longer determines the number of places for new students in each programme. Instead, each institution of higher education itself now determines what programmes of education it will provide and the study organization appropriate for each programme. This is done within the framework of what is known as an educational assignment. This is determined by Parliament for each institution of higher education. The educational assignment stipulates results of the institution of higher education expected by central government over the coming three-year period and the financial resources available. The actual disposition of the resources allocated is decided locally.

As of 1 July 1993, all basic higher education is provided in the form of courses. These may be linked to constitute a programme of education with a varying element of individual choice. Students

themselves are also able to combine different courses into a degree.

In a degree ordinance, the Government has laid down which degrees may be awarded and the objectives for these degrees. Every course and programme of education has a plan decided by the institution of higher education in question. Degrees in basic higher education are divided into general degrees and professional degrees.

General degrees

A Master's degree is obtained after studies totalling at least 160 credits (the equivalent of four years' full-time study), of which 80 credits must be in the major subject. The major subject must also include one thesis comprising at least 20 credits or two projects of 10 credits each.

A Bachelor's degree is obtained after studies totalling at least 120 credits (the equivalent of three years' full-time study), of which 60 credits must be in the major subject. The major subject must also include one thesis comprising at least 10 credits.

A University Diploma is obtained after studies totalling at least 80 credits.

Professional degrees

In addition to the general degrees there are some fifty professional degrees for which specific objectives are stated in the Degree Ordinance. Medical qualifications, engineering degrees, and agronomics degrees are examples of such professional degrees.

Admission to basic higher education

To be admitted to basic higher education the applicant must satisfy the basic eligibility requirements, which are the same for all courses or programmes of education. Basic eligibility is earned by completing an upper secondary school programme and obtaining a pass grade or better in courses comprising at least 90 per cent of the upper secondary credits required in the programme, or by providing proof of an equivalent level of knowledge. People who are at least 25 years

old, who have been in work for four years and who have a command of English and Swedish corresponding to that obtained by completing a national upper secondary programme are also considered to have basic eligibility.

Most courses and programmes of education also have course eligibility requirements that vary depending on the subject area and the type of course. Course eligibility requirements in courses open to new students are set out in the form of standard eligibility requirements. The National Agency for Higher Education determines these for programmes leading to a professional degree in accordance with the Degree Ordinance. Standard course requirements are set locally by the institution of higher education in question.

If the number of qualified applicants for a course or a programme exceeds the number of places allotted for new students, a selection process is necessary. At least a third of the places must be allocated on the basis of upper secondary grades, and at least a third on the basis of the national scholastic aptitude test in combination with work experience. The national scholastic aptitude test measures knowledge and skills of importance for successful studies in higher education. In addition to grades and the national scholastic aptitude test, selection from qualified applicants can also be made on the basis of previous training, work experience or special tests, such as interviews or tests of skill.

Study funding

It is possible for students to obtain state support to finance their studies in higher education. This support consists of study grants and study loans in combination. To obtain financial support for studies certain requirements must be met. If students have an income, the amount of support may be reduced. To receive study support over a period of years, students must pursue their studies with a certain rate of success. In 1997, the grant portion of study support for an academic year nine months amounted to 17,700 kronor and the loan ceiling was 46,000 kronor. The maximum total available government-sponsored study funding for an individual student pursuing full-time studies in 1997 thus amounted to 63,700 kronor.

RULES RELATING TO POSTGRADUATE TRAINING AND RESEARCH

Postgraduate degrees

Institutions with the right to award postgraduate degrees are the universities plus the Karolinska Institute, the Royal Institute of Technology, Chalmers University of Technology, the Swedish University of Agricultural Sciences, the Stockholm School of Economics and the University College of Jönköping. Many of the other institutions of higher education in Sweden collaborate with these institutions in the organization of research training.

As of 1999 other institutions of higher education will also obtain the right to give postgraduate training and award postgraduate degrees. This will occur by way of the Government granting an institution of higher education university status after assessment and approval. The Government has granted the University Colleges of Karlstad, Växjö and Örebro university status as of 1999.

Institutions of higher education will also have the possibility of establishing one or more so-called area of research after assessment and approval by the National Agency for Higher Education. Within an area of research the institution of higher education has the right to give research training and to award postgraduate degrees.

Postgraduate training nominally comprises 160 credits (four years) and leads to a PhD. A Licentiate degree may be taken after two years and comprises at least 80 credits.

Postgraduate training is based on a basic higher education of at least 120 credits with at least 60 credits in the research subject. Furthermore, the faculty board in question may add other requirements for admittance. An assessment is also made of an applicant's capacity for completing postgraduate studies.

A PhD student must complete a number of courses and write a doctoral dissertation. Each student has the right to personal supervision. The dissertation, which constitutes the most important part of postgraduate studies must be defended at a public oral examination.

Study funding in postgraduate training

Postgraduate training is financed out of the funding allocated to each faculty. There is also funding from external sources such as research councils. The faculty boards decide whether the earmarked resources should be used for postgraduate posts or for study grants. Both posts and grants run for four years. A grant may also be shared between two postgraduate students. Postgraduate students holding postgraduate posts are obliged to concentrate on their studies, but are allowed to combine them with teaching or other work to a limited extent. A relatively common way of financing postgraduate studies is to combine them with work on a research project which may be externally funded by a research council or a sectoral body.

In 1998, the rules for funding postgraduate studies are to be modified. Among other things it is stipulated that only applicants employed in a postgraduate post or awarded a study grant may be admitted to postgraduate training. In other cases the applicant must have guaranteed study funding for the whole period of study. There are certain transitional rules.

Research within higher education

Sweden is a country that allocates a relatively high proportion of its resources to research and development (R&D). The proportion of the GNP going to R&D is some 3.7 per cent. The higher education sector is responsible for just over a fifth of the resources spent on R&D in Sweden. Most R&D is conducted within private sector companies or the public sector outside institutions of higher education.

By far the greatest part of publicly funded research takes place at institutions of higher education. Thus institutions of higher education have a central role in the Swedish research system, not merely because they constitute the traditional base for research and postgraduate training, but also because they conduct research on behalf of sectoral bodies and the private sector. Research activities have also great significance for basic higher education.

For the most part, research and postgraduate training take place at universities and specialized professional institutions of higher education. The small and medium-sized institutions of higher education are gradually expanding in research and postgraduate

training. They receive some grants for supporting research activities and for promoting research networks. These resources have been increased by the government. In addition, research at small and medium-sized institutions of higher education is funded by research councils, sectoral research bodies and contract work for the private sector, agencies, local authorities and county councils.

FUNDING HIGHER EDUCATION

Funding from the national budget direct to institutions of higher education

Basic higher education

A new system of allocating resources to basic higher education was introduced in the academic year 1993/94. Institutions of higher education receive an educational assignment for each new three-year period. The allocation of resources depends on results measured in terms of students (calculated in terms of full time equivalent, FTE, students) and study achievements (calculated in terms of annual performance equivalents) at the institutions of higher education in question.

In the education assignments for the period 1997-99 the minimum number of certain degrees at the institution of higher education in question is stipulated. Objectives with respect to the lowest number of FTE students as a whole and for the lowest number of FTE students in the science and technology areas are set out for each fiscal year. The education assignment also stipulates that the number of FTE students must increase or diminish in certain subject areas compared with the preceding three-year period. There is a ceiling sum (maximum funding) which constitutes the highest aggregate compensation for FTE students and annual performance equivalents permitted for the fiscal year in question.

The amounts of compensation for FTE students and annual performance equivalents are determined annually by central government and set out in the budget document. The amounts are not the same for different subject areas. At the institutions of higher education all courses are classified by subject area. This classification

determines the compensation that will be obtained. Compensation amounts for the fiscal year 1997 may be seen in **figure 3**.

Research and postgraduate training

Research and postgraduate training is funded by way of special grants to the institutions of higher education in question. The amounts are distributed by central government to the various faculties at the institutions of higher education concerned. There is also a special item to cover compensation for such costs as rent of premises. Certain conditions are attached to the grants. For instance, not less than a certain proportion of the grant must be used to fund postgraduate training. A special grant for artistic development work is distributed to the colleges of art.

As of 1999, resources for research and postgraduate training will no longer be allocated by faculty but will be distributed to four areas of research—humanities/social science, medicine, natural science and technology.

External resources

The grants mentioned here, which are allocated directly to state-run institutions of higher education, make up rather more than 60 per cent of the resources of these institutions of higher education. The remaining portion comprises external resources for research and contract work provided by research councils and sectoral bodies, together with local authorities and county councils.

ORGANIZATIONAL STRUCTURE AND TEACHING POSTS

To a great extent the internal organization of institutions of higher education is nowadays decided by the institutions themselves. Certain guidelines are laid down in the Higher Education Act and the Higher Education Ordinance.

As previously, each institution of higher education must be run by a management board. The Government appoints the Chair of the board. Until 1997 the Vice-Chancellor automatically became Chair

Subject area	Payment per full-time equivalent student (SEK)	Payment for annual performance equivalent (SEK)
Humanities		
Theology	13 329	13 953
Law		
Social sciences		
Science		
Technology	35 998	32 917
Pharmacy/ pharmacology		
Nursing		
Odontology		
Medicine	32 688	40 876
Education*	43 978	57 678
Other**	25 754	32 622
Design	30 241	26 039
Art	107 238	68 915
Music	152 921	68 936
Opera	92 341	61 695
Theatre	220 450	139 097
Media	213 651	11 994
Dance	216 090	183 822
Physical education and sports	149 850	87 375
	78 478	38 137

Fig. 3. Compensation amounts for basic higher education fiscal year 1997.

* Education methodology aspects of teacher training programmes.

**Journalist and librarian programmes and practical artistic courses in teaching training programmes.

of the board, but as of 1998 it is stipulated that the Government should appoint a Chair who is not employed at the institution of higher education in question. The management board is composed of the Chair, the Vice-Chancellor and not more than thirteen other members. The Government appoints the majority of the members of the management board. The representatives of the teaching staff are chosen by election within the institution of higher education. The students have the right to be represented by three members. Employee representatives have the right to attend and to speak at board meetings.

The Vice-Chancellor is nominated by the board and employed by Government decision for not more than six years. Other board members are appointed for a period of not more than three years. A Pro-Vice-Chancellor is the Vice-Chancellor's deputy. More than one Pro-Vice-Chancellor may be appointed. An institution of higher education may also appoint Pro-Vice-Chancellors with responsibility for parts of its operations.

All institutions of higher education organized on faculty lines must have faculty boards responsible for research and postgraduate training. If an institution of higher education does not set up special decision-making bodies for issues relating to basic education, the faculty boards will also be responsible for basic education in their area. The Dean of the faculty is the Chair of the faculty board. In decision-making bodies set up to deal with matters affecting research and postgraduate training, the teaching staff must always be in the majority. Students have the right to representation by at least two members on the faculty board and in other decision-making bodies dealing with educational matters.

Apart from the above-mentioned rules relating to the management board and the faculty board, etc, institutions of higher education may themselves decide their internal organizational structure and what decision-making bodies and boards they require.

The Higher Education Ordinance contains stipulations concerning the teaching staff to be employed at institutions of higher education. These comprise professors (including consulting professors), senior lecturers (including Nordic and foreign senior lecturers), junior lecturers, postdoctoral fellows, temporary staff and visiting lecturers. A significant modification introduced by the higher education reform of 1993 is that the Government and

Parliament no longer decide which professorships there shall be and do not take decisions concerning the appointment of professors. Instead the management board at institutions of higher education organized on faculty lines takes decisions relating to professorships. As of 1 July 1995, professorships may also be established at other institutions of higher education given the approval of the National Agency for Higher Education, but this rule will cease to have effect as of 1999, when these institutions of higher education will also have the right to establish professorships.

As of 1999, new rules will come into force concerning the employment, recruitment and promotion of teaching staff. Among other things a senior lecturer who satisfies the eligibility requirements for appointment as a professor will then be promoted to be a professor. Educational skills should be given greater weight in this promotion than is now the case. In addition recruitment objectives will be specified with a view to increasing the number of women among newly-appointed professors.

SOME INTERNATIONAL COMPARISONS

During the 1990s the possibilities of comparing educational data for different countries have improved. Each year the OECD publishes a compilation of data in *Education at a Glance*. Here some of the educational indicators from this OECD publication will be presented and commented upon.

The Swedish population has a high level of education

Sweden performs creditably in an international comparison of levels of education. Among OECD countries only Canada, the USA and Norway have a larger proportion of people with tertiary education in the 25-64 age group. See figure 4. As may be seen in the figure, Sweden has a proportion of 28 per cent. In Sweden, people are considered to have tertiary education if they have a degree in basic higher education or postgraduate training, if they have a diploma from the now-discontinued four year upper secondary engineering line and if they have at least 20 credits in a subject studied at an institution of higher education.



Fig 4. Percentage of the population 25 to 64 years of age with tertiary education (1995).



Fig. 5. Educational expenditure as a percentage of GNP for tertiary education (1994).

If the comparison is made between the proportion of people with at least three years' higher education, Sweden is still well placed. In addition to Canada, the USA and Norway, the Netherlands also has a higher proportion of people with higher education than Sweden in this respect.

The costs of higher education

Sweden is among the countries that spend most on education in relation to its gross national product (GNP). This applies both in comparisons of the aggregate cost of education at all levels and of the costs for higher education as such. As may be seen in figure 5, Sweden, along with Canada, the USA, Australia and Korea, has the highest proportion of costs for higher education in relation to GNP. This comparison includes both publicly and privately funded higher education.

Switzerland, the USA, Sweden and Canada are those countries reporting the highest costs (excluding study support) per student in higher education. See figure 6. The OECD publishes these figures with a number of caveats. One of the difficulties in making such comparisons is that countries report the costs of research conducted at institutions of higher education in different ways. Where Sweden is concerned, all research activity at institutions of higher education is included in the calculation of costs per student. For various reasons, certain other countries report only portions of the research conducted within higher education.

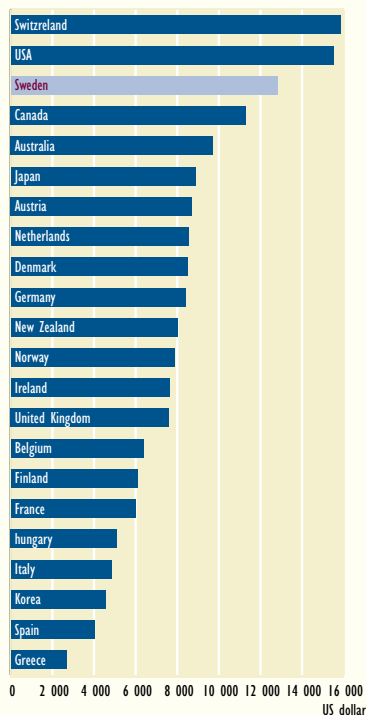


Fig. 6. Expenditure per student in tertiary education 1994 (US dollars converted using Purchasing Power Parity exchange rates).

The costs of study support

For the first time *Education at a Glance 1997* contains a more detailed comparison of public financial support for students and their families. The various OECD countries have many different systems of study support, which complicates comparisons. Some countries, for instance, have tax reductions when family members are studying. It should be borne in mind that the comparison is between each country's costs for study support and not the amount that individual students are able to obtain to finance their studies.

When public expenditure for study support excluding loans is related to the number of students in higher education, it may be seen that Sweden has the highest costs, followed by Denmark, France and the Netherlands. See figure 7. In this connection it may be noted that Sweden allocates significantly greater resources to study support at upper secondary level than any other country.

A low proportion of young people in higher education

Sweden has relatively few people in higher education. This applies above all to younger age groups. The OECD has made a special study of the participation in education by different age groups (enrolment rate) at the transition between upper secondary and higher education. One indicator shows the proportion of people taking part in education either at upper secondary level or in higher education. This shows that the proportion of nineteen and twenty-year-olds studying in Sweden is very low. See figure 8. In Sweden, 31 per cent of twenty-year-olds are in either upper secondary (including adult education organized by local authorities) or higher education. In Belgium and the Netherlands the corresponding proportions are 66 and 60 per cent respectively.

The same result is obtained if the proportion of nineteen-year-olds in education is compared. It is worth noting that Sweden, like many OECD countries, has a large proportion of young people up to the age of eighteen pursuing upper secondary courses or corresponding studies.

The situation improves for Sweden when the 22-25 and the 26-29 age groups are compared. Here Sweden lies near the middle of the scale of OECD countries.

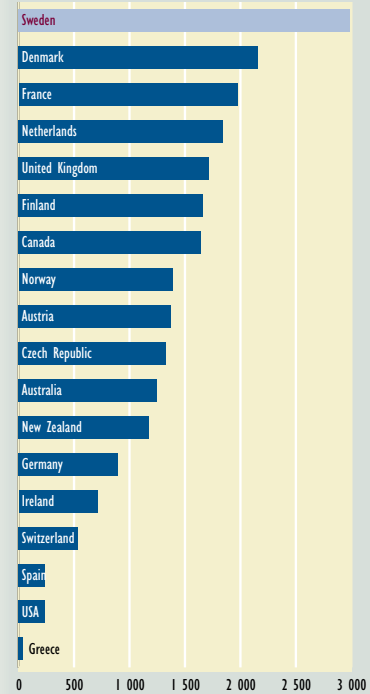


Fig. 7. Public subsidies to households (study support excluding loans) per student in tertiary education 1995. US dollars converted using Purchasing Power Parities.

Still relatively few degrees taken in science and technology

Sweden has a relatively low position with respect to the proportion of degrees taken in programmes of education of at least three years in science and technology related to the number of people in the work force in the 25-34 age group. See figure 9. Every country including Sweden for which figures are available has increased the numbers of degrees taken by scientists and engineers between 1991 and 1995. Sweden had roughly the same position among the OECD countries in both 1991 and 1995. The proportion of degrees taken in the above category is approximately twice as great in Ireland, Great Britain and Australia as in Sweden. The rate of increase between 1991 and 1995 has, however, been greater in Sweden than in most other OECD countries.

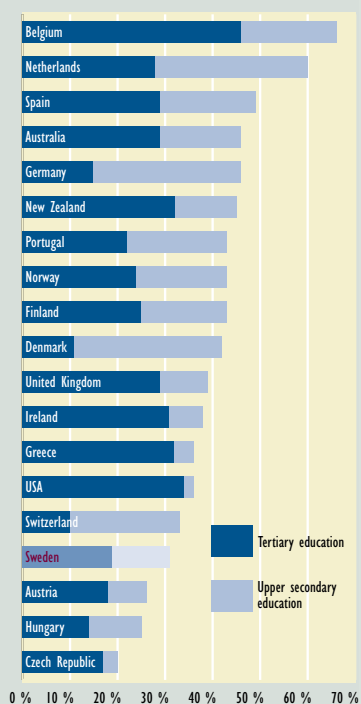


Fig. 8. Net enrolment rates for persons aged 20 in tertiary or upper secondary education based on head counts, 1995.

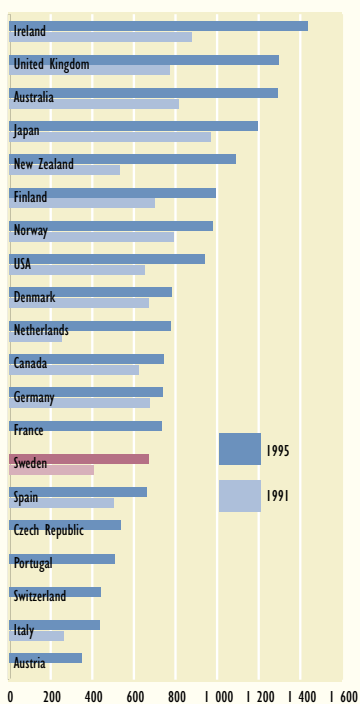


Fig. 9. Number of science graduates per 100,000 persons in the labour force 25-34 years of age, 1995.

Trends and developments

BASIC HIGHER EDUCATION

Applicants—students—graduates

More and more young people wish to study at institutions of higher education. In the spring of 1997, two thirds of the young women and half of the young men in the final years of upper secondary wished to study in higher education within the following three years. The variation between different programmes was great, however. But it is not just young people who have just completed upper secondary who apply for a programme of higher education. In the autumn of 1997 almost 30 per cent of all new applicants were over the age of 25.

Despite a massive expansion of higher education during the 1990s, it has on the whole become more and more difficult to obtain a place. In the early 1990s just over half of the applicants were offered places. In the autumn of 1997 this proportion was less than 40 per cent. The pressure of applicants varies greatly between different programmes, however. The stiffer competition for places has above all affected younger applicants coming directly from upper secondary school. See figure 10.

In the academic year 1996/97, the number of new students in higher education fell for the first time since the mid-1980s. Since the number of applicants has grown, this means that in 1996/97 institutions of higher education in Sweden did not find it possible to admit as many new students as in previous years despite increased resources for study places. Available resources had to be used for those students who already had places in higher education. Contributing factors here are over-dimensioned earlier intakes and savings in higher education appropriations from the central government.

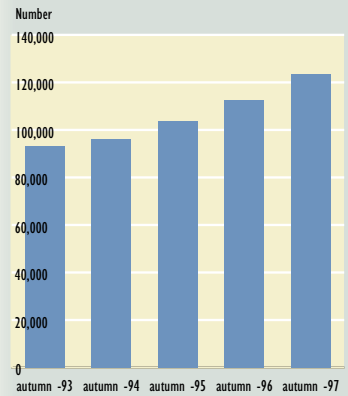


Fig. 10. Number of applicants to basic higher education, not previously participating in higher education, autumn terms 1993–1997.

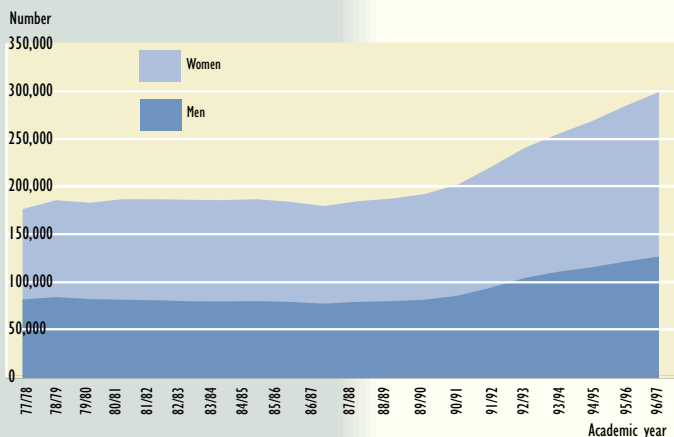


Fig. 11. Students in basic higher education academic years 1977/78–1996/97, head counts.

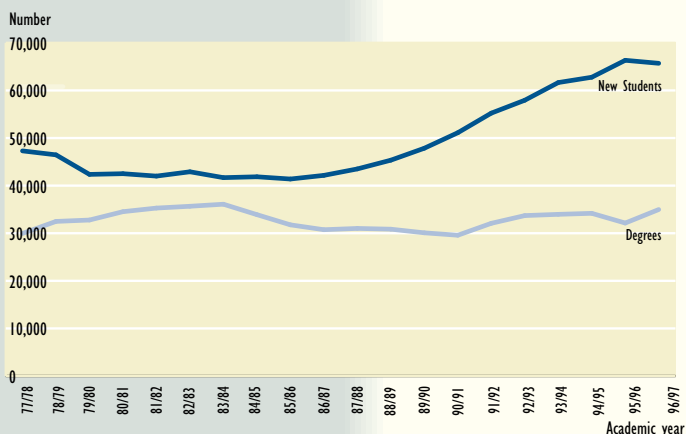


Fig. 12. New students and degrees. Basic higher education academic years 1977/78–1996/97.

In the academic year 1996/97, 300,380 people were pursuing studies in basic higher education in Sweden. See figure 11. This is the highest number of students ever recorded in any academic year. The number of students in higher education has recently been increasing by rather more than 5 per cent annually. The increase will probably not be as great in the next few years. In the 1990s the average age of registered students has fallen. In the academic year 1995/96 half of the students were under 25. In the academic year 1996/97, however, the number of students under 25 fell slightly. The proportion of women was 58 per cent and the proportion of men was 42 per cent, a distribution that has remained unchanged over time.

The number of degrees taken has increased again after decreasing in the academic year 1995/96 and totalled 35,000 in the academic year 1996/97.

See figure 12. A number of programmes have been extended, which has led to a doubling of the proportion of degrees for programmes comprising three years or more in the 1990s, from 43 per cent in the academic year 1990/91 to 87 per cent in the academic year 1996/97.

SOME AREAS OF CURRENT INTEREST

Science and technology

In Sweden as in many other countries efforts are being made to encourage more people to get higher education in science and technology. The number of students in these programmes has

increased markedly, both during the 1980s and the 1990s. In 1997 a third of the total number of FTE students were registered for courses in science and technology.

Attitudes to and knowledge of science and technology are improved and stimulated by way of the SciTech project, a joint programme of the National Agency for Education and the National Agency for Higher Education that has been in progress for five years. To increase recruitment to programmes in science and technology, a basic year has been introduced to provide the previous knowledge required. Since 1995 specially advantageous financial provisions have been made for people already in employment but wishing to pursue studies in science and technology.

Teachers training

Training teachers is one of the most wide-ranging tasks of the Swedish system of higher education.

More than every tenth student in basic higher education is doing some kind of teachers training. The largest programmes in terms of numbers are those leading to degrees in the education of children and young people and degrees for compulsory school teachers and upper secondary teachers. The number of degrees taken in the children and young people's education programme has decreased significantly—fully in line with central government intentions—while degrees for compulsory school teachers have increased. There is a problem with a fall-off in applications in the area, particularly in relation to compulsory school teachers programmes with a mathematical and scientific orientation. Certain programmes of teachers training, however, have a relatively high pressure of applications. Another problem is the low proportion of men in programmes of teachers training.

Areas given priority by central government include research links in teachers training and efforts to increase the use of computers and other tools of information technology. Regional development centres have been established in a number of places with a view to reinforcing cooperation between schools, higher education and the community.

Programmes of education in health sciences and care

Developments in the care sector place new demands on programmes of education in health sciences and care. There are 18,000 students in health sciences programmes, which is the equivalent of 6 per cent of the total number of students in basic higher education. The largest number of students are following programmes leading to a degree in nursing.

Health sciences programmes were incorporated into the higher education system by the reform of 1977, but the governing bodies of the institutions were still run by county councils or local authorities. This situation obtained until the mid-1990s, when higher demands regarding quality and links to research led to proposals that the responsibility for organizing programmes of education in the health sciences should be transferred to state-run institutions of higher education. This has also taken place. In 1998 the majority of such programmes will be incorporated in state-run institutions.

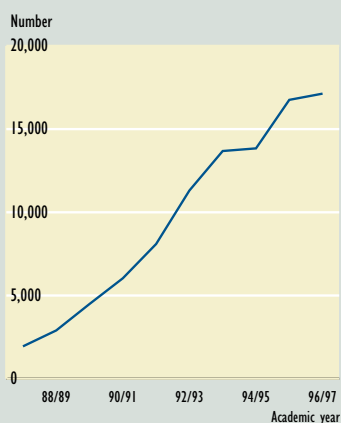


Fig. 13. Number of Swedish persons studying at foreign institutions of higher education on their own initiative ("free movers") 1988/89–1996/97.

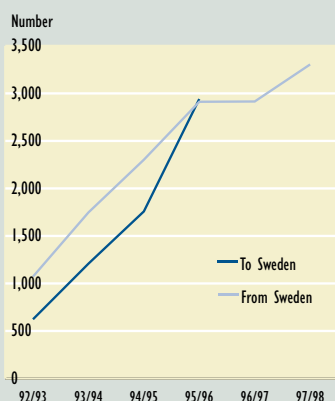


Fig. 14. Number of outgoing and incoming exchange students in the Erasmus programme 1992/93–1997/98.

Students and teaching staff—cross-border activities

Higher education and research are becoming increasingly international in character. Swedish institutions of higher education have traditionally had well-developed routines of cooperation with institutions of higher education in other countries. These often involve agreements on the exchange of students, postgraduate students and teaching staff. Swedish researchers are also working increasingly with researchers abroad.

In the academic year 1996/97 just over 17,000 people were studying at foreign institutions of higher education with Swedish study support for longer or shorter periods of time. See figure 13. These arranged their own places abroad ("free movers"). During the calendar year 1997 there were also 6,400 Swedish students studying abroad on exchange programmes. In the period from the autumn term of 1996 to the autumn term of 1997, 23,400 people altogether studied at institutions of higher education abroad.

The Erasmus programme of the EU covered 3,000 Swedish students studying abroad in 1997, with roughly the same number of foreign students coming to Sweden on the same programme. See figure 14. In addition to this, there are 2,500 students who were

studying at institutions of higher education in Sweden on other exchange programmes.

POSTGRADUATE TRAINING

The number of new postgraduate students increased markedly in the 1990s. In the academic year 1996/97, almost 3,400 people were admitted. The proportion of women among new postgraduate students has increased to 44 per cent. The median age of new postgraduate students was 28.5 years, which is the lowest since the mid-1970s.

The number of active postgraduate students (with a level of activity higher than 10 per cent) amounted to 16,550 in the academic year 1996/97. Here too women are behind the increase, principally in the faculties of technology, medicine and social science. See figure 15 and 16.

In the spring term of 1997, 39 per cent of postgraduate students were employed in postgraduate posts, while 9 per cent had study grants. 13 per cent had other employment, such as a junior lectureship, at their institution of higher education. The remaining postgraduate students financed their studies in other ways, such as study support, scholarships or outside paid employment.

In the academic year 1996/97, 2,560 postgraduate degrees were taken—1,720 PhDs and 840 Licentiates. The proportion of women was 33 per cent with respect to both PhDs and Licentiates. The number of postgraduate degrees has increased by 88 per cent in the last ten-year period.

New forms of postgraduate training have been established. In what are known as postgraduate schools, postgraduate training is conducted with a clearly defined organizational structure and a carefully designed range of courses. There are postgraduate schools at all Swedish universities and they often operate cooperatively across subject boundaries and in collaboration with other institutions of higher education. In many cases they have external funding. The biggest source of funding without question is the Foundation for strategic research (Stiftelsen för strategisk forskning). The Foundation for the development of knowledge and competence (Stiftelsen för kunskaps- och kompetensutveckling) also contributes significant amounts of funding.

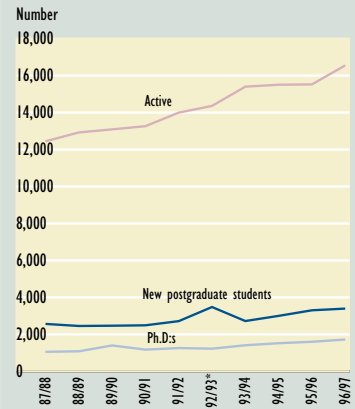


Fig. 15. Active and new postgraduate students and Ph.D.s 1987/88–1996/97.

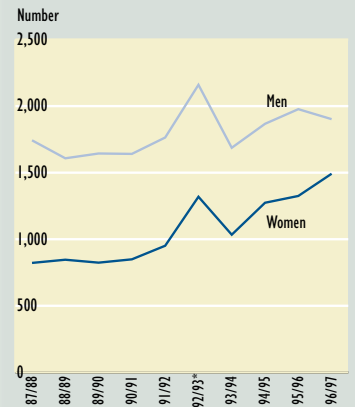


Fig. 16. Newly admitted women and men to postgraduate studies 1987/88–1996/97.

* Collection period was changed.

RESEARCH

Volume and orientation

A greater amount of research is nowadays being done within the higher education sector. In the fiscal year 1997, 18,000 research-years were carried out at institutions of higher education, an increase of 1000 research-years over the academic year 1995/96. 600 research-years of the increase fall within the area of technology. The medical and social sciences areas also show increases of 240 and 200 research-years respectively. The relative increase was greatest at the small and medium-sized institutions of higher education which have now obtained permanent resources for research as of the fiscal year 1997. The predominant proportion of research-years—over 90 per cent—is carried out at the universities and specialized professional institutions of higher education.

Sweden performs well in comparisons using published academic articles as a measure of research activity. If the number of articles is related to size of the population, Sweden occupies second place after Switzerland among the OECD countries. Collaborative authorship across national borders is increasing, as is the collaborative authorship of academic articles among researchers in Sweden. See figure 17.

The number of professorships at institutions of higher education is increasing. On 31 December 1997 there were 2,356 professorships at Sweden's institutions of higher education. In 1997, 127 new professorships were established while 64 professorships were discontinued. There was therefore a net increase of 63 professorships. See figure 18.

Institutions of higher education also have the possibility of appointing consulting professors. At the end of 1997 there were 394 consulting professors, which represented an increase of 46 per cent or 146 individuals in relation to 1993.

Funding

The total research revenues of Swedish institutions of higher education are increasing. This is due to growth in revenues from external sources of finance. On the other hand savings decisions taken by central government have led to a reduction in faculty appropriations

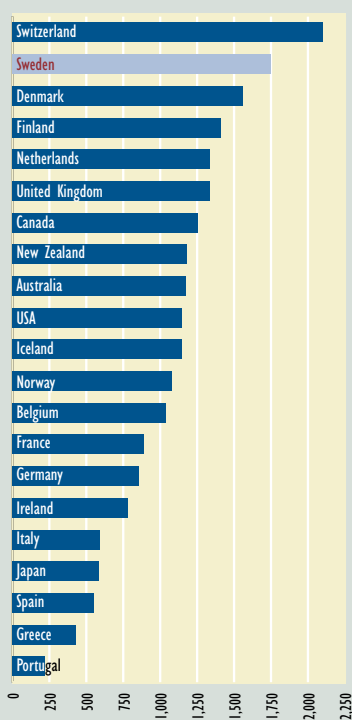


Fig. 17. Number of published scientific articles per million inhabitants 1997.

to the universities and specialized professional institutions of higher education. Research on the basis of what is known as in-house programme responsibility has diminished. Funds from Swedish non-profit financial sources have increased such as the research foundations and the Jubilee Fund of the Bank of Sweden.

The research foundations which were set up in 1994 with funds from the immensely wealthy wage earners' investment funds which were then being abolished, contributed 390 million kronor to research at institutions of higher education in 1997. The biggest contributor was the Foundation for Strategic Research.

EU-funding of Swedish research is also increasing. During 1997 a total of at least 365 million kronor was channelled to the higher education sector, primarily to promote the participation of institutions of higher education in the EU's fourth framework programme.

Collaboration with the society at large

Institutions of higher education are expected to collaborate with their local communities, the business community, the public sector and activities for the benefit of the general public and provide information about their activities. This "third assignment", as it is known, has come into sharper focus in recent years and is now explicitly formulated in the Higher Education Act.

Where collaboration with the business community is concerned, institutions of higher education in the field of technology quite naturally have many available channels of contact, such as research centres, industrial research institutes, technology parks, holding companies, contract research, industrial postgraduate students and competence centres.

Most institutions of higher education have initiated special units to take care of contacts with the business community and the community in general, working life centres to support the transition of students to professional employment, special bodies for cooperation between the institution of higher education and the region in which it is located, etc. Many institutions of higher education have special technology parks and "incubator units" to facilitate researchers wishing to start up companies. Many collaborative projects are wholly or partially funded by EU structural funds, the Foundation

	Professorships 1997	Consulting professors
Total	2 356	394
Law	59	3
Humanities	192	5
Philosophy (incl. thematic research)	42	8
Theology	29	2
Social sciences	339	46
Odontology	52	8
Medicine	570	70
Pharmacy/pharmacology	13	10
Agriculture	187	17
Mathematics/science	207	20
Technology/science	94	12
Technology	510	159
Arts	62	34

Fig. 18. Number of professorships and consulting professors 1997.

for the Development of Knowledge and Competence, NUTEK (the Swedish National Board for Industrial and Technical Development), the Institute for Working Life, etc.

FINANCE

The total costs of the higher education sector in the fiscal year 1997 were 37.6 thousand million kronor including the costs of study support and of the national agencies. In relation to 1996, costs increased by 1.1 thousand million kronor at fixed prices. It is primarily the cost of study support that has increased. The higher education sector's proportion of the total costs of education in Sweden remains unchanged at approximately 30 per cent. See figure 19.

In 1995, central government decided to make significant savings in higher education for reasons of national finance. These savings did not fully affect the finances of the institutions of higher education until the fiscal year 1997, however. Savings in basic higher education have been achieved primarily by reducing the compensation paid for FTE-students and annual performance equivalents. The compensation per FTE-student for most educational areas has fallen by around 17 per cent at fixed prices between the fiscal years 1994/95 and 1997. The universities and specialized professional institutions of higher education has been particularly affected by big reductions in central government appropriations, while small and medium-sized institutions of higher education have received increased appropriations.

STAFF AT INSTITUTIONS OF HIGHER EDUCATION

Total number of year-equivalents

During the fiscal year 1997, a total of 44,750 year-equivalents were performed at institutions of higher education (both public and private organizers). In total terms this means a marginal increase since the academic year 1995/96. The proportion of women was 47 per cent.

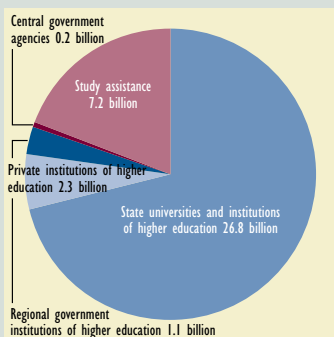


Fig. 19. Allocation of total expenditure in the higher education sector fiscal year 1997 (SEK billion). The total cost was SEK 37.6 billion.

A number of institutions of higher education report staff reductions, while others have increased their staff. Six of the institutions of higher education in the category of universities and specialized professional institutions report reductions in staff in 1997 with a total of 1,250 year-equivalents compared with the academic year 1995/96. The remaining seven institutions of higher education in this category have increased their staff numbers by 850 year-equivalents. A net reduction in staff has therefore taken place in this category. The situation reflects a more restrictive financial situation.

The category of university colleges (excluding art colleges and health sciences colleges) on the other hand has increased its total number of year-equivalents by 15 per cent compared with the academic year 1995/96.

Teaching staff

In the fiscal year 1997 just over 21,000 year-equivalents were performed by teachers and other academic and research staff. This is more or less the same volume as in the academic year 1995/96, and breaks the previous rising trend. The number of year-equivalents has increased for such categories as professors and senior lecturers, while reductions may be observed for junior lecturers and for visiting lecturers and temporary teaching staff. See figure 20.

More and more teaching staff have PhDs. Of the year-equivalents performed by professors, senior lecturers, junior lecturers and postgraduate fellows—15,600 in all—53 per cent were performed by individuals with PhDs.

Among teaching staff and researchers, a third of the year-equivalents were performed by women while the proportion of women among administrative and library staff was 78 and 72 per cent respectively. Thus the gender distribution among teaching staff and researchers is skewed. See figure 21. Viewed in a longer-term perspective, however, a levelling-out has taken place. In the most recent ten-year period, women have doubled their proportion among professors—from 5 to 10 per cent—and among senior lecturers from 17 to 25 per cent. The proportion of women in postgraduate training has risen markedly. See figure 22.

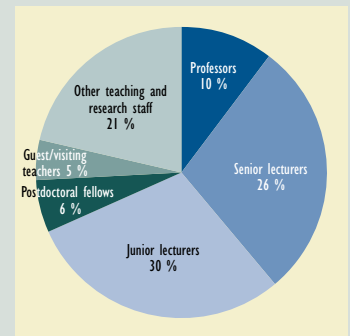


Fig. 20. Percentage allocation of teachers and research staff at institutions of higher education 1997.

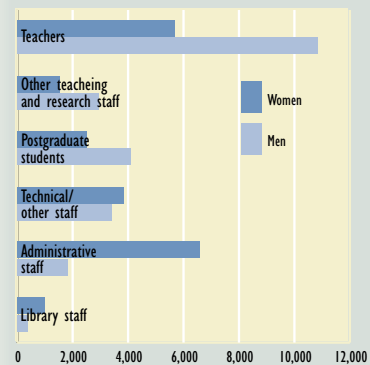


Fig. 21. Number of year-equivalents 1997.

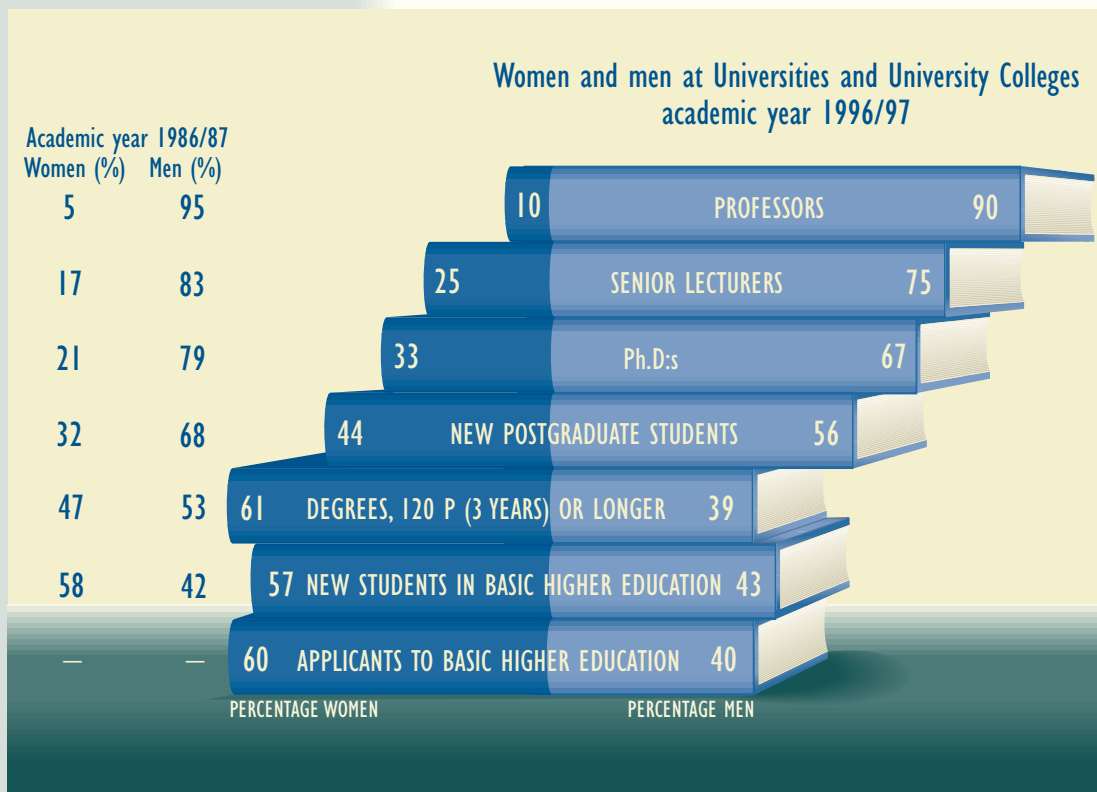


Fig. 22.

Equal opportunity efforts

Most institutions of higher education have prepared equal opportunity plans with a view to even out the gender imbalance present in higher education and research.

It is a high-priority objective to increase the number of women in programmes of education in science and technology. This is done by such measures as information drives and designing programmes to make better use of women's experience. Also teachers training programmes and health sciences and care programmes are dominated by women. Efforts to increase the number of men in these programmes have not been made to any great extent, however.

Big differences in the distribution of women and men among teaching and research staff continue at institutions of higher education. Certain institutions report that they have achieved the recruitment objectives decided by the Government with respect to the recruitment

of new female professors. In 1997 most of the professorships that were established by the Government with a view to promoting gender equality were filled. At many institutions of higher education, however, considerable efforts will be needed to achieve the final objectives in 1999.

QUALITY ISSUES

Quality work

The requirement put down in the government budget document that institutions of higher education should have quality development programmes relating to the whole of their operations have now been satisfied to a great extent. Some institutions of higher education stress operational quality efforts located at departmental level so that the responsibility of forming quality work often lies at this level, even though continuous information at faculty or institutional level is required.

The quality audits by the National Agency for Higher Education has accelerated and partially been included in the quality efforts of the institutions of higher education concerned. Self-assessment has constituted a solid foundation for quality improvement work at a number of institutions of higher education.

Areas mentioned in quality development programmes and in the quality audits of the National Agency for Higher Education are, for instance, the development of educational methods, gender equality, course evaluation, study and work environment, management issues, student participation, community contacts and internationalization.

Development of educational methods

The issue of better educational methods within higher education is being debated with increasing vigour, and has contributed to growing awareness at institutions of higher education. The degree of activity varies. There are examples of institutions where activities to promote the methodology of higher education are lively and comprehensive. Other institutions of higher education, however, report a lower level of activity, which is often explained as being due to a lack of resources. A number of institutions of higher education set aside central

funding. Active units for the development of educational methods provide significant support.

DEVELOPMENTS IN INFORMATION TECHNOLOGY

At most institutions of higher education efforts are in progress to prepare and execute action plans for the use of information technology—IT. About a dozen institutions of higher education had adopted IT plans by the end of 1997, and a similar number is expected to adopt plans during 1998. The action plans deal with a broad spectrum of issues such as technical infrastructure, access to computers, libraries, distance-learning, the development of educational methods and internal and external information.

The development of IT is creating great pressure on libraries to satisfy a growing demand for electronically published material. More and more databases and information services are becoming accessible in academic networks and via the Internet. With increasing use of IT, many libraries are experiencing a lack of resources and competence.

The Swedish University Computer Network—SUNET—covers some forty institutions of higher education. Twelve museums and the Royal Library are also linked to the network. Almost 90 per cent of the staff at institutions of higher education have the possibility of using SUNET, and 75 per cent of them also take advantage of this possibility. Among students, over 80 per cent have the possibility of using SUNET either via computers at their institution of higher education, via a dial-up link with a student's agreement or from student accommodation that has been linked to the college network.

The requirement of the central government that research information should be widely available is starting to be satisfied to a greater and greater extent. SAFARI (the dissemination of research information to the public via the Internet) is the acronym of a Government assignment given to the National Agency for Higher Education. Some pilot projects were initiated in 1997, and the National Agency for Higher Education has arranged for a search robot to be put on the Net to search research agency servers and to permit more advanced searches to be made than those offered by commercial search services.

FACTS ABOUT THE HIGHER EDUCATION SECTOR IN 1997

Students	Academic year 1996/97	Change from 1995/96	Proportion of women 1996/97
New higher education students	65,700	-1 %	57 %
Registered undergraduates	300,380	+5 %	58 %
Undergraduate degrees	35,000	+9 %	60 %
New postgraduate students	3,390	+9 %	44 %
Active research students	16,550	+6 %	39 %
Doctoral degrees	1,720	+8 %	33 %
“Licentiate” degrees	840	+3 %	33 %
	Fiscal year 1997		
Total full-time equivalent students	249,750	+7 %	56 %
of whom			
Universities and specialized professional institutions of higher education	160,610	+6 %	51 %
University colleges (excl. arts and health sc.)	69,950	+12 %	57 %
University colleges of fine arts	2,070	+4 %	59 %
University colleges of health sciences	17,120	+1 %	88 %
Total annual performance equivalents	206,230	+6 %	57 %
of which			
Universities and specialized professional institutions of higher education	130,900	+5 %	52 %
University colleges (excl. arts and health sc.)	57,680	+12 %	59 %
University colleges of fine arts	1,970	+2 %	58 %
University colleges of health sciences	15,680	+0,5 %	89 %
Staff (FTE) at state, regional authority and private universities and university colleges	44,750	+1 %	47 %
of which all teaching personnel	21,060	0 %	34 %
Proportion of professors, senior lecturers, junior lecturers and postdoctoral fellows with doctoral degree	53 %	+2 % -units	31 %
	Fiscal year 1997		
Costs, M SEK			
Total higher education cost	37,600		
of which			
State universities and institutions of higher education	26,800		
University colleges of health sciences	1,100		
Private universities and university colleges	2,300		
Student financial support	7,200		
Other	200		
Net operational cost of state universities and institutions of higher education	26,800		
of which			
Universities and specialized professional institutions of higher education	22,500		
University colleges (excl. fine arts)	4,100		
University colleges of fine arts	380		

UNIVERSITIES AND UNIVERSITY COLLEGES IN SWEDEN 1997

UNIVERSITIES AND INSTITUTIONS OF HIGHER EDUCATION WITH THE RIGHT TO AWARD POSTGRADUATE DEGREES

State

Uppsala University
Lund University
Göteborg University
Stockholm University
Umeå University
Linköping University
Karolinska Institute
Royal Institute of Technology
Luleå University of Technology
The Swedish University of Agricultural Sciences

Private-sector

Chalmers University of Technology
Stockholm School of Economics
University College of Jönköping

UNIVERSITY COLLEGES

State

University College of Borås
Dalarna University College
University College of Gotland
University College of Gävle/Sandviken
University College of Halmstad
University College of Kalmar
University College of Karlskrona/Ronneby
University College of Karlstad*
Kristianstad University College
University College of Skövde
University College of Trollhättan/Uddevalla
University College of Växjö*
University College of Örebro*
Stockholm University College of Physical Education and Sports
Stockholm Institute of Education
Malmö University College
University College of Mälardalen
Mid-Sweden University College
University College of South Stockholm

Private-sector

Erica Foundation
Gammelkroppa School of Forestry
Johannelund Theological Institute
Stora Sköndal Foundation**
Stockholm School of Theology
Örebro Theological Seminary

UNIVERSITY COLLEGES OF ARTS

State

University College of Dance
University College of Film, Radio, Television and Theatre
University College of Arts, Craft and Design
Royal University College of Fine Arts
Royal University College of Music in Stockholm
Stockholm University College of Opera
Stockholm University College of Acting

Regional Authority

Ingesund College of Music

Private-sector

University College of Music Education in Stockholm

UNIVERSITY COLLEGES FOR HEALTH SCIENCES

Regional Authority

The Baltic International School of Public Health
Jönköping University College of Health Sciences
Stockholm University College of Health Sciences
Umeå College of Health and Caring Sciences
West-Sweden University College, Skövde
West-Sweden University College, Vänersborg
Värmland University College of Health and Caring Sciences
Kalmar University College of Health Sciences
Boden College for Health Sciences
Borås College for Health Sciences
Falun College for Health Sciences
Gävle College for Health Sciences
Göteborg College for Health Sciences
Kristianstad College for Health Sciences
Lund/Helsingborg College for Health Sciences
Malmö College for Health Sciences
Uppsala College for Health Sciences
Vänersborg College for Health Sciences
Växjö College for Health Sciences

Private-sector

Ersta University College – Department of Nursing and Health**
The Swedish Red Cross University College of Nursing and Health
Sophiahemmet College of Health Sciences

* As of 1999 the University Colleges of Karlstad, Växjö and Örebro has been granted university status.

** As of 1999 Ersta Sköndal University College.



The National Agency for Higher Education (Högskoleverket) is a central authority for matters concerning institutions of higher education. Its tasks include evaluation and accreditation, carrying out quality audits, developing higher education, research and analysis, supervision, international questions and study information. It is also responsible for coordinating the Swedish university computer network, SUNET.