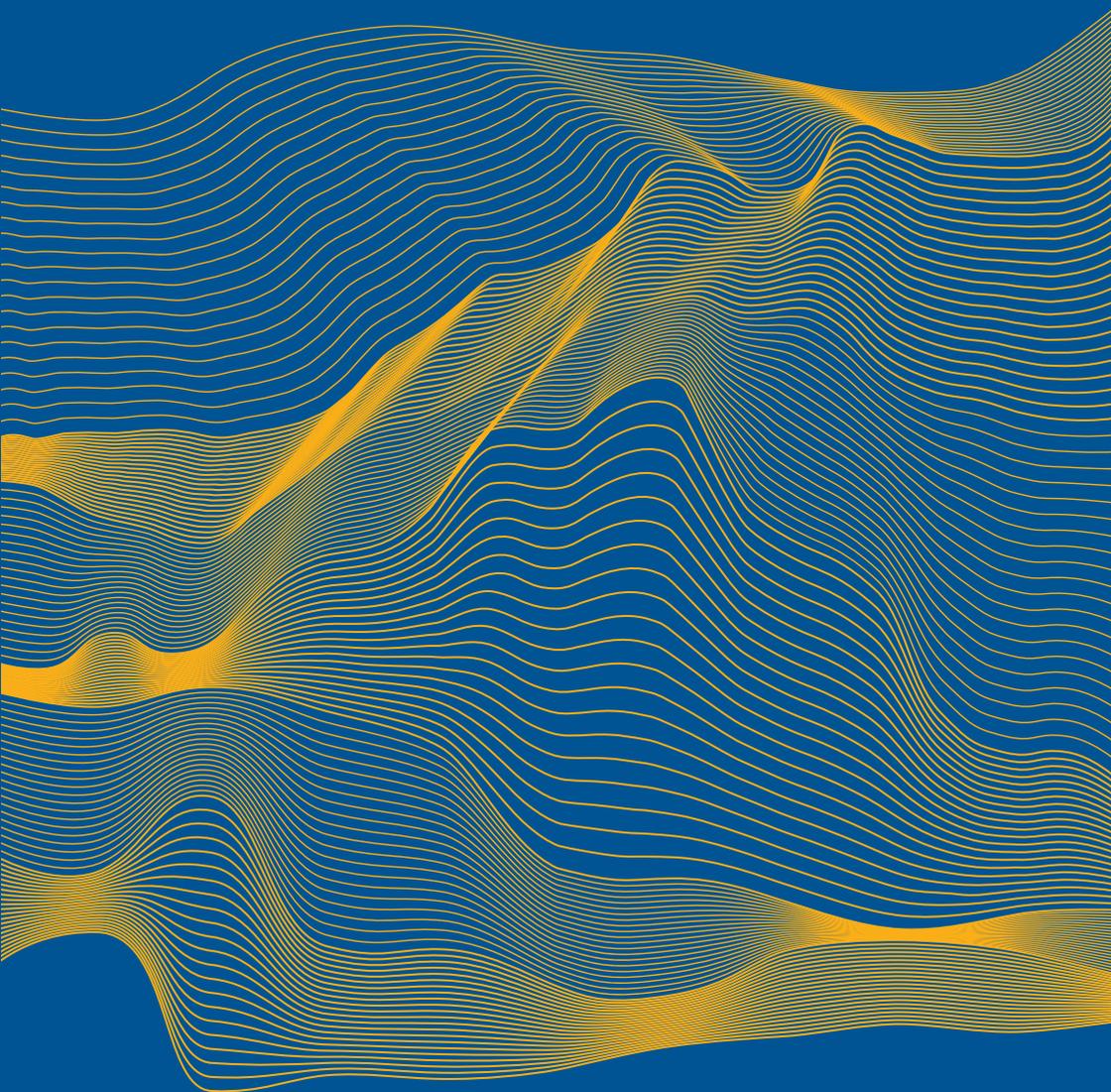




AN OVERVIEW OF SWEDISH HIGHER EDUCATION AND RESEARCH 2022



An Overview of Swedish Higher Education and Research 2022

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Foreword

With *An Overview of Swedish Higher Education and Research 2022*, UKÄ provides a summary reference work for anyone looking for facts in English about Swedish higher education and research. The report is based on data reported by higher education institutions (HEIs) to Statistics Sweden and to UKÄ. Additional data from other sources has also been included. The focus is on the past year, but descriptions of developments often take a longer perspective. This year, a new section describes some of the most important reforms behind the development of Swedish higher education and research and the Swedish HEIs over the last 50 years.

This report is an important contribution to achieving UKÄ's goal of being the obvious source of information on higher education and research in Sweden.

The coronavirus pandemic and the significant challenges for HEIs have marked 2021. Both education and research have been impacted, and the consequences and various initiatives by the Government and the HEIs can be read about in the report. This includes the increase in students to higher education, international mobility and the finances for HEIs.

The report provides a national picture, but there are significant differences between the HEIs. Readers interested in these differences can note the tables with data provided per HEI at the end of the report.

We have continued work in making the overview more accessible and hope that our readers appreciate these improvements. This includes a new format with easier-to-read text and diagrams when viewed on screens.

We hope you find this year's report an interesting read.

A handwritten signature in black ink, appearing to read 'Anders Söderholm', with a stylized, cursive script.

Anders Söderholm
Director General
Swedish Higher Education Authority

Contents

Foreword	iii
Facts about higher education and research in Sweden	1
The road to today's Swedish higher education and research	3
Expansion and development 1945–1970	3
Major reforms and developments 1977–1990	5
The reform period starting 1993	6
Reforms in the 2000s	8
Present day	9
The Swedish system for higher education and research	11
Post-secondary education	11
Governance of higher education	13
Allocation of resources to higher education institutions	13
The mission and independence of higher education	15
Research at HEIs	17
Higher education	17
Accreditation	19
Quality assurance	20
Supervision and monitoring of HEI operations	23
Admission to higher education	24
Cost of studying	26
Trends and developments	31
Effects of the coronavirus pandemic on higher education in 2021	33
Continued great interest in higher education	34
More went straight from upper-secondary school to higher education	34
More graduates	35
Exchange students returned in autumn 2021	35

International recruitment to third-cycle education was unaffected	36
Students were generally positive to their education during the pandemic	36
Three-quarters of recent graduates found a job with good potential for earning a living	37
Government initiatives during the pandemic led to surpluses	37
Both stability and change during the pandemic	38
First- and second-cycle education	39
Applicants and admitted students	40
New entrants to first- and second-cycle education	44
Enrolled students	50
Graduates	53
Educational attainment among the Swedish population	57
Teacher training programmes	59
Widening participation in higher education	62
International student mobility	71
The number of incoming students	71
New incoming students	74
Outgoing students	79
The EU goal for studies abroad	82
Third-cycle education	83
Transition to third-cycle education	83
Third-cycle new entrants	84
Doctoral students	89
Third-cycle qualifications	92
Student completion rates	93
Widening participation	95
Education and the labour market	101
How did recent graduates fare during the pandemic?	101
Establishment after first- and second-cycle degrees	104
Establishment after a doctoral degree	107
Foreign doctoral students on the Swedish labour market	108

Staff at higher education institutions	113
The number of HEI staff – totals	113
Research and teaching staff	115
Non-research and non-teaching staff	123
Finance and research funding	125
HEI finances in 2021	125
Funding for first- and second-cycle education	130
Funding for research and third-cycle education	134
Research at higher education institutions	139
Research resources	139
Research publications	141
Key figures	147
Key figures for higher education institutions	149
Definitions	149
Tables	151

Facts about higher education and research in Sweden

The road to today's Swedish higher education and research

This background chapter provides an overall understanding of the Swedish higher education system. We begin with a description of how the present system for higher education and research developed, with focus on some major reforms that defined the development over the last 50 years. In the second part we describe in more detail the current Swedish higher education system, that is to say, the basis for operations at higher education institutions (HEIs) and the results and analyses presented in the following chapters of the overview.

The oldest university both in Sweden and the Nordic countries is Uppsala University, founded in 1477. Initially, university studies were open only to a small, elite group of men. This is far from the reality of 2021, where higher education is offered throughout the country and women are the majority of students, but where it is still more common for men to be professors. In 1945, at the end of World War II, there were 14,000 students at a few universities and technical schools. In 2021, 450,000 students attended one of the country's 49 higher education institutions (HEIs).

Expansion and development 1945–1970

The post-war period saw economic growth in Sweden, and politicians realised the importance of raising the educational level of the population. In

the following decades, higher education expanded and the governance and organisation of universities changed, often after extensive official reports.

The booming economy of the 50s and 60s, with increasing tax revenues, allowed the expansion of the public sector. Many of these jobs required higher education, and the lack of skills threatened both the medical care sector and industry. At the same time, students flocked to universities and university colleges. To meet the demand for higher education from students and the labour market's needs, politicians decided to reform how public-sector HEIs were organised and to expand higher education.

Massive expansion of higher education in the 1960s and 1970s

Between 1955 and 1965, the number of students increased from 23,000 to 70,000, and in 1970 HEIs had 120,000 enrolled students. A contributing factor to this increase in student numbers was the expansion of public student finance. In the 1960s, several university colleges and technical schools were also converted to public-sector universities and several university colleges were founded. With this expansion, the modern mass university began to take shape.

The faculties of arts and the faculties of theology and law had a tradition of open admissions. Everyone who met the general entry requirements were accepted and were registered at the faculties. Other faculties, however, had admission limits, and upper-secondary grades determined which applicants were accepted if there was competition for the available openings.

The expansion triggered changes

The expansion of higher education, together with the open admissions to the faculties of arts, was not without its problems. The students took a long time to complete their studies, and the completion rate was low, which made it difficult to plan teaching. More teachers were needed, so the new staff category senior lecturer was introduced as a purely teaching position. Lecturers were to have both doctoral degrees and good teaching qualifications.

The resource allocation system for the faculties of arts also needed changing, and what was known as the “university automatic system” was introduced. This meant that as more students were accepted, the universities could expand their teaching organisation and recruit teachers without the Riksdag having to approve more funding. Funding for education was linked to a predefined lowest acceptable teaching standard. Inspiration for the system came from other such sources as the student organisations, which wanted the Government to take measures to improve the quality of university teaching.

The 1969 reform of third-cycle education was intended to meet the growing need for teachers at HEIs.

Major reforms and developments 1977–1990

The system with automatic allocation of funding for the faculties of arts was used until the 1977 higher education reform, which resulted in considerable changes for HEIs and higher education. Sweden shared several of the same reasons for the reforms with other western countries that wanted to raise their level of education, reduce social disparities and meet the needs of the labour market for trained workers. By establishing several new, regional, university colleges, the Government wanted to make higher education available to individuals beyond traditional student groups.

Decentralisation was also intended to facilitate an adaption of the education system to the regional economic structures and labour needs. The State's funding to HEIs went from being micromanaged to being focused on the intended purpose that the funding was to be used for. This gave the HEIs greater influence over how funding was used and enabled local priorities. Government funding was now allocated separately for education and research. One part to undergraduate education (first- and second-cycle education) and one part to research and postgraduate education (third-cycle education). At the same time, centralised control of undergraduate education increased through the Government determining what national study programmes were offered, the national programme syllabuses and the size of programmes. Students' right to have influence over their education, which began to emerge in the 1960s, was regulated and formalised with this reform.

Higher education was also expanded to include most post-secondary education, including vocational programmes. Nursing programmes, pre-school and teacher training programmes, fine arts programmes and others were incorporated into higher education. Open admissions were eliminated from the faculties of arts.

A more diverse student body

As HEIs expanded their range of offerings, the number of students increased by nearly 50,000. This also changed the composition of the student body. For the first time in Sweden, women became the majority of students in higher education. The social composition also changed, and the percentage of students from families with highly educated parents decreased, while the percentage of students from working-class families increased.

Regular research bills introduced in 1977

A system with regular research bills was introduced in 1977 to ensure a long-term approach to research policy. This involves the sitting government presenting a research bill once per term of office. In this way, the Riksdag was able to discuss research policy in its entirety once per term of office. The first research bill was submitted in 1982. This system is still in use.

During the late 1990s, the smaller and medium-sized university colleges were allocated permanent research funding, which was previously only available to universities. One reason was that courses and programmes were to be research-based; another was to support regional development. Since 2010, all university colleges have been able to apply for third-cycle degree-awarding powers within areas of research that they excel in, such as within their research specialisation fields.

The reform period starting 1993

The next reform period began in 1993 and was characterised by the HEIs gaining greater freedom, or autonomy, in several areas. For example, the centrally determined study programmes and national programme syllabuses were replaced with a system of qualifications. This system included learning outcomes, knowledge requirements and specialisations for different qualifications. The HEIs were now allowed to determine what education they offered (programmes and freestanding courses),

how the education was organised and admission of students (within the framework defined by the Higher Education Act). At the same time, a national system was developed to assess quality in undergraduate education (first- and second-cycle education). A central idea was that student demand would determine the courses and programmes offered and that the HEIs would compete with each other through their offerings and high standards in their courses and programmes.

Management by objectives was instituted throughout the entire central government administration (even within higher education). With increased autonomy, the HEIs also gained greater responsibility for attaining high quality and making efficient use of available resources. The resource allocation system was completely reorganised, and a new performance-based system was introduced for direct government funding of HEIs. The HEIs gained significantly greater control over internal resource allocation and how direct government funding was used. At the same time, the State's demands on HEIs increased for reporting results from their operations.

Several new foundations established in the 1990s

Over the years, some reforms and political decisions on research have been of extra importance. One such political decision was when the Government ended the wage-earner investment funds 1993–1994. The wage-earner investment funds were a type of collectively owned and administered investment funds that were financed with the profits of companies. The profits from the wage-earner investment funds were used to establish new research foundations. Mistra, the Swedish Foundation for Strategic Research and the Knowledge Foundation are three examples. A total of just under SEK 18 billion was transferred to the new research foundations.

The wage-earner investment funds were also used to convert two public-sector HEIs into foundation universities: Chalmers University of Technology and Jönköping University. The Government wanted the foundation universities to contribute to increased diversity and competition and to revitalise the Swedish higher education system.

Another important reform came in 2001, when several subject-based government research funding bodies were combined into the Swedish

Research Council, which was tasked with funding research within all scientific disciplines. Some of the sector-specific research was ended, and Vinnova was instead created as a broader innovation agency.

Reforms in the 2000s

With the 1999 reform, the previous faculty disciplines were replaced with four broader disciplinary domains as the basis for allocating direct government funding. The purpose was to provide the HEIs greater opportunities for making their own prioritisations within research and third-cycle education and to create better conditions for interdisciplinary and interfaculty research.

Ten years later, in 2009, the disciplinary domains were eliminated as the basis for allocating funding. HEIs, instead, received a single allocation for research and third-cycle education. At the same time as the HEIs gained greater freedom in how research funding was used internally, a performance-based resource allocation was introduced.

The qualifications framework revised in 2007

In 2007, Sweden's education and qualifications framework was adapted to the Bologna Process' system with qualifications at three levels: first, second and third cycles. The Bologna Process, an intergovernmental collaboration among around 50 countries (2022) in Europe, is intended to improve comparability between education systems and thereby increase mobility between the participating countries.

Two reforms in 2011 to improve quality

Two reforms were implemented in 2011 to raise the quality of Sweden's higher education system: the autonomy reform and the quality reform. The autonomy reform increased the freedom of HEIs to decide over their internal organisation, staff categories, hiring procedures and promotion opportunities. The quality reform meant a national framework for quality assurance that focused on the results instead of processes and measured quality based on whether students achieved the education's qualitative

targets. UKÄ was responsible for external quality assurance at the national level.

In 2015, UKÄ was tasked with development of the national quality assurance framework, since it was judged to not be in line with the agreements in the Bologna Process. Since 2021, the national quality assurance framework also includes reviews of the HEIs' internal quality assurance processes for research.

Present day

Since the turn of the millennia, decentralisation within the higher education sector has continued; autonomy and competition have been central in this development. Instead of the approach of previous decades with wide-ranging and comprehensive reforms, changes have instead been made to parts of the system separately. The labour market's need for access to skills continues to be a driver for political decisions for developing and investing in higher education. Demand from students also continues to influence what courses and programmes are offered.

While national needs have influenced how the sector has developed, the operations of HEIs have increasingly been internationalised, both within education and research, and collaboration with the EU has grown. That Sweden and Swedish higher education and research are part of something greater, something global, is now fully accepted.

The Swedish system for higher education and research

Compared with the higher education systems of many other countries, the Swedish higher education system is relatively flexible. Educational offerings are largely course-based. Most HEIs offer freestanding courses and programmes as distance education, some of which can be completely online.

Traditionally, Swedish higher education does not just involve educating youth after completing secondary education. It also includes education later in life, continuing development for professionals and that individuals take courses of interest without the intention of receiving higher education credits. In Sweden, higher education has a clear role in life-long learning.

HEIs also provide third-cycle education and conduct most of the publicly funded research in Sweden. This means that Swedish higher education is relatively heavily based on research. Measured in terms of monetary value, more than half of the activities at HEIs consist of research and third-cycle education.

Post-secondary education

Higher education is the largest form of tertiary education in Sweden in terms of volume. There is also higher vocational education and some interpreter programmes.

Education within the framework of higher vocational education providers

Higher vocational education is to meet the needs of the labour market, and theoretical studies are combined with courses given at workplaces. Programmes offered through higher vocational training are at level 5 and 6 in SeQF (The Swedish National Qualifications Framework) and are between one and three years long. In total, they equal just under 14 per cent of post-secondary education.

Higher vocational education and higher education are separate systems. This report focuses on higher education.

Universities, university colleges and other education providers

The vast majority of higher education is provided by public-sector HEIs. The Swedish Parliament (Riksdag) establishes public-sector HEIs. There are also several independent (non-state) higher education providers, of which the majority are small and only have programmes in one or two subject areas. Of the total 49 HEIs in Sweden (2021), 31 are public-sector HEIs. They account for approximately 90 per cent of the total number of students. A list of Sweden's HEIs is found at the end of this chapter. This list includes 17 universities, 13 university colleges, and 5 art academies. The remaining 14 are independent education providers.

Sweden has a uniform system for higher education with the same legislation, by and large regardless of provider. HEIs primarily differ in that universities have been granted general degree-awarding powers at the third-cycle level, while university colleges must apply for entitlement to award degrees at the third-cycle level in specific areas. Both universities and university colleges conduct research and provide higher education at various levels, but they vary in how much focus is given to research. Swedish higher education programmes are at levels 6–8 of the SeQF.

The Swedish terms “universitet” (university) and “högskola” (university college) are not reserved designations by law and can be used by anyone. The institution's executive organisation determines when the designation is used. The state determines what designation is used by public-sector HEIs. What is protected in law, however, is degree-awarding powers, that is to say, who may award a qualification within higher education (read more about degree-awarding powers in the section *Accreditation*).

The size of HEIs varies greatly. Measured in number of enrolled students, the largest university had more than 50,000 students in the 2020/21 academic year, while the smallest HEIs had less than 50 registered students.

Governance of higher education

Overall responsibility for higher education and research rests with the Riksdag and the Government. These decide on the regulations that apply to the higher education sector, primarily the Higher Education Act and the Higher Education Ordinance (see fact box). The Government determines which qualifications may be offered and requirements for qualifications in the form of scope and learning outcomes.

Public-sector HEIs are public authorities, answering directly to the Government. Within the Government, the Ministry of Education and Research is responsible for most matters relating to the HEIs, higher education and research.

The Ministry of Education and Research defines how the HEIs are to work, and how much resources they can use, in annual public service agreements, except for the Swedish University of Agricultural Sciences which is issued its public service agreement by the Ministry of Enterprise and Innovation. The public service agreement defines allocations for the HEI's operations and includes any special assignments that the Government may give HEIs. In Sweden, ministerial intervention is not permitted, which means that ministers may not intervene directly in a public authority's daily work.

The operations of independent education providers are regulated through a specific law and in some cases through contracts with the Government. For education, however, the same rules primarily apply as for public-sector HEIs. Individual education providers also receive their allocations and any special assignments through an annual public service agreement.

Allocation of resources to higher education institutions

The State has a significant commitment for financing HEIs. Higher education is for the most part free-of-charge, and the State allocates considerable resources for research conducted by the HEIs.

The Riksdag determines the allocation of resources for education and research for each HEI through an approved budget bill. The HEIs receive separate allocations for education and for research and third-cycle education.

Resources for first- and second-cycle education

Funding for first- and second-cycle education (bachelor's and master's levels) is based, in part, on the number of enrolled students (converted to full-time equivalents, FTE) within the different disciplinary domains and, in part, on credits earned by students (converted to annual performance equivalents, APE). The allocation of resources is thus primarily based on performance (the number of enrolled students and the credits they earn). The funding per FTE and APE varies for different disciplinary domains. Engineering and technology, for example, receive more than social sciences.

Each year, the Government determines the highest reimbursement for FTEs and APEs that a HEI can receive in total for a budget year, known as the funding cap. The funding cap is defined in the HEI's public service agreement. For more information, see the fact box *Allocation of resources for first- and second-cycle education* (Chapter Finance and research funding).

Resources for research and third-cycle education

The funding for research and third-cycle education (doctoral studies) that HEIs receive from the Government is in the form of a base grant that may be used freely within different fields of research. The base grant is defined in the HEI's public service agreement. Only a small part of the funding is performance based. This part is based on scholarly production, external funding and collaboration with the surrounding society. The HEIs are also guaranteed a minimum level of research funding based on the number of students registered in first- and second-cycle education.

Beyond this direct government funding, significant state funds are allocated through research funding agencies and are applied for in competition. Research and third-cycle education are also funded to a considerable extent by other research funding bodies, such as private foundations or the EU. Read more about funding for research and

third-cycle education in chapters *Finance and research funding* and *Research at higher education institutions*.

The mission and independence of higher education

The mission of the HEIs is to provide education based on scholarship or artistic practice and on proven experience. HEIs are also to carry out scholarly and artistic research and development work. The Swedish Higher Education Act specifies that the general principle for higher education is to promote and protect academic freedom.

There is to be a close relationship between research and education in HEIs' operations. The HEIs' mission also includes mutual sharing with external parties and working to ensure the knowledge and expertise found within the HEI benefits society.

In Sweden, public-sector HEIs have considerable autonomy within a system of management by objectives. Within the framework of the overall legislation, HEIs take most decisions themselves. These decisions cover such areas as organisation; internal allocation of resources; educational offerings; educational content and design and how many students are admitted. There is thus no nationally planned volume of higher education or nationally regulated course content. The HEIs determine for themselves what research they conduct.

HEIs have significant freedom in determining their staffing. There are, however, two forms of employment for teachers that is regulated through legislation and regulations: professors and senior lecturers. Beyond these, there are many other forms of employment for research and teaching staff. Doctoral students are generally employed and contribute both research and teaching to the HEIs. Read more about staff in chapter *Staff at higher education institutions*.

The Government has given the Swedish Higher Education Authority (UKÄ) responsibility for issues related to quality assurance, supervision, and monitoring and analysis of the HEIs' operations (both education and research). The sections *Accreditation* and *Supervision and monitoring of HEI operations* describe how UKÄ works with this assignment.

Regulation of the higher education sector

Higher education in Sweden is governed by the Higher Education Act (SFS 1992:1434) and the Higher Education Ordinance (SFS 1993:100).

The Higher Education Act is enacted by the Riksdag and regulates the HEIs' operations. The Act contains basic regulations about education offered by HEIs. For instance, it sets out what should characterise courses and programmes at different levels and stipulates academic freedom and freedom of research. It provides a framework for the organisation and governance of the HEIs, and it states that every HEI must have a board of governors and a vice-chancellor. It also contains regulations about the duties of teachers and provisions about student influence. In addition, the Act specifies that HEIs must promote equality of opportunity, widened recruitment and lifelong learning. The Act now also specifies that the collective international activities of each HEI are to both enhance the quality of its research and education, and make a national and global contribution to sustainable development.

Further provisions are specified in the Higher Education Ordinance, issued by the Government. For instance, the Ordinance states that students must be given the opportunity to influence their studies. The Ordinance contains regulations on entrance qualifications, the selection for courses and programmes and the appointment of teachers and doctoral students. It also includes regulations on requirements in course and programme syllabuses, on grades and on qualifications. Annex 2 of the Ordinance contains a System of Qualifications, which includes descriptions of scope and learning outcomes for all degrees.

HEIs also are governed by the Government's annual public service agreements with each HEI. The public service agreement specifies such requirements as that educational offerings are to correspond to demand from students and the needs of the labour market and the size of the state funding for first- and second-cycle education and for research and third-cycle education. They can also include specific assignments given to HEIs.

Since the public-sector HEIs are public authorities, they are also governed by other regulations, such as the Administrative Procedures Act, the Annual Reports and Budget Documentation Ordinance and the Environmental Management Ordinance. Naturally, the Discrimination Act also applies to HEIs.

Research at HEIs

The bulk of publicly funded research in Sweden is undertaken at the HEIs. Only a small amount of research is conducted by research institutes. The HEIs vary, however, in how research-focused they are. The large, broad-based universities and the specialised universities conduct more research than the new HEIs.

Research is much less regulated than higher education. The Swedish Higher Education Act specifies that the general principle for research is that research problems may be freely selected, research methods may be freely developed and research results may be freely published. Additionally, academic credibility and good research practice are to be upheld in research.

Higher education

Higher education refers to post-secondary education that is regulated by higher education legislation. Higher education is defined by, among other things, its placement in the education system (post-secondary) and by the requirement that the education be based on scholarly or artistic practice.

All courses, programmes and qualifications are placed in one of three cycles: first, second or third. There is progression, that is to say, each cycle is based on the one before. The formal requirements that distinguish these cycles are specified in the Higher Education Act. Swedish higher education's division into cycles is part of the adaption to the Bologna Process, which aims to make higher education more comparable to those countries participating in the process.

All first- and second-cycle education consists of courses. They may be combined to form programmes. In addition to programmes that lead to the award of qualifications, higher education in Sweden offers a wide range of freestanding courses, many of them offered through distance education. Students may select their own combination of courses and many students take courses without the intention to earn credits. The third-cycle level includes, in addition to courses, writing a scholarly dissertation equivalent to at least half of the programme length.

The scope of a programme is expressed as higher education credits. One academic year is typically two semesters and normally 40 weeks, which corresponds to 60 higher education credits with full-time study. Higher

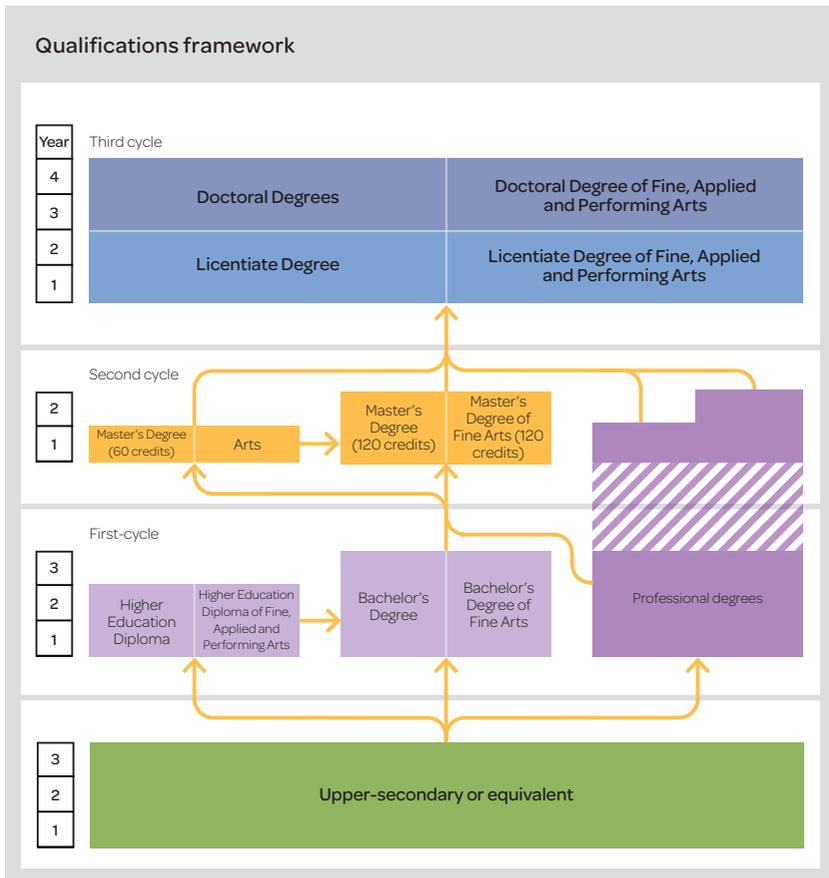
education credits in the Swedish educational system can be compared to the European Credit Transfer and Accumulation System credits (ECTS credits), in which 60 credits are the equivalent of one year of full-time study.

Qualifications

There are three categories of qualifications which all have the same academic status:

1. general qualifications
2. qualifications in the fine, applied and performing arts
3. professional qualifications.

Figure 1: Qualifications framework within Swedish higher education.



Both general qualifications and qualifications in the fine, applied and performing arts are awarded within the first, second or third cycles. Professional qualifications are awarded within the first and second cycles and mainly in the regulated professions. There are about 40 different programmes leading to a professional qualification, of which barely half lead to a qualification at the master's level (second cycle). Most professional qualifications awarded in the second cycle do not require a previous first-cycle qualification and the programmes leading to their award cover both cycles (Figure 1).

Accreditation

The Riksdag decides on the establishment of public-sector HEIs, while the Government decides whether an HEI should be granted full university status. Those that do not have full university status have only limited powers to award third-cycle qualifications and somewhat limited powers to award second-cycle qualifications. There is no difference, however, in the status of the qualifications awarded.

Independent education providers are entitled to offer higher education courses and programmes if they are granted degree-awarding powers. In Sweden, there are six independent HEIs entitled to award either all or some third-cycle qualifications. There are also several independent education providers with limited entitlement to award first-cycle, and in some cases second-cycle, qualifications.

Degree-awarding powers

In Sweden, accreditation of higher education takes the form of granting degree-awarding powers (Table 1). The regulations that apply vary depending on what types of HEI and qualifications they refer to: public-sector HEIs that do not have full university status have less extensive powers, but are not as restricted as independent higher education providers, which have to apply separately for each qualification they wish to award. However, all public and independent higher education providers must apply for entitlement to award professional qualifications and qualifications in the fine, applied and performing arts.

Public-sector universities and university colleges apply to UKÄ for degree-awarding powers. UKÄ assesses these applications and decides

Table 1: Degree-awarding powers according to type of HEI.

Type of HEI	Degree-awarding powers
Universities	Must apply to be able to issue professional degrees and degrees in the fine arts. Generally have independent powers to issue: higher education diplomas, Bachelor's degrees, 60-credit and 120-credit Master's Degree, Licentiate degrees, and Doctoral degrees.
Public university colleges	Must apply to be able to issue professional degrees, degrees in fine arts, 2-year Master's degrees, Licentiate degrees and Doctoral degrees. Generally have independent powers to issue: higher education diplomas, Bachelor's degrees and 1-year Master's degrees.
Public fine arts university colleges	Generally only have powers to issue higher education diplomas and Bachelor's degrees. Must apply for degree-awarding powers to issue all other degrees.
Independent HEIs	Generally have no independent degree-awarding powers. Must apply for degree-awarding powers to issue all types of degrees.

independently whether to approve them. Independent education providers apply to the Government for degree-awarding powers. The Government usually sends the application to UKÄ for appraisal. Degree-awarding powers are granted indefinitely, unless there are grounds for revoking them. One such ground is failure to meet quality standards.

Quality assurance

In accordance with the Higher Education Act, HEIs must ensure that high standards are adhered to in courses, study programmes and research and that resources are used effectively to this end. Furthermore, HEIs' internal quality assurance procedures are the shared concern of staff and students. In its role as national quality assurance agency, UKÄ is responsible for the external quality assurance of both public and independent higher education providers.

For independent HEIs, the Award of Certain Degrees Licensing Act provides regulations that they are required to follow to be allowed to award specific degrees. This includes that independent HEIs must follow the requirements of the Higher Education Act and that they are required to participate in external follow-ups and evaluations of their programmes. Independent HEIs must therefore align to the same national regulations on quality assurance as public HEIs.

International cooperation

Sweden plays an active role in international cooperation on the evaluation of higher education, particularly in the European Higher Education Area (EHEA). Compliance to the national framework for quality assurance with the ESG is acknowledged by UKÄ's membership in the European Association for Quality Assurance in Higher Education (ENQA) and inclusion on the European Quality Assurance Register for Higher Education (EQAR).

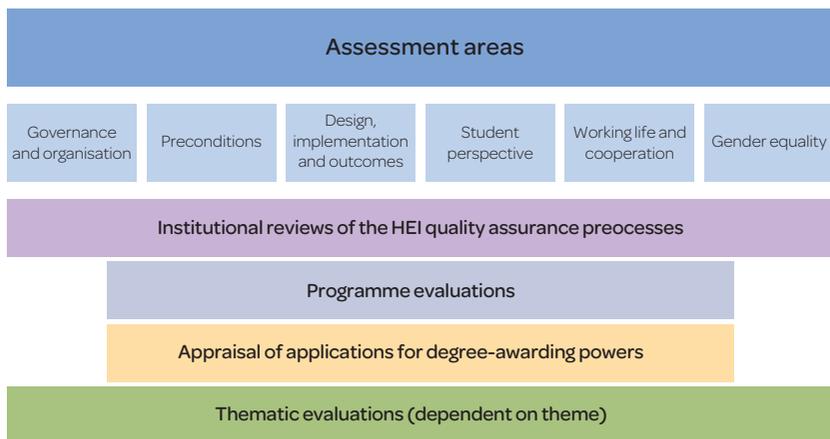
The national framework for quality assurance

The national framework for quality assurance of higher education and research consists of four external quality assurance activities or components: institutional reviews (assessments of HEIs' quality assurance processes), programme evaluations, appraisal of applications for degree-awarding powers, and thematic evaluations (Figure 2).

The purpose of the components is partly to assess the performance of study programmes and partly to contribute to the HEIs' quality enhancement work in education and research.

The external quality assurance activities are based on the Higher Education Act, the Higher Education Ordinance and the ESG (Standards and Guidelines for Quality Assurance in the European Higher Education

Figure 2: The interlinked national quality assurance framework.



Area). Alignment with ESG principles provides a shared point of departure for HEIs' and UKÄ's quality assurance responsibilities and a clear focus on student-centred learning. Another important aspect of the national framework is the emphasis on providing support for the HEIs in their own internal procedures, as most quality assurance activities are to be conducted by the HEIs.

All reviews and evaluations are carried out by independent assessment panels appointed by UKÄ, based on a nomination procedure in which HEIs, students' unions and employee/employer organisations propose assessors. The assessment panels consist of experts from the higher education sector, student representatives (students and doctoral students) and employer and labour market representatives.

The assessment panel's report indicates whether the HEI meets the assessment criteria for the reviewed assessment areas, identifies what is not deemed satisfactory, and highlights strengths and examples of good practice. UKÄ's decision is then based on the assessment panel's review.

The current national framework applies from 2017 through 2022. In 2022, UKÄ initiated the further development of the system.

The interlinked design of the national quality assurance framework is further illustrated in Figure 2. The coloured bars represent the four external quality assurance activities and shows which of the six assessment areas are covered by each activity.

Institutional reviews of HEIs' quality assurance processes for research

As from autumn 2021, the national quality assurance framework also includes reviews of the HEIs' internal quality assurance processes for research. UKÄ is also responsible for this assignment.

UKÄ reviews whether HEIs ensure that their research fulfils the quality criteria defined in the Higher Education Act and the Higher Education Ordinance. The reviews are also based on the international research guidelines formulated in the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers and the national framework for quality assurance of research as developed by the Association of Swedish Higher Education Institutions (SUHF).

The external quality assurance of HEIs' quality processes for research comprises for the most part the same assessment areas as for education. The main differences are that the assessment areas 'Governance and organisation' and 'Design, implementation and outcomes' have been merged into a single assessment area called 'Governance, organisation and implementation'. In addition, assessment criteria for gender equality and collaboration have been included in the assessment area 'Preconditions'.

The focus of the reviews is on how well the HEIs' quality assurance processes, including follow-up, measures and feedback procedures, help to ensure and develop the quality of research. The reviews also aim to contribute to the HEIs' quality development, since the assessors in their reports highlight both identified examples of good practice and areas in need of improvement.

Supervision and monitoring of HEI operations

As previously noted, the Government, in addition to responsibility for quality assurance, has tasked UKÄ with responsibility for monitoring, analysing and supervising the operations of the public-sector HEIs and, to some degree, those of the independent education providers. The assignment also includes reviewing the efficiency of higher education institutions in their operations.

Supervision of whether the HEIs follow the rules

UKÄ conducts supervision of public-sector HEIs and has a special focus on student rights. Supervision includes the authority ensuring that the HEIs follow applicable laws and regulations, such as the Higher Education Act, the Higher Education Ordinance and the Administrative Procedures Act. UKÄ also assesses whether the HEIs follow their own rules. The assignment also includes a certain degree of supervision of independent education providers that have degree-awarding powers.

Different methods are used as part of this supervision. Students can submit complaints that UKÄ administers and decides on. Another method is HEI supervision, which links supervision with UKÄ's review of the HEIs' quality assurance processes. For example, this includes reviewing student influence, course and programme syllabuses, hiring of employees

and research misconduct. UKÄ also conducts targeted inspections of HEIs as needed and studies special questions. The inspection reports and decisions are published on the authority's website.

Follow-up of HEIs' operations

UKÄ also follows up and analyses questions within its areas of responsibility – higher education and research – both on its own initiative and through special assignments from the Government. This responsibility includes analysing developments in the HEIs' operations, monitoring and reporting on the labour market's future skill set requirements relative to education offered, and reporting on the establishment of graduates on the labour market.

The law requires that official statistics for general information, investigation and research be kept. UKÄ is one of 29 authorities that the Government has tasked with being responsible for the official statistics in their respective fields. UKÄ collects statistics on such aspects as applicants, accepted students, first-, second- and third-cycle graduates, international student mobility, HEI staff and finances, and research in higher education.

The results of follow-ups and statistics are published in reports and analyses, in databases and as open source material on UKÄ's website. The Government uses this data in budget bills and to follow up policy, the HEIs use the data to compare different parts of their operations with each other, and the media uses the information in articles and in TV and radio reports.

UKÄ also participates in international statistics collaborations related to education within the EU and OECD, and the authority reports statistical data to the UN's follow-up of Agenda 2030.

Admission to higher education

Sweden has a more uniform system of admission to higher education than many other countries. National admission regulations are defined in the Higher Education Act and the Higher Education Ordinance, and in regulations issued by the Swedish Council for Higher Education. The vast majority of admissions is pooled. The Swedish Council for Higher Education is responsible for pooled admissions on behalf of the HEIs, but the individual HEI makes the official decision to admit the student.

An individual who wants to apply to international programmes in English at Swedish HEIs can find all necessary information on a single shared official website, www.universityadmissions.se. Information in Swedish about studying in higher education and the HEIs' educational offerings is available at the website: www.studera.nu.

Many roads into higher education

Detailed national regulations apply mainly to the admission of higher education entrants to first-cycle education. There are also regulations on admission to second- and third-cycle education, but these are less comprehensive. From 2022, a new system for general entry requirements applies to six areas of expertise, but the following admission requirements still applied for 2021. General entry requirements for first- and second-cycle studies normally include a degree from a preparatory programme for higher education. But there are several other roads into higher education in Sweden. Upper-secondary vocational degrees can also provide qualification in some circumstances, and there are good options for meeting entry requirements through studies in municipal adult education for upper-secondary qualifications. Prior learning, known as competency, can also be used to meet basic entry requirements if the person is judged to be able to benefit from the education.

Selection rules and procedures

Fulfilment of the entry requirements does not guarantee admission. If there are more applicants than can be admitted, selection criteria are used. All first-cycle courses and programmes, apart from those that lead to the award of qualifications in the fine, applied and performing arts, use more or less the same criteria. These are based mainly on final school grades or results from the Swedish Scholastic Aptitude Test (*högskoleprovet*). The Higher Education Ordinance lists what selection criteria may be invoked beyond these. It also contains regulations on the evaluation of final school grades, even those from other countries and older Swedish grade systems.

Read more about applicants, admitted students and graduates in first- and second-cycle education in chapter *First- and second-cycle education*.

Admission to third-cycle education

The HEI may only accept as many doctoral students as it can offer supervision and acceptable conditions of study in general and that have funding, normally a doctoral studentship. To be admitted to third-cycle education, the applicant must have obtained a second-cycle degree or second-cycle credits, or have equivalent knowledge, and must also fulfil the specific entry requirements.

Normally, funding can only be provided for the official period of study. This means that doctoral programmes have to be completed in four full years, licentiate programmes in two. A doctoral student, however, may work with teaching first- and second-cycle students, research and administration up to 20 per cent of their studies. The doctoral studies are then extended an equivalent period.

Read more about new entrants, doctoral students and graduates in third-cycle education in chapter *Third-cycle education*.

Cost of studying

Tuition fees

For a long time, Sweden was one of the few countries in Europe in which higher education was completely free of charge. In 2011, the Higher Education Act was changed to the effect that while higher education is free for Swedish citizens and for citizens of the EU/EEA countries and Switzerland, incoming students from other countries have to pay an application fee and tuition fees for first and second-cycle studies, unless they are taking part in an exchange programme. In calculating tuition fees for courses and programmes, the HEIs must ensure that they cover the full cost of the instruction provided as well as counselling, health services and other types of student service.

Student finance

Most students in Sweden finance their studies with the help of financial support from the State to cover their living expenses. All domestic students are entitled to student finance, but there are minimum performance requirements, in terms of the number of credits achieved, for continued financial support.

Student finance consists of a combination of study grants and study loans at low interest rates. In 2021, the grant portion of student finance for an academic year of 40 weeks amounted to SEK 33,120 and the loan ceiling to SEK 76,160. There are also possibilities for receiving larger grants or to borrow more, for example, for students with children or for studies abroad. Students may receive State-sponsored student finance for a maximum of twelve semesters or six academic years. The upper age limit for receiving student financing is currently 56.

It is relatively common for students to work during their studies. An income over the earned income allowance leads to a reduction in student finance. During the coronavirus pandemic, the earned income allowance was suspended temporarily since the Government did not want to inhibit the ability of students to work, particularly those who worked in the medical care system.

Repayment of the loan element is based on an annuity system and in normal cases the total debt should be repaid in 25 years or less, or before the borrower reaches the age of 60.

Incoming students have to finance their studies themselves. Students required to pay tuition, however, may apply for scholarships for full or partial financing of their tuition fees. In some cases, they can also apply for grants to cover cost of living.



Higher education institutions

Universities

Uppsala University 1,2
Lund University 3,4
University of Gothenburg 5
Stockholm University 6
Umeå University 7
Linköping University 8,9
Karolinska Institutet 6
KTH Royal Institute of Technology 6
Chalmers University of Technology (independent) 5
Luleå University of Technology 10
Stockholm School of Economics (independent) 6
Swedish University of Agricultural Sciences 1,7,11,12
Karlstad University 13
Linnaeus University 14,15
Örebro University 16
Mid Sweden University 17,18
Malmö University 29

University colleges

Blekinge Institute of Technology 19
Dalarna University 21,22
Halmstad University 24
Kristianstad University 26
Mälardalen University 30,31
Swedish Defence University 6
Jönköping University (independent) 25
Södertörns högskola 6
University College of Physical Education and Sports 6
University of Borås 20
University of Gävle 23
University of Skövde 27
University West 28

Art, Design and Music

Academies

Beckmans College of Design (independent) 6
Konstfack, University College of Art, Craft and Design 6
Royal College of Music in Stockholm 6
Royal Institute of Art 6
Stockholm University of the Arts 6

Other independent education providers

Brunnsvik Folk High School 22
Erica Foundation 6
Ersta Sköndal Bräcke University College 5,6
Evidens AB 5
Gammelkroppa School of Forestry 32
Johannelund School of Theology 1
Newman Institute 1
Scandinavia's Academy for Psychotherapy Development 6
Sophiahemmet University 6
Stockholm University College of Music Education 6
Swedish Institute for CBT & Schema Therapy 6
Swedish Red Cross University College 6
University College Stockholm 6
Örebro School of Theology 16

*Since March 2020, Brunnsvik Folk High School is authorised to issue Higher Education Diplomas in Music, but the institution is not included in this annual report since it has not yet accepted students to the programme.

The numbers refer to the locations on the map for each HEI. Some HEIs also have smaller campuses not indicated on the map.

Government agencies in the higher education sector

Read more about higher education and research in Sweden at www.sweden.se. The Eurydice web page (an EU initiative to explain European education systems) has information and studies that compare the Swedish education system with other European education systems.

Many government agencies under the Ministry of Education and Research work within higher education and research, such as with follow-ups and evaluations, analysis and statistics:

Universitetskanslersämbetet (**the Swedish Higher Education Authority (UKÄ)**, www.uka.se) evaluates the quality of higher education and research, analyses its development, is responsible for official statistics about higher education and monitors compliance with laws and regulations among universities and university colleges.

Universitets- och högskolerådet (**the Swedish Council for Higher Education (UHR)**, www.uhr.se) provides information prior to higher education studies, manages the Swedish Scholastic Aptitude Test and coordinates the admissions process to higher education. UHR also facilitates international student exchange, recognises foreign qualifications and promotes equal rights and opportunities in higher education. UHR is the national office for the Eurydice network in Sweden.

Centrala studiestödsnämnden (**the National Board of Student Aid (CSN)**, www.csn.se) approves and distributes state financial support for students, including both grants and loans.

Svenska institutet (**the Swedish Institute (SI)**, www.si.se) is tasked with disseminating knowledge about Sweden abroad and manages exchanges with other countries within culture, education, research and society at large.

Vetenskapsrådet (**the Swedish Research Council**, www.vr.se) is the largest governmental funding body and supports research within all scientific fields, in addition to serving as an advisor to the Government on research policy.

Överklagandenämnden för högskolan (**the Higher Education Appeals Board**, www.onh.se) reviews decisions on admission to higher education and other issues.

Trends and developments

Effects of the coronavirus pandemic on higher education in 2021

Managing crises places new demands and changed demands on higher education institutions (HEIs). The world had just barely returned to some form of normalcy after the coronavirus pandemic when Russia invaded Ukraine, and suddenly we had a war in Europe. The war's long-term impact on the higher education sector is not yet clear.

Higher education demonstrated its ability to manage crises during the coronavirus pandemic. The HEIs quickly shifted to remote learning. The Government's measures to expand higher education to address the worsening labour market then meant the HEIs had to manage an increase in student volumes. This put pressure on all aspects of higher education, on bachelor's and master's students, on doctoral students and, not least, on staff.

In 2021, the Government and Riksdag took several measures because of the coronavirus pandemic. In early summer, the Government presented a plan for adjusting and ending the restrictions that were introduced at the beginning of the pandemic. Gradually, the HEIs returned to working with fewer limitations from the pandemic. The Government continued to allocate more funding to expand the number of study openings in higher education. At the same time, direct government funding to HEIs increased for research and third-cycle education. In 2021, HEIs also received extra funding as a one-time increase to manage the negative effects of the pandemic on research. To finance some expansions intended to mitigate

negative impacts of the pandemic, the Government has applied for EU funding within the framework for Sweden's recovery plan.

We begin this chapter by focusing on some of the changes we have seen in higher education in 2021, particularly those resulting from the pandemic.

Continued great interest in higher education

Interest for higher education has been at an historic high level during the pandemic. In the 2021 autumn semester, the number of applicants without previous experience in higher education increased to a higher level than at any other time in the last decade. This increase was higher among women than men.

That the medical care system received a lot of publicity in 2021 can also be seen in applicants' choice of courses and programmes. Several professional degree programmes within health, nursing and social care saw significant increases in applicants ahead of the 2021 autumn semester. Another profession experiencing shortages was teaching, and the number of applicants also increased to pre-school and primary teacher programmes.

But interest in studies has not increased to the same degree in all age groups. The increase was greatest in older age groups, particularly among applicants who have not previously attended higher education and who were age 35 or older, compared with the previous autumn semester. The number of applicants also increased among the youngest age group (19-year-olds).

The State's initiatives for more study openings also allowed the HEIs to accept more applicants during the pandemic. This led to the number of accepted applicants to higher education being at an unusually high level in the last two academic years.

More went straight from upper-secondary school to higher education

Another clear trend during the coronavirus pandemic is that more young people began higher education immediately after upper-secondary school. There have been fewer alternatives to studying for young people,

with a more difficult labour market and fewer opportunities to travel abroad. The trend is clearly seen in both the increase in percentage of 19-year-olds in the population who began higher education and the increased percentage of this age group in the total number of new entrants.

This growing interest in higher education is also seen in the increase in Swedish new entrants in the 2020/21 academic year compared with the previous year. At the same time, the pandemic led to an equivalent decrease in the number of incoming new entrants. This means that, in total, the number of new entrants was relatively unchanged in 2020/21 compared with the previous academic year.

The total number of enrolled first- and second-cycle students remained at the same record level in the 2021 autumn semester as the previous autumn semester, at just over 380,000 students.

More graduates

There were more first- and second-cycle graduates than ever in 2020/21, with an increase of 4 per cent compared with the previous academic year. To this point, we do not have a clear answer as to why the number of graduates increased so much during the pandemic. One possible explanation can be that the rate of study increased and more have requested their degree sooner than previously.

Another trend is that increasing numbers of the incoming students obtain a degree in Sweden, the vast majority being second-cycle degrees.

Exchange students returned in autumn 2021

The pandemic had a noticeable impact on student mobility, particularly on incoming and outgoing exchange students. The number of new exchange students coming to Sweden fell by half in the 2020/21 academic year. The decrease was particularly large from countries outside the EU/EEA and Switzerland. Freemover-students were not impacted to the same extent. The number of new freemover-students fell by just a few per cent in the 2020/21 academic year compared with the previous academic year.

This negative trend reversed in the 2021 autumn semester. At that point, the number of new incoming students had nearly rebounded to the same level as prior to the pandemic. The reason behind the increase is the growing number of exchange students.

The pandemic also impacted the number of Swedish students who travelled abroad to study. This number fell by 28 per cent in the 2020/21 academic year compared with the previous academic year, and exchange students also made up the largest part of this decrease. We do not yet have available data on whether a similar shift occurred for outgoing students as for incoming students in autumn 2021.

International recruitment to third-cycle education unaffected

We see in the statistics that, unlike foreign first- and second-cycle new entrants, the number of foreign third-cycle new entrants did not decrease during the pandemic. In the 2021 autumn semester, foreign doctoral students accounted for 40 per cent of all third-cycle new entrants. The number of Swedish third-cycle new entrants was also not impacted by the pandemic and remained at the same level as the previous academic year.

Students generally positive to their education during the pandemic

UKÄ conducted two surveys in 2021 to find out how first-, second- and third-cycle students experienced their studies during the pandemic. The responses were characterised by students having largely had remote studies. On the whole, first- and second-cycle students were positive to the education they received during the pandemic. Seventy-seven per cent indicated that the quality of their education overall was good or very good during the pandemic. One third still stated that the lack of digital skills among the teachers negatively impacted the quality of the teaching. Most first- and second-cycle students also reported increased anxiety and stress during the pandemic.

Third-cycle students also reported they were satisfied with how the HEIs managed the challenges during the pandemic. More than half,

however, reported that they needed to cancel or delay parts of the doctoral studies. This is not something that is yet visible in UKÄ's regular student completion statistics for third-cycle education, but with longer follow-up periods we can expect that the graduation rate will decrease if the length of study for third cycle students is extended. Foreign third-cycle students were more dissatisfied than Swedish third-cycle students. They reported greater anxiety and stress and were more pessimistic about the future in their responses than their Swedish counterparts.

Three-quarters of recent graduates found a job with good potential for earning a living

In the last two years, the labour market has been marked by the pandemic. A quick follow-up of new first- and second-cycle graduates in the spring 2021, however, shows that about three-quarters of new graduates had found a job with good potential for earning a living within six months of graduating. This is somewhat lower compared with prior to the pandemic.

Some programmes had larger decreases in new graduates' potential for earning a living, but the differences were mostly moderate. We see, however, that the labour market outlook for men has been impacted more, since men more commonly choose programmes that lead to work in the private sector, which has been more adversely affected by the pandemic. Women often choose programmes that lead to work in the public sector, which the pandemic has not impacted in the same way.

Government initiatives during the pandemic led to surpluses

Collectively, the HEIs had a surplus for 2021. This surplus was mostly the result of increased government funding for both education and research, as a result of the State's additional allocations during the year. Costs for the HEIs increased during the year, but not to the same extent as their revenues. This can likely be explained by the HEIs having not been able to recruit staff to the extent they have received funding and by decreased operating costs.

The decreases in operating costs were partly the result of lower travel costs and lower costs for conferences. This is also reflected in the number of research publications, particularly conference contributions, which decreased in 2020.

In the last decade, we have seen an increasing share of the HEIs' total income going to research and third-cycle education and a smaller percentage going to first- and second-cycle education. During the coronavirus pandemic, this changed. There was an increased in percentage of total income going to first- and second-cycle education. The background to this is that the Government increased its allocations for more student openings in combination with growing interest in higher education.

Both stability and change during the pandemic

Reading this annual report at the overall level, it becomes apparent that the changes in higher education in 2021 were not that significant. There are many areas that seem relatively unaffected by the pandemic, even if there were individual areas where the impact was significant. The same results are seen in UKÄ's studies that are part of the governmental assignment on the consequences of the coronavirus pandemic on higher education. From this we can conclude that the Swedish higher education system has proven to be both robust and adaptable.

Some of this ability can be linked to the history of Swedish higher education. One conclusion of a recently published UKÄ report on reforms in higher education and research 1940–2020 is that HEIs have a long history of adapting to changes in the world around them and to the new conditions that emerge as society changes. This has created a motivation for change. This motivation can help explain the system having been both stable and flexible during the coronavirus pandemic.

First- and second-cycle education

The level of education among the Swedish population continues to increase. The percentage of women with higher education has long been higher than that for men, and the difference between the two groups increases every year. Social imbalances in recruiting persist.

In 2021, the State continued to allocate extra funding for higher education institutions (HEIs) to increase the number of students that could be admitted. Interest for higher education also continued to be strong because of the coronavirus pandemic. This special situation was clearly visible in the high number of applicants, admitted students and enrolled students in 2020 and 2021.

In the 2021 autumn semester, just under 490,000 individuals applied to higher education courses and programmes. Of the applicants, nearly 290,000 were admitted.

The total number of students in higher education increased to record levels during the first full academic year impacted by the pandemic, 2020/21. There were just over 450,000 enrolled students in first- and second-cycle programmes and courses.

More students than ever before obtained a first-cycle or second-cycle degree in the 2020/21 academic year.

Applicants and admitted students

The State continued to allocate additional funds in 2021 to increase the number of study openings in higher education, which made it possible for the HEIs to accept more students. In the 2021 autumn semester, there were 486,177 applicants, both with and without previous higher education. This can be compared with the 459,463 applicants in the 2020 autumn semester. In the 2021 autumn semester, 289,328 applicants were accepted to higher education, which was 20,000 more than the 2020 autumn semester. In this chapter, we describe trends for different groups of applicants and admitted applicants to higher education.

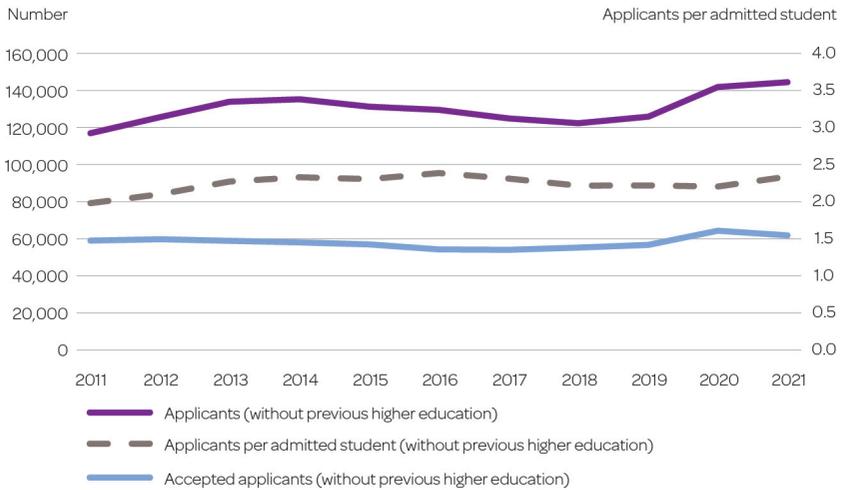
Increased interest among those without previous higher education

One way to measure the Swedish population's interest in higher education is by studying the number of applicants who have never previously attended higher education. There were just under 144,500 applicants without previous higher education in the 2021 autumn semester, which was an increase of 2 per cent compared with the previous autumn semester and higher than previously (Figure 3). Women were the majority among applicants without previous higher education. This has been the case for many years. In the last decade, the percentage of female applicants without previous higher education has gone from just under 58 per cent to just over 60 per cent.

Somewhat fewer applicants without previous higher education

Of autumn semester 2021 applicants, 61,800 without previous higher education were accepted (Figure 3). There were 2,560 fewer than the 2020 autumn semester, a 4 per cent decrease. Despite the decrease, the number was still high and has only been higher a few years after the 2008 financial crisis. Among successful applicants without previous higher education in the 2021 autumn semester, 57 per cent were women and 43 per cent men, a gender difference that has remained unchanged over the last decade. The gender balance was somewhat more even among the accepted students without previous higher education than among applicants as a whole.

Figure 3: Applicants and admitted students without previous higher education, autumn semesters 2011–2021. The acceptance rate (number of applicants per admitted student) is indicated at the right in the figure.



If we look at both groups (applicants and admitted students) in relation to each other, there were 2.3 applicants per admitted student (acceptance ratio) in the 2021 autumn semester (Figure 3). The acceptance ratio in the previous autumn semester was 2.2. This means it has become a bit more difficult to be accepted to higher education.

More 30-year-olds and older applied to higher education

The number of applicants to a higher education did not increase in all age groups, only among the youngest and those around 30 and older. In the 2021 autumn semester, the number of applicants without previous higher education increased by 11 per cent in the age group 30–34, and by 13 per cent in the age group 35 and older, compared with the 2020 autumn semester. The number of 19-year-olds increased by 6 per cent.

The youngest group made up 25 per cent of all applicants without previous higher education in the 2021 autumn semester. The 20–24 age group accounted for 42 per cent, while the 25 and older group totalled 33 per cent.

Ten years ago, 19-year-olds made up 30 per cent of applicants without previous higher education, but the percentage has decreased since then. The large increase in 19-year-olds who applied to higher education in the

2020 and 2021 autumn semesters was likely influenced by the coronavirus pandemic that has been ongoing for the last two years.

Continued increase in qualified first-choice applicants to programmes

Most students in higher education study a cohesive degree programme. For autumn semester 2021, there were 191,000 qualified first-choice applicants to programmes. This was nearly 6,600 more compared with the 2020 autumn semester and the third year in a row with an increase. Among applicants, 62 per cent were women and 38 per cent were men.

Of the qualified first-choice applicants in the 2021 autumn semester, 53 per cent applied to professional programmes, 41 per cent to general programmes and 2 per cent to fine, applied and performing arts programmes. The number of applicants to all programme categories increased compared with the previous autumn semester.

It is also possible to apply to higher education for spring semesters, but both applicants and accepted students are significantly lower than in autumn semesters. There were 50,220 qualified first-choice applicants to programmes for the 2022 spring semester, a slight decrease from the 2021 spring semester. While interest for programmes leading to a professional qualification is largely unchanged, the number of qualified first-choice applicant to general first-cycle programmes fell from 9,250 to 8,360.

Significant increase in applicants to programmes in the health sciences

Just over 102,900 qualified first-choice applicants applied to professional degree programmes for the 2021 autumn semester. The Master's in engineering programme (14,010), the nursing programme (10,340) and the social work programme (8,090) had the most applicants. Together, the four teacher training programmes (pre-school teacher, primary education, vocational teacher, and secondary/upper-secondary education) had just over 17,430 applicants, which was 17 per cent of all qualified first-choice applicants to programmes leading to a professional qualification in the

2021 autumn semester. Read more about teacher training in the section *Teacher training programmes*.

Among the teacher programmes, the number of qualified first-choice applicants to the preschool teacher and primary education programmes increased for the 2021 autumn semester but decreased somewhat to the vocational teacher and the secondary/upper-secondary education programmes.

Several professional degree programmes within health, nursing and social care saw significant increases in applicants for the 2021 autumn semester. For example, there was a 14 per cent increase in applicants to programmes leading to a nursing degree and a postgraduate diploma in midwifery. The diagnostic radiology nurse programme had 25 per cent more qualified first-choice applicants. Interest for the nursing programme continued to be strong in the 2022 spring semester but fell significantly for the midwifery programme.

Interest in different professional degree programmes varies among men and women. Significantly more women than men applied to many of the health, nursing and social care programmes. The same was true for certain teacher programmes. On the other hand, significantly more men than women applied to engineering programmes. Of the larger programmes leading to a professional qualification, the secondary/upper-secondary education programme, the Master of Science in Business and Economics and the physiotherapy programmes were the only ones that had a relatively even gender balance, that is to say, that both genders were within the interval 40–60 per cent.

The psychology programme continues to have the most applicants per admitted student

The acceptance ratio, that is to say, the number of applicants to a programme in relation to the number of accepted students, varied between different programmes. In the 2021 autumn semester, the Master's in psychology had the highest number among professional degree programmes with 11.1 qualified first-choice applicants per accepted student. This was followed by the medical programme with 7.1, the veterinary sciences programme with 6.5 and the architecture programme with 6.4 qualified first-choice applicants per accepted student.

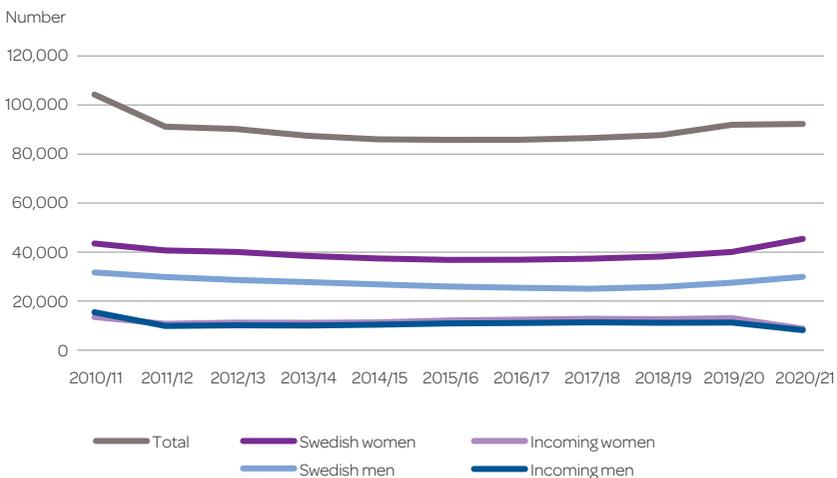
New entrants to first- and second-cycle education

A new higher education (HE) entrant is a student who is registered for the first time in first- or second-cycle education in Sweden. In the 2020/21 academic year, there were 92,240 new HE entrants to first- and second-cycle education. In this chapter, we describe the different groups of new entrants and the trend over time. Read more about first- and second cycle students (new entrants, enrolled students and graduates) per HEI in the table at the end of this report.

More Swedish new entrants

Academic year 2020/21 had 92,240 new entrants to first- or second-cycle education (Figure 4). The total number of new HE entrants was largely unchanged compared with the previous academic year, but there were large differences when comparing the number of Swedish and foreign (incoming) new entrants. Compared with the previous academic year, in 2020/21 the number of Swedish new entrants increased by 7,730 to 75,280, while the number of incoming new entrants decreased by 7,450 to 16,960. The total number of new entrants increased marginally between academic years 2019/20 and 2020/21.

Figure 4: Higher education new entrants 2010/11–2020/21, total and by Swedish and incoming new HE entrants and by gender.



Women continue to be the clear majority among new entrants to higher education. The number of women among new entrants increased by 1,010 to 54,180, while the number of men among new entrants decreased by 730 to 38,060. Women made up 59 per cent of new HE entrants and men 41 per cent.

Upper-secondary programmes differ greatly in transition to higher education

Forty-eight per cent of the 74,020 students who received an upper-secondary qualification in the 2017/18 academic year had begun higher education within three years, i.e., no later than the 2020/21 academic year.

A student with a degree from a preparatory programme for higher education automatically meets general entry requirements for higher education, while a student completing a vocational programme can meet general entry requirements to higher education through additional studies. Sixty-five per cent of students who received an upper-secondary qualification from a preparatory programme in the 2017/18 academic year had begun higher education within three years. Considerably fewer, 10 per cent, of all students who received an upper-secondary qualification from a vocational programme had begun higher education within three years.

The different preparatory programmes also differ greatly in transition to higher education. The largest transition was among students with degrees from the natural sciences programme. Eighty-five per cent of these students had begun higher education within three years. The lowest percent was among students with degrees from arts programmes, where the transition rate was 42 per cent within three years.

Of those receiving an upper-secondary qualification in the 2017/18 academic year, a larger percentage of women (55 per cent) than men (41 per cent) began higher education within three years.

Increased percentage of 19-year-olds began higher education

It is not so common for upper-secondary graduates to begin higher education immediately. The percentage of 19-year-olds making what is known as an immediate transition, however, increased during the

Women in majority among new entrants in OECD countries

Among new entrants in tertiary education, women are in the majority in practically all OECD countries. The average for OECD countries was 55 per cent women and 45 per cent men in 2019. Increasing numbers of women begin a tertiary education, and in 2019 there were no longer any countries where men were in the majority among new entrants. In Germany, the gender balance was completely even. Sweden was among the countries with the highest percentage of women among new entrants in tertiary education.

Sweden is also a country with a relatively high average age among new entrants. In 2019, the average age of new entrants for OECD countries was 22 years, while the average age in Sweden was 24 years. The oldest new entrants were in Denmark at an average age of 25. In most OECD countries, 80 per cent of new entrants in tertiary education were under 25, but in Sweden the percentage was considerably lower, 68 per cent.

Table 2: The profile of new entrants in a selection of OECD countries and the average for OECD countries in 2019. Incoming exchange students are not included in the figures. Source: *Education at a Glance 2021*, OECD.

	Percentage women (%)	Percentage men (%)	Average age	New entrants under 25 years (%)
Denmark	55	45	25	73
Finland	55	45	23	76
Germany	50	50	23	78
Iceland	61	39	24	76
Netherlands	53	47	20	94
Norway	55	45	22	84
Sweden	57	43	24	68
OECD average	55	45	22	83

coronavirus pandemic. In 2020, 16 per cent of 19-year-olds began higher education immediately after upper-secondary school, compared with 13 per cent in 2019.

Considerably more individuals began their higher education somewhat later in life. Among those from the 1996 cohort, 44 per cent had begun higher education by the age of 24. That was a small increase from the previous year.

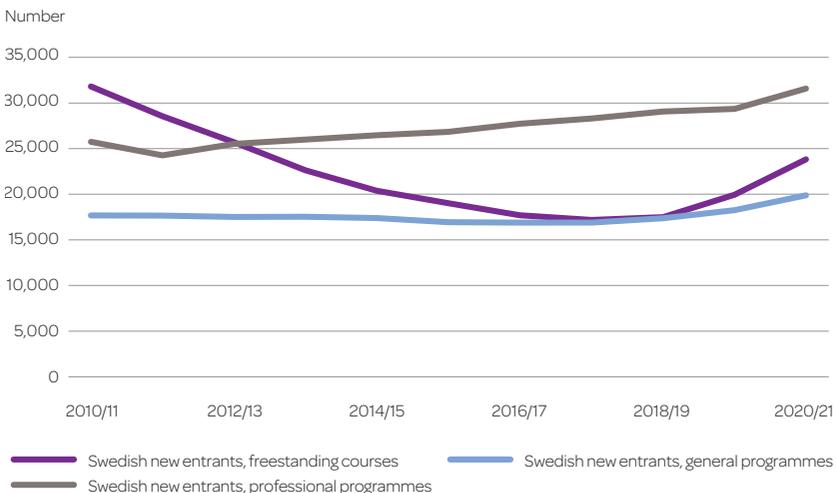
There is also a clear difference between women and men in transitioning to higher education, and this difference tends to increase as cohorts age. In 2020, more women (19 per cent) than men (13 per cent) went straight from upper-secondary school to higher education. Looking at transitioning to higher education at age 24 (those born in 1996), the differences were larger – 53 per cent of women had begun higher education compared with 35 per cent of men. The difference in the transition rate between women and men increased from 6 to 18 percentage points in five years.

Continued more Swedish new entrants in freestanding courses

The number of Swedish new entrants on freestanding courses continued to increase significantly in the 2020/21 academic year. Of the total 75,280 Swedish new HE entrants, 23,820 attended freestanding courses, an increase of 3,850 students compared with the previous academic year (Figure 5). This is the second academic year in a row that the number of Swedish new HE entrants on freestanding courses has increased and the total increase is significant. The changes can partly be explained by the large increase in the number of students attending summer courses.

It is most common for Swedish new entrants to begin their studies on a professional degree programme, and this was also true in 2020/21. In total,

Figure 5: Swedish new HE entrants divided by form of study academic years 2010/11–2020/21.



31,580 Swedish new entrants attended professional degree programmes in 2020/21, an increase of 2,230 compared with the previous academic year. For programmes providing a general qualification, the number of Swedish new entrants increased by 1,630 to 19,880.

An increase of programme new entrants on general programmes

Programme new entrants are students who registered for the first time to a specific professional degree programme or general degree programme. Programme new entrants include new HE entrants and students who previously studied in Swedish higher education but who are new entrants to a particular programme.

In total, 52,990 Swedish programme new entrants attended general degree programmes in 2020/21, an increase of 4,810 compared with the previous year. For programmes leading to a Bachelor's degree, the number of programme new entrants increased by 2,170 to 27,800.

There were 23,510 new entrants on programmes leading to a Master's degree in 2020/21, which was 2,690 more than the previous academic year. General programmes leading to a Master's degree had the largest increase, with just under 13 per cent for a total of 18,940 programme new entrants.

The gender balance was even among new entrants on Bachelor's programmes and 120-credit Master's programmes.

More new entrants on programmes leading to a professional degree

In the 2020/21 academic year, 55,480 new entrants attended programmes leading to a professional degree, which is an increase of 12 per cent compared with the previous year. Of new entrants, 64 per cent were women and 36 per cent men.

The Master's in engineering programme was the largest, while also being the programme with the largest increase in new entrants during the 2020/21 academic year – an increase of 820 to 8,340 programme new entrants. There were more women than men on most professional degree programmes. Just 6 of 49 professional degree programmes had an even gender balance.

The Student mirror 2021: The experiences of bachelor's and master's students of studying during the coronavirus pandemic

In the spring 2021, UKÄ conducted a survey of how students experienced studying during the coronavirus pandemic. The survey was aimed at a selection of the country's Bachelor's and Master's students. The response rate was 35.4 per cent.

The experiences of Bachelor's and Master's students were characterised by studies that were largely conducted through remote studies because of the pandemic. More than half indicated that all their instruction transitioned to remote learning, and nine of 10 stated that at least half of their studies were through distance education during the pandemic. Most of these students stated that the teachers organised the remote teaching well and provided good information on how instruction would take place. The students have also been encouraged to make suggestions on improvements to their remote teaching. A majority felt that they received the support they needed from their teacher to complete their studies. At the same time, about one-third stated that the lack of digital skills among the teachers negatively impacted the quality of the teaching.

There are major differences in how students on different programmes experienced their studies during the pandemic. Students in the theology, social sciences and the humanities had the largest part of their studies remotely. At the same time, programmes with more practical aspects had a somewhat more difficult transition – field work, excursions, laboratory sessions and other practical aspects decreased in extent. Women were more positive in their responses and indicated more often than men that they have become more positive to remote teaching during the pandemic. Most students, particularly women, experienced stress and anxiety during the pandemic.

The students were, on the whole, positive to the education they received during the pandemic, and most rated their programme with high marks despite the massive transition to remote teaching. Seventy-seven per cent indicate that the quality of their education overall has been good or very good during the pandemic. This number is lower than in the Student Mirror survey conducted in 2016. At that time, 91 per cent rated their education overall as good or very good.

Enrolled students

There were just over 454,090 enrolled students in first- and second-cycle higher education in 2020/21, compared with 428,693 enrolled students in the previous academic year. The total number of enrolled students includes both Swedish and incoming students. In this section, we describe the group known as 'enrolled students' and what programmes these students attended.

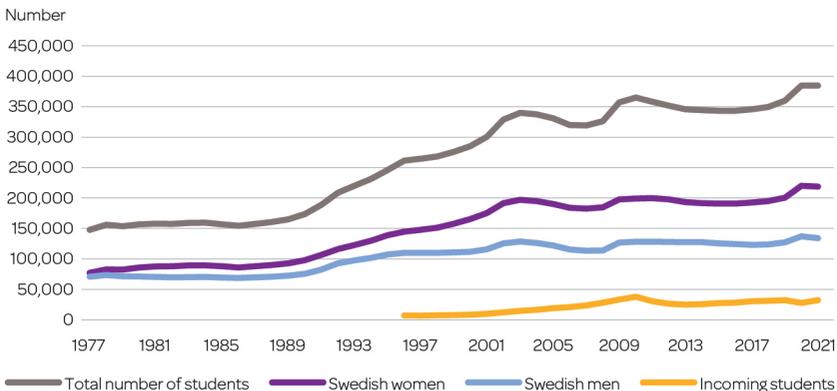
For enrolled students, we present some of the data on a per autumn semester basis. The reason for this is that enrolled students can be seen as a measurement of volume of the number of students in higher education at any given point in time.

Record number of enrolled students in the 2021 autumn semester

In total, there were 384,580 enrolled students on first- or second-cycle courses and programmes during the 2021 autumn semester (Figure 6). This was the fifth autumn semester in a row that the number of enrolled students increased, even if the latest increase is small. Women made up 62 per cent and men 38 per cent of enrolled students.

However, the increase in the number of students between the 2019 and 2020 autumn semesters was significant. This can be explained by

Figure 6: Total number of enrolled students in first- and second-cycle education autumn semesters 1977–2021, divided by Swedish women and men and by incoming students.



increased interest in higher education and the expansion of higher education by the State because of the coronavirus pandemic. This rising trend has now subsided. Even so, there have never been so many students in Swedish higher education.

On-campus study is most common but conducted as remote learning during the coronavirus pandemic

The most common form of study in higher education is on-campus study. In the 2021 autumn semester, there were 279,840 of a total 384,580 students (73 per cent) attended only as students in on-campus education. An additional 22 per cent studied solely through distance education, and the remaining 5 per cent studied both on-campus and through distance education.

In conjunction with the start of the coronavirus pandemic in March 2020, most on-campus education shifted to remote learning. During the 2021 autumn semester, much of higher education continued to be provided through remote learning because of the coronavirus pandemic. The statistics, however, present the number of students attending on-campus education and distance education based on how the courses and programmes were intended to be offered and not based on how they were actually provided. This means that the large-scale transition to remote learning is not visible in the regular statistics.

More attended freestanding distance courses

The total number of enrolled students increased in the 2020/21 academic year to 454,090, which was 25,320 more students than the previous academic year (Table 3). This was largely the result of a continued increase in the number of students attending freestanding distance courses. Of enrolled students, 62 per cent were women and 38 per cent men.

This division of students among subjects has not changed significantly in recent academic years. The single largest discipline in the 2020/21 academic year, as in previous years, was law and social sciences with 233,650 enrolled students.

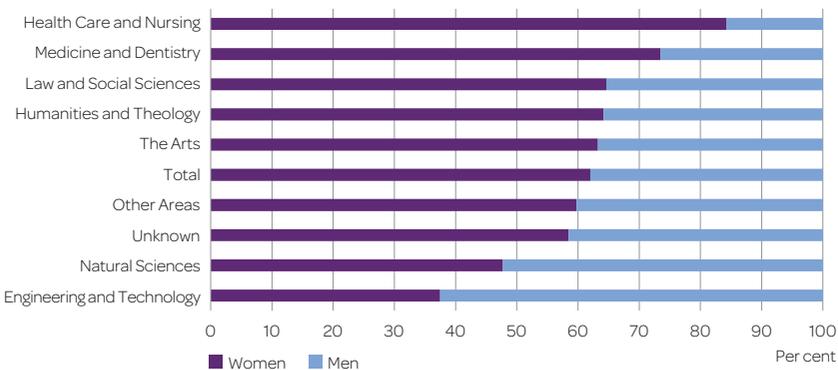
The long-term trend is for an increase in the percentage of second-cycle students. In the 2020/21 academic year, 27 per cent of enrolled students attended second-cycle programmes, which was in line with the previous academic year. Since the 2010/11 academic year, the percentage of

Table 3: Total number of enrolled students per discipline in the 2019/20 and 2020/21 academic years and the proportion enrolled second-cycle students.

	No. of students		Percentage on second cycle
	2019/20	2020/21	Total
Total	4,28,770	4,54,090	27
Law and Social Sciences	2,18,530	2,33,650	23
Humanities and Theology	1,03,640	1,08,050	11
Engineering and Technology	90,510	98,230	30
Natural Sciences	82,060	85,600	20
Health Care and Nursing	40,270	42,020	30
Medicine and Dentistry	34,940	37,400	34
Other Areas	24,770	27,260	21
The Arts	14,080	14,250	17
Unknown	7,190	1,810	-

second-cycle students has increased by 3 percentage points. The discipline with the highest percentage of second-cycle students (34 per cent) was medicine and dentistry. The lowest percentage was in the humanities and theology.

Women were the majority in most disciplines (Figure 7). Natural sciences was the only discipline with an even gender distribution. Engineering and technology was the most male-dominated discipline with 63 per cent men, while health care and nursing continued to be the most female-dominated discipline with 84 per cent women.

Figure 7: Percentage of women and men among enrolled students per discipline 2020/21.

Graduates

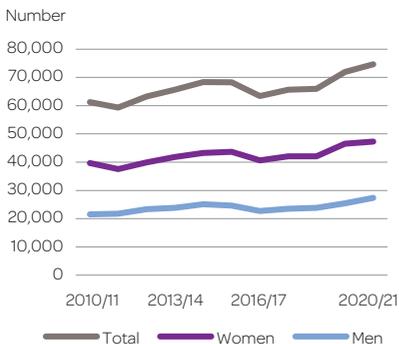
A total of 74,660 first- and second-cycle students graduated in 2020/21, compared with just over 72,000 in the previous academic year. In this section, we describe the trend in graduates over time and what degrees they received.

More students requested a degree certificate in 2020/21 than ever before

There were 74,660 graduating first- and second-cycle students in the 2020/21 academic year (Figure 8). Compared with the previous academic year, the number of graduates increased by 2,690 students, which is equivalent to 4 per cent. This means that more first- and second-cycle students than ever graduated in 2020/21. More women (63 per cent) than men (37 per cent) obtained a degree certificate. The number of men graduating increased by 8 per cent compared with the 2019/20 academic year. Women graduates increased by 2 per cent.

There seem to be multiple reasons for the increase in the number of graduating first- and second-cycle students in 2020/21. HEI representatives note that a new student registry has streamlined processing of degree certificate requests, and this has impacted the statistics. The coronavirus pandemic and changes in the labour market also seem to have increased the tendency to request a degree certificate. The pace of study may have also increased, which means that more students complete their studies and receive a degree quicker. A sign of this is that students completed a larger percentage of the credits than they were registered for during the coronavirus pandemic, compared with the previous year.

Figure 8: Number of graduates academic years 2010/11–2020/21, divided by gender.



Double degrees are common within the health sciences and engineering programmes

In the 2020/21 academic year, 87,100 degrees were issued to a total of 74,660 individuals. There are two primary explanations for the number of degrees being higher than the number of graduates. One explanation is that a student can request double degree certificates, normally a professional qualification and a general degree, based on the same credits. This is common within the health sciences and engineering programmes. For example, 63 per cent of graduates with nursing degrees also received a general degree during the 2020/21 academic year. The second explanation is that a student can complete two degrees in the same academic year, such as a Bachelor's degree at the beginning of the year and a 60-credit Master's degree at the end of the year.

It is most common to receive a general qualification. In the 2020/21 academic year, 46,080 students (61 per cent women and 39 per cent men) received a Higher Education Diploma, a Bachelor's Degree, a 60-credit Master's Degree or a 120-credit Master's Degree. Compared with 2019/20, the number of graduates who took a general qualification increased by 2,130 individuals. Above all, the number of Bachelor's degrees increased, but also more students received a 120-credit Master's degree.

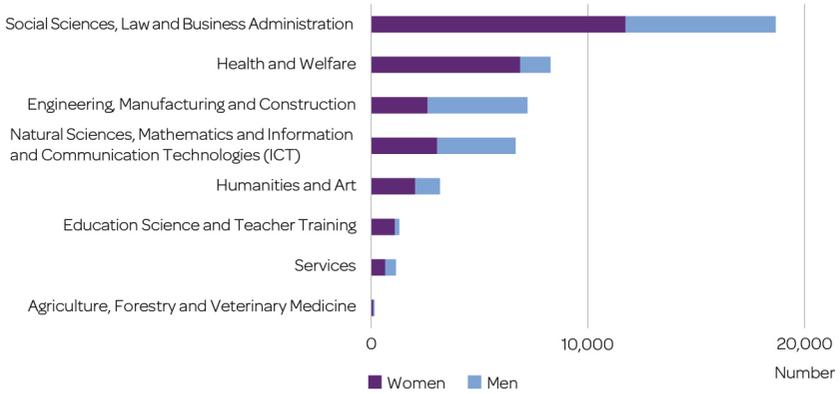
Most graduates by far in the social sciences

Social sciences, law and business administration were the largest specialisations for general qualifications with 18,670 graduates in the 2020/21 academic year (Figure 9). The specialisations of health and welfare were the next largest, with 8,270 graduates. The specialisations agriculture, forestry and veterinary care had the fewest graduates (160).

MSc in Engineering largest among professional qualifications

In the 2020/21 academic year, 36,560 individuals received a professional degree, which is unchanged from the previous academic year. Of these, 69 per cent were women and 31 per cent men. Degrees were issued in around 60 professional degree programmes (a few were issued based on earlier provisions), but around 10 programmes accounted for more than three-quarters of all professional degrees since most programmes are small.

Figure 9: Number of graduates with a general qualification based on the SUN specialisations, 2020/21 academic year, divided by gender. SUN stands for Swedish Educational Nomenclature.



The professional qualifications awarded the most were the Master of Science in Engineering, followed by the Bachelor of Science in Nursing, Bachelor of Arts in Pre-School Education, and Master of Arts/Science in Secondary/Upper-Secondary Education (Table 4). The most common professional qualification among men was Master of Science in Engineering, while among women it was Bachelor of Science in Nursing.

Of the ten largest professional qualifications, only two had an even gender balance among graduates: Master of Arts/Science in Secondary/Upper-Secondary Education and a Master of Science in Medicine.

Table 4: The 10 professional qualifications with the most graduates in academic years 2019/20 and 2020/21 and changes in per cent.

	2019/20	2020/21	Changes (%)
MSc in Engineering	4,370	4,760	9
Bachelor of Science in Nursing	4,540	4,580	1
BSc in Pre-School Education	2,990	3,000	0
MA/MSc in Secondary/Upper-Secondary Education	2,670	2,960	11
BA/MA in Primary Education	2,780	2,650	-5
BSc in Engineering	2,460	2,580	5
Postgraduate diploma in specialist nursing	2,630	2,420	-8
BSc in Social Work	2,170	2,300	6
MSc in Medicine	1,460	1,480	1
MSc in Laws	1,520	1,400	-7

Assessment of qualifications awarded outside Sweden

The Swedish labour market also benefits from university-educated immigrants and those who studied in another country. Individuals applying for jobs or higher education in Sweden can have their foreign qualifications assessed to determine their equivalency here.

The Swedish Council for Higher Education (UHR) assesses what the education is equivalent to in the Swedish educational system and then issues a certificate. In 2021, UHR issued just over 6,620 of these certificates. The most common assessment comparison was for Bachelor's degrees, where 4,150 degrees were judged to be equivalent to a Swedish Bachelor's degree. An additional 990 certificates were for 120-credit Master's degrees, 970 for 60-credit Master's degrees, 350 for higher education diplomas, and 160 for PhDs. Among professional degrees, most certificates were for engineering degrees – 740 degrees were judged to be equivalent to a Swedish Degree of Bachelor of Science in Engineering and 270 to a Swedish Degree of Master of Science in Engineering. The applications received by UHR in 2021 were for degrees from many different countries. Most came from India, Iran, Syria, Turkey and the United Kingdom.

Certain professions require a professional status qualification in the form of a licence

If a qualification awarded abroad is for a healthcare practitioner, a licence is required, in which case the National Board of Health and Welfare evaluates the foreign degree and determines whether to issue a licence. The most recent data available is from 2020, when the National Board of Health and Welfare issued 2,090 certificates for individuals with qualifications awarded abroad, of which about 1,050 were medical licenses and 430 were nursing licenses. That same year, the National Board of Health and Welfare issued 10,880 licences to individuals with qualifications awarded in Sweden.

The National Agency for Education conducts similar evaluations for certification as a teacher. In 2021, the Agency issued certificates to 820 individuals with qualifications in teaching or pre-school education awarded abroad.

Source: UHR, the Swedish National Board of Health and Welfare, and the Swedish National Agency for Education.

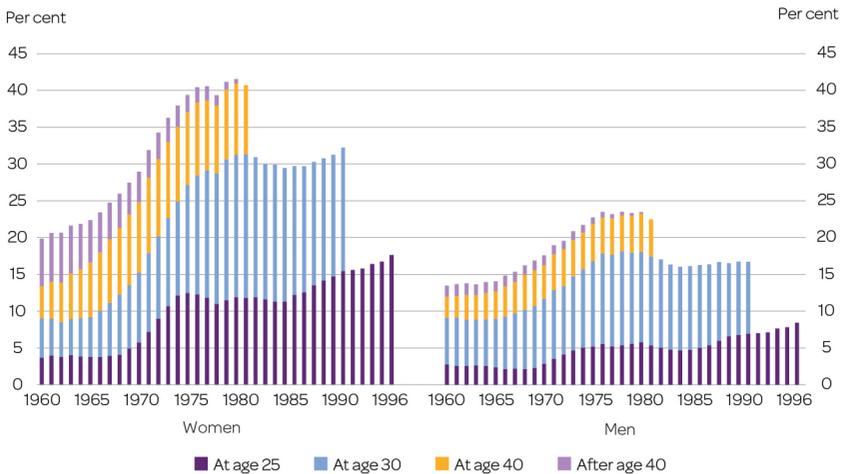
Educational attainment among the Swedish population

The education level (educational attainment) of the Swedish population has steadily increased since the 1960s. More and more people have degrees after three years of higher education, which in this context is considered highly educated. Cohorts born between 1960 and 1996 have been followed up at different ages: 25, 30, 40, and after 40 (Figure 10). Incoming students are not included in this data.

Educational attainment continues to rise

Of the cohorts born in the early 1960s, approximately 13 per cent were highly educated at the age of 40, according to the definition above. Thereafter, the percentage with higher education increased continually, and in the latest cohort followed up at age 40 (born 1981), 31 per cent had at least a three-year Higher Education Diploma as of the 2020/21 follow-up.

Figure 10: Percentage of population born 1960–1996 who, at age 25, 30 and 40 years or later, had obtained a degree after at least three years of higher education at follow-up in 2020/21, divided by gender.



Women are more highly educated than men

Women have raised their educational attainment more than men. Of the cohorts born in the early 1960s, the gender differences were minor. About 13 per cent of women and 12 per cent of men were highly educated at the age of 40. For the most recent cohort followed through age 40 (born in 1981), 41 per cent of women and 22 per cent of men were highly educated. That is a difference of 18 percentage points. This gap continues to increase, since more women than men return to education after the age of 40.

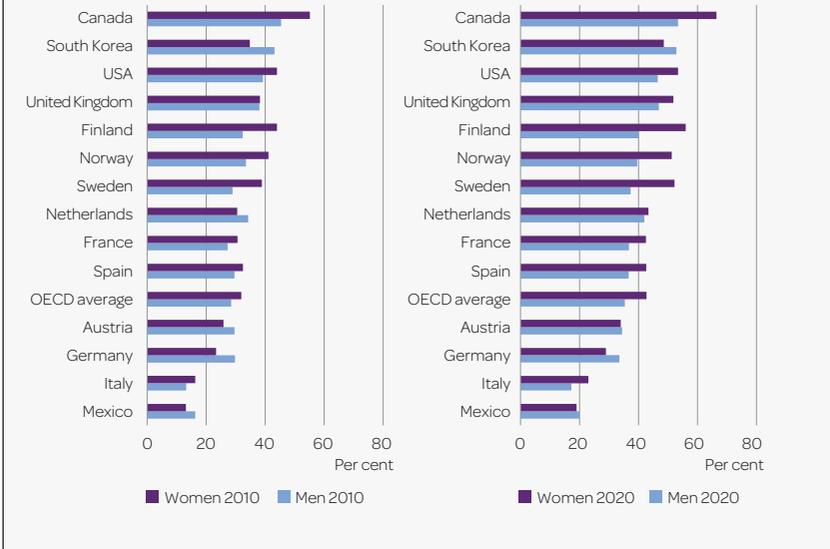
Educational attainment among the population is increasing within the OECD

Within the OECD, educational attainment has increased significantly in recent decades. This is the result of many countries, like Sweden, having expanded tertiary education. In 2010, the OECD average was 30 per cent of the adult population (25–64) having at least two years of tertiary education. Ten years later (2020), the percentage had increased to 39 per cent. In Sweden and the other Nordic countries, educational attainment is higher than the OECD average. In Sweden, the percentage of the population with tertiary education increased during the same period from 34 to 45 per cent. This was one of the biggest increases among all OECD countries. Canada had the highest educational attainment in 2020.

Women are more highly educated than men in almost all OECD countries. In 2020, women were more highly educated than men in 29 of 34 countries with data available. Women also raise their educational attainment more quickly than men, even in the countries where men are more highly educated than women. Between 2010 and 2020, the percentage of tertiary educated women in the adult population in OECD countries increased from 32 to 43 per cent. The equivalent increase for men was from 29 to 35 per cent. The educational attainment increased by 11 percentage points for women and by 7 percentage points for men. In Sweden, the increase was higher – 13 percentage points for women and 8 percentage points for men.

(Continued)

Figure 11: Percentage of women and men in the adult population (25–64) with at least two years of tertiary education in 2010 and in 2020 in a selection of OECD countries. The countries have been ranked according to the highest educational attainment level (both women and men) in 2020. Source: OECD.



Teacher training programmes

One challenge facing Sweden is access to skills in several welfare professions, such as teachers. According to the latest forecast from the Swedish National Agency for Education, a total of about 153,000 teachers and pre-school teachers need to graduate by 2035 to meet the demand for trained teachers. At current levels of new entrants and graduates, only around 141,000 teachers and pre-school teachers will graduate through 2035. If nothing changes, this means there will be a shortage of about 12,000 newly graduated teachers and pre-school teachers by 2035. The teacher shortage and that the four teacher training programmes together are a relatively large programme in volume in higher education have led us to dedicate a special section in the annual report to the teacher training programmes.

Fewer admitted to the 2021 autumn semester

In the 2021 autumn semester, there were 17,430 qualified first-choice applicants for teacher programmes. That is approximately the same number as the previous autumn semester. The number of accepted applicants, however, fell by 6 per cent. A total of 12,440 applicants were accepted to one of the four teacher programmes in the 2021 autumn semester.

The number of applicants was unchanged, or in some cases had a slight increase, while the number of accepted applicants fell for most teacher degrees and specialisations. The exception is Higher Education Diploma in Vocational Education, which had both a decrease in the number of applicants and a decrease in the number of accepted applicants for the 2021 autumn semester. This occurred even though the State had allocated extra funding to expand the vocational teacher programme from 2021.

In the 2021 autumn semester, the Master of Arts/Science Upper-Secondary Education programme received both the most applicants and accepted the most students.

Large increase in number of new entrants 2020/21

In the 2020/21 academic year, a total of 13,910 students began a programme for some type of teaching qualification. This is the highest number of new HE entrants since the current teacher degrees were introduced in 2011/12 and an increase of 14 per cent compared with the 2019/20 academic year (Figure 12). The increase is likely closely linked to the increased demand for higher education in general during the pandemic's initial phase. Since we see a decrease in the number of accepted applicants and new HE entrants to teacher programmes in the 2021 autumn semester, it is unclear how well this increase will be sustained.

As in previous years, the gender distribution was uneven among new entrants. Of all students who began studies for any type of teaching degree in the 2020/21 academic year, 73 per cent were women and 27 per cent men.

Highest number of graduates since introduction of the teaching license

In the 2020/21 academic year, 9,890 students received some type of teaching qualification (Table 5). This was a slight increase compared with the previous academic year. This is also the highest number of graduates

Figure 12: Number of new entrants on different teacher training programmes, academic years 2011/12–2020/21. *This also includes students on supplementary teacher education (KPU).

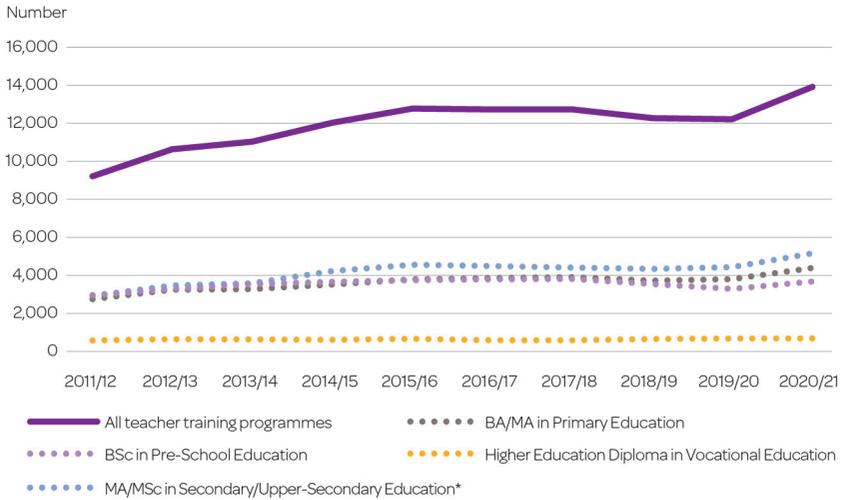


Table 5: Number of graduates on teacher programmes 2019/20 and 2020/21 academic years, total and divided by gender. The data are net totals.

	2019/20			2020/21		
	Total	Women (%)	Men (%)	Total	Women (%)	Men (%)
BSc in Pre-School Education	2,990	96	4	3,000	96	4
BA/MA in Primary Education	2,780	80	20	2,650	79	21
After-school centres	690	63	37	660	59	41
Grades Pre-school-3	1,300	94	6	1,170	94	6
Grades 4-6	790	72	28	810	75	25
BA/MA in Education	840	75	25	690	77	23
Higher Education Diploma in Vocational Education	480	64	36	610	57	43
MA/MSc in Secondary/Upper-Secondary Education	2,670	57	43	2,960	60	40
Upper-secondary schools	1,810	54	46	2,000	57	43
Grades 7-9	860	64	36	970	67	33
Total	9,760	77	23	9,890	77	23

since the 2010/11 academic year, when the number of graduates was high in connection with the introduction of the teaching license. In academic year 2020/21, women made up 77 per cent of graduates and men 23 per cent. It was most common to graduate with a pre-school teacher degree, followed by a Master's in upper-secondary education.

As in previous years, the gender distribution was uneven for several of the teacher training programmes and specialisations. Only the Master's in upper-secondary education, the Higher Education Diploma in vocational education and Bachelor's or Master's in primary education with specialisation on after-school centres had an even gender distribution with the percentage of women and men between 40 and 60 per cent. The gender distribution was most uneven among those who obtained a degree qualifying for work with younger children, that is to say, a Bachelor's in pre-school education and Bachelor's or Master's in primary education specialised on working with pre-school classes and grades 1–3, respectively.

Widening participation in higher education

According to the Higher Education Act, the HEIs are to actively promote and widen participation in higher education. In this section, we analyse imbalances in recruitment measured, in part, by social background in the form of the educational attainment of the highest educated parent and, in part, by national background (Swedish or foreign background).

Certain decrease in social imbalance in recruitment – but it remains significant

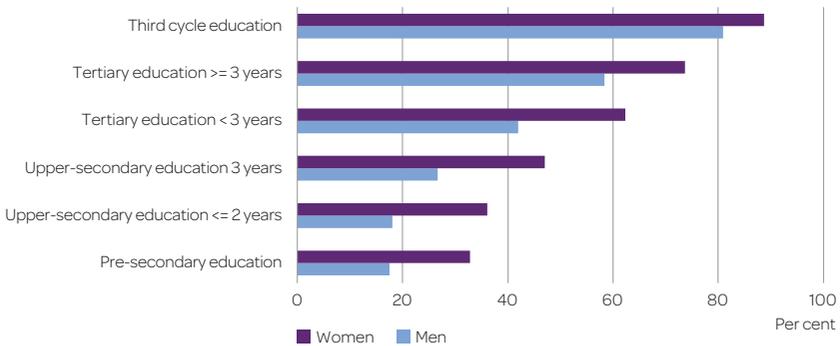
Here, the educational attainment of the highest educated parent is used as a measurement of social background. Of all individuals (with data on the educational attainment of the parents) born in 1996, 46 per cent had begun higher education by age 25 (2021). The parents' educational attainment plays a major role in the tendency to begin higher education. Young people with at least one parent that had completed higher education had the highest transition to higher education (85 per cent), and those with parents with a pre-secondary education had the lowest transition rate (25 per cent). The other groups fell within this range.

The social imbalance in recruitment shows the same patterns in all cohorts born 1986–1996: the higher the educational attainment of the parents, the more common it is to attend higher education. Children of parents with third-cycle education had the same large transition to higher education in all cohorts, while the transition decreased somewhat in the group with parents who had the next highest educational attainment (post-secondary education of at least three years, not including third-cycle education) – from 71 to 66 per cent.

At the same time, it has become more common for young people with parents who only have pre-secondary education to begin higher education – the percentage that transition to higher education has increased from 21 to 25 per cent. The changes do not, however, impact the basic pattern, where the difference in transition to higher education varies greatly depending on what education the parents have. The decreasing transition to higher education in the group with highly educated parents (excluding third-cycle education) is also dependent to some degree on changes in the education system, which extended several degree programmes from less than three years to three years or longer. This means that parents with similar post-secondary education have been classified differently over time.

The transition to higher education was higher for women than for men in all social groups, but the pattern was the same for both genders. The higher the educational attainment of the parents, the more common it is to attend higher education (Figure 13).

Figure 13: The percentage of women and men born in 1996 that have begun Swedish higher education by age 25, divided by the parents' educational attainment. Includes individuals registered in Sweden at both ages 12 and 25.



More common with highly educated parents both in higher education and in the population

The social composition among new entrants depends, in part, on the population's social composition at the same ages as the new entrants and, in part, on the degree by which individuals from different social backgrounds begin higher education.

The analyses for the 2020/21 academic year are based on 68,590 new entrants (not including incoming students or students where the parental educational attainment is not known). Among these, 45 per cent had parents who had high educational attainment (at least a three-year tertiary education), 36 per cent had parents with a medium educational attainment (a three-year upper-secondary education or a post-secondary education less than three years), and 19 per cent had parents with low educational attainment (at most two-year upper-secondary education). Since the previous academic year, the percentage with highly educated parents has increased 3 percentage points while the percentage with parents that have a low or medium educational attainment has decreased by the same percentage. The change is even larger if we go back to the 2011/12 academic year, when 34 per cent of new entrants had parents with high educational attainment, 38 per cent had parents with medium educational attainment and 28 per cent had parents with low educational attainment.

Parallel with the changes in social composition of higher education, similar changes have occurred in the social composition of the population. The percentage with parents with low educational attainment decreased in the population from 42 to 32 per cent 2011–2020, while the percentage with parents with high educational attainment increased from 22 to 30 per cent. Since the social composition differs between different age groups, the statistics on the population are weighted based on the percentage of new HE entrants in different age groups.

Regardless of the point in time examined, the social composition is different in higher education than the population in general. Compared with the population, the percentage of individuals with parents with high educational attainment is greater in higher education and there is a lower percentage of individuals with parents with low educational attainment. The difference is primarily because the recruitment imbalance to higher education.

The social composition also varies between different programmes. Among new entrants on the largest professional degree programmes (with at least 200 programme new entrants) in the 2020/21 academic year,

the medical programme had the largest percentage of new entrants with parents who had a high educational attainment, 74 per cent. This was followed by the architecture and Master's in engineering programmes, respectively, where 67 per cent of new entrants had parents with high educational attainment. It was least likely to have parents with high educational attainment among new entrants on the vocational teacher programme (15 per cent) and the pre-school teacher programme (20 per cent). The group with parents with high educational attainment was underrepresented on these programmes (they made up 30 per cent of the population). Among new entrants on general programmes and fine, applied and performing arts programmes, the programmes leading to 120-credit Master's degrees had the largest percentage of students with parents with high educational attainment, 51 per cent and 61 per cent respectively.

Foreign-born students who immigrated before school start are falling behind

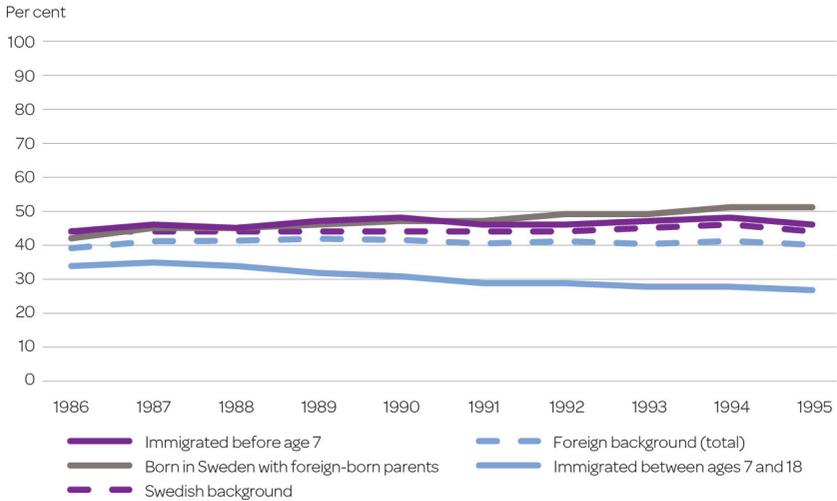
An imbalance in recruitment to higher education can occur based on national background (Swedish or foreign). By *Swedish background* is meant individuals born in Sweden with at least one Swedish born parent. By *foreign background* is meant individuals that belong to the Swedish population and that are either born abroad or born in Sweden with two foreign-born parents. Incoming students are not a part of the Swedish population, so they are not included in the group of foreign-born students.

Of all individuals born in 1995 who were registered in Sweden at 18 years of age, 43 per cent had begun higher education by age 25. National background influences the tendency to begin higher education (Figure 14). The transition to higher education among individuals with foreign background (total for the three groups) was 40 per cent, compared with 44 per cent among those with a Swedish background.

The transition rate for individuals born in Sweden with two foreign-born parents was 51 per cent, and for the foreign-born individuals who immigrated before 7 years of age, the transition rate was 46 per cent. These groups had a higher transition to higher education than youth with a Swedish background.

The transition rate to higher education for foreign-born individuals who immigrated between the ages of 7 and 18 was much lower: 27 per cent. This is also the lowest transition rate for this group over the last decade, and the trend is that fewer and fewer begin higher education.

Figure 14: Percentage of 1986–1995 cohorts that began Swedish higher education by age 25, divided by Swedish and foreign background (with three subgroups). Includes individuals registered in Sweden by age 18.



Women transitioned to higher education more frequently than men in all groups.

Common with foreign background among those studying to become pharmacists and dentists

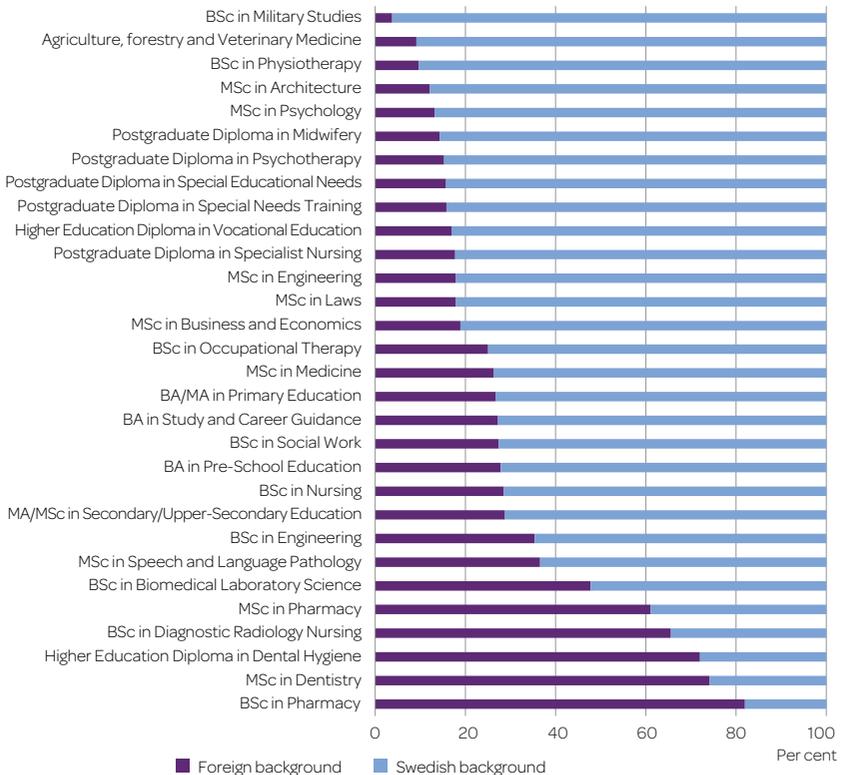
The composition of new entrants in higher education based on national background is the result of both the composition of the population in the corresponding age group and the degree to which individuals with Swedish or foreign backgrounds begin higher education. An analysis of 75,200 new HE entrants (under age 65 and excluding incoming students) for the 2020/21 academic year shows that 74 per cent had a Swedish background and 26 per cent a foreign background – a distribution that also existed when dividing them by gender. In the previous academic year (2019/20), individuals with foreign background made up 28 per cent of all new entrants.

Even with the lower percentage of new entrants with foreign background in 2020/21, the *number* of new HE entrants with foreign background increased. That the percentage with foreign background still decreased is because there has been a larger increase in the number of new entrants in the group with a Swedish background.

Viewed over a longer period, however, the percentage of individuals with foreign background increased among new HE entrants, from 18 to 26 per cent between 2011/12 and 2020/21 the academic years. This increase is related to the percentage of individuals with a foreign background also having increased in the population (in ages 19–64) from 22 to 29 per cent 2011–2020.

There was, however, a large variation between programmes in percentage of new entrants with foreign background. Among professional degree programmes with at least 200 new entrants, several programmes had a percentage with foreign background larger than 26 per cent in 2020/21. The percentage with foreign background was largest in the pharmacy programme, at 82 per cent, and the dental programme, at 74 per cent (Figure 15).

Figure 15: The per cent of new HE entrants (under age 65) with Swedish and foreign background on professional degree programmes with at least 200 new programme entrants in the 2020/21 academic year. *The category agriculture and forestry includes several programmes, since there are less than 200 new entrants on the individual programmes.



How do HEIs work with widening participation?

Since 2001, the Higher Education Act specifies that HEIs must actively promote and widen participation in higher education. UKÄ has been tasked by the Government to evaluate how HEIs work to widen participation in first-, second- and third-cycle programmes. This work considers gender, parents' educational background and foreign or Swedish background. Within the framework of the assignment, an assessment panel has provided recommendations to the Government and HEIs for their continued work on widening participation. Some examples:

- The HEIs conduct many initiatives to widen participation. But this work needs clearer governance and coordination, with decisions that have concrete goals and procedures for appropriate follow-up.
- Almost all HEIs work with breaking traditional gender-based choices of education to achieve a more balanced gender distribution on their programmes. There are differences in these measures. The HEIs work more intensely with trying to increase the number of women to engineering programmes than trying to attract more men to apply to women-dominated health and teacher training programmes.
- The HEIs should focus particular attention on the groups with a national background that is underrepresented in higher education or within a specific programme.
- To widen participation, the HEIs should collaborate more with schools, sports movements and civil society.

Special educational support for students with functional diversities related to academics

HEIs can apply for funding for special educational support for students with functional diversities related to their studies. A total of 26,926 students, of which 36 doctoral students, received such support in 2021. Of those who received support, 68 per cent were women and 32 per cent were men. There were eight areas of functional variation, with dyslexia and specific reading and writing difficulties

(Continued)

the most common. Just under half (12,180 students) of those who received support were students with this variation. Compared with the previous year, the number who received support increased by 4,010 students. There has been a continual increase from year to year, and compared with 2011, the number of students who have received support increased by 19,270. There has not been a comparable continuous increase in the number of students in higher education during this period.

International student mobility

The coronavirus pandemic has had a major impact on international student mobility. In the 2020/21 academic year, Sweden hosted 33,000 incoming students, a decrease of 16 per cent compared with the previous academic year. The latest statistics, however, show that the inflow of international students in the 2021 autumn semester is almost back to the same level as prior to the pandemic.

Most incoming students from countries outside of the EU/EEA and Switzerland pay tuition fees for first- and second-cycle studies. In the 2020/21 academic year, the number of tuition fee-paying students decreased for the first time in 10 years.

In the 2020/21 academic year, there were just over 16,000 Swedish students studying abroad, either as exchange students or as freemover students. This was considerably fewer than the previous academic year.

Of the first- and second-cycle graduates in 2020/21, only 13 per cent had spent a study or training period of at least three months abroad during the course of their studies. This is short of the goal of 20 per cent that the EU Council of Ministers decided in 2011.

The number of incoming students

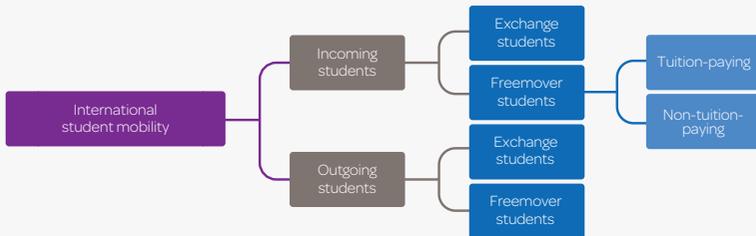
The total number of incoming students in Sweden was 33,300 in the 2020/21 academic year. This was a decrease of 6,310 students, equivalent

Incoming and outgoing student – definitions

Exchange students are students participating in exchange programmes between Swedish and foreign higher education institutions.

Freemover students arrange their own studies in Sweden or abroad. Incoming freemover students from countries outside the EU/EEA and Switzerland pay application and tuition fees to study in Sweden. This means that freemover students can be divided into *fee-paying* and *non-fee-paying students*. Outgoing freemover students have student finance from the Swedish National Board of Student Aid (CSN) for studies abroad and have made their own arrangements for their studies.

Figure 16: Different groups of international mobile students from a Swedish perspective.



to 16 per cent, compared with academic year 2019/20. Since the number of Swedish students in higher education also increased, the change resulted in a decrease in the percentage of foreign students among enrolled students at Swedish higher education institutions (HEIs), from 10 per cent to 7 per cent.

Of all incoming students in 2020/21, women made up 53 per cent and men 43 per cent, a distribution that has remained stable for the last five years.

Large decrease in exchange students at Swedish HEIs

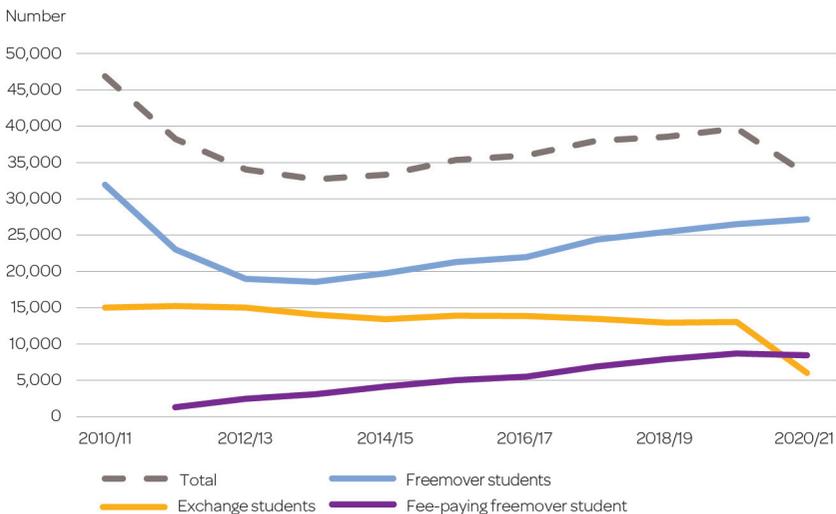
The incoming students can be divided into exchange students and freemover students (see fact box *Incoming and outgoing students – definitions*).

The coronavirus pandemic, which was ongoing throughout the 2020/21 academic year, had the greatest impact on the number of exchange students. They decreased by about 50 per cent, from 13,130 to 6,160. The number of freemover students, however, increased slightly, from 26,500 to 27,180. This means that freemover students made up 82 per cent of incoming students at Swedish HEIs in the 2020/21 academic year, compared with 67 per cent in the previous academic year.

Major changes in the percentage of incoming students over the last decade

If we look at the last decade, two events in particular clearly impacted the percentage of incoming students (Figure 17). The first is that the number of freemover students decreased significantly in the first years after tuition fees were introduced in July 2011. The second is that the number of exchange students decreased significantly in the 2020/21 academic year as a result of the pandemic.

Figure 17: Incoming students academic years 2010/11–2020/21, total and divided by exchange students, freemover students and fee-paying freemover students.



After tuition fees were instituted, the number of paying freemover students increased steadily until academic year 2019/20. In the 2020/21 academic year, however, the number of tuition fee-paying students decreased for the first time in 10 years. A total of 8,580 freemover students paid tuition fees in the 2020/21 academic year, a decrease of 240 students compared with the previous academic year. Of all fee-paying freemover students, 42 per cent were women and 58 per cent men.

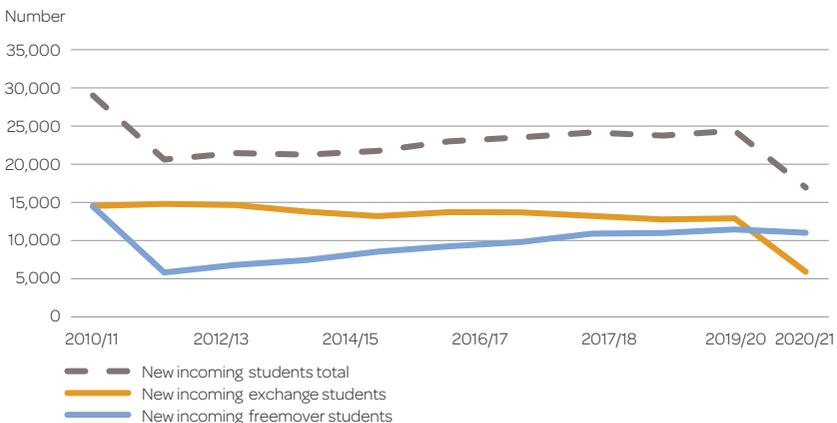
Master's degrees most common among incoming students

In the 2020/21 academic year, 8,030 incoming students graduated with their first qualification in Sweden, which was an increase of 570 individuals compared with the previous academic year. Most, 80 per cent, completed a Master's degree. Among graduates, 97 per cent were freemover students.

New incoming students

In the 2020/21 academic year, 16,950 new incoming students were enrolled, which was a decrease of 7,450 compared with the previous academic year (Figure 18). The percentage of new incoming students has varied between 62 per cent and 65 per cent of all incoming students since

Figure 18: Number of new incoming students academic years 2010/11–2020/21, total and divided by exchange students and freemover students.



the 2012/13 academic year. In the 2020/21 academic year, they made up just half of incoming students.

The number of new incoming exchange students decreased the most

The number of exchange students, in particular, decreased significantly in the 2020/21 academic year. The number of new incoming exchange students to Sweden fell by half compared with the previous academic year, from 12,900 students to 5,910 students. The major decrease was a result of the coronavirus pandemic. One of its impacts was that many foreign universities suspended their exchange agreements.

The number of freemover students did not decrease anywhere as much as the number of exchange students. In the 2020/21 academic year, 11,040 new incoming freemover students were enrolled, which was a decrease of 4 per cent compared with the previous academic year.

As Figure 18 shows, the relationship between the number of new incoming exchange students and the number of new incoming freemover students has changed over time. Ten years ago, the groups were roughly the same size, with about 14,500 students each. The number of new freemover students fell significantly when tuition fees were introduced for the 2011/12 academic year. There were more new exchange students than new freemover students through the 2019/20 academic year. The balance between the student groups changed again with the pandemic. In the 2020/21 academic year, there were significantly more new incoming freemover students than new incoming exchange students.

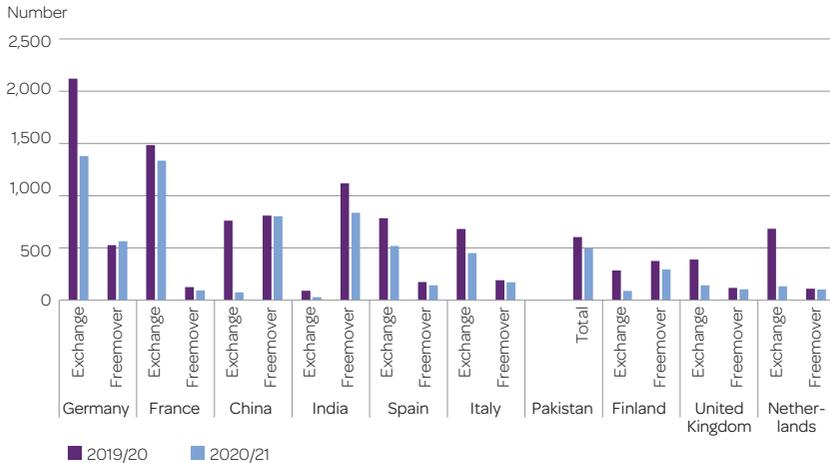
Fewer new fee-paying freemover students

In the 2020/21 academic year, there were 4,440 new incoming freemover students who paid tuition fees. This was a decrease of 770 students, equivalent to 15 per cent, compared with the 2019/20 academic year. The non-fee-paying new incoming freemover students, however, increased in number.

Most incoming students continue to come from Germany, France and China

Germany, France and China are the three countries that have sent the most new incoming students to Sweden for several academic years in a row (Figure 19). Of these three countries, the number of new incoming

Figure 19: Number of new incoming students from the 10 countries sending the most new incoming students in the 2020/21 academic year, divided by exchange and freemover students, academic years 2019/20 and 2020/21. The countries have been ranked according to the most new incoming students the 2020/21 academic year. *Because of privacy concerns, only a total number is given for Pakistan



Country data is missing for some freemover students

Comprehensive data on country of origin is available for incoming exchange students but not for all incoming freemover students. In the 2020/21 academic year, country of origin data was missing for 42 per cent of incoming freemover students compared with 31 per cent the previous academic year. That the percentage increased during the coronavirus pandemic can in part be the result of more students studying remotely and not coming to Sweden.

Other explanations to the lack of country of origin data for some incoming freemover students is that students from other Nordic countries do not need a residence permit to live in Sweden. It is also probable that many of the students from the EU/EEA and Switzerland do not have to apply for residence permits, as these are not required for short periods of stay in Sweden. This means that the number of freemover students from the EU/EEA and Switzerland is likely underestimated in the statistics.

students decreased the most from China. Other countries that sent significantly fewer new incoming students in 2020/21 were Bangladesh, Canada and Singapore.

One country no longer among the leading contributors of new incoming students to Sweden is the United Kingdom. The number of incoming new entrants from there has fallen each academic year since the 2016/17 academic year, with 250 students in 2020/21.

Significant reduction in new exchange students from non-European countries

The number of new exchange students fell from all regions globally in 2020/21. The largest decrease was in students from countries outside the EU/EEA and Switzerland, by 84 per cent. Several of the non-European countries that normally contribute relatively large numbers of exchange students to Sweden saw even larger decreases, such as from Australia (92 per cent), USA (91 per cent) and China (90 per cent).

The number of new incoming students from EU/EEA countries and Switzerland also fell, but only by 37 per cent. Of the approximately 5,900 new incoming exchange students who began studying at Swedish HEIs in the 2020/21 academic year, 5,140 were from EU/EEA countries and Switzerland. Even before the pandemic, exchange students primarily came from these countries.

Even though the influx of new exchange students fell most from countries outside the EU/EEA and Switzerland in the 2020/21 academic year, there was also a significant decrease from some countries in the EU/EEA, such as the Netherlands and Norway. The number of new incoming exchange students fell by 550 students (80 per cent) from the Netherlands and 150 students (88 per cent) from Norway.

Freemovers most often attend Master's programmes

While exchange students almost always take freestanding courses during a relatively short period in Sweden, most freemover students attend degree programmes and stay longer. In the 2020/21 academic year, 9,070 of 11,040 new incoming freemover students attended a degree programme, which was equivalent to 82 per cent of new freemover students. Nearly 70 per cent of these attended a Master's (120-credit) programme (Table 6).

Table 6: The number of new incoming freemover students in the 2020/21 academic year, by whether the studies were in freestanding course or degree programmes that lead to different types of degrees. Gender and change compared with the 2019/20 academic year.

	Academic year 2020/21			Change compared with the 2019/20 academic year		
	Total	Women	Men	Total	Women	Men
Total	11,040	5,570	5,460	-430	-170	-260
Courses	1,980	1,160	810	-230	-120	-110
Degree programmes	9,060	4,410	4,650	-200	-50	-150
Higher Education Diploma	0	0	0	0	0	0
Degree of Bachelor	1,050	540	510	100	0	100
Degree of Master (60 credits)	1,150	610	540	-150	-110	-40
Degree of Master (120 credits)	6,230	2,940	3,290	-190	60	-250
Fine Arts Degree	210	140	70	20	20	0
Professional qualifications	420	180	240	10	-30	40
Other programmes	30	10	20	10	0	10

Read more about the qualifications framework in the chapter *The Swedish system for higher education and research*.

More incoming students in autumn semester 2021

The latest available statistics on new incoming students apply to autumn semester 2021. These show a significant rebound in new incoming students to Swedish HEIs.

For the 2021 autumn semester, 17,700 new incoming students registered at Swedish HEIs. This was a decrease of 4,660 students, equivalent to 36 per cent, compared with autumn semester 2020. Above all, the number of new incoming exchange students increased (108 per cent), but also more freemover students and fee-paying freemover students began studying at Swedish HEIs in autumn semester 2021. The latest statistics show that the influx of new incoming students to Sweden is nearly back to the level from prior to the pandemic.

Outgoing students

In the 2020/21 academic year, there were 16,250 Swedish students who studied abroad. Most of these, 14,450 students, were freemover students, and 1,820 were exchange students (Figure 20). Among outgoing students, 59 per cent were women and 41 per cent were men.

Dramatic decrease in outgoing exchange students

In total, the number of outgoing students fell by 6,230 compared to the previous academic year, which is related to the coronavirus pandemic. Exchange students made up the largest part of this decrease. This group fell by 5,260 students, while freemover students fell by 1,010 students.

As shown in Figure 20, the total number of students who studied abroad has varied over the last 10 academic years. From 2011/12 to 2014/15, the number of outgoing students increased from 24,580 to 26,240. Thereafter, there has been a downward trend, which was amplified by the pandemic. The number of outgoing exchange students fell from 7,090 students in 2019/20 to 1,820 students in 2020/21.

Figure 20: Number of outgoing students, divided by student category and gender, academic years 2010/11–2020/21.

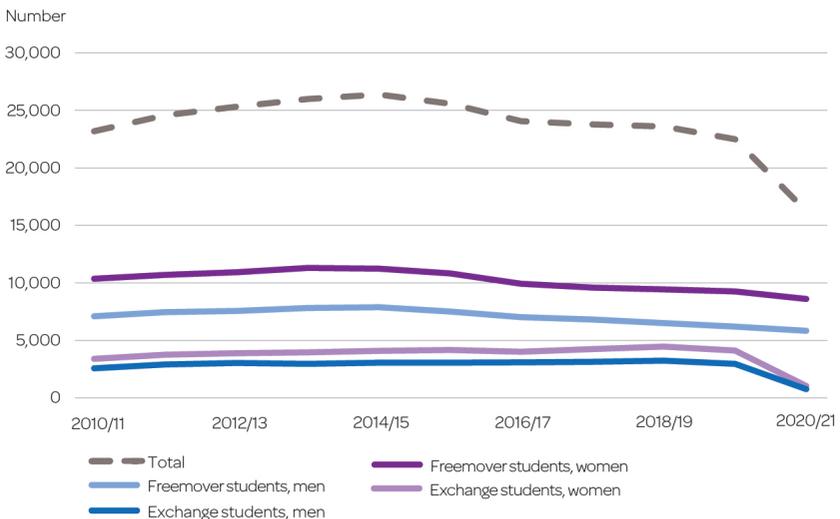


Table 7: Number of outgoing students per geographic area in the 2020/21 academic year, by student category and changes compared with the previous academic year. Recipient countries with more than 400 students before the pandemic (academic year 2019/20) are included.

Geographic area/country	All outgoing students 2020/21	Percentage women/men (%)	Change from 2019/20 (number)	of whom exchange students 2020/21	Change from 2019/20 (number)	of whom freemover students 2020/21	Change from 2019/20 (number)
All areas	16,250	59/41	-6,230	1,820	-5,260	14,450	-1,010
Nordic countries excluding Sweden	1,870	61/39	-80	150	-110	1,720	30
Denmark	1,060	60/40	10	60	-40	1,000	50
Norway	590	65/35	-40	40	-50	550	10
EU27 excluding the Nordic countries	6,340	57/43	-1,190	1,080	-1,470	5,270	270
France	530	66/34	-200	270	-220	260	20
Italy	400	61/39	-150	170	-140	230	-10
Latvia	580	62/38	100	0	0	580	100
Netherlands	710	63/37	-220	80	-290	630	70
Poland	1,150	55/45	-50	10	-20	1,140	-30
Spain	550	61/39	-260	150	-250	400	-10
Germany	530	56/44	-150	130	-120	400	-30
Europe excluding EU27 and the Nordic countries	4,210	64/36	-350	300	-410	3,910	50
United Kingdom	3,530	66/34	-380	150	-350	3,380	-30
Switzerland	510	50/50	40	140	-20	370	60
Africa	80	68/32	-150	10	-110	70	-40
North America	2,490	56/44	-1,940	60	-1,120	2,430	-840
Canada	180	58/42	-450	20	-400	160	-52
USA	2,290	55/45	-1,360	30	-580	2,260	-780
South America	70	50/50	-160	20	-120	50	-40
Asia	580	52/48	-1,630	190	-1,460	390	-170

(Continued)

Table 7: Continued.

Geographic area/country	All outgoing students 2020/21	Percentage women/men (%)	Change from 2019/20 (number)	of whom exchange students 2020/21	Change from 2019/20 (number)	of whom freemover students 2020/21	Change from 2019/20 (number)
Japan	140	38/62	-260	40	-240	100	-20
China	50	49/51	-370	20	-350	30	-20
Singapore	20	39/61	-420	10	-410	10	-10
South Korea	180	70/30	-230	90	-170	90	-60
Oceania	690	71/23	-870	20	-490	670	-380
Australia	660	71/29	-790	20	-440	640	-350

Large decrease in outgoing students to North America

The number of outgoing students fell to nearly all areas of the world in the 2020/21 academic year (Table 7). The largest decrease was to countries in North America, where only 2,490 Swedish students studied in the 2020/21 academic year, compared with 4,420 in the previous academic year. The number of outgoing students also fell to most European countries, with the exception of Denmark and Switzerland. Even with lower numbers than previously, the United Kingdom was still the single largest recipient country for outgoing students.

Destination countries for students differed between exchange students and freemover students. The United Kingdom and the United States were the most common countries for outgoing freemover students. For outgoing exchange students, France and Italy were the largest recipients in the 2020/21 academic year.

Most outgoing freemover students studied social sciences

Like previous academic years, the most common specialisation for outgoing freemover students was the social sciences, law, trade and administration. In the 2020/21 academic year, 39 per cent of outgoing freemover students studied within this specialisation. Other common specialisations were health and medical care and social care, which 21 per cent of outgoing freemover students studied, and the humanities and arts, which 18 per cent studied. Students in other specialisations were just a few percentage points in each subject area.

The EU goal for studies abroad

In 2011, the EU Council of Ministers decided that by 2020, at least 20 per cent of all graduates in higher education should have spent a study or training period of at least three months abroad.

In Sweden, there were 66,160 first- and second-cycle graduates in the 2020/21 academic year. Of these, 13 per cent (excluding incoming students) had studied abroad for part of the last 12 semesters. This means Sweden does not reach the EU goal. The percentage has been around 14–15 per cent for several academic years. Twelve per cent of women and 15 per cent of men who graduated in 2020/21 had studied abroad.

There are major differences in the number of students who study abroad depending on the degree the students obtained. The percentage was highest in 2020/21 among graduates with a Master's in Business and Economics, 44 per cent. Among those who graduated with a Bachelor's of Arts in Pre-School Education, one per cent had studied abroad.

Third-cycle education

In autumn 2021, there were 17,400 doctoral students (third-cycle students) at Swedish higher education institutions (HEI). This was somewhat fewer than autumn 2020. For the first time, there were more women than men among the doctoral students.

The imbalance in recruitment based on Swedish or foreign background had nearly vanished in the 2020/21 academic year. The social recruitment imbalance, however, was clear, even if it had decreased.

There was a large international presence in third-cycle education. Among third-cycle new entrants, 41 per cent were foreign. Among all third-cycle students, 36 per cent were foreign. Neither the foreign new entrants nor the foreign doctoral students decreased during the coronavirus pandemic.

In 2021, there were 2,670 doctoral degrees issued, which was an increase of 100 degrees compared with the previous year.

In 2020, a third of the graduates had conducted part of their studies abroad.

Transition to third-cycle education

Three per cent of first- and second-cycle graduates between 2012/13 and 2015/16 began a third-cycle education by academic year 2020/21. The transition was larger for men (5 per cent) than among women (3 per cent), but basically the same number of women as men began

third-cycle education. The transition was larger among men because, in part, they attended academic programmes where it was comparatively common to continue to third-cycle education.

Large transition within natural sciences, mathematics and ICT

The highest transition to third-cycle education (10 per cent) was among graduates in the natural sciences, mathematics, and information and communication technology (ICT). The lowest was among graduates within education science and teacher training (1 per cent).

The large differences in transition between different degree specialisations can partially be explained by the nature of the programmes. Some of the programmes prepare students for a career outside of higher education while other programmes have a clear connection to an academic career.

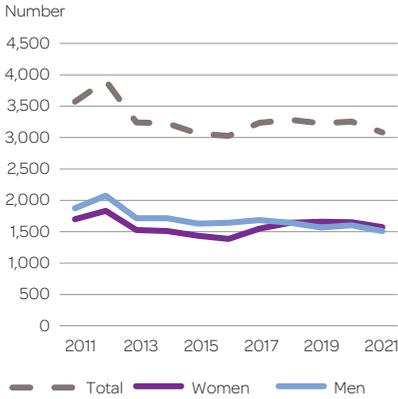
Third-cycle new entrants

An individual is counted as a third-cycle new entrant in the calendar half year from first being registered with at least 1 per cent activity. The group third-cycle new entrants includes individuals accepted for studies leading to a licentiate degree (two years of full-time third-cycle studies).

Even gender distribution among third-cycle new entrants

In 2021, there were 3,100 third-cycle new entrants, which was 170 fewer than in 2020 (Figure 21). The final number will be somewhat higher, likely at the same level as 2020, since there is some delay in reporting.

For the third year in a row, there were slightly more women than men among new entrants, 51 per cent women and 49 per cent men. Over the last ten years, third-cycle education has had an even gender distribution, that is to say, the percentage of women and men has been in the interval 40–60 per cent. There is a difference compared with first- and second-cycle new entrants, where the gender difference is greater (59 per cent women and 41 per cent men in the 2020/21 academic year).

Figure 21: Third-cycle new entrants 2011–2021 in total and divided by gender.

Foreign doctoral students

Foreign doctoral students are students who have come to Sweden for third-cycle education. They can be identified in the statistics because they have received residence permits for studies and because these permits were granted less than two years before the start of their doctoral studies. All foreign doctoral students, however, do not apply for a permanent residency permit and are therefore counted as individuals born abroad and immigrated less than two years before beginning their doctoral studies.

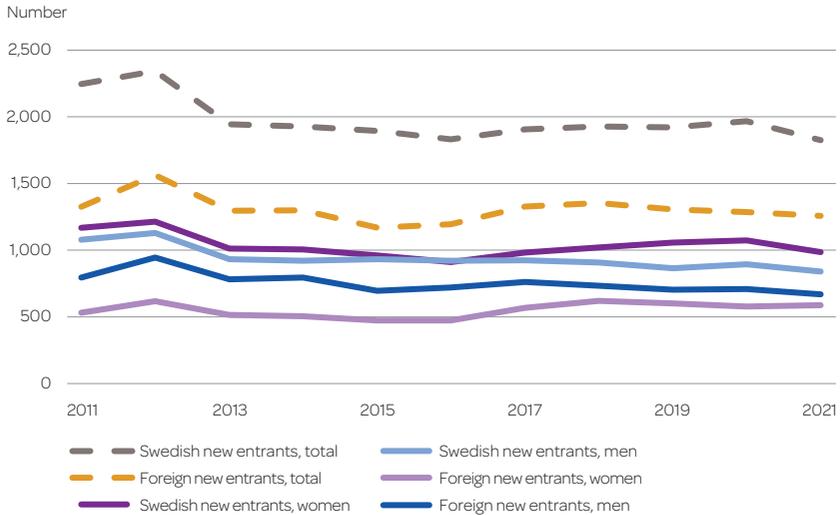
Note that foreign doctoral students are different from doctoral students with foreign background (read more under *Widening participation*).

Continued high percentage of foreign third-cycle new entrants

Among 2021 third-cycle new entrants, 1,260 were foreign new entrants (fact box *Foreign doctoral students*), which is 41 per cent of the total. This was 30 fewer than in 2020 (Figure 22). The number of Swedish new entrants fell by 140, to nearly 1,830. There is some degree of delayed reporting, but, as in 2020, the coronavirus pandemic does not seem to have caused a decrease in the number of foreign new entrants in 2021.

Among 2021 foreign third-cycle new entrants, there were somewhat more men than women (53 per cent men and 47 per cent women). In the last five years, the percentage of foreign women has increased. The percentage of women was higher among Swedish new entrants in 2021

Figure 22: Swedish and foreign third-cycle new entrants 2011–2021 in total and divided by gender.



(54 per cent women and 46 per cent men). This has been the case for the last 10 years except for one year.

Between 2009 and 2012, the number of foreign new entrants rose significantly, from 1,090 to 1,560. This means that the percentage of foreign third-cycle new entrants among all third-cycle new entrants increased from 31 to 40 per cent and has remained around 40 per cent since then.

Between 2012 and 2013, the number of third-cycle new entrants fell dramatically, both among Swedish and foreign new entrants. One explanation for the decrease is that the HEIs phased out doctoral grants in favour of doctoral studentships, which led to a higher cost for the HEI. Another explanation is the introduction of tuition fees in 2011, which resulted in a decrease in the number of incoming second-cycle students from countries outside of the EU/EEA and Switzerland. Incoming second-cycle students are an important recruitment base for third-cycle education (which remains free of tuition fees for all doctoral students).

Medicine and health sciences most common among third-cycle new entrants

The number of third-cycle new entrants varied considerably among the fields of research. As in previous years, medicine and health sciences had

the most new entrants in 2021. There were just over 1,100, making up a third of all new entrants. A quarter of the new entrants were in the natural sciences (720). In engineering and technology and in social sciences, the number of third-cycle new entrants was somewhat lower, 590 and 470, respectively. The humanities and arts and the agricultural and veterinary sciences had the lowest number with 140 and 50 new entrants, respectively.

Compared with 2011, the percentage of women increased in all subject areas in 2021, except agricultural and veterinary sciences where the percentage was unchanged.

Most foreign new entrants in natural sciences and engineering and technology

Swedish and foreign third-cycle new entrants study in different fields to some extent. In 2021, the two fields with the most foreign new entrants were the natural sciences and engineering and technology, 64 per cent and 53 per cent, respectively (Table 8). Most Swedish new entrants, however, began a third-cycle education in medicine and health sciences.

Doctoral studentships most common for new entrants

In the last decade, funding for third-cycle new entrants has improved. The percentage of new entrants with doctoral studentships increased from

Table 8: Number of foreign and Swedish third-cycle new entrants (2021) and percentage of foreign new entrants by field of research.

	Number of Swedish new entrants	Number of foreign new entrants	Percentage of foreign new entrants
Total	1,830	1,260	41
Natural Sciences	260	460	64
Engineering and Technology	280	310	53
Medicine and Health Sciences	840	260	24
Social Science	320	160	33
Humanities and the Arts	90	50	35
Agricultural and Veterinary Sciences	30	20	32

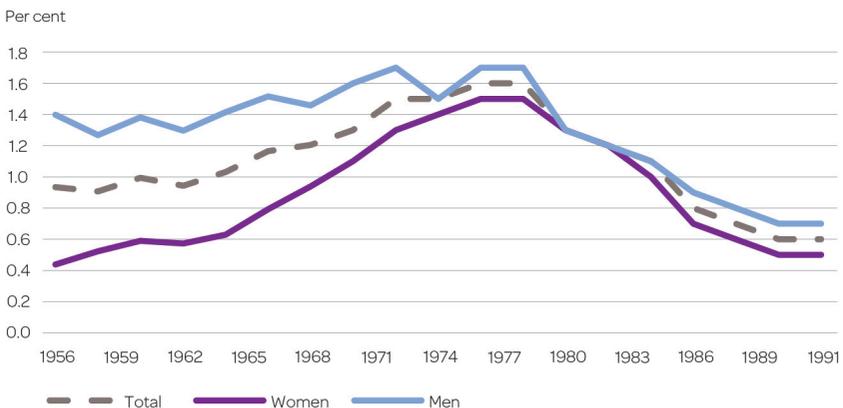
50 per cent to 75 per cent between 2011 and 2021. This means that a doctoral studentship is, by far, now the most common way of funding studies for new entrants. During the same period, the percentage of third-cycle new entrants with scholarships fell from 9 per cent to 5 per cent. Doctoral grants have been phased out.

In 2021, a total of 18 per cent of new entrants (compared with 13 per cent in 2011) had a job outside their HEI, which allowed them to conduct their third-cycle studies, like a medical post, industry-employed doctoral student, or other employment outside of higher education. This means that, in total, more new entrants than ten years ago had some form of employment in 2021, both in and outside of higher education.

Lower percentage of the population begins third-cycle education

The percentage of the Swedish population that began third-cycle education by age 30 has varied among those born 1956–1991 (Figure 23). Of those born in 1956, 0.9 per cent began third-cycle education. From that point, the percentage increased gradually to 1.6 per cent for the 1975–1978 cohorts. It then fell gradually, and only 0.6 per cent of the 1991 cohort began third-cycle education by age 30.

Figure 23: Percentage of population that began a third-cycle education by age 30 for individuals born 1956–1991, total and divided by gender.



The percentage of international third-cycle new entrants varied greatly in OECD countries

OECD countries have generally had an even gender distribution among third-cycle new entrants. In 2019, the percentage of women among third-cycle new entrants was 48 per cent and for men 52 per cent (Table 9).

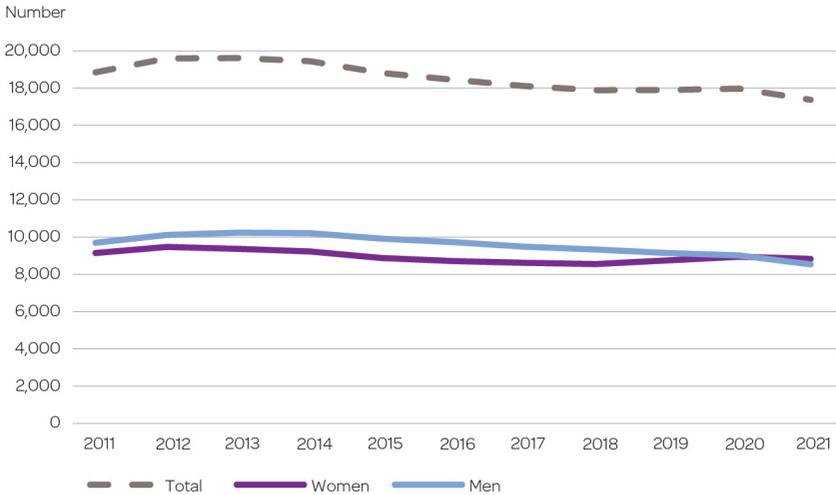
The percentage of international third-cycle new entrants varies greatly between countries. In Sweden, it was 40 per cent in 2019. This was higher than in Norway and Finland but lower than in Iceland and Denmark. Germany had a relatively low percentage of international third-cycle new entrants compared with other European countries (15 per cent). Note that this includes only new entrants that come from another country to attend an entire third-cycle education (in Sweden these are called foreign doctoral students).

Table 9: Gender distribution (%) and international third-cycle new entrants (%) for selected countries and OECD average 2019. The countries have been sorted based on highest percentage of women. Source: OECD.

	Gender distribution (%)		International new entrants (%)		
	Women	Men	Total	Women	Men
Iceland	62	38	45	36	60
Finland	53	47	36	28	44
Norway	52	48	31	26	36
Spain	50	50	23	22	24
USA	49	51	24	22	27
Denmark	49	51	41	38	43
Sweden	49	51	40	35	45
United Kingdom	49	51	42	42	43
OECD average	48	52	29	27	32
Germany	46	54	15	16	14
Korea	44	56	20	23	18

Doctoral students

In autumn 2021, there were 17,400 doctoral students in higher education, which was a decrease of 300 compared with 2020 (Figure 24). The final number will likely be higher, since there is some delay in reporting. This means that the number of doctoral students in autumn 2021 will likely be higher than in autumn 2020.

Figure 24: Number of doctoral students autumn 2011–2021, totals and by gender.

The number of doctoral students did not fall during the pandemic

In autumn 2021, there were 6,300 foreign doctoral students, which is a decrease of 200 compared with the previous year. Delays in reporting also mean that the number will likely be higher than in 2020. This means that neither foreign new entrants nor foreign doctoral students have decreased during the coronavirus pandemic. In autumn 2021, foreign doctoral students accounted for 36 per cent of all doctoral students. The percentage of full-time students has been the same since autumn 2017.

Autumn 2021 was the first time that there were more women than men among doctoral students (51 per cent compared with 49 per cent). Over the last ten years, the gender distribution has been even. Read more about doctoral students per HEI in the table at the end of this report.

In autumn 2021, most doctoral students (one-third) studied in medicine and health sciences. This was followed by the natural sciences and engineering and technology with 22 per cent and 19 per cent, respectively. Another 17 per cent studied within the social sciences and 6 per cent within the humanities and the arts. The smallest percentage of doctoral students was found in the agricultural and veterinary sciences with 2 per cent.

Full-time studies most common

More than half of doctoral students, 56 per cent, studied full-time in autumn 2021, which was an increase of 1 percentage point compared with the previous year. Full-time here refers to doctoral students whose degree of activity was between 80 and 100 per cent, since doctoral students regularly combine their studies with part-time teaching in first- and second-cycle courses and programmes.

In autumn 2021, more men than women studied full-time (61 per cent of men and 52 per cent of women). A total of 15 per cent of doctoral students spent less than 40 per cent of their time on their doctoral studies. This high percentage that spent a smaller part of their time on their doctoral studies may result from doctoral students beginning their studies a bit into the semester or having returned after a leave of absence. Another explanation for this is that some doctoral students study part-time while having other employment. For example, doctoral students in medicine and health sciences can work as medical doctors. It was more common with full-time studies in the natural sciences and engineering and technology than in other fields of research.

Majority had doctoral studentships

In autumn 2021, it was most common for doctoral students to have a doctoral studentship (70 per cent). Three per cent had other employment within higher education, 5 per cent had scholarships and 3 per cent had other sources of funding. Previously, doctoral grants were common but there were almost no doctoral students with these types of grants in the autumn 2021.

A total of 19 per cent of doctoral students had a job outside of the HEI that they were attending, which allowed them to continue their studies. This includes medical posts, industry-employed doctoral students and doctoral students with other employment outside of the HEI. This is similar to the situation in autumn 2020.

Doctoral studentships were the most common source of funding in all fields of research in autumn 2021, even if the percentage that had a doctoral studentship varied between 49 per cent and 85 per cent, depending on the field.

It was more common for men than women to have an industry-employed doctoral studentship, while more women had a medical post.

A third of Swedish doctoral students have been abroad

The EU goal that at least 20 per cent of all graduates in higher education should have spent a study or training period of at least three months abroad also includes doctoral students. UKÄ has collected statistics from the HEIs on the number of third-cycle graduates in 2020 that conducted some of their studies abroad. The statistics cover both shorter and longer stays abroad than three months.

Of 2,570 doctoral graduates in 2020, 33 per cent had been abroad, compared with 30 per cent in 2019. The gender distribution was relatively even.

The largest percentage who had been abroad came from the social sciences and the agricultural and veterinary sciences (47 and 46 per cent, respectively). The most common place for a stay was the United States, followed by Great Britain and Germany.

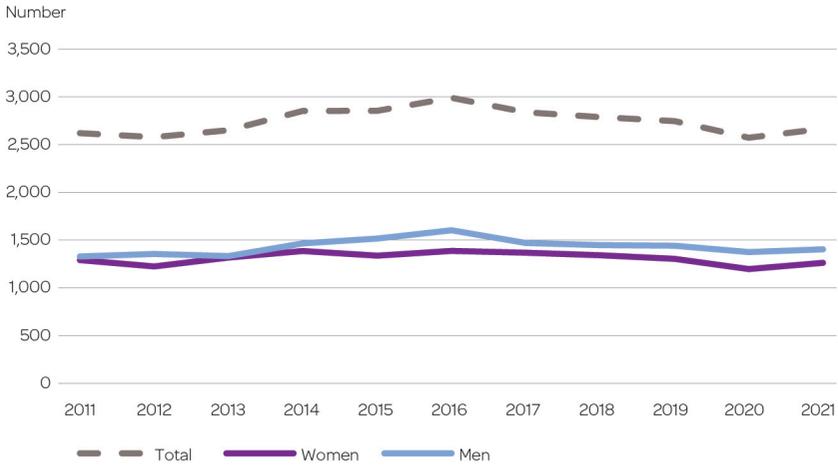
Third-cycle qualifications

In 2021, there were 3,110 third-cycle qualifications awarded, of which 2,670 were doctoral degrees and 440 licentiate degrees (two years of full-time third-cycle studies). The number of doctoral degrees increased by 100 compared with the previous year. After several years of decreases, the trend shifted, and the number of doctoral degrees increased (Figure 25). An explanation for the increase is that the number of third-cycle new entrants increased a few years earlier.

Somewhat fewer women (47 per cent) than men (53 per cent) completed a doctoral degree in 2021.

Most doctoral degrees in medicine and health sciences

Most doctoral degrees (920) in 2021 were in medicine and the health sciences. That was more than one third of all doctoral degrees (Table 10). The gender distribution was even (that is to say, the percentage of women and men was within the interval 40 to 60 per cent): 59 per cent men and

Figure 25: Number of doctoral degrees 2011–2021, total and divided by gender.**Table 10: Number of doctoral degrees 2021 by field of research and divided by gender (per cent).**

	Doctoral degrees		
	Total Number	Women (%)	Men (%)
Total	2,670	47	53
Natural Sciences	620	38	62
Engineering and Technology	520	31	69
Medicine and Health Sciences	920	59	41
Agricultural and Veterinary Sciences	40	53	48
Social Science	410	55	45
Humanities and the Arts	150	55	45

41 per cent women. Compared with the previous year, the number of doctoral degrees increased in all fields of research except agricultural and veterinary sciences. The largest increase was within the social sciences and medicine and health sciences.

Student completion rates

Student completion rates are one measurement of student completion. This indicates what percentage of third-cycle new entrants have completed a doctoral degree after a certain number of years. A doctoral

Third-cycle degree-awarding powers

All universities are entitled to award general third-cycle qualifications. Since 2010, university colleges can apply for third-cycle degree-awarding powers. These applications are made for a specific field and are appraised and approved by UKÄ. For independent education providers, the Government decides whether to award degree-awarding powers.

Both universities and university colleges must apply for degree-awarding powers (licentiate and doctoral degrees) in the fine, applied and performing arts. Applications are appraised and approved by UKÄ.

degree is intended to be the equivalent of a nominal programme length of four years at full-time studies. It is common for doctoral students to have a combination of 80 per cent third-cycle studies and 20 per cent departmental duties, and this results in their studies taking five years. For this reason, the initial follow-up will be done after five years.

A slight increase in student completion rate within five years

The most recent cohort that can be studied within five years are doctoral students that began their third-cycle education in 2016. Of these, 47 per cent received their doctoral degree by the end of 2021, which was two percentage points higher than for the 2015 new entrant cohort that was followed up in 2020. To this point, we do not have a clear answer to how student completion rate has been impacted by the coronavirus pandemic. This would first require studying student completion over a longer period.

In a longer perspective, the student completion rate is much higher in the latest cohorts compared with what it was in the earlier cohorts. For the 1990 new entrant cohort, it was only 22 per cent after five years. One reason for this increase is the 1998 third-cycle studies reform, which included requirements for secured funding during studies to increase completion rates.

The student completion rate is increasing over time. Of 2013's new entrants, 46 per cent completed their doctoral degree within five years and 75 per cent within eight years. In addition, 5 per cent of new entrants had completed a licentiate degree as their highest degree within eight years. In total, 20 per cent of the cohort had not completed any degree by the end of 2021.

Women have a lower student completion rate within five years than men in all new entrant cohorts. Among new entrants in 2016, 42 per cent of women and 49 per cent of men had completed their doctoral degree within five years. One reason can be that women take parental leave to a greater extent than men.

The difference between women and men was small after eight years

In recent years, the gender differences in student completion rates have decreased the longer time passes after the new entrant year. Among new entrants in 2013, 42 per cent of women and 49 per cent of men had completed their doctoral degree within five years, a difference of 7 percentage points. After eight years, the difference in student completion rate was only 3 percentage points. The gender difference was small or non-existent after eight years in all new entrant cohorts that we followed up since 2010.

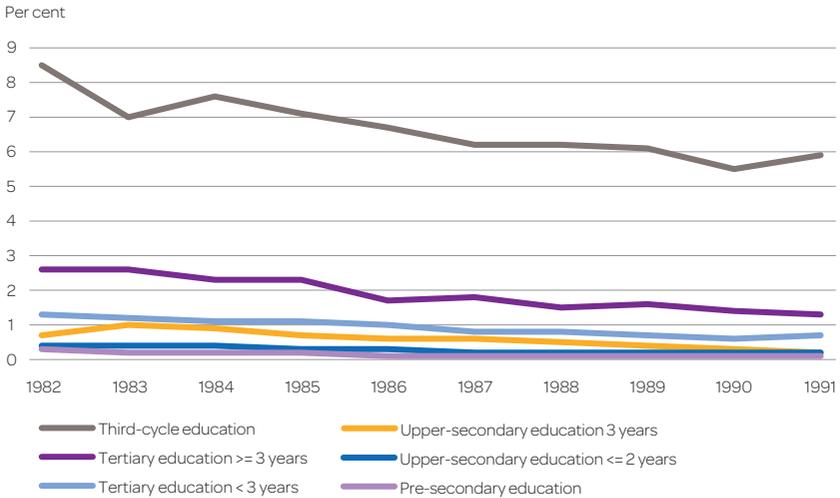
The student completion rate varied for doctoral students in different fields of research. Among the 2013 new entrant cohort, agricultural and veterinary sciences had the largest percentage that completed doctoral degrees within five years (57 per cent). The humanities and arts had the lowest student completion rate, 30 per cent.

Widening participation

Improved social imbalance in recruitment

Social background (here measured as the highest educational attainment of the highest educated parent) influences whether a person begins third-cycle studies or not. Of individuals born in 1991 (with data on the parents' educational attainment), 0.6 per cent had begun third-cycle education by age 30 (2021). The percentage was greater if the parents were highly educated and lower if the parents had a low educational attainment. If the parents had third-cycle education, 5.9 per cent of the students went on to third-cycle education. For the group with parents having at least three years of tertiary education (excluding third-cycle education), the transition percentage was 1.3 per cent. If the parents had a pre-upper-secondary education, only 0.1 per cent had begun third-cycle education by age 30 (Figure 26).

Figure 26: Percentage of 1982–1991 cohorts that had begun third-cycle education in Sweden by age 30, divided by parents' educational attainment.



Among those born 1982–1991, the transition to third-cycle education fell in all social groups. Even the social imbalance in recruitment decreased somewhat.

Most doctoral students had highly educated parents

In the 2020/21 academic year, a total of 62 per cent of third-cycle new entrants had highly educated parents (tertiary education of at least three years or third-cycle education). The percentage with parents with medium educational attainment (three-year upper-secondary education or tertiary education less than three years) was 26 per cent, while only 12 per cent had parents with low educational attainment (pre-secondary education or at most two-year upper-secondary education). The calculation of social composition is based on 1,660 third-cycle new entrants. Foreign doctoral students and Swedish doctoral students without data on parent educational attainment are not included.

If there was no social imbalance in recruitment to third-cycle education, the social composition among third-cycle new entrants would resemble the population in general. This is not the case. In 2020, for example, among the general population in the 25–29 age group (the most common age category for third-cycle new entrants), 26 per cent had highly educated parents compared with 62 per cent of third-cycle new entrants. This

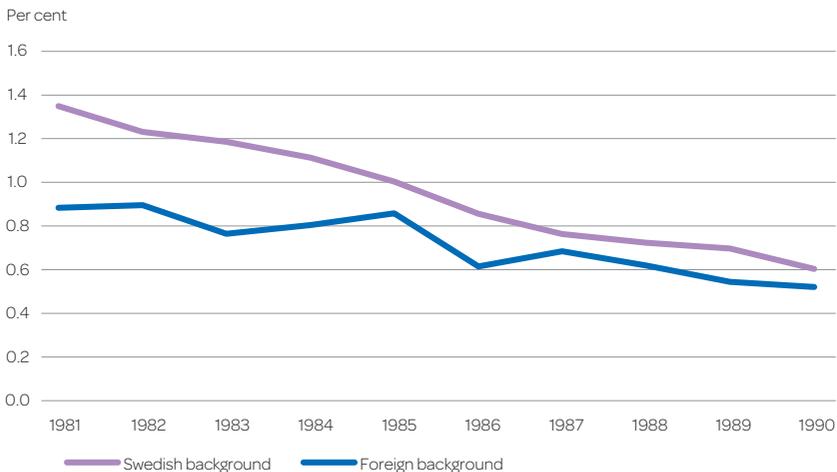
overrepresentation of doctoral students with highly educated parents is only somewhat linked to the imbalance in recruitment that occurs in the actual transition between second-cycle and third-cycle education. Instead, the imbalance begins in upper-secondary school and earlier educational levels of higher education.

Almost no imbalance in recruitment based on national background

National background in this context means Swedish background and foreign background. Foreign doctoral students are not included. Individuals are considered to have a Swedish background if they are born in Sweden and have at least one parent who is also born here. This includes individuals born abroad if both parents are Swedish born. The group with foreign background in this context consists of individuals who are either born in Sweden to two foreign-born parents or born abroad and immigrated by age 18.

Among those born in 1990 (and that were part of the Swedish population at age 18), national background plays almost no role in whether a student starts third-cycle education or not. At age 30 (2020), a total of 0.6 per cent of individuals with Swedish background and 0.5 per cent with foreign background had begun third-cycle education (Figure 27).

Figure 27: Percentage of 1981–1990 cohorts that had begun third-cycle education in Sweden by age 30, divided by national background (Swedish or foreign). Includes individuals registered in Sweden by age 18.



How have doctoral students managed the pandemic?

The *2021 Doctoral Mirror*, a survey of how doctoral students have experienced their third-cycle education during the pandemic, was conducted as part of the UKÄ's government assignment to follow up the consequences of the pandemic for higher education.

Overall, the survey shows that the HEIs managed the challenges of the coronavirus pandemic in a way that the doctoral students were satisfied with. The majority responded that they have had good contact with their employer and were satisfied with how the HEI managed the challenges that arose from the pandemic. They reported that they were able to follow the schedule in their individual study plans. Studies took longer for about 40 per cent, and 25 per cent applied for (or will apply for) an extension of their doctoral studentship.

Even though much has worked well during the pandemic, there have also been challenges. The survey shows that international collaborations decreased, just as intellectual exchanges with other doctoral students and senior researchers also decreased. More than half indicated that they have needed to cancel or delay parts of the doctoral studies. Not being able to collect material or make foreign visits were the most common issues. For this reason, work on their doctoral thesis went slower than planned. Twenty-five per cent of the doctoral students report that they have needed to change the focus of their thesis because of the coronavirus pandemic.

The survey also shows that foreign doctoral students were more dissatisfied than Swedish doctoral students. They experienced greater anxiety and stress, had more difficulty in structuring their study time during the pandemic and were more pessimistic about the future than the Swedish doctoral students.

The group with Swedish background began doctoral studies to a greater extent than the group with foreign background in all cohorts born 1981–1990. The difference was greater among those in the older cohorts. The imbalance in recruitment based on national background has decreased. In the 1981 cohort, the difference between the groups was 0.4 percentage points, while it was 0.1 percentage points in the 1990 cohort. Even when divided by gender, the imbalance has improved over time between those with a Swedish background and those with a foreign background.

National composition of doctoral students similar to the general population

In 2020/21, there were 2,000 new entrants (under age 65 and excluding foreign doctoral students) who began a third-cycle education in Sweden. Of these, 74 per cent had Swedish background and 26 per cent had a foreign background. The percentage with a foreign background was fairly similar among women and men: 27 per cent and 26 per cent, respectively.

This composition of third-cycle new entrants based on national background is largely linked to the composition of the Swedish population. In 2020, among the population ages 25–29 (the most common age category for third-cycle new entrants), 71 per cent had a Swedish background and 29 per cent had foreign background, that is to say, a similar distribution as for third-cycle new entrants. This means that there is no sign of any explicit imbalance in recruitment to third-cycle education based on national background.

Education and the labour market

Even though the coronavirus pandemic has impacted the labour market for many young people, we see that a majority of first- or second-cycle students who graduated during the pandemic have a good position on the labour market.

A quick follow-up shows that 75 per cent of 2021 graduates had good potential of earning a living six months after graduating. But there were large differences among graduates from different programmes. Bachelor's and Master's in Engineering graduates had the greatest difficulties. It was easiest for graduates of professions experiencing shortages, like nurses and primary school teachers.

Of 2018/19 graduates (pre-pandemic graduates), 84 per cent were established on the labour market 1–1.5 years later. At that point, the difference in establishment rates among women and men had decreased compared with graduates of previous academic years. Graduates with professional degrees had the highest establishment rate.

Doctoral graduates also did well on the labour market. Just over 80 per cent of 1998–2015 doctoral graduates were established on the labour market three years after graduation. Of 2015 foreign doctoral graduates, over half were still in Sweden three years after graduation and the majority had jobs.

How did recent graduates fare during the pandemic?

In the last two years, the Swedish labour market has been marked by the pandemic, with increasing unemployment, particularly among young

people. For this reason, UKÄ conducted a quick follow-up to study the potential of earning a good living on the labour market for recent graduates.

In the follow-up, we measured the percentage of these graduates who had good potential for earning a living six months after graduating. The lower limit for good potential for earning a living was the same amount as used in measuring establishment (see fact box *Who is considered established?*)

Three-quarters of recent graduates had good potential for earning a living

The results from the quick follow-up show that, in the initial phase of the pandemic, the labour market worsened to some degree for recent graduates. Between 2019 and 2020, the percentage of recent graduates with good potential for earning a living six months after graduating had fallen from 77 per cent to 74 per cent. Since then, the labour market has rebounded somewhat and 75 per cent of 2021 spring semester graduates had good potential for earning a living six months later.

Among 2020 male graduates, the percentage with a good potential for earning a living decreased by 5 percentage points compared with 2019. Among women, this percentage decreased by 2 percentage points. Among 2021 graduates, a somewhat higher percentage of men had good potential to earn a living compared with 2020, while women were at the same level as 2020.

One explanation for the difference in earning potential between women and men is their different choices in education. For example, Bachelor's and Master's in engineering programmes are popular among men and both programmes had significant decreases in the percentage of recent graduates with good potential for earning a living between 2019 and 2020.

Potential for earning a good living varies between programmes

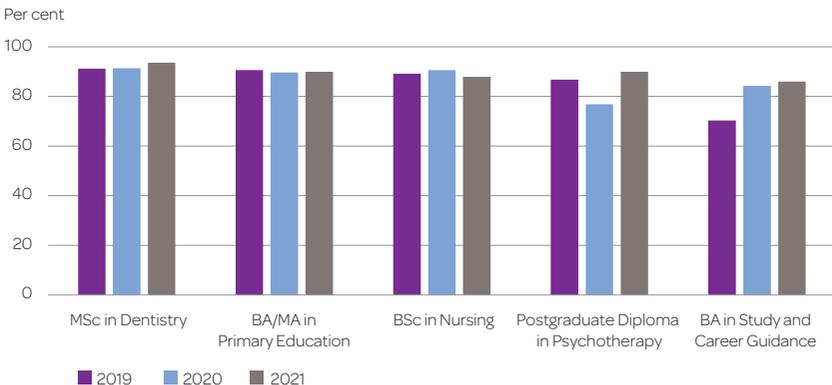
There are large differences between programmes in how much the coronavirus pandemic impacted the ability to earn a good living. For

example, for the small programmes for speech therapists and architects (each with about 100 graduates per year), the percentage of graduates with a good potential for earning a living fell by 10 percentage points and 15 percentage points, respectively, in 2021 compared with 2019. There was also a decrease during the pandemic in the percentage of recent graduates who had a good potential for earning a living after having completed one of the larger programmes, such as Master's of Business and Economics and the previously noted Bachelor's and Master's of Engineering.

At the same time, there are programmes where the labour market outlook of graduates does not seem to be negatively impacted or where the situation has even improved during the pandemic. Graduates of programmes leading to careers experiencing labour shortages, such as dentistry, nursing and primary education, had the highest percentage of good potential for earning a living, both prior to and during the pandemic (Figure 28).

The largest improvement in percentage of those that had good potential for earning a living were among graduates of the Study and Career Guidance programme. One reason for this improvement may have been an increased demand for this professional group with the growing interest in changing careers during the pandemic.

Figure 28: Percentage of graduates in spring semesters 2019, 2020 and 2021 with good potential for earning a living six months after graduating. Programmes with unchanged position or improvement during the coronavirus pandemic.



Establishment after first- and second-cycle degrees

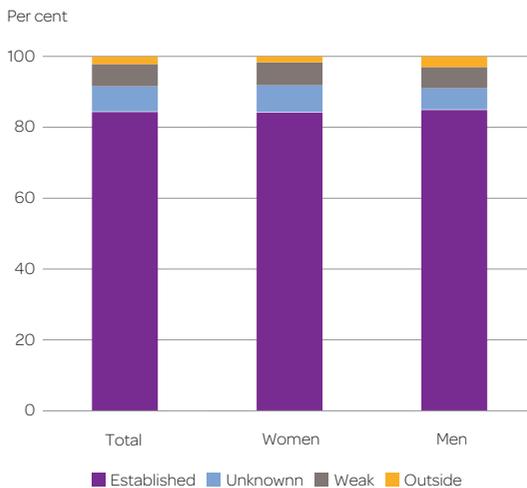
In the follow-up of establishment presented in this section, a person is defined as established when they have a good position on the labour market. Read more about the establishment measurement in the fact box *Who is considered established?*

A majority were established 1–1.5 years after graduation

Of those receiving a first-cycle or second-cycle degree in the 2018/19 academic year, 84 per cent were established after 1–1.5 years (Figure 29). The establishment rate was unchanged compared with the equivalent follow-up the previous academic year. The follow-up of those 2018/19 graduates was conducted in 2020, that is to say, during the pandemic, but the establishment rate does not seem to have been impacted by the pandemic. The results seem to indicate that most graduates had already found work before the pandemic began.

The establishment rate was somewhat lower for women than men, but the difference was less compared with 2017/18 graduates.

Figure 29: Labour market position (per cent) 1–1.5 years after graduation for first- and second-cycle graduates in the 2018/19 academic year. Total and by gender.



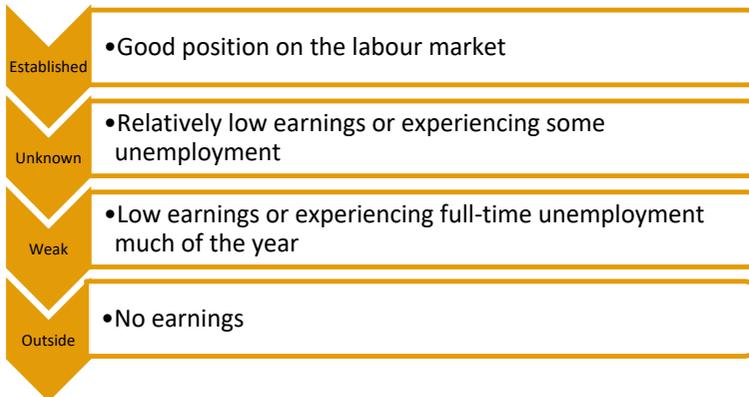
Who is considered established?

To be considered established on the labour market, the individual needs to meet the following criteria:

- Employed in the month of November in the current follow-up year according to the definition that Statistics Sweden (SCB) uses in its employment register.
- Total annual income from work during the year exceeds SEK 253,300 (2020).
- No events indicating periods of unemployment (part-time or full-time) or that the person has been the subject of labour market policy measures.

There are several conditions that must be met during the follow-up year for a person to be considered established, and the definition is intended for individuals who have a good position on the labour market.

The cohort is divided into four categories based on how good their position is on the labour market:



Highest establishment among those with a professional degree

There are clear differences in establishment rate between professional degree graduates and general degree or artistic degree graduates. Of professional degree graduates in the 2018/19 academic year, 90 per cent were established 1–1.5 years after graduation compared with 77 per cent

of general degree graduates. The establishment rate for artistic degree graduates was 35 per cent.

Nursing degrees and engineering Master's degrees were the most common professional degrees. Nursing graduates in the 2018/19 academic year had a 90 per cent establishment rate 1–1.5 years after graduation compared with 92 per cent of Master's in Engineering graduates. The highest establishment rate (94 per cent) was among specialist nursing graduates. This degree is for a supplementary second-cycle study programme, however, so it is likely that the graduates were already established on the labour market before beginning their studies.

The establishment rate for general degree graduates in 2018/19 was lower than those who received a professional degree in the same year. Establishment also varies greatly between programmes. The highest establishment rate (just over 80 per cent) was among general degrees graduates in health and medical care and in social care, in engineering

Does the education match the job?

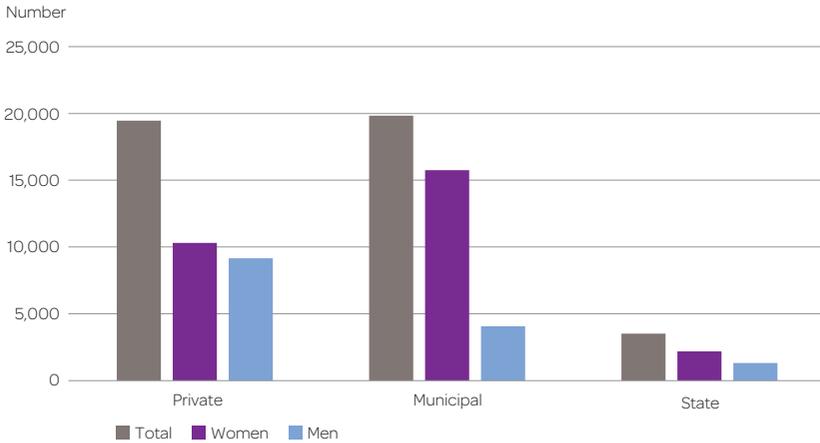
Most graduates find a job after their studies, as shown in previous studies. But what percentage work within a profession that matches their education?

In 2021, SCB surveyed 2017/18 graduates on whether the jobs they found after their studies mostly had the same focus as their higher education, that is to say, whether the jobs matched their education. Most (3 of 4) responded that they had a matching job three months after having graduated.

Graduates of professional degree programmes found matching jobs the quickest – half already had jobs when ending their studies. Women with professional degrees found jobs that matched their education quicker than men with professional degrees. There was no clear difference between women and men with general qualifications.

Students most commonly reporting that they found matching jobs within three months of ending their education came from three specialisations: 1) veterinary care, agriculture and forestry, 2) education and teacher training, and 3) social care, health care and medical care. The lowest percentage having found a matching job was among graduates within the humanities and arts.

Figure 30: Established graduates 1–1.5 years after graduation in the 2018/19 academic year, by private, municipal and state sectors. Total and by gender.



and manufacturing, in education and teacher training, in agriculture and forestry, and in veterinary care. Graduates in the humanities and arts clearly had the lowest establishment rate at 57 per cent.

Private sector jobs most common among men

Of 2018/19 graduates established 1–1.5 years after graduation, the largest number worked in the municipal sector 1–1.5 years after graduation. It was most common for women to work in the municipal sector, while it was most common for men to work in the private sector (Figure 30).

Establishment after a doctoral degree

Here, we use the same definition for establishment as we used in the follow-up of first- and second-cycle graduates. Read more about the establishment measurement in the fact box *Who is considered established?*

Establishment increased over time

Of 1998–2015 doctoral graduates, 81 per cent were established three years after graduation, that is to say, they had a good position on the labour market. The establishment rate increased over time after graduation. Five

years after graduation, 85 per cent of doctoral graduates were established on the labour market.

Like the first- and second-cycle graduates, a somewhat larger percentage of men than women were established three years after graduation, 82 per cent of men and 81 per cent of women. Five years after graduation, this difference had increased somewhat, with 86 per cent of men and 84 per cent of women established on the labour market.

Highest establishment among engineering graduates

Among fields of research, engineering graduates had the highest establishment rate (88 per cent) while humanities and arts graduates had the lowest establishment rate (72 per cent). Men had a higher establishment rate than women in all fields except the social sciences.

Higher education institutions were the most common employer

HEIs were the largest employer of doctoral graduates. Of graduates established after three years, 44 per cent were still working in higher education, of which 29 per cent were at the same HEI where they completed their doctorates and 15 per cent were active at another HEI. Women remained in higher education to a greater extent than men, and they were more likely to remain at the HEI where they had completed their doctorates. Of the women, 47 per cent were still working in higher education, of which 31 per cent were at the same HEI where they completed their doctorates. Of the men, 41 per cent were still working in higher education, of which 27 per cent were at the same HEI where they completed their doctorates.

Just over half (56 per cent) of established doctoral graduates three years after graduation worked outside of higher education. This was true for 59 per cent of the men and 53 per cent of the women.

Foreign doctoral students on the Swedish labour market

By foreign doctoral students, we mean individuals from other countries who are accepted to and conducting doctoral studies in Sweden. They have either been granted a residence permit for studies less than two

years before their doctoral studies began or they are foreign-born and had immigrated less than two years prior to beginning their doctoral studies.

Growing percentage of foreign doctoral graduates who stay in the country

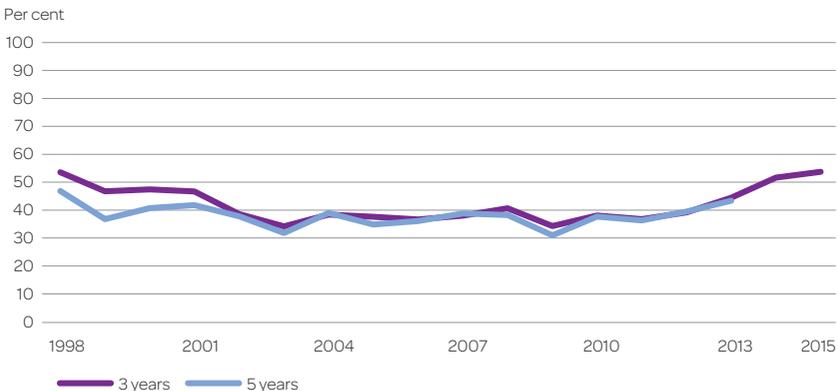
The percentage of foreign doctoral students in Swedish doctoral education continues to grow. In the last decade, they have increased from 20 per cent to 35 per cent of all doctoral students.

After graduation, a large percentage of foreign doctoral graduates leave the country. Of foreign doctoral graduates 1998–2015, a total of 58 per cent left Sweden within three years after graduation.

The percentage of graduates who stay in the country varies when we divide them by graduation year. Since 2011, the trend is for an increasing percentage of foreign doctoral graduates to stay. Of 2002–2012 graduates, around 40 per cent were still in Sweden three years after graduation. Of 2015's doctoral graduates, the percentage still in the country after three years had increased to 54 per cent. We see the same trend when we follow up foreign doctoral graduates after five years (Figure 31). For most graduation years, women have stayed to a greater extent than men, both three and five years after graduation.

It is unclear whether this growing trend in percentage of doctoral graduates who stay in Sweden will continue. In the summer of 2021, the Aliens Act was revised, tightening the requirements for staying in

Figure 31: Percentage of foreign doctoral graduates who stayed in Sweden three and five years after receiving a doctoral degree, by graduation year. Graduates 1998–2015.



Sweden after third-cycle education. The change included requirements for employment to receive a permanent residence permit. The amended legislation may impact opportunities for current foreign doctoral students to stay in the country after graduation.

Most foreign doctoral graduates who stayed in Sweden had a job

Foreign doctoral students who graduated 1998–2015 and stayed in Sweden after graduation had jobs to a large extent. Three years after graduation, 84 per cent had a job, that is to say, they had income from gainful employment at some point during the year. The percentage with a job increased to 88 per cent after five years and to 91 per cent after eight years.

The difference in percentage that had a job after their doctorate was small between women and men. It was only 2 percentage points higher among men than among women three years and five years after graduation. Eight years after graduation, the same percentage had work among women and men (91 per cent).

Of those who stayed in Sweden and had a job, it was most common that they worked in higher education – 33 per cent were university or university college teachers. Other common professions were engineers, medical doctors, physicists and chemists.

Low wage premium for higher education in Sweden

OECD publishes statistics on the difference in wages from work dependent on the individual's educational attainment. The statistics show that Sweden and the other Nordic countries have lower wage premiums for higher education than the OECD average. By wage premium is meant the relative difference in wages between two predefined educational attainment levels, normally with an upper-secondary education as comparison. Note that in the compared countries, the same example can fall under different educational attainment levels, which can impact how the statistics are interpreted. For example, pre-school teacher education is at Bachelor's or Master's level in some countries, while it is an upper-secondary education in other countries.

(Continued)

According to OECD statistics, which include ages 25–64 who worked full-time in 2018, a Swedish post-secondary education of at least two years resulted in an average of 22 per cent higher wages than an upper-secondary education. Norway and Denmark showed similar patterns. This can be compared with the OECD average (54 per cent) for the same educational attainment. A longer post-secondary education of at least four years or a third-cycle education, such as a Swedish education in medicine, teacher training or engineering, resulted in an average of 43 per cent higher wages in Sweden than an upper-secondary education. This can be compared with the OECD average wage premium of 90 per cent for the same educational attainment.

The statistics show that a highly educated woman who worked full-time in Sweden earned 78 per cent of the wage that a highly education man earned. This is the highest percentage, the most equal wages, among the Nordic, EU and OECD countries.

The Nordic countries are clearly under the OECD average in wage premium for post-secondary educated individuals ages 55–64. In Sweden, individuals ages 25–34 with up to three years of post-secondary education had a lower wage premium than individuals with an upper-secondary education and much lower wage premium than the OECD average for the equivalent group. Some explanations for the comparatively low wage premiums can be that Swedish graduates are older (28 years compared with 25 years for the OECD average) and have worked a shorter time after graduating, and that Sweden has a compressed wage structure.

Source: OECD and Statistics Sweden.

Unemployment among individuals with post-secondary education – an international perspective

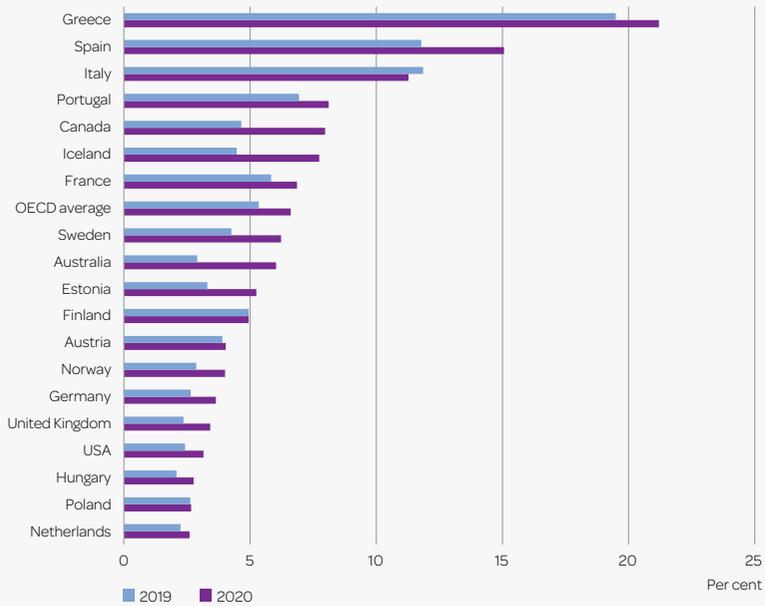
The coronavirus pandemic seems to have impacted unemployment in OECD member states (Figure 32). A person is considered unemployed if they have been without work but are actively looking for work. Unemployment increased in most OECD countries for post-secondary educated individuals ages 25–34 between 2019 and 2020. On average, unemployment increased in OECD countries by 1 percentage point between these years. For Sweden, the increase was 2 percentage points. In some countries, like Finland, Austria and Poland, there was almost no difference between these years.

(Continued)

At the same time, unemployment varied drastically between OECD countries. Greece had the highest unemployment among post-secondary educated individuals ages 25–34, with approximately 20 per cent unemployment in both 2019 and 2020. The Netherlands, Hungary, United Kingdom and the United States had comparatively low unemployment among post-secondary educated individuals ages 25–34.

Figure 32: Unemployment (per cent) for post-secondary educated individuals ages 25–34 in a selection of OECD countries, 2019 and 2020.

Source OECD.



Staff at higher education institutions

The number of staff at higher education institutions (HEIs) continues to increase, but at a lower rate than previous years. In 2021, there were 54,420 employees. This is an increase of 400 full-time equivalents compared with the previous year. Of staff, 60 per cent were research and teaching staff, while 40 per cent belonged to the category non-research and non-teaching staff. Research and teaching staff have increased the most in the last decade.

The gender distribution among higher education staff was relatively even. Men were the majority among research and teaching staff, while women were the majority among non-research and non-teaching staff. Of professors, just over two-thirds were men while just under one-third were women.

The number of HEI staff – totals

When we describe staff in higher education, we primarily use the measurement full-time equivalents (FTEs), which is a measurement of staff volume. The number of FTEs is calculated based on the extent of staff members' employment with consideration given to leaves of absence. In this chapter, we sometimes use the concepts of staff or employees even if the correct term is full-time equivalents.

The statistics divide higher education staff into two categories – research and teaching staff and non-research and non-teaching staff. Doctoral

students conduct a large part of the research and teaching at Swedish HEIs but are not included among higher education staff. Read about doctoral students in the chapter “Third-cycle education”.

Six of ten belong to research and teaching staff

In 2021, the country’s HEIs employed 68,520 individuals. This is equivalent to 54,420 FTEs. Compared with the previous year, this was an increase of 400 FTEs or just under 1 per cent.

In 2021, there were 32,420 FTEs among research and teaching staff, which is 60 per cent of all staff. The remaining 22,000 FTEs (40 per cent of staff) belonged to non-research and non-teaching staff.

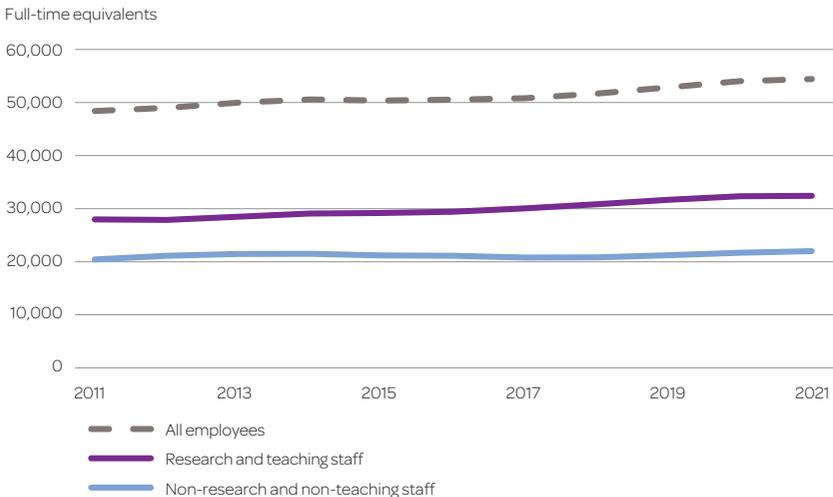
The gender distribution among all staff was even: 54 per cent women and 46 per cent men. Men were the majority among research and teaching staff, while women were the majority among non-research and non-teaching staff.

More employees over time

In the last decade, there has been an increase in the number of employees in higher education. While research and teaching staff increased the most, non-research and non-teaching staff also increased.

Compared with 2011, the number of employees increased by 6,020 FTEs or 12 per cent (Figure 33). The largest increases occurred in the 2011–2014

Figure 33: Number of employees at HEIs 2011–2021, by employment category, FTEs.



and 2017–2020 periods. The most recent increase, however, has been minor. In 2021, the number of employees increased just under 1 per cent compared with just over 2 per cent during the 2019–2020 period.

Research and teaching staff

Staff that primarily conduct research and teaching in higher education are divided in the statistics into six employment categories:

- professors
- senior lecturers
- career development positions
- lecturers
- other research and teaching staff with doctoral degrees
- other research and teaching staff without doctoral degrees.

Even gender distribution

Research and teaching staff consisted of 32,420 employees in 2021, measured in FTEs (Table 11). This was an increase from the previous year of 90 employees or 0.3 per cent.

Table 11: The number of employees 2021 in different employment categories among research and teaching staff, changes (number) since 2020 and percentage of all staff, total and divided by gender, FTEs. * Including those lacking data on education.

	2021			Changes since 2020			Percentage of all
	Total	Women	Men	Total	Women	Men	
All	32,420	15,190	17,230	90	170	-80	100
Professors	5,340	1,690	3,650	90	90	10	16
Senior lecturers	9,890	4,740	5,150	230	160	70	31
Career development positions	3,640	1,650	1,990	-110	-60	-50	11
Postdoctoral researchers	2,650	1,190	1,450	-10	0	-10	8
Associate senior lecturers	810	360	440	-10	-10	0	2
Postdoctoral research fellows	160	80	70	-90	-50	-40	0
Lecturers	5,130	3,090	2,040	130	110	20	16
Other research and teaching staff	8,420	4,010	4,410	-260	-130	-130	26
With doctoral degrees	3,650	1,630	2,010	-130	-100	-40	11
Without doctoral degrees	4,770	2,370	2,400	-120	-30	-90	15

The gender distribution among research and teaching staff was even: 47 per cent women and 53 per cent men.

More senior lecturers and fewer career development positions

The number of senior lecturers as an employment category increased the most among research and teaching staff compared with 2020, by 230 FTEs to 9,890 FTEs (Table 11). Senior lecturers continued to be the largest employment category, making up 31 per cent of research and teaching staff.

However, there were fewer career development positions in 2021. They fell by 110 FTEs compared with the previous year to 3,640 FTEs, a 3 per cent decrease.

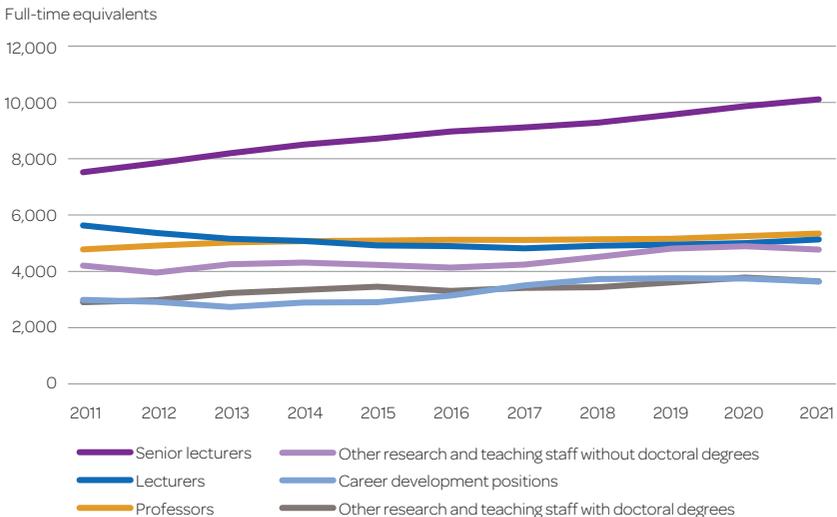
Details about the number of employees per HEI is found in one of the tables at the end of this report.

Considerably more senior lecturers in the last decade

Research and teaching staff have increased considerably over the last decade, from 27,960 FTEs in 2011 to 32,420 FTEs in 2021 (a 16 per cent increase). The rate of increase, however, has fallen in recent years.

Professors was the employment category with the largest increase, both in number and in percentage (Figure 34). Since 2011, the number of senior lecturers has increased by 2,430 FTEs or 33 per cent.

Figure 34: Number of research and teaching staff at HEIs 2011–2021, by employment category, FTEs.



The only employment category to decrease in number over the last decade is lecturers, which fell by 500 FTEs or 9 per cent.

Most uneven gender distribution among professors despite increased number of women

The gender distribution was relatively even in most employment categories in 2021 (Table 12). Women made up 45–50 per cent of the

Table 12: Number of research and teaching staff at HEIs 2011 and 2021, gender distribution (%) and change (%), by employment category, FTEs.

	Number of FTEs 2011	Number of FTEs 2021	Change 2011–2021 (%)	Gender distribution (%) 2011		Gender distribution (%) 2021	
				Women	Men	Women	Men
Total	27,960	32,420	16	43	57	47	53
Professors	4,780	5,340	12	23	77	32	68
Senior lecturers	7,460	9,890	33	44	56	48	52
Career development positions	2,990	3,640	22	45	55	45	55
Lecturers	5,630	5,130	-9	56	44	60	40
Other research and teaching staff with doctoral degrees	2,900	3,650	26	43	57	45	55
Other research and teaching staff without doctoral degrees	4,200	4,770	13	46	54	50	50

The HEIs have been given targets for increasing the percentage of women among newly recruited professors

Since 1997, the Government has defined recruitment targets for gender distribution among newly recruited professors to speed achieving gender equality in higher education. Current recruitment targets are for the 2021–2023 period. Recruitment targets indicate what percentage of newly recruited professors at the HEI is to be women during the period. HEI-specific goals are between 34 per cent and 60 per cent.

The previous recruitment targets were for the 2017–2019 period. A follow-up conducted by UKÄ shows that these targets have not resulted in any improvements in the percentage of women among newly recruited professors at HEIs. On the contrary, there was a lower percentage of women among newly recruited professors in 2019 compared with in 2017 within all fields of research except medicine and health sciences.

categories career development positions, other research and teaching staff with and without doctoral degrees, and senior lecturers. Men made up 50–55 per cent of these categories. Professors was the employment category with the most uneven gender distribution: 32 per cent women and 68 per cent men in 2021.

Over the last decade, the percentage of women increased in almost all employment categories except for career development positions in total, where the percentage was unchanged.

Professors was the employment category where gender distribution has changed the most since 2011. Among professors, the number of women increased significantly between 2011 and 2021, from 1,090 to 1,690 FTEs, an increase of 56 per cent. Meanwhile, the number of male professors decreased marginally by 40 FTEs, to 3,650 FTEs in 2021.

Postdoctoral researchers dominate among career development positions

Career development positions are fixed-term positions aimed at allowing individuals with doctoral degrees to gain both scholarly/artistically and educational qualifications for a continued career in higher education. In the statistics, postdoctoral researchers, associate senior lecturers, postdoctoral research fellows and other career-development positions are considered career development positions.

In 2021, there were 3,640 career development positions, where the majority were postdoctoral researchers or associate senior lecturers. Postdoctoral researchers made up 73 per cent of all career development positions and associate senior lecturers made up 22 per cent. The others were either postdoctoral research fellows (4 per cent) or other career development positions (1 per cent).

The gender distribution among employees with career development positions was relatively even.

The increase in career development position has ended

In the last decade, there was an increase in the number of career development positions. Above all, they increased between 2015 and 2018. But in the last two years, this rising trend came to an end. In 2021, career

development positions decreased by 3 per cent, and the year before they decreased marginally.

The earlier increase was largely the result of employing more post-doctoral researchers. Compared with 2011, the number of postdoctoral researchers increased by 70 per cent or 1,130 FTEs. The percentage of associate senior lecturers increased even more, by just over 130 per cent but from a lower level. The number of postdoctoral research fellows, however, has fallen dramatically, by 85 per cent or equivalent to 960 FTEs, since 2011.

Continued stiff competition for career development positions

Even though the number of career-development positions has increased over time, there is still stiff competition for these positions among doctoral graduates planning to continue their careers within academia. Each year, 2,500 to 3,000 individuals graduate with doctoral degrees. At the same time, there were 1,320 FTEs of newly hired postdoctoral researchers in 2021, equivalent to around half of a cohort of doctoral graduates. There were 110 FTEs and 10 FTEs among newly hired associate senior lecturers and postdoctoral research fellows, respectively. This implies a career marked by stiff competition from the very beginning. The further in a career an individual comes, the more difficult it becomes.

Several HEIs given targets for increasing the percentage of associate senior lecturers

To create clearer career paths and improve conditions for those working in the sector, the Government wants to increase the number of associate senior lecturers. In 2021, there were 810 associate senior lecturers in higher education, equivalent to 2.5 per cent of research and teaching staff.

To increase this number, in 2021 the Government defined HEI-specific targets for the percentage of associate senior lecturers at 15 public-sector HEIs. In the targets, the Government defines the percentage of all research and teaching staff at the HEIs that is to be associate senior lecturers during the period 2021–2024. The percentage varies between the HEIs – from 1 per cent to 7 per cent measured in FTEs. UKÄ has been tasked by the Government to follow up and evaluate these targets.

Increased percentage of women in all fields of research in the last decade

Research and teaching staff are shown in the statistics based on six fields of research. In terms of number of employees, the three largest fields of research in 2021 were social sciences, medicine and health sciences, and natural sciences with around 7,000–8,000 FTEs each (Table 13). Just over 70 per cent of research and teaching staff were active in one of these three fields.

Since 2011, the number of employees has increased within all fields of research. The largest increase was within medicine and health sciences, which increased by 1,550 FTEs or 24 per cent in the last decade.

Gender distribution varies among fields of research, but the percentage of women has increased in all fields compared with 2011.

About a quarter had fixed-term employment

Many higher education staff have fixed-term employment. Fixed-term positions are a part of the academic career system.

In 2021, there were 8,730 employees among research and teaching staff with a fixed-term position. This is equivalent to 27 per cent. The percentage was somewhat higher among women than men (27 versus 26 per cent). The high percentage of fixed-term positions is in part explained by a separate regulation of fixed-term positions within higher education.

Table 13: Number of research and teaching staff at HEIs 2011 and 2021, gender and change (%), by field of research, FTEs.

	Number of FTEs 2011	Number of FTEs 2021	Change 2011–2021 (%)	Gender distribution (%) 2011		Gender distribution (%) 2021	
				Women	Men	Women	Men
Total	27,960	32,420	16	43	57	47	53
Social Sciences	6,990	8,130	16	49	51	55	45
Medicine and Health Sciences	6,340	7,890	24	58	42	60	40
Natural Sciences	6,020	7,160	19	29	71	31	69
Engineering and Technology	3,830	4,140	8	24	76	28	72
Humanities and the Arts	3,580	3,540	-1	50	50	51	49
Agricultural and Veterinary Sciences	990	1,190	20	46	54	54	46

The percentage of fixed-term employees differs greatly between different employment categories. Among career development positions, practically all were fixed-term employees in 2021. Within the category other research and teaching staff without doctoral degrees, nearly half were fixed-term employees. Senior lecturers and professors had the lowest percentage with fixed-term employment, 7 and 6 per cent, respectively, in 2021.

Over time, the percentage of employees with a fixed-term position has fallen. This is because the total number of employees has increased while the number with a fixed-term employment has stayed relatively unchanged. Over the last decade, the number of fixed-term employees has decreased by 8 percentage points, from 35 per cent in 2011 to 27 per cent in 2021. This decrease was greater among women than men, 10 versus 6 percentage points.

Around 5,000 internationally recruited researchers

Since 2021, UKÄ has published official statistics on research at HEIs that includes statistics on internationally recruited researchers. These numbers are a complement to the official statistics on staff in higher education.

In this context, a researcher without Swedish citizenship is counted as internationally recruited. The term researcher refers to individuals employed as professors, senior lecturers, employees with career development positions and other researching and teaching staff with doctoral degrees. Compared to other statistics in this chapter, these statistics refer to individuals and not FTEs.

Around 5,000 internationally recruited researchers worked at Swedish HEIs in 2021. This is equivalent to 18 per cent of the researchers. Since 2012, the number of internationally recruited researchers has increased by just over 1,700 individuals. The percentage also increased – from 15 per cent in 2012 to 18 per cent in 2021.

The number of internationally recruited researchers decreased by just under 200 individuals between 2020 and 2021. Of internationally recruited researchers, 40 per cent were women and 60 per cent were men in 2021. The percentage of women increased somewhat in recent years – 36 per cent were women in 2012.

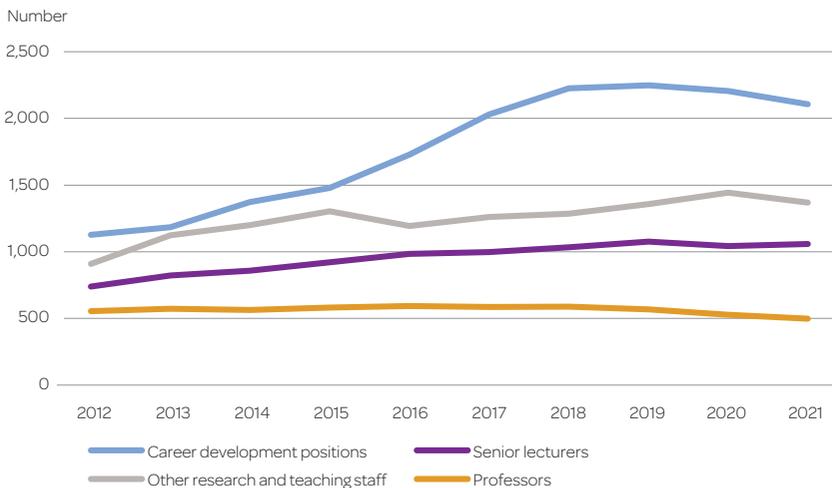
Most common with international recruitment for career development positions

There are large differences between employment categories in who is recruited internationally. It was most common with international recruitment for career development positions– 55 per cent of researchers with career development positions in 2021 were recruited internationally. The equivalent percentage for professors and senior lecturers was 7 and 9 per cent, respectively. Among other research and teaching staff with doctoral degrees, 24 per cent were recruited internationally.

This is also the category with the largest increase since 2012 (Figure 35). They nearly doubled in number between 2012 and 2021 – from 1,130 individuals to 2,110 individuals. Meanwhile, the number of internationally recruited professors has remained constant at 500–600 individuals during the same period.

It also varies between different fields of research who is recruited internationally. In 2021, the percentage of internationally recruited researchers was highest in the natural sciences – 31 per cent. It was lowest in the social sciences and the humanities and arts at around 10 per cent.

Figure 35: Internationally recruited researchers 2012–2021, by employment category, individuals.



Non-research and non-teaching staff

HEI staff also include individuals who do not research or teach, sometimes called technical/administrative staff. In the statistics, non-research and non-teaching staff are divided into four employment categories:

- administrative staff
- technical staff
- library staff
- temporary staff.

Most are administrative staff

In 2021, non-research and non-teaching staff made up 40 per cent of all staff, in total 22,000 FTEs. Two-thirds (66 per cent) were women and 34 per cent were men.

Non-research and non-teaching staff increased in 2021 by 320 FTEs compared with the previous year (Table 14). A large part of this increase is explained by one larger HEI changing its reporting compared with the previous year. This means that some of the staff who were previously counted as other research and teaching staff are now counted as administrative or technical staff.

The majority of non-research and non-teaching staff belonged to the administrative staff category. In 2021, this category had around 13,650 FTEs, which is 62 per cent of non-research and non-teaching staff.

There are clear differences in gender distribution between the different employment categories. The largest gender differences were in

Table 14: The number of employees 2021 in different employment categories among non-research and non-teaching staff, changes (number) since 2020 and percentage of all staff, total and divided by gender, FTEs.

	2021			Change since 2020			Percentage of all
	Total	Women	Men	Total	Women	Men	
All	22,000	14,420	7,580	320	230	80	100
Administrative staff	13,650	10,440	3,210	240	210	30	62
Technical staff	6,680	2,900	3,780	130	50	70	30
Library staff	1,130	810	330	0	0	0	5
Temporary staff	540	270	270	-50	-30	-20	2

administrative staff, where women made up 76 per cent and men 24 per cent. Temporary employees had the most even gender balance, where half were women and half men.

Administrative staff increased

Over time, the number of FTEs with non-research and non-teaching positions has increased, but less than among employees with research and teaching positions.

In total, the number of FTEs increased by 1,570 in 10 years, an 8 per cent increase. This is clearly less than for research and teaching staff, which increased by 4,450 FTEs or 16 per cent.

Since 2011, only administrative staff numbers have grown (3,130 FTEs or 30 per cent). Technical staff and library staff decreased by 150 FTEs each during the same period.

Finance and research funding

Swedish higher education institutions (HEIs) had a financial surplus in 2021. The surplus was the largest in the last decade and was primarily the result of increased direct government funding within both first- and second-cycle education and research and third-cycle education. Expenses for staff increased while operating costs were unchanged.

Over the year, the State continued to allocate more government funding to expand the number of study openings in higher education. The HEIs are also educating more students, but the total value of the education volume did not reach the HEIs' total funding cap. Revenues from contract education increased after having fallen the previous year. At the same time, revenues from tuition fees from fee-paying students were unchanged for the second year in a row, in spite of the pandemic.

In research and third-cycle education, both revenues and costs increased, even if operating costs are still relatively low compared with prior to the pandemic. For the second year in a row, unutilised grants increased because of delays in research projects caused by the pandemic.

HEI finances in 2021

In 2021, Swedish HEIs spent SEK 80.3 billion. This corresponds to 1.49 per cent of Sweden's gross domestic product (GDP), which is somewhat lower than in the previous year. The decrease resulted from HEI

expenditures increasing by 3 per cent while the economy on the whole grew by 5 per cent.

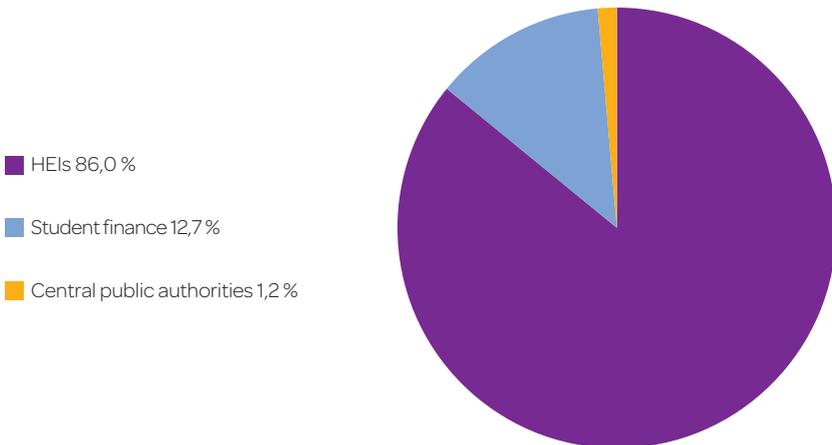
Close to 80 per cent of operations were financed by state funding. HEIs also had funding (around 4 per cent) from other public organisations and 10 per cent from private funding organisations in Sweden. This funding was used primarily to cover the cost of research and third-cycle education. The remaining funding (6 per cent) comes from sources outside of Sweden.

How much did Swedish higher education cost in 2021?

To estimate the expenditures for the entire HE sector, we need to add the expenditures for student finance and the central public agencies to the total above. The State's expenditures for student finances were SEK 11.9 billion and the direct allocations to the central public agencies responsible for higher education totalled SEK 1.3 billion. Thus, the total expenditure for the HE sector was SEK 93.5 billion in 2021. These expenditures are specified in more detail in Figure 36.

Compared with the previous year, HEI expenditures increased by SEK 2.3 billion. Personnel expenses were the primary source of the increase, with a total of SEK 2 billion in current prices. This resulted from an increase in the number of employees, in higher salaries and in increased costs for pensions. In 2021, operating costs – which included costs for travel and conferences – were at the same low level as 2020.

Figure 36: Expenditures in the higher education sector in 2021, per cent.

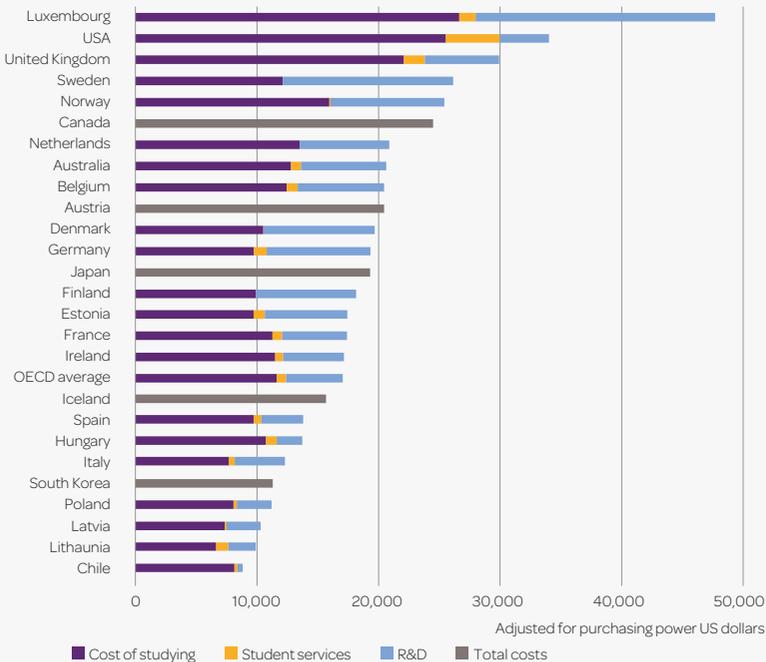


How much does tertiary education cost in OECD countries?

A common way of measuring how much education costs in different countries is to compare the costs for education providers per student (including research and student services). In 2018, the average cost for OECD countries was USD 17,100 per student (Figure 37). For Sweden, the cost was USD 26,100, meaning that Sweden is one of the OECD countries with the highest expenditure per student. One explanation for the Swedish level is the extensive research conducted by HEIs. Sweden and Denmark are the only countries where over half of HEIs' total costs consists of research expenditures. In many other countries, research is a much smaller part. The OECD average is 30 per cent.

When comparing the actual educational cost per student, the Swedish cost was USD 12,100 in 2018, which was a bit over the OECD average.

Figure 37: Expenditure per student divided by area of activity, USD adjusted for purchasing power. Education providers' expenditure per student for tertiary education (ISCED 5–8) and research in higher education in some OECD countries in 2018. Source: Education at a Glance 2021.



Increased costs in both areas of activities for higher education

The cost increase was shared evenly, with increased costs of just over SEK 1 billion in current prices in both areas of activities for higher education. In 2021, expenses for first- and second-cycle education were SEK 33.6 billion and for research and third-cycle education SEK 46.2 billion.

In their annual financial reports, many HEIs describe how expenses for educational operations have increased as the number of students has grown. A contributing cause is that the State's increased funding allocation to expand first- and second-cycle education because of the pandemic. HEIs have largely been able to use the new funding in their educational operations, which has led to increases in costs.

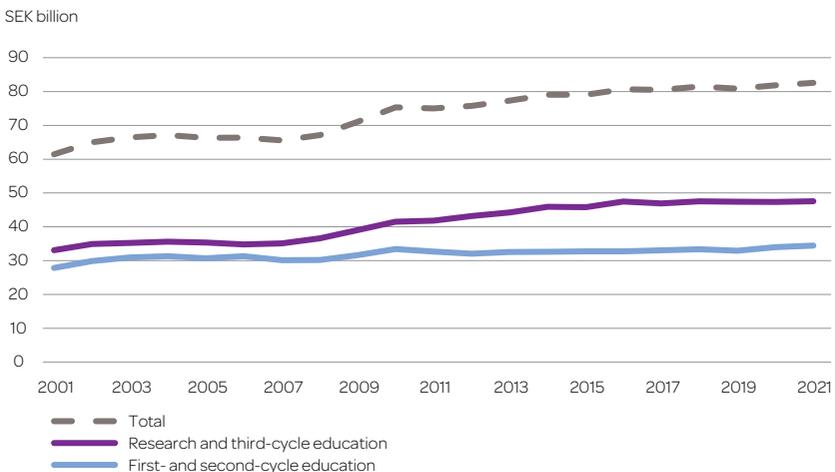
The increased costs for research and third-cycle education during the year can indicate that the pandemic's impact was not as severe in 2021 as in 2020. Operating costs for research are, however, still at a lower level than prior to the pandemic.

Revenues increased significantly

In 2021, total accumulated revenues for HEIs reached SEK 82.6 billion. This represents an increase of SEK 4.1 billion in current prices compared with 2020. Most of the increase was the result of higher direct government funding but also revenues from grants and fees increased.

Revenue for first- and second-cycle education increased by SEK 1.9 billion to SEK 34.5 billion. At the same time, funding increased by SEK 2.2 billion for research and third-cycle education to SEK 47.6 billion (Figure 38). The

Figure 38: HEIs' total revenues for first- and second-cycle education and for research and third-cycle education 2001–2021, SEK billion (2021 prices).



just over SEK 500 million of remaining revenues were for operations at the Swedish University of Agricultural Sciences.

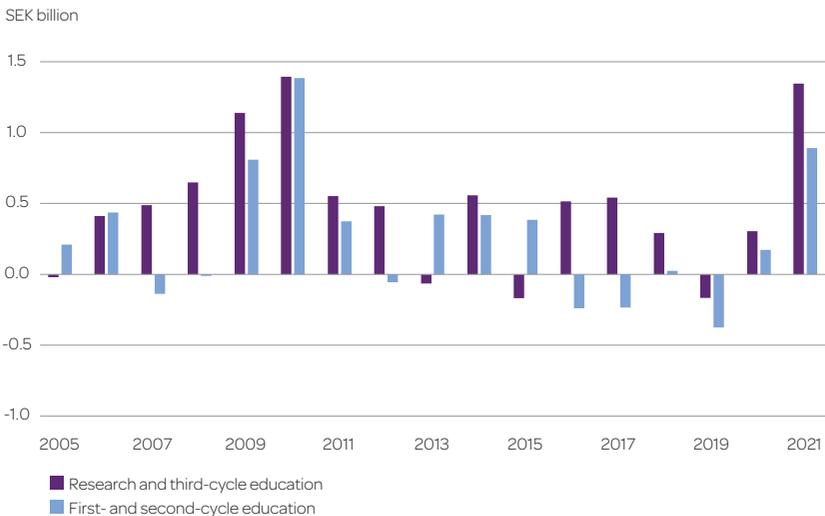
In the last decade, funding to HEIs for research and third-cycle education has increased significantly, while funding for first- and second-cycle education has remained unchanged in real terms. As a result, higher education has become more research focused. In this sense, the pandemic has resulted in a shift in the trend within higher education. Combined with some slowdown in research operations, the expansion of study openings within first- and second-cycle education and the large interest in higher education resulted in an increase in total revenues going to first- and second-cycle education during 2021 for the second year in a row.

The largest surplus in 10 years

In total, 2021 funding for HEIs exceeded costs. The cumulative financial performance (changes in capital for the year) was thus a surplus of SEK 2.3 billion for 2021, which is 2.8 per cent of HEI turnover (costs for the year).

In first- and second-cycle education, the surplus was around SEK 900 million. In research and third-cycle education, the surplus was around SEK 1.3 billion (Figure 39).

Figure 39: HEIs financial performance (changes in capital for the year) 2005–2021, per area of activity, SEK billion (current prices).



The HEIs also had a surplus last year but not as large. The surplus for the year was the largest of the last decade.

HEI authority capital continues to increase

The last decade's surplus has meant that the HEIs' financial position has improved significantly. The estimated authority capital increased significantly in 2021, and at the end of the year it was SEK 15.7 billion. Above all, HEIs were limited in their ability to conduct the research and third-cycle education they had planned for, which resulted in surplus funds.

Funding for first- and second-cycle education

Most students in first- and second-cycle education pay no fees and their studies are financed by government funding allocated directly to the HEIs by the Swedish Parliament. In 2021, direct government funding was SEK 29.7 billion. This is an increase of SEK 1.7 billion in current prices compared with 2020.

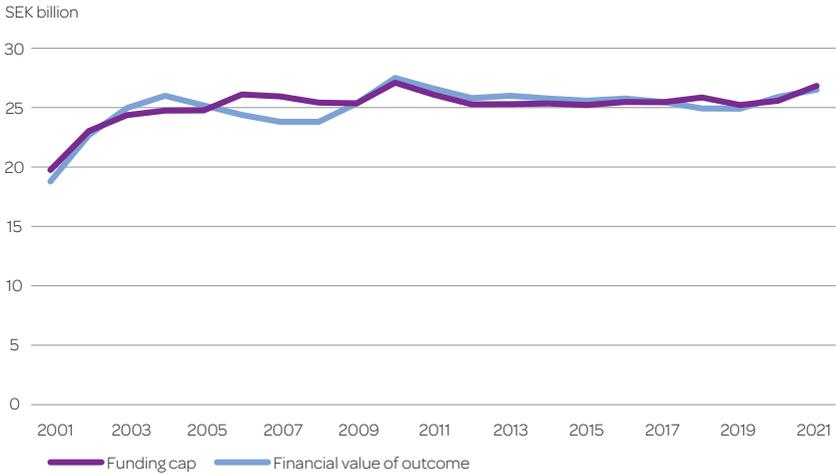
Most of the direct government funding is in the form of allocations to first- and second-cycle education. These totalled SEK 27.9 billion in 2021. For most public HEIs and even for some independent education providers, this funding consists of a funding cap that sets the highest total reimbursement each HEI can receive (read more about the funding system in the fact box). In 2021, the funding caps totalled SEK 26.8 billion, of which SEK 26.5 billion was deducted while the allocation to the HEIs not included in the system with funding caps was just over SEK 1.3 billion.

Small underproduction within educational operations

The financial value of the education volume for the different HEIs, i.e., the allocation that the total FTEs and APEs are equivalent to, is calculated at the end of the year. This amount is deducted from their individual funding caps. Figure 40 shows the change in the HEI funding cap and the financial value of the education volume for the last 20-year period.

The financial value of the education volume in 2021 was SEK 26.5 billion, while the total funding cap for the HEIs was SEK 26.8 billion. This means that, in 2021, the HEIs together had educated somewhat fewer students than the allocations actually were intended to cover.

Figure 40: Total HEI funding cap and the financial value of the education volume 2001–2021, SEK billion (2021 prices).



Interest in higher education increased dramatically 2008–2009 in connection with the financial crisis of the time. This heightened interest continued, and for a long time the financial value of the education volume was over the funding cap. In other words, the HEIs overproduced education. The HEIs, however, can overproduce over time without receiving reimbursements. For this reason, they took measures to adapt the size of courses and programmes to the funding cap. In 2017, education was on par with the funding cap, and in 2018 the previous overproduction shifted to underproduction.

Allocation of resources for first- and second-cycle education

Government funding for first- and second-cycle education is based on the number of enrolled students (converted to full-time equivalents, FTEs) and the HE credits they attain (converted to annual performance equivalents, APEs) in the different disciplinary domains. All HEIs covered by the system receive the same reimbursement, but the amount varies between different disciplinary domains. The funding cap defines the maximum total amount each HEI may receive. This cap, together with the way in which the education is divided among the different disciplinary domains, sets the limits for the number of students at each HEI.

The basic unit of instruction in higher education consists of courses, which are classified as belonging to one or several disciplinary domains.

(Continued)

The Government determines which disciplinary domains each HEI may include in calculating FTEs and APEs. For education in the fine, applied and performing arts, however, the number of FTEs and APEs that may be counted is limited. Beyond this, it is up to the HEIs to classify which disciplinary domain or domains that courses belong to. The HEIs' allocation of funding is based on these classifications. In 2022, reimbursement per FTE was between SEK 33,811 (for the humanities, theology, law and social sciences disciplinary domains) and SEK 335,888 (for the disciplinary domain of opera). In the same year, reimbursement per annual performance equivalent was between SEK 22,032 (for the humanities, theology, law and social sciences disciplinary domains) and SEK 265,509 (for the disciplinary domain of media).

The funding system with funding cap applies to all public-sector HEIs except for the Swedish University of Agricultural Sciences, the Swedish Defence University, and the foundation universities Chalmers University of Technology and Jönköping University.

The additional flow of students resulting from the coronavirus pandemic and the deteriorating labour market resulted in significantly increased interest in studying. After two years of underproduction, the HEIs once again overproduced in 2020. This occurred even though the State increased funding for the HEIs to allow them to expand their education volume. In 2021, the situation once again shifted to underproduction, and the HEIs did not utilise their entire educational funding.

The HEIs may save more of unutilised funding caps during the coronavirus pandemic

The funding system allows for HEIs to save both unused allocated funds (allocation savings) as a financial value of FTEs and APEs (overproduction) between budget years. This allows HEIs to balance allocations between budget years and have necessary flexibility to adjust for fluctuations in student demand for education. Previously, saving government funding and overproducing were not allowed to exceed 10 per cent of the funding cap. To provide better opportunities for HEIs to expand their courses and programmes during the pandemic, the Government raised the limit for overproduction in 2021 to 15 per cent of the funding cap.

Additional expansion because of the pandemic

Within the framework of their individual funding caps and degree-awarding powers, the HEIs can relatively freely decide on the size of different courses and programmes. The State, however, does impact specialisations by adding funding to increase the number of study openings on certain programmes. This has been done for many years, and programmes continue to be expanded using this type of targeted funding. Earmarked funds, for example, have been used since 2017 to expand programmes in professions experiencing labour shortages and programmes that the Government judges as essential for society, like teacher and pre-school teacher programmes, nursing programmes, medical programmes and engineering programmes.

In 2020 and 2021, the pandemic led the Government to propose additional special funding to expand education at HEIs. In total, this resulted in several expansions, both permanent and temporary, and the HEIs' revenues for first- and second-cycle education increased by SEK 1.8 billion in 2021. The expansions included programmes in professions with labour shortages.

Unchanged revenues from tuition fees from incoming students

In 2011, incoming students at Swedish HEIs, who come from countries outside of the EU/EEA and Switzerland and do not take part in exchange programmes, became required to pay tuition fees. A continually growing part of HEI revenues for first- and second-cycle education comes from tuition fees from paying incoming students.

In 2021, the HEIs' tuition fee revenues were around SEK 1 billion. This is a slight increase of about SEK 10 million in current prices compared with the previous year. The weak increase in revenues from tuition fees over the last two years can be viewed in light of the coronavirus pandemic, which has limited international student mobility.

On average, revenues from application and tuition fees increased by 3 per cent of the HEIs' total revenues for first- and second-cycle education. But for some HEIs, the percentage was considerably higher, closer to 10 per cent. For more information about tuition fees and fee-paying students, see the chapter on international student mobility.

Sweden's recovery plan

The Government has applied for EU funding within the framework of Sweden's recovery plan to cover costs of expanding courses and programmes at HEIs in response to the coronavirus pandemic. This support will provide HEIs resources to meet an increased demand in higher education. The total cost for the 2021–2025 period is SEK 3.1 billion, which corresponds to about half of the extra funding allocated to the HEIs. Each HEI's public service agreement specifies what percentage of the funding cap is financed using funds from the recovery plan.

UKÄ has been tasked by the Government to coordinate the implementation of measures and to support the HEIs in this work.

Revenues from contract education increased

Alongside their first- and second-cycle education, the HEIs also provide contract education within the public and private sectors. This type of education is paid for by the contracting party, not by the attending person, and the fee is to cover the full costs for the HEIs. In 2021, total HEI revenues from contract education were SEK 1.8 billion, which was an increase of SEK 100 million compared with the previous year.

The majority of assignments comes from government agencies. Several large programmes – particularly police training and officer training programmes, but also the school leader programme – are organised and funded by the responsible government agency contracting with HEIs.

Funding for research and third-cycle education

Total HEI funding for research and third-cycle education was SEK 47.6 billion in 2021. Most research funding comes from the State. Direct government funding was SEK 21.6 billion, of which most (SEK 19.1 billion) was part of the HEIs' core funding (Table 15). More information about funding for research and third-cycle education per HEI is found in one of the tables at the end of this report.

HEIs are mostly free to use the core funding for research and third-cycle education in various subjects. The rest of the direct government funding consists primarily of state reimbursements for clinical research to the seven HEIs providing medical training.

Table 15: HEI revenues for research and third-cycle education, 2020 and 2021 by funding type, SEK million (current prices). Direct government funding includes grants awarded by the Legal, Financial and Administrative Services Agency.

	2020	2021	Change
State	31,951	33,593	1,642
Direct government funding	20,289	21,607	1,318
External state funding	11,662	11,986	324
Private in Sweden	6,986	7,364	379
Non-profit organisations	5,740	6,073	334
Companies	1,246	1,291	45
EU and other foreign	3,325	3,433	109
Other public	2,710	2,730	21
Public research foundations	1,350	1,423	73
Municipalities and regions	1,359	1,307	-52
Miscellaneous	291	284	-7
Financial revenue	127	162	35
Total	45,389	47,568	2,179

Most research funding comes from the State

In addition to direct government funding, the State also allocates significant external funding to HEIs, in total SEK 12 billion, which is channelled through government research funding bodies and other government agencies that fund research (Table 15). State research funding totals SEK 33.6 billion. That is equivalent to 71 per cent of the HEIs' total revenues for research and third-cycle education.

HEIs also receive other public funding, such as from municipalities and regions and from public research foundations. This means that 76 per cent of HEI research funding in 2021 came from different national public sources.

Private research funding primarily comes from various foundations and non-profit organisations, while corporate research funding is less extensive. A majority of foreign research funding comes from the EU.

Funding increased for research and third-cycle education

Of total revenues for research and third-cycle education, SEK 21.6 billion was direct government funding. External funding totalled SEK 25.8

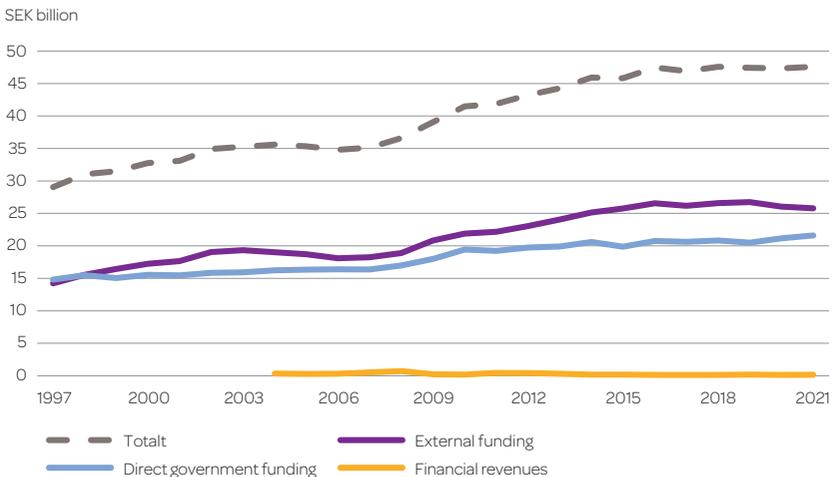
billion. Financial revenues not considered external funding were SEK 200 million. In total, revenues for HEI research and third-cycle education were marginally higher in 2021 than the previous year (Figure 41).

Revenues increased for HEI research and third-cycle education by SEK 2.2 billion in 2021 prices compared with revenues in 2020. External funding increased by SEK 900 million, but revenues from direct government funding increased by SEK 1.3 billion.

In 2020, the Government presented a new research and innovation bill, which the Riksdag passed. This increased HEI funding for research and third-cycle education by SEK 900 million during 2021–2024, of which SEK 720 million was allocated immediately in 2021. In 2021, HEIs also received SEK 500 million in a one-time increase to manage the negative effects of the coronavirus pandemic on research.

The percentage of external funding for HEI research and third-cycle education decreased for the second year in a row. This decrease was a result of increased direct government funding and less use of external research funding during the pandemic. Since the 1990s, the percentage of external funding has increased and was at its highest in 2019 with 56.4 per cent. In 2021, external funding made up 54.2 per cent.

Figure 41: HEI funding for research and third-cycle education, divided by direct government funding, external funding and financial revenues 1997–2021, SEK billion (2021 prices). The direct government funding also includes grants awarded by the Legal, Financial and Administrative Services Agency after decision by the Government.



An increase in revenues from research grants

Research grants are about 85 per cent of external funding. These grants are normally applied for in competition between researchers and research teams at different HEIs. The funds come from many public and private organisations. HEI revenues from grants for research and third-cycle education totalled SEK 21.8 billion in 2021, which was an increase of SEK 600 million compared with 2020. The three largest sources of funding were the Swedish Research Council (government research funding body), the Wallenberg Foundations (non-profit foundations) and the EU framework programmes.

Contributions from external funding sources are accounted for as revenues only after they have been used. Received funding that has not yet been used in operations is listed in the HEI's balance sheet as unutilised grants.

At the end of 2021, the HEIs' unused grants in research and third-cycle education totalled SEK 22.8 billion, which is an increase with SEK 2 billion in current prices compared with the previous year. The size of the HEIs' unutilised grants is even larger than the grant funding used in the previous year.

Revenues for contract research increased marginally

In addition to research grants, HEIs also have revenues for contract research and other fees. The total revenues in 2021 for contract research were SEK 1.7 billion. This is a marginal increase in current prices compared with the previous year. In addition to contract research for external stakeholders, this can also include development work and commissioned studies. A majority of contract research is done for private companies and government agencies.

Research at higher education institutions

Sweden is one of the countries that invests the most in research and development (R&D) in relation to Gross Domestic Product (GDP). In 2019, Sweden's investments in R&D were 3.39 per cent, which was significantly higher than the average for both EU27 and OECD.

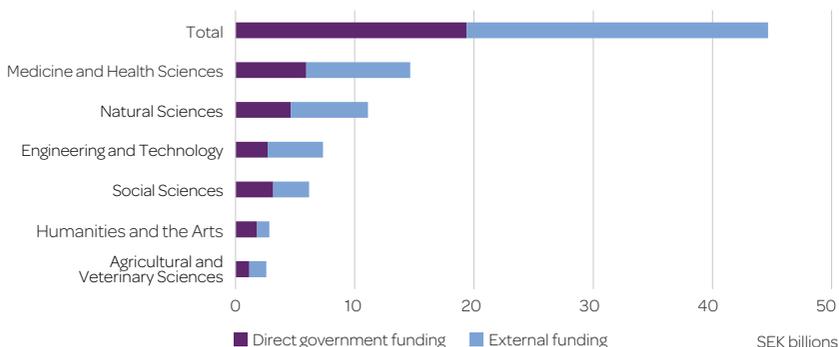
In 2019, higher education institutions (HEIs) conducted 24 per cent of Sweden's R&D.

Total HEI revenues for research and third-cycle education were close to SEK 45 billion in 2019. More than half of these revenues went to research in medicine and health sciences and the natural sciences.

Research resources

In Sweden, the bulk of publicly funded research is undertaken at the HEIs. In 2019, HEI funding for research and third-cycle education totalled nearly SEK 45 billion (latest statistics from Statistics Sweden). Funding varied significantly between fields of research. Research and third-cycle education within medicine and health sciences (SEK 14.7 billion) and the natural sciences (SEK 11.1 billion) received the highest amounts of funding (Figure 42). The smallest fields of research in terms of funding were the humanities and arts (SEK 2.8 billion) and agricultural and veterinary

Figure 42: HEI funding for research and third-cycle education in 2019, divided by direct government funding and external funding (including financial revenues), per research field, SEK billion. Source: Statistics Sweden.



The pandemic and research

In March and April 2021, UKÄ conducted a questionnaire survey aimed at higher education staff who also performed research as part of their jobs. The purpose of the survey was to gain an understanding of the coronavirus pandemic's consequences for research, both in the short term and long term.

Researchers have had varying experiences. Some researchers who responded to the survey have been relatively unaffected by the pandemic, while others have seen significant negative impacts. A clear finding was that many have had problems with data collection. Researchers in the humanities and social sciences were confronted with limited access to or closed archives and libraries and they could not conduct studies because of infectious disease restrictions. The restrictions for patient appointments impacted research in medicine and health sciences. For researchers in the natural sciences, it became more difficult to conduct field trips and field experiments because of travel restrictions.

Research was also impacted by researchers having to spend more time on teaching with the transition to distance learning. Researchers could not spend their research funding as planned, which led to a decrease in the use of research funding.

Many felt that remote work during the pandemic has impacted research negatively. There was wide-ranging concern that the lack of physical meetings will lead to diminished productivity and quality of research.

sciences (SEK 2.6 billion). Read more about each HEI's research profile in the table at the end of this report.

Funding for research and third-cycle education comes from many different sources. Less than half of funding comes from direct government funding, but the amounts vary between different research fields. The smallest percentage of direct government funding, around 37 per cent, is allocated to engineering research and third-cycle education, which is highly funded externally with public and private money. The largest percentage of direct government funding, around 64 per cent, is in the humanities and arts. Data on funding per HEI are found in the table at the end of this report.

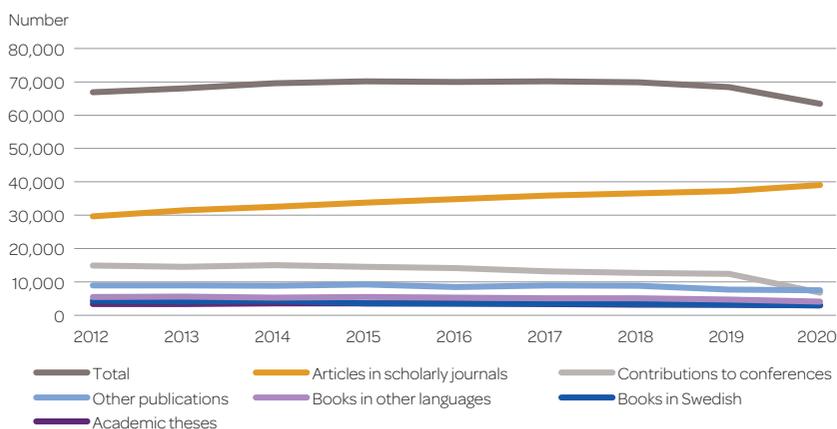
Research publications

Since 2021, UKÄ has published statistics on research at higher education institutions. The statistics explore the research conducted in higher education from multiple perspectives, including scholarly publications, researcher mobility and international recruitment of researchers.

Swepub is a national service with information in both Swedish and English on primarily academic publications and an important source of data on scholarly production (www.swepub.kb.se). The information is based on data provided by HEIs. Scholarly production is classified by publication type, HEI, field of research and other categories. Swepub has good coverage across all fields of research and includes non-peer reviewed publications as well as doctoral and licentiate theses.

Fewer research publications in 2020

Scholarly production at Swedish HEIs decreased in 2020 (Figure 43). The decrease is largely explained by significantly fewer conference contributions in 2020 compared with previous years. Between 2019 and 2020, they decreased by 46 per cent. The decrease is likely an effect of many conferences being cancelled or held online during the pandemic. There were also fewer books in Swedish and other languages, as well as academic theses and other publications published in 2020.

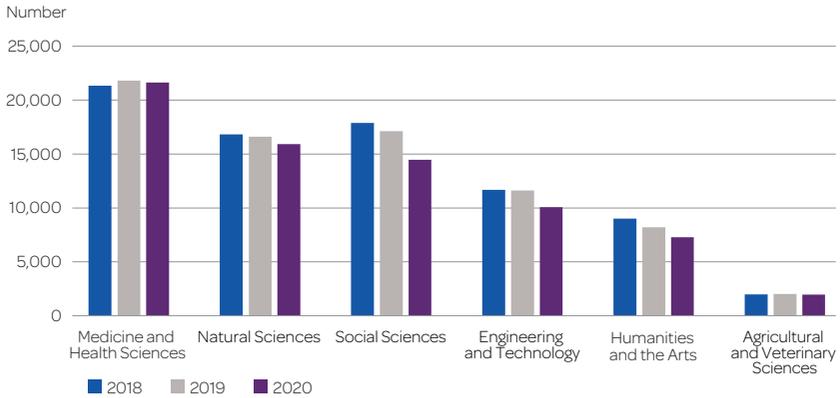
Figure 43: The number of academic publications per publication type 2012–2020.

A clear trend over the most recent decade has been an increasing percentage of research results being communicated through articles in scholarly journals. This was the most common type of research publication during the 2012–2020 period. The number of articles in scholarly journals continued to increase in 2020. They made up 62 per cent of all academic publications in Swepub 2020. The number of books written by researchers active at Swedish HEIs, however, has decreased in recent years.

Most publications within medicine and health sciences

Medicine and health sciences made up the largest research volume in Sweden in 2020 measured in number of publications (Figure 44). Scholarly production measured in number of academic publications fell in all fields of research and development except in the medical and health sciences and in agricultural and veterinary sciences. A contributing factor to the decrease was the publication of fewer conference contributions. This was particularly apparent in the social sciences, where the decrease in conference contributions resulted in a decrease in the total number of publications.

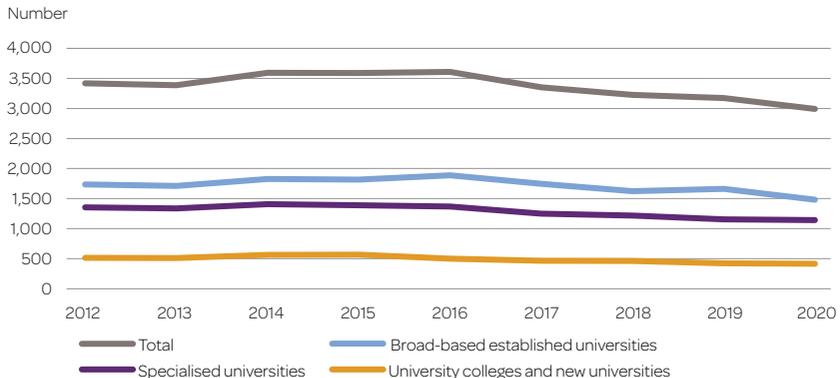
Publication patterns vary among the different fields of research. Articles in scientific journals dominate in the natural sciences and medical and health sciences. Within the social sciences and humanities and arts, more books are published, but in Swedish and other languages, than in other fields of research.

Figure 44: The number of academic publications per field of research 2018–2020.

Number of theses continues to decrease

Third-cycle education is most extensive at the large broad-based universities and the specialised universities, and it is at these HEIs that most theses are written (Figure 45). In 2020, just under 3,000 academic theses were published, both doctoral and licentiate theses. In recent years, there has been a decrease in the number of third-cycle graduates. This can also be seen in Swepub, where the number of academic theses has fallen since 2016.

English dominates as the language of publication for both licentiate and doctoral theses. In 2020, 93 per cent of academic theses at Swedish HEIs were in English. This percentage has increased somewhat since 2012.

Figure 45: Number of published academic theses per HEI category 2012–2020.

There were some differences in publication language between different fields of research. Within the natural sciences and engineering and technology, practically all academic theses were in English in 2020. The same was true for medicine and health sciences and agricultural and veterinary sciences, where 97 per cent of theses were published in English. Swedish as a publication language has a strong tradition in the social sciences and the humanities and arts, but even in these fields a majority of theses was in English.

Higher education institutions – categories

Broad-based universities: Conduct extensive research and education within many subject areas. These universities are Uppsala University, Lund University, the University of Gothenburg, Stockholm University, Umeå University and Linköping University.

Specialised universities: Conduct extensive research and education, primarily within one or a few subject areas. These universities are Karolinska Institute, KTH Royal Institute of Technology, Chalmers University of Technology, Luleå University of Technology and the Swedish University of Agricultural Sciences.

New universities: Previous university colleges that have been upgraded to universities since the end of the 1990s. These are Karlstad University, Linnaeus University, Örebro University, Mid Sweden University and Malmö University.

University colleges: All university colleges and independent education providers with research funding (total 31 HEIs). This includes Blekinge Institute of Technology, Swedish National Defence College, the University of Borås, Skövde University, Mälardalen University, Jönköping University Foundation, Konstfack – University College of Art, Craft and Design, Ersta Sköndal Bräcke University College and Sophiahemmet University.

Swedish research and development in an international comparison

Sweden is one of the countries that invests the most in research and development (R&D) in relation to Gross Domestic Product (GDP). According to information from OECD, Sweden's investments in R&D were 3.39 per cent of GDP in 2019. Sweden's investments were considerably higher than both the EU27 average (2.12 per cent) and the OECD average (2.48 per cent).

Like in most countries, the Swedish corporate sector accounts for the bulk of Sweden's total R&D. In 2019, companies contributed 72 per cent of Sweden's R&D, which is about the same as the OECD average.

Sweden differs from many other countries in that the bulk of publicly funded research is undertaken at HEIs. In 2019, HEIs conducted 24 per cent of Sweden's R&D. The public sector provided not quite 5 per cent of R&D. Another difference is that many other countries have a larger public research institute sector that conducts a significant part of their research. The R&D conducted by companies primarily consists of development work, while R&D by the HEIs primarily takes the form of research.

Key figures

Key figures for higher education institutions

Swedish higher education institutions (HEIs) vary in both size and specialisation. The tables on the following pages show a selection of quantitative data that describes in various ways the activities of the universities and university colleges. Data from the smallest independent education providers have not been included in the tables in this report, but are included in the total amounts and are available in Excel files on the website.

Definitions

First- and second-cycle education

Number of new entrants to higher education. The data per HEI indicates the number of individuals who have begun studies at the first- or second-cycle level at the relevant HEI in academic year 2020/21 and who have not previously studied at another Swedish HEI.

Number of enrolled students. The data per HEI indicates the number of individuals who were enrolled for first- or second-cycle studies at the relevant HEI in academic year 2020/21. Students can be enrolled at more than one HEI in the same year. The total national number shows the net number of individuals, i.e. each individual is only counted once.

Number of graduates. Total number of first- or second-cycle graduates in academic year 2020/21, per HEI.

Number of graduates per programme. Number of graduates in academic year 2020/21 on general programmes, on programmes in the fine, applied and performing arts, on the largest programmes leading to professional qualifications, and on programmes leading to a professional qualification

in total. One student can graduate from multiple programmes in the same year. The total national number shows the net total.

Third-cycle education

Number of new entrants. Number of third-cycle new entrants in 2021, per HEI.

Number of doctoral students. Total number of doctoral students in the 2021 autumn semester, per HEI.

Doctoral degrees. Number of awarded doctoral degrees in 2021, per HEI.

Research and teaching staff

Research and teaching staff. The number of research and teaching staff (in FTEs) 2021, per HEI. The figures include professors, senior lecturers, lecturers, career development positions, and other research and teaching staff.

Number of professors. Number of professors (in FTEs) 2021, per HEI.

Funding

Total funding. Total funding (SEK million) 2021, per HEI.

Proportion of total funding for research and third-cycle education.

Proportion of total funding in 2021 for research and third-cycle education, per HEI.

Funding for research and third-cycle education. Total funding for research and third-cycle education (SEK million) 2021, per HEI.

Proportion direct government funding. Proportion of direct government funding of the HEI's total funding for research and third-cycle education 2021 (excluding financial revenues).

HEIs' research profiles. Percentage of the total funding for research and third-cycle education, by field of research, 2019.

FTEs stands for full-time equivalents

APE stands for annual performance equivalent

ECTS stands for European Credit Transfer and Accumulation System

R&D stands for research and development

Tables

Table 16: Number of new entrants, enrolled students and graduates in first- or second-cycle education academic year 2020/21, proportion of women and men, per HEI.

	Number of new entrants	Proportion of women and men (%)	Number of enrolled students	Proportion of women and men (%)	Number of graduates	Proportion of women and men (%)
Universities						
Uppsala University	8,481	61/39	48,471	61/39	6,397	61/39
Lund University	8,263	59/41	39,995	58/42	7,405	60/40
University of Gothenburg	7,780	66/34	48,591	65/35	6,880	70/30
Stockholm University	9,387	64/36	55,181	64/36	6,175	67/33
Umeå University	4,513	61/39	30,214	64/36	3,778	65/35
Linköping University	5,137	55/45	29,109	57/43	4,143	57/43
Karolinska Institutet	1,216	75/25	9,679	75/25	2,240	77/23
KTH Royal Institute of Technology	3,468	32/68	15,585	34/66	3,374	36/64
Chalmers University of Technology (independent)	2,679	32/68	12,092	33/67	2,165	33/67
Luleå University of Technology	2,689	45/55	16,282	51/49	1,548	56/44
Stockholm School of Economics (independent)	572	43/57	1,987	44/56	624	45/55
Swedish University of Agricultural Sciences	1,180	65/35	6,778	69/31	923	71/29
Karlstad University	3,020	61/39	17,602	64/36	2,110	67/33
Linnaeus University	5,429	60/40	36,969	65/35	2,991	65/35
Örebro University	2,649	61/39	14,408	62/38	2,518	65/35
Mid Sweden University	2,354	65/35	20,326	68/32	1,599	68/32
Malmö University	3,641	65/35	19,315	69/31	3,036	72/28

(Continued)

Table 16: Continued.

	Number of new entrants	Proportion of women and men (%)	Number of enrolled students	Proportion of women and men (%)	Number of graduates	Proportion of women and men (%)
University colleges						
Blekinge Institute of Technology	1,179	33/67	6,384	40/60	668	47/53
Swedish Defence University	245	32/68	1119	39/61	329	24/76
Swedish School of Sport and Health Sciences	223	38/62	1,298	43/57	168	48/52
University of Borås	2,163	67/33	16,068	69/31	1,437	78/22
Dalarna University	2,284	58/42	15,517	63/37	1,353	67/33
University of Gävle	1,778	62/38	11,822	64/36	1,418	74/26
Halmstad University	2,286	54/46	10,815	61/39	1,278	63/37
Kristianstad University	1,637	68/32	11,645	72/28	1,270	72/28
University of Skövde	1,438	53/47	8,767	58/42	901	61/39
University West	1,591	56/44	9,782	65/35	1,162	68/32
Mälardalen University	2,933	60/40	18,029	65/35	1,849	72/28
Jönköping University (independent)	2,686	60/40	11,422	65/35	2,157	64/36
Södertörn University	2,061	70/30	11,078	69/31	1,638	74/26
Art, design and music academies						
Beckmans College of Design (independent)	20	55/45	119	69/31	39	72/28
Konstfack University of Arts, Craft and Design	103	74/26	815	76/24	234	70/30
Royal Institute of Art	41	63/37	224	63/37	39	49/51
Royal College of Music in Stockholm	342	57/43	1,114	51/49	158	44/56
Stockholm University of the Arts	172	77/23	864	75/25	75	61/39

(Continued)

Table 16: Continued.

	Number of new entrants	Proportion of women and men (%)	Number of enrolled students	Proportion of women and men (%)	Number of graduates	Proportion of women and men (%)
Other independent education providers						
University College Stockholm (EHS)	112	56/44	927	63/37	50	76/24
Erica Foundation	1	100/0	60	85/15		
Ersta Sköndal Bräcke University College	161	83/17	1,417	85/15	390	88/12
Evidens			21	81/19	21	81/19
Gammelkroppa School of Forestry			20	25/75	18	22/78
Johannelund School of Theology	28	54/46	225	56/44	12	50/50
Newman Institute	30	40/60	300	44/56	3	100/0
Swedish Red Cross University College	118	85/15	858	84/16	210	89/11
Scandinavian Academy for Psychotherapy Development	1	100/0	58	78/22	18	78/22
Sophiahemmet University	143	81/19	1,269	87/13	282	89/11
University College of Music Education in Stockholm	14	36/64	181	70/30	8	50/50
Swedish Institute for CBT & Schema Therapy			97	85/15	16	94/6
Örebro School of Theology	79	54/46	388	55/45	36	44/56
Total	92 236	59/41	454 090	62/38	74,655	63/37

Table 17: Number of graduates in first- or second-cycle education academic year 2020/21, proportion of women and men, per category of qualification and qualification. Of professional degrees, only programmes with more than 500 graduates are included in the table.

Category of qualification and qualification	Number of graduates per programme academic year 2020/21	Proportion of women and men (%)
General qualifications (net)	46,080	61/39
Higher Education Diploma	980	47/53
Degree of Bachelor	29,077	63/37
Degree of Master (60 HE credits)	5,725	69/31
Old Degree of Master (60 HE credits)	69	62/38
Degree of Master (120 HE credits)	12,319	49/51
Qualifications in the fine, applied and performing arts (net)	1,216	59/41
Higher Education Diploma	12	50/50
Degree of Bachelor in Fine Arts	794	59/41
Degree of Master in Fine Arts (60 HE credits)	9	78/22
Degree of Master in Fine Arts (120 HE credits)	425	60/40
Professional qualifications (total number, net)	36,559	69/31
Degree of Master of Science in Engineering	4,757	35/65
Degree of Bachelor of Science in Nursing	4,580	88/12
Degree of Bachelor of Arts in Pre-School Education	2,996	96/4
Degree of Master of Arts/Science in Secondary/Upper Secondary Education	2,955	60/40
Degree of Bachelor of Arts/Degree of Master of Arts in Primary Education	2,647	79/21
Degree of Bachelor of Science in Engineering	2,579	30/70
Postgraduate Diploma in Specialist Nursing	2,420	86/14
Degree of Bachelor of Science in Social Work	2,303	84/16
Degree of Master of Science in Medicine	1,475	57/43
Degree of Master of Laws	1,403	63/37
Degree of Master of Science in Business and Economics	827	52/48
Degree of Bachelor of Arts/Degree of Master of Arts in Education	689	77/23
Degree of Master of Science in Psychology	656	69/31
Higher Education Diploma in Vocational Education	607	57/43
Degree of Bachelor of Science in Physiotherapy	535	63/37
Postgraduate Diploma in Special Educational Needs	512	95/5
Total number of graduates	74,655	63/37

Table 18: Number of new entrants in third-cycle education 2021 and total number of doctoral students autumn 2021, proportion of women and men, per HEI.

	Number of new entrants	Proportion women/men (%)	Total number of doctoral students	Proportion women/men (%)
Universities				
Uppsala University	400	56/44	2,019	52/48
Lund University	434	46/54	2,462	50/50
University of Gothenburg	331	58/42	1,677	61/39
Stockholm University	182	54/46	1,239	53/47
Umeå University	124	53/47	742	52/48
Linköping University	180	48/52	1,041	50/50
Karolinska Institutet	370	63/37	2,087	61/39
KTH Royal Institute of Technology	296	35/65	1,666	34/66
Chalmers University of Technology (independent)	191	39/61	1,029	34/66
Luleå University of Technology	95	40/60	488	39/61
Stockholm School of Economics (independent)	28	46/54	145	48/52
Swedish University of Agricultural Sciences	80	61/39	478	58/42
Karlstad University	33	55/45	221	56/44
Linnaeus University	44	57/43	285	60/40
Örebro University	62	42/58	452	55/45
Mid Sweden University	23	61/39	137	52/48
Malmö University	34	59/41	241	60/40
University colleges				
Blekinge Institute of Technology	11	36/64	81	33/67
Swedish Defence University	6	33/67	21	29/71
Swedish School of Sport and Health Sciences	1	0/100	19	47/53
University of Borås	16	50/50	72	58/42
Dalarna University	5	60/40	53	66/34
University of Gävle	9	67/33	47	53/47
Halmstad University	15	53/47	63	59/41
Kristianstad University	8	88/13	15	93/7
University of Skövde	9	22/78	39	26/74
University West	13	77/23	68	59/41
Mälardalen University	32	38/63	183	44/56
Jönköping University (independent)	24	54/46	169	63/37
Södertörn University	15	67/33	74	59/41

(Continued)

Table 18: Continued.

	Number of new entrants	Proportion women/men (%)	Total number of doctoral students	Proportion women/men (%)
Art, design and music academies				
Beckmans College of Design (independent)				
Konstfack University of Arts, Craft and Design				
Royal Institute of Art				
Royal College of Music in Stockholm				
Stockholm University of the Arts	7	43/57	24	71/29
Other independent education providers	6	33/67	49	69/31
Total	3,082	51/49	17,371	51/49

Table 19: Number of doctoral degrees and licentiate degrees, proportion of women and men, per HEI, in 2021.

	Number of doctoral degrees	Proportion women/men (%)	Number of licentiate degrees	Proportion women/men (%)
Universities				
Uppsala University	332	48/52	44	45/55
Lund University	400	46/54	31	42/58
University of Gothenburg	248	55/45	8	38/63
Stockholm University	179	49/51	28	43/57
Umeå University	121	51/49	2	0/100
Linköping University	139	39/61	33	24/76
Karolinska Institutet	353	62/38	5	40/60
KTH Royal Institute of Technology	258	33/67	46	35/65
Chalmers University of Technology (independent)	180	29/71	148	38/62
Luleå University of Technology	75	35/65	29	34/66
Stockholm School of Economics (independent)	16	31/69	0	
Swedish University of Agricultural Sciences	90	59/41	4	25/75

(Continued)

Table 19: Continued.

	Number of doctoral degrees	Proportion women/men (%)	Number of licentiate degrees	Proportion women/men (%)
Karlstad University	22	50/50	3	33/67
Linnaeus University	36	58/42	6	50/50
Örebro University	55	49/51	0	
Mid Sweden University	19	58/42	8	75/25
Malmö University	28	57/43	5	60/40
University colleges				
Blekinge Institute of Technology	8	25/75	11	27/73
Swedish Defence University				
Swedish School of Sport and Health Sciences				
University of Borås	14	64/36	1	100/0
Dalarna University	4	50/50	6	50/50
University of Gävle	8	38/63	1	100/0
Halmstad University	7	57/43	1	0/100
Kristianstad University				
University of Skövde	4	0/100	2	0/100
University West	10	40/60	2	50/50
Mälardalen University	20	50/50	7	14/86
Jönköping University (independent)	12	42/58	6	33/67
Södertörn University	23	52/48	1	100/0
Art, design and music academies				
Beckmans College of Design (independent)				
Konstfack University of Arts, Craft and Design				
Royal Institute of Art				
Royal College of Music in Stockholm				
Stockholm University of the Arts	1	100/0	0	
Other independent education providers	5	80/20	0	
Total	2,667	47/53	438	38/62

Table 20: Total number of research and teaching staff (FTEs) and the number of professors (FTEs), proportion of women and men, in 2021, per HEI.

	Total research and teaching staff		Professors	
	FTEs	Proportion women/men (%)	FTEs	Proportion women/men (%)
Universities				
Uppsala University	3,274	44/56	631	33/67
Lund University	3,544	42/58	660	30/70
University of Gothenburg	2,922	52/48	550	38/62
Stockholm University	2,405	48/52	510	34/66
Umeå University	1,963	49/51	304	33/67
Linköping University	1,503	40/60	319	25/75
Karolinska Institutet	2,220	54/46	345	34/66
KTH Royal Institute of Technology	1,703	30/70	344	20/80
Chalmers University of Technology (independent)	1,279	27/73	225	18/82
Luleå University of Technology	635	40/60	153	27/73
Stockholm School of Economics (independent)	121	35/65	31	13/87
Swedish University of Agricultural Sciences	1,810	51/49	191	32/68
Karlstad University	674	50/50	94	33/67
Linnaeus University	1,006	48/52	143	29/71
Örebro University	729	51/49	103	35/65
Mid Sweden University	542	51/49	73	36/64
Malmö University	996	59/41	93	38/62
University colleges				
Blekinge Institute of Technology	215	36/64	37	18/82
Swedish Defence University	263	29/71	16	19/81
Swedish School of Sport and Health Sciences	74	45/55	8	13/87
University of Borås	404	57/43	35	31/69
Dalarna University	440	60/40	36	42/58
University of Gävle	428	54/46	44	23/77
Halmstad University	302	46/54	41	35/65
Kristianstad University	326	64/36	28	38/62
University of Skövde	264	42/58	27	31/69

(Continued)

Table 20: Continued.

	Total research and teaching staff		Professors	
	FTEs	Proportion women/men (%)	FTEs	Proportion women/men (%)
University West	356	57/43	39	36/64
Mälardalen University	525	53/47	55	44/56
Jönköping University (independent)	505	54/46	51	42/58
Södertörn University	427	52/48	69	39/61
Art, design and music academies				
Beckmans College of Design (independent)	10	48/52		
Konstfack University of Arts, Craft and Design	80	63/37	13	63/37
Royal Institute of Art	35	57/43	11	54/46
Royal College of Music in Stockholm	81	32/68	18	29/71
Stockholm University of the Arts	87	60/40	18	52/48
Other independent education providers				
Örebro School of Theology	11	43/57	2	67/33
University College Stockholm (EHS)	20	43/57	4	29/71
Erica Foundation	15	76/24		
Ersta Sköndal Bräcke University College	80	71/29	10	70/30
Evidens				
Gammelkroppa School of Forestry	2	42/58		
Johannelund School of Theology	9	22/78		
Newman Institute	10	36/64	1	0/100
Swedish Red Cross University College	46	74/26	5	60/40
Scandinavian Academy for Psychotherapy Development	2	67/33		
Sophiahemmet University	63	88/12	6	92/8
University College of Music Education in Stockholm	11	45/55	0	100/0
Swedish Institute for CBT & Schema Therapy	2	50/50		
Total	32,421	47/53	5,343	32/68

Table 21: Total funding (SEK million), and the proportion of total funding for research and third-cycle education 2021 (%), per HEI. The table also shows the funding for research and third-cycle education (SEK million) and the proportion of direct government funding for research 2021 (%), per HEI.

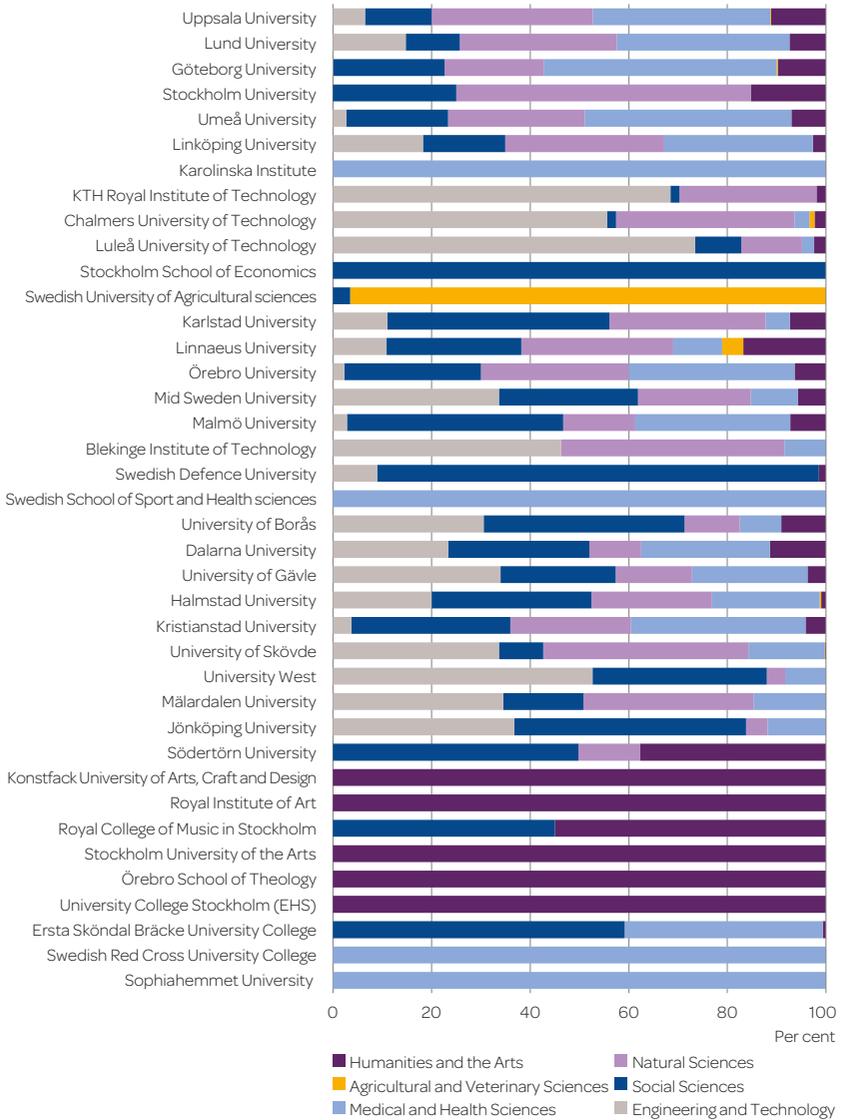
	Total funding 2021 SEK million	Proportion of total funding for research and third-cycle education (%)	Funding for research and third-cycle education 2021 SEK million	Proportion direct government funding for research (%)
Universities				
Uppsala University	7,825	68	5,388	46
Lund University	9,466	68	6,527	42
University of Gothenburg	7,302	58	4,418	49
Stockholm University	5,836	58	3,493	50
Umeå University	4,823	53	2,687	52
Linköping University	4,446	56	2,539	44
Karolinska Institutet	7,560	79	6,339	35
KTH Royal Institute of Technology	5,408	65	3,668	38
Chalmers University of Technology (independent)	4,162	68	2,966	34
Luleå University of Technology	1,920	52	1,066	40
Stockholm School of Economics (independent)	522	35	183	0
Swedish University of Agricultural Sciences	4,053	66	2,840	48
Karlstad University	1,312	34	450	62
Linnaeus University	2,153	28	622	62
Örebro University	1,620	39	633	61
Mid Sweden University	1,161	37	444	64
Malmö University	1,886	24	471	58
University colleges				
Blekinge Institute of Technology	524	33	180	60
Swedish Defence University	636	16	144	51
Swedish School of Sport and Health Sciences	197	32	63	55
University of Borås	916	22	204	51
Dalarna University	757	22	165	66
University of Gävle	780	24	190	61
Halmstad University	724	27	203	50
Kristianstad University	630	18	117	84

(Continued)

Table 21: Continued.

	Total funding 2021 SEK million	Proportion of total funding for research and third-cycle education (%)	Funding for research and third-cycle education 2021 SEK million	Proportion direct government funding for research (%)
University of Skövde	552	26	147	45
University West	698	27	194	49
Mälardalen University	1,128	31	358	42
Jönköping University (independent)	1,142	26	301	49
Södertörn University	1,016	34	349	36
Art, design and music academies				
Beckmans College of Design (independent)	36	0		
Konstfack University of Arts, Craft and Design	218	12	27	83
Royal Institute of Art	95	20	19	69
Royal College of Music in Stockholm	214	14	29	76
Stockholm University of the Arts	288	21	61	93
Other independent education providers				
Örebro School of Theology	16	10	2	97
University College Stockholm (EHS)	35	19	7	59
Erica Foundation	10	0		
Ersta Sköndal Bräcke University College	200	17	34	34
Evidens				
Gammelkroppa School of Forestry	3	0		
Johannelund School of Theology	13	0		
Newman Institute	11	0		
Swedish Red Cross University College	119	14	18	53
Scandinavian Academy for Psychotherapy Development				
Sophiahemmet University	132	19	25	29
University College of Music Education in Stockholm	17	0		
Swedish Institute for CBT & Schema Therapy				
Total	82,562	56	47,568	44

Figure 46: The HEIs' research profiles 2019. Percentage of the total funding for research and third-cycle education, by field of research.



The Swedish Higher Education Authority (UKÄ) is a government agency that deals with questions concerning higher education. UKÄ is responsible for the official statistics on higher education and also works with the quality assurance of higher education courses and programmes, monitoring and evaluating efficiency, legal supervision and leadership development in higher education.

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