



CHAPTER 6

Skills Provision and Lifelong Learning in Sweden

Sweden faces growing pressure to secure the skills needed for a changing labour market. Higher education is at the centre of this challenge, expected both to expand provision in key fields and to provide opportunities for continual reskilling. This chapter explores how higher education institutions respond to projected shortages, how graduates fare in the labour market, and how flexible learning pathways open doors for lifelong learning. It also considers the contribution of international freemover students to Sweden's skills supply.

Expected skills shortages and educational planning in Sweden

Higher education institutions in Sweden are responsible for adjusting the range of study programmes they offer to meet both student demand and labour market needs. The labour market is changing, partly due to demographic shifts such as an ageing population, and partly as a result of new technology and digitalisation. In many occupations that previously required shorter or lower-level education, skill requirements are now rising, increasing the overall demand for qualified individuals. Higher education plays a central role in meeting these needs.

Government strategies to align education with labour market needs

Most first- and second-cycle education in Sweden is funded through recurrent funding to higher education institutions, and the institutions have considerable autonomy in how this funding is used. In recent years, however, the government has increasingly steered study programme provision through targeted initiatives and performance-based mandates aimed at meeting labour market needs.

From the mid-2010s, funding caps for selected higher education institutions were raised, accompanied by targets for the number of new entrants in the fields of engineering and technology, healthcare, and teacher training. These initiatives were later incorporated into the government's broader efforts to meet skills needs, and were also under way when a national strategy for science, technology, engineering, and mathematics (STEM) was launched in 2025.

The STEM strategy aims to address skills shortages in areas considered crucial for Sweden's competitiveness, digitalisation, and green transition. It includes measures such as expanding the Master of Science in Engineering and foundation-year programmes, increasing funding for science and technical fields, and attracting more women to STEM education in order to meet future skills needs.

Expected skills shortages in engineering professions

Despite the Master of Science in Engineering being the largest professional degree programme at Swedish higher education institutions, Sweden currently faces a shortage of qualified engineers. Statistics Sweden projects that this shortage will ease in most fields by 2040, but risks remain in areas such as energy engineering, electrical engineering, and computer engineering. To meet projected demand, the number of students beginning a Master of Science in Engineering in these specialisations must increase by about 70 percent (5,800 students) annually, compared with 2023/24 levels.

Engineering programmes also have relatively low graduation rates compared with other professional degree programmes. In the 2022/23 academic year, about half of those who began a Master of Science in Engineering in 2015/16 had completed their degree within the standard duration plus three years (see table 6.1). Among those who did not graduate, many lacked most of the required credits, while others had nearly completed the programme and were missing only the equivalent of up to two semesters. As engineering is not a licensed profession in Sweden, some of these students may already have entered the labour market.

Table 6.1 Proportion of new entrants to engineering programmes completing the intended degree within the standard duration plus three years, follow-up academic year 2022/23, by women and men

	Year of Entry	Total (%)	Women (%)	Men (%)
Master of Science of Engineering	2015/16	56	64	52
Bachelor of Science in Engineering	2017/18	49	59	45

Expected skills shortages in healthcare professions

Statistics Sweden forecasts that the current shortage of trained healthcare professionals will persist or increase by 2040, particularly in fields such as midwifery, radiography, occupational therapy, general nursing, district nursing and specialist nursing within psychiatric care. Overall, around 9,800 students per academic year in total would need to begin key healthcare programmes to prevent the overall shortage from worsening. This corresponds to about 20 per cent more new entrants to these key programmes than in the 2023/24 academic year.

The largest healthcare programme in Sweden is the Bachelor of Science in Nursing. However, its graduation rate is lower than in other key programmes, such as the Postgraduate Diploma in Midwifery and the Postgraduate Diploma in Specialist Nursing (table 6.2). One reason is that the latter two are second-cycle programmes for already licensed nurses, and specialist training programmes tend to have higher completion rates.

Table 6.2 Proportion of new entrants to selected healthcare programmes completing the intended degree within the standard duration plus three years, follow-up academic year 2022/23, by women and men for programmes with at least 30 new entrants of each gender (..indicates data not presented)

	Year of Entry	Total (%)	Women (%)	Men (%)
Postgraduate Diploma in Midwifery	2018 / 19	89
Postgraduate Diploma in Specialist Nursing	2018 / 19	86	87	86
Bachelor of Science in Physiotherapy	2017 / 18	73	76	69
Bachelor of Science in Nursing	2017 / 18	73	75	60
Bachelor of Science in Biomedical Laboratory Science	2017 / 18	52	56	40

The programmes included in table 6.2 have been selected based on both labour shortages and the existence of targets for the number of degrees awarded.

Despite increased application rates and targeted government funding, Swedish higher education institutions face challenges in expanding healthcare programmes. Two key obstacles are the shortage of teaching staff with a third-cycle qualification – particularly senior lecturers and professors – and the limited number of clinical placements available through healthcare providers.

Expected skills shortages in teaching professions

Despite declining birth rates, there is expected to be a continued lack of graduates from teacher training programmes in the future. The Swedish National Agency for Education estimates that, up to 2038, there is a risk of shortages in some categories of qualified teachers, from preschool to upper-secondary school, while surpluses may occur in others. To meet demand, nearly 15,000 new entrants are needed each year; an increase of just over 20 per cent compared with 2023/24 academic year levels. Current graduation rates among teacher training students range from 49 to 76 per cent, depending on specialisation, which directly affects the overall supply of qualified teachers (table 6.3).

Table 6.3 Proportion of new entrants to teacher and pre-school teacher training programmes completing the intended degree within the standard duration plus three years, follow-up academic year 2022/23, by women and men

	Year of Entry	Total (%)	Women (%)	Men (%)
Postgraduate Diploma in Special Educational Needs	2018 / 19	76	77	67
Postgraduate Diploma in Special Needs Training	2018 / 19	74	75	63
Bachelor of Arts in Pre - School Education	2016 / 17	71	73	43
Higher Education Diploma in Vocational Education	2018 / 19	71	74	66
Bachelor of Arts in Primary Education	2016 / 17	61	64	53
Master of Arts / Science in Secondary / Upper - Secondary Education	2014 / 15	49	55	44

There is also a significant need for further education among teachers who hold a teacher certification but are not qualified to teach the age group or subject in which they are currently employed. Teachers and educators corresponding to nearly 25,000 full-time positions would

need additional training to obtain the necessary subject- or level-specific qualifications. In addition, Statistics Sweden reports that 11 per cent of certified teachers were working outside the school system in 2025. Encouraging them to return to the profession would also help reduce shortages.

To address these challenges, Sweden has introduced a set of fast-track programmes aimed at widening the recruitment base for teacher training. One option is the Supplementary Teacher Education Programme, a shorter programme for individuals with subject expertise but without teacher certification. The programme has received temporary government funding to expand and is particularly important for increasing the supply of science and technology teachers. Another pathway, the Further Teacher Education Programme, targets teachers and educators already employed in schools but lacking a teaching qualification, enabling them to complete the training required for certification. In addition, the Bridging Programme for Teachers Educated Abroad enables teachers with foreign qualifications to either pursue a Swedish teacher-training degree or complement their existing credentials with courses on the Swedish school system.

First- and second-cycle graduates in the labour market

Most first- and second-cycle graduates have a strong position in the labour market. Of all first- and second-cycle graduates in the 2021/22 academic year, 86 per cent were established in the labour market within 1-1.5 years after graduation. The rate was the same for women and men.

Statistical measures of labour market establishment in Sweden

To be considered established in the Swedish labour market, an individual must meet the following criteria during the follow-up year:

- The individual is employed in November, according to the definition used by Statistics Sweden in its employment register
- Total earned income during the year must exceed SEK 279,900 (2023)
- The individual must not have experienced periods of unemployment (full-time or part-time) or participated in labour market policy measures.

This statistical measure is relatively strict and indicates strong labour market integration. However, individuals are not required to be employed in an occupation that matches their education in order to be considered established.

Labour market outcomes among graduates varied by qualification type (table 6.4). Among those awarded a professional qualification, 91 per cent were established within 1-1.5 years, compared with 79 per cent of those with a general qualification. The lowest establishment rate – 41 per cent – was found among graduates with a qualification in the fine, applied, or performing arts. One contributing factor is that many in this group support themselves through tax-free grants, which are not classified as earned income in the statistics.

Table 6.4 Proportion of graduates established in the labour market 1–1.5 years after graduation, by type of qualification and by women and men, follow-up academic year 2021/22

	Total (%)	Women (%)	Men (%)
Professional degrees	91	90	92
General degrees	79	79	80
Fine, applied, or performing arts degrees	41	41	41

Professional degrees such as the Degree of Master of Science in Engineering and the Degree of Bachelor of Science in Nursing are among the most common awarded by Swedish higher education institutions, and graduates from these programmes had particularly high establishment rates – 95 per cent and 91 per cent, respectively.

There were also differences by migration background. Among graduates with a Swedish background – that is, individuals born in Sweden to at least one Swedish-born parent – the establishment rate was 88 per cent. Among graduates with a foreign background – that is, individuals born abroad or born in Sweden to two foreign-born parents – the rate was 83 per cent. International students are not included in the category of graduates with a foreign background.

Labour market outcomes depend on gender and field of study

Gendered study choices are reflected in subsequent employment patterns. Among first- and second- graduates from the 2021/22 academic year who were established in the labour market 1–1.5 years later, most men were employed in the private sector. This reflects men's overrepresentation in fields such engineering, manufacturing and construction, which often lead to employment in private companies.

Although the private sector was also the largest employer of women, it was not as dominant. A larger share of female graduates worked for municipal or regional authorities, reflecting women's majority presence in teacher training and many healthcare programmes – fields that typically lead to employment in municipal schools or regional health services.

Third-cycle graduates in the labour market

The majority of third-cycle graduates are well established in the Swedish labour market. Among those who completed their degrees between 2013 and 2018, 84 per cent were established three years after graduation, with no significant difference between women and men.

Labour market outcomes vary by field of research and development. Graduates in the medical and health sciences had the highest establishment rate (87 percent), followed by engineering and technology (86 percent) and the social sciences (85 percent). The lowest rates were observed among graduates in the humanities and arts, at 74 percent.

A significant share of third-cycle graduates pursue careers outside academia. Three years after graduation, more than half of those established in the labour market were employed outside the higher education sector. Men transitioned to employment outside academia to a greater extent than women. At the same time, nearly one third remained at the higher education institution where they completed their third-cycle education, and a further 15 per cent were employed at a different institution.

Lifelong learning and flexible study paths in Sweden

The Swedish education system is designed to support broad access to learning opportunities throughout life. Individuals should be able to enter a new field of study, resume interrupted studies, or build on existing knowledge and skills at any stage. Lifelong learning is a guiding principle in Swedish education policy, and in higher education it is reflected in opportunities both for young people entering directly after upper-secondary school and for adults returning later in life.

The structure of Swedish higher education is based on shorter modules, or courses, focused on specific subjects. These can be studied independently of a full programme, allowing individuals to take one or more courses to deepen or update their knowledge in a particular area.

For more details on courses, see Chapter 1, The Structure of Swedish Higher Education and Research.

Swedish higher education well placed to deliver micro-credentials

Micro-credentials are short, skills-focused learning modules designed to develop specific competences within a defined subject area. The modular, course-based structure of Swedish higher education makes the system particularly well suited to offering micro-credentials. Since they are provided by higher education institutions, this kind of micro-credentials are also automatically subject to quality assurance.

Micro-credentials may target professionals seeking to enhance their expertise, individuals aiming to upskill or reskill, or anyone wishing to acquire knowledge in a specific area. They can help bridge the gap between the skills sought by employers and those held by job seekers.

Swedish higher education institutions independently determine the mode of instruction and course length. This makes it possible to design flexible micro-credentials – for example, a 1.5 credit course delivered entirely online over several weeks rather than concentrated into one week of full-time study. As a result, quality-assured micro-credentials can be provided across a wide range of subjects, which is not always possible in systems with more rigid course structures.

In 2022, the European Union adopted a Council Recommendation on a European approach to micro-credentials for lifelong learning and employability. EU member states were encouraged to integrate micro-credentials into their national qualifications frameworks

and to express them using ECTS credits to ensure transparency and comparability. In the 2022/23 academic year, Sweden was one of only eight European education systems to fulfil both recommendations.

New student finance scheme supports transition and retraining

As part of a broader package of labour market reforms, Sweden introduced a specific form of student finance in 2022 aimed at individuals already in employment. The purpose is to promote retraining and strengthen long-term adaptability, flexibility, and job security in the labour market. The reform is based on a proposal developed jointly by Swedish trade unions and employer organisations, representing the two sides of the labour market.

The student finance for transition and retraining scheme is separate from the general government-funded student finance scheme. To be eligible, applicants must show that their planned studies are likely to improve their overall employability.

Despite being newly introduced, the scheme has attracted considerable interest. In its first year, 60,000 applications were submitted – several times more than expected. Most students who have begun higher education under the scheme have enrolled in areas such as health-care, social work, or education.

Based on the current approval rate, the scheme is expected to support around 20,000 students per academic year once fully implemented. By comparison, about 90,000 new entrants enrol in higher education in Sweden annually, meaning this new group will represent a substantial share of total new entrants. Since higher education institutions are expected to adapt their provision to student demand, the study choices of this group may also influence opportunities available to others.

For more details on the student finance for transition and retraining scheme, see Chapter 1, The Structure of Swedish Higher Education and Research.

Freemover students contribute significantly to Sweden's skills supply

Most international students at Swedish higher education institutions are freemover students – those who arrange their studies abroad independently of formal exchange programmes. Freemover students are further divided into fee-paying and non-fee paying students. In the 2023/24 academic year, they accounted for 70 per cent of all international students.

Freemover students are concentrated at the second-cycle level. Just over half were enrolled in second-cycle programmes in 2023/24, while about 12 per cent studied at the first-cycle level. The rest were enrolled only in freestanding courses. Their presence is notable in second-cycle programmes, where freemovers made up 43 per cent of all students in two-year programmes and 34 per cent in one-year programmes.

Freemover graduates, especially at the second-cycle level, represent an important resource for Sweden's skills supply, as many obtain degrees in technology and the natural sciences – fields with strong labour market demand for qualified professionals.

Freemover graduates well established in the Swedish labour market

Freemover students who remain in Sweden after completing second-cycle programmes show a relatively high level of labour market establishment. Of the nearly 12,500 such students who graduated between the 2012/13 and 2017/18 academic years, more than one third were still in Sweden three years after graduation. Labour market establishment was particularly high among fee-paying students: 83 per cent were established in the labour market, compared with 78 per cent of non-fee paying freemover students. The majority of these graduates were employed in the private sector:

Establishment rates vary by field of study. Graduates with degrees in engineering, manufacturing and construction had the highest rate, at 88 per cent. Those with degrees in the humanities and art had the lowest, at 67 per cent.

Freemover graduates play a key role in third-cycle recruitment

Freemover students who complete second-cycle degrees at Swedish higher education institutions form an important recruitment base for third-cycle education. The student group's contribution is particularly significant in certain fields. In engineering, manufacturing, and construction, freemover graduates accounted for nearly half of all students admitted to third-cycle education. Freemover graduates are also an important recruitment base for third-cycle education after completing a degree in the fields of health and welfare and the natural sciences.