

Workshop

Regulating Access to Professions: National Perspectives

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The Unregulated Market of Engineers in Sweden – trends and challenges

A horizontal overview of the profession and/or provide practical examples of the situations faced by professionals where their professional qualifications come into play.

If possible, it would be interesting to have economic data included in the presentation (see questions below).

According to our National Agency of Statistics (SCB) there are about 159 000 engineers in Sweden (year 2010) in the population in the age between 20 – 74 years old with a completed post-secondary engineering education. 149 000 of them are in the labour force with a post-secondary-level engineering education.

The Swedish Association of Graduate Engineers represents approximately 60 percent of the total market of engineers in Sweden having 137 000 individual members (including students, retired and some with a secondary engineering education).

Labour market for engineers in Sweden during the last ten years

In general, Swedish engineers have faced a relatively good labour market in the last ten years. Between the years 2000 – 2010 the average unemployment rate has been 2.2 percent among engineers (those who holds a Master of Science called Civil Engineers in Sweden). This is significantly lower than those who hold a post-secondary degree in general, overall 3.3 percent. Among those engineers that also hold a post-secondary degree equivalent to bachelor level but less theoretical than Master of Science (called *högskoleingenjörer*) the unemployment rate for the same period was 2.6 percent. Finally, the engineers with a secondary-level engineering education had a slightly higher unemployment rate, 4.6 percent. Unemployment among people with an engineering education and a non-Swedish background is significantly higher (about 2-4 times as much) than those with a Swedish background.

One should add that trained engineers often quickly get established in the labour market compare to other educational groups at the same level. The completion rate (not holding a diploma) of engineers in the educational system have unfortunately decreased. This is possible due to the profession being unregulated in Sweden. Among those who started their civil engineering program in 2002/03 only 51 percent took their degree within 8 years. The

completion rate for a post-secondary education (within three years; they so called “högskoleingenjörer”) is generally 30 percent within 6 years.

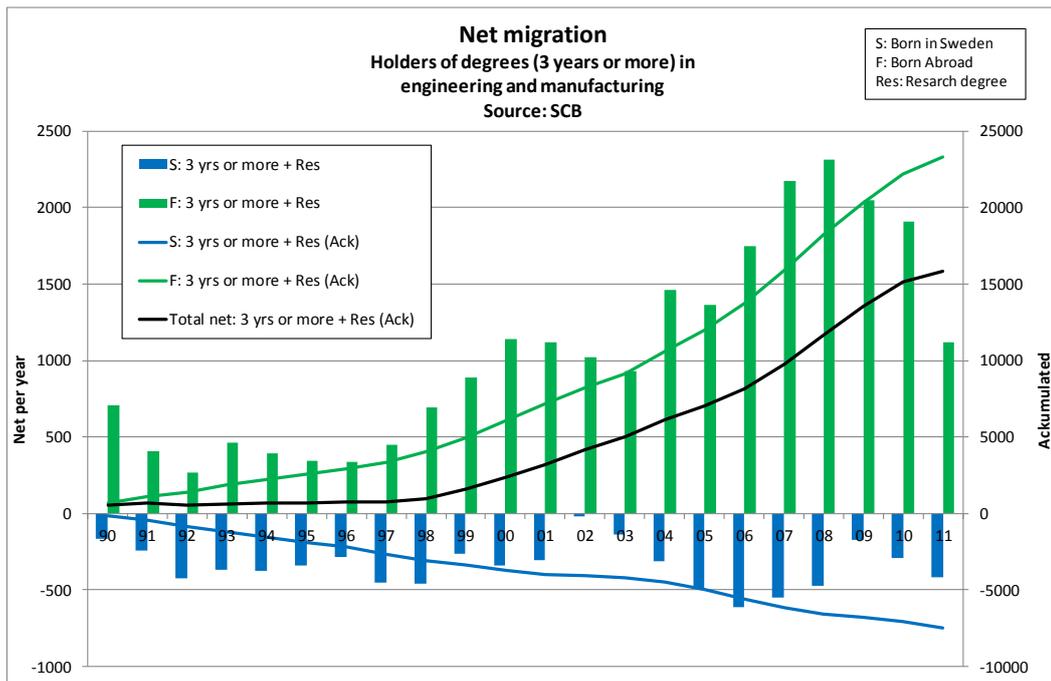
However, employers in Sweden have according to the Labour Force Barometer felt a shortage of experienced, formally educated engineers with the right competences. The demand of engineers with adequate competences has however fluctuated widely during the last decade.

In general there is an ambiguous understanding on the balance of supply and demand of engineers in Sweden. The lack of engineers, if there is any, varies a lot over time, depending on engineering profession and (domestic) regional areas.

Your presentation could include some elements related to the mobility of professionals within your profession but should not focus on recognition of professional qualifications and the modernizations of Professional Qualifications Directive (except on the proposed transparency mechanism – Article 59 of proposals).

It is difficult to get exact figures of how many Swedish engineers that work abroad and vice versa. A clear majority of those who work abroad are working within Swedish companies established abroad. One percent of our total members work abroad. 63.4 percent of them work within Europe, followed by North and South America (about 17.5 percent) and Asia (about 15.8 percent). The rest (3.3 percent) is divided between Africa, Australia and New Zealand.

According to SCB there are different ways of doing the calculation of mobility. Since there is an ability to work in Sweden without having a foreign degree evaluated the figures shown below are very preliminary. Nevertheless, we have extracted these statistics from SCB to be able to make an overview:



The diagram shows the net migration of engineers (holders of degrees 3 years and more) with a comparison of those born in Sweden and abroad between the years 1990 – 2011. The accumulative average of the net migration adds up to about 16000 engineers (the black line); comprising around 24 000 engineers that immigrated to Sweden and 7500 engineers emigrated from Sweden.

It should also be mentioned that about 50 percent of all students in engineering programs in Sweden could imagine themselves working abroad according to a study among our members. This means that mutual recognition of professional qualifications may grow in significance in the future and, as a consequence, the completion rate.

Regulations of Engineering Professions in Sweden

- *Describe how your profession is regulated in your country*
- *Explain the role of the state, the professional orders or any other body involved in the access to the profession*

As mentioned before, the engineering profession is an unregulated profession in Sweden. Engineering professions are instead regulated through the educational system where the engineering programs are evaluated and recognized by the Swedish Higher Education Authority (Universitetskanslerämbetet).

The authority has in 2012 put up a new evaluation system of higher education that all professional educations are being evaluated by. The engineering programs are being evaluated this year and the results will be presented in fall. The system has however been criticized by ENQA (the European Association for Quality Assurance in Higher Education) for not following the standards as a member.

The Swedish Council of Higher Education (Universitets- och Högskolerådet) is the public agency responsible for the recognition of foreign qualifications through the ENIC-NARIC system (European National Information Centre on academic mobility and recognition) which is set up by the European Council and UNESCO. The evaluation process is free of charge and has about four month's procedure. The evaluation is both for individuals who want to pursue higher education at a Swedish higher education institution and professionals who want to enter the Swedish labour market. The evaluation report shows whether the professional meet the general entry requirements as well as any specific entry requirements that may be prescribed. Foreign professionals are not obligated to do the evaluation since it is up to the employers to employ whoever they might think is fit for the job due to freedom of establishment and provide services (see further below).

- *Explain who the recipients of your services are and what are the most frequent modes of exercise (employed/unemployed).*

About 77 percent of our member engineers work within the private sector and most of them within the industrial manufacturing sector. Rest of our members is divided between governmental (8 percent), municipal (3.5 percent) and provincial (1.4 percent) level within the public sector.

Most of our members are employed, only about 2 percent are self-employed and 10 percent of them are women (about 26 percent of all members in our association are women). The largest sector of self-employment is found within electrical and mechanical engineering (about 30 percent).

· *If the profession is not regulated, indicate other mechanisms used to ensure quality of services / consumer protection.*

Sweden is a non-regulated market of engineers compare to other countries within EU. This means that the profession is not *individually* regulated by law, but is regulated by the examining goals (called “examensmål”) at the engineering programs within universities and technical colleges; which could be defined as an *institutional* regulation.

This results in a freedom of establishment (called “fri etableringsrätt”) and freedom to provide services (called “fritt tillhandahållande av tjänster”) within the engineering profession in Sweden. Regulations that will provide security restrictions within the field of services or productions are instead regulated through different lines of businesses (industrial rules).

· *What is the economic importance of engineers in your country? In which sectors are engineers employed (distribution by sector)?*

In general it is believed that engineers have a huge impact on the growth in Sweden. A study made in 2006 by our association (called “The First Engineer”), for the time period 1997-2003, it is stated that small and medium-large enterprises that employed engineers had significantly increased in employment growth, net income growth and productivity compare to those enterprises that had not. On an average, 5 new jobs were established within a company following by the employment of an engineer. The net income rate grew with 550 percent and the productivity rate with 300 percent. The study has been followed up by the project *Progress in Demand* within the Nordic countries (more information can be held by ANE).

Since Sweden has an unregulated market for engineers it is difficult to get an overview of the distribution engineers divided by labour sector. Many of those working as engineers, or within the category of the professional engineers, have not an educational background in engineering. There is also a large amount of engineers who do not work as engineers professionally.

Distribution of civil engineers divided by educational sector among our members is as followed: 19.6 percent in mechanical engineering, 14.4 percent in electrical engineering, 9 percent in chemical engineering, 9.2 percent in technical physics, 8.5 in constructions, 7.8 percent in computer science, 6.8 in industrial economy and 24.7 percent in other engineering subjects. For the

“högskoleingenjörer” (see definition above) it is about the same distribution, with a slightly larger share of those within the construction educational background.

Questions by the chair:

- *Virtues and disadvantages with the actual system.*
- *Recent trends in the profession (Access of young people, growth in employment, turnover, mobility, wages).*
- *Reaction to the economic crises and new challenges?*

To be followed up in workshop.