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## **The educational system – causing both skills shortages and low youth labour participation?**

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# The educational system – causing both skills shortages and low youth labour participation? <sup>1</sup>

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## Abstract

The educational system is perhaps the most important feature for labour market entry. During the last decades huge investments have been made at different levels in this system, the Knowledge lift and a doubling of the number of students in tertiary education are examples, but what are the effects of these investments? The age of labour market entry has risen dramatically since the 1990s and in particular among those without fulfilled secondary schooling. In the paper I analyse the educational system in Sweden, mainly from secondary sources, in three dimensions – in terms of quality, efficiency and relevance. These are seen as essential in order to deliver both competence to businesses and to give young people opportunities in the labour market. Because of deficiencies in all three dimensions: foremost lack of quality at primary and secondary level, which is visible at PISA-tests, lack of efficiency at secondary and tertiary level that is visible when we measure examination frequency and graduation age, and lastly lack of relevance which is mostly notable in the vocational training.

**Keywords:** Education, Skills, Unemployment, Labour market entry, Quality, Efficiency, Relevance.

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## 1. Introduction

This paper will highlight the educational system in Sweden and foremost its role for the late youth labour market entry and high youth unemployment in Sweden. Questions about the late entry and high unemployment have been placed on the agenda in Sweden since a couple of years, given our history as a low unemployment country. Many interpreted youth unemployment as the main factor that caused the change of political majority and Government in 2006 that ended a 12 year Social Democratic regime.

Unemployment among young people has risen in recent years, both in number and as a share of the labour force. Since 2003, the number of unemployed young people has increased by over 40 000 to 134 000 in 2012. (Arbetsförmedlingen 2013) In a European context, the standardised data from Eurostat indicates that Sweden performs from slightly to much worse than all other Nordic countries. However the unemployment situation is even worse in especially Southern Europe because of the ongoing financial/Eurocrisis.

Since the early 1990s Sweden has made a very substantial investment in education at all levels. We have more than doubled the amount of students at university level; we have extended the previously two years for vocational programs to three years. Simultaneously these programs also became pre-university programs. Furthermore, the Swedish adult education program known as the Knowledge Lift (KL) constituted the largest and most ambitious skill-raising program ever between 1997 and 2002.

The main purpose behind this expansion has been twofold. Firstly to give more training, this in turn should give skills to enter the labour market. Secondly to strengthen the competitiveness of enterprises through better trained employees. A reasonable question is how well the educational system has managed with these tasks. Could it be that deficiencies in the educational system have contributed to both skills shortages in some sectors and low youth labour market participation?

An important difference between youth and adults at the labour market is the establishment status. Young people are in a phase of their lives when they are to enter the labour market. Compared with adults, young people, therefore have less work and professional experience, but on the other hand, a fresher and more up to date education. To be able to compete with adults at the labour market, the knowledge and skills obtained via education is crucial for the establishment of young people.

In this paper the educational system in Sweden will be analysed in three dimensions in terms of quality, efficiency and relevance. These are seen as essential in order to deliver both competence to businesses and give young people opportunities at the labour market.

*Quality* refers to the extent to which students reach the stipulated learning objectives. The knowledge and skills they are expected to acquire is often a stated objective and verifiable for tests of various kinds. Another dimension of quality concerns the actual knowledge that Swedish pupils and students receive in comparison with other countries.

*Efficiency* refers to the flow inside the educational system – ie. study and examination frequency. The expenditure, both direct education costs and indirect costs in the form of the time spent, should be as low as possible, given the education achieved. The efficiency is dependent in part on what path students take through the education system. Factors that may affect the efficiency include queuing at attractive courses or programs, long study breaks or changes of course or program while studying. The efficiency can be measured through examination frequency and graduation age. However, a winding path can also be of value. When young people use the time spent waiting between different educational courses on developing themselves, such as acquiring work experience or experience of other countries, which may be an asset in later studies and in future careers.

The third and final dimension examined is *relevance*. The first two mentioned aspects of the educational system were used systematically in Ds 2000:58, but relevance was then only a subset of quality. Here I treat relevance as a separate dimension in addition to the other two. The term refers to applicability of education on the labour market and future professional life, hence the usefulness of knowledge and skills. Relevance is studied through the interaction between education and working life. Other indicators of relevance are obtained from various surveys and studies of how companies assess the educational system and the students and pupils graduated from these systems.

These three dimensions – quality, efficiency and relevance – explain, I would say, how well the education system is up to the task of facilitating the establishment of the labour market and deliver qualified competence. Of course there could be numerous of other explanations to structural high unemployment among youth and difficulties in the School-to-Work transition such as minimum wages, deficiencies in the matching process and employment protection legislation. One of the conclusions concerning the employment protection legislation is that strict rules tend to hurt young, but this effect was moderated if the educational system gave plenty of bridges from school to work and if the vocational training put emphasis on specific proficiencies. (van der Velden & Wolbers; 2003; Breen 2005; Wolbers 2007; Ryan 2001)

### **Youth unemployment and entry in Sweden**

The entry age into the labour market has increased in Sweden from just over 20 to almost 30. Most of this increase took place within a decade, during the 1990ies. But what does it mean that the entry age has risen, and which groups are primarily affected?

There are many indications that the transition from school to work has become longer and more complex in recent decades. Young people go in and out of education, unemployment more or less temporary jobs, labour market policies and travelling abroad. Thus they establish themselves later and later, which also has implications for their income, career opportunities, establishment at the housing market and family formation. What was previously a shorter transition time is now an extended phase of life (Furlong et al., 2003; Wolbers 2003).

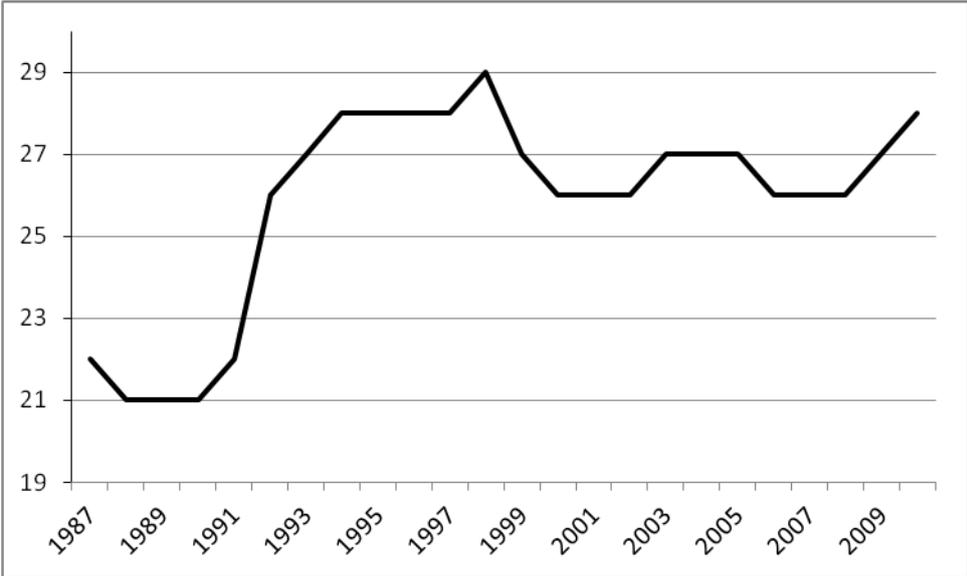
Traditionally, the establishment pattern progressed from completing their education, to finding a job and then establishing a household. However, there are several studies that show an increased variation in the pattern of establishment, and especially of the young. (Hörnqvist 1994; Salonen 2003, Walther et al. 2004).

What has delayed and hindered the school to work transition of young? To their advantage is the fact that they have a more current and updated training when they enter the labour market. On the other hand, they have less working life and professional experience and may therefore have lower productivity. This also makes it more of a risk to hire a younger worker. If we assume that young people can be expected to have lower productivity due to lack of working life and professional experience and in addition more risk due to fewer references: Their wages would need to be adjusted based on these facts. Therefore, one can expect that more young people will be temporary employed, in order to minimize the risk.

The age of entry refers to the age when entry into the labour takes place. The most used measurement comes from Statistics Sweden (SCB), which defines an age group or birth cohort who established when at least 75 percent of the graduating class is employed (SCB 2002). The concept of entry age, which is sometimes used, defined as the age at which 50 percent of a birth cohort is employed. Just to SCB's measure is the most widely used makes multidimensional (generational and temporal) comparisons, which is interesting in this context, it is recognized more widely. One drawback of the measure is that it ignores the extent to which an individual is employed, but only to whether an individual is working or not. It should also be emphasized that it is enough to work one hour a week to be employed according to the definition.

All the measurements used to describe the age of entry show similar results. It has risen dramatically. During the period 1990-2010 according to Statistics Sweden's definition, it went from 21 in 1990 to 28 in 2010. In a longer term perspective, the age of onset of the labour market has shifted dramatically upward, while the differences between men and women have decreased significantly. Women age of entry has varied more than men, probably due to greater variation in both employment and studies over the relevant period.

**Chart 1: Age of Entry between 1987 and 2011**

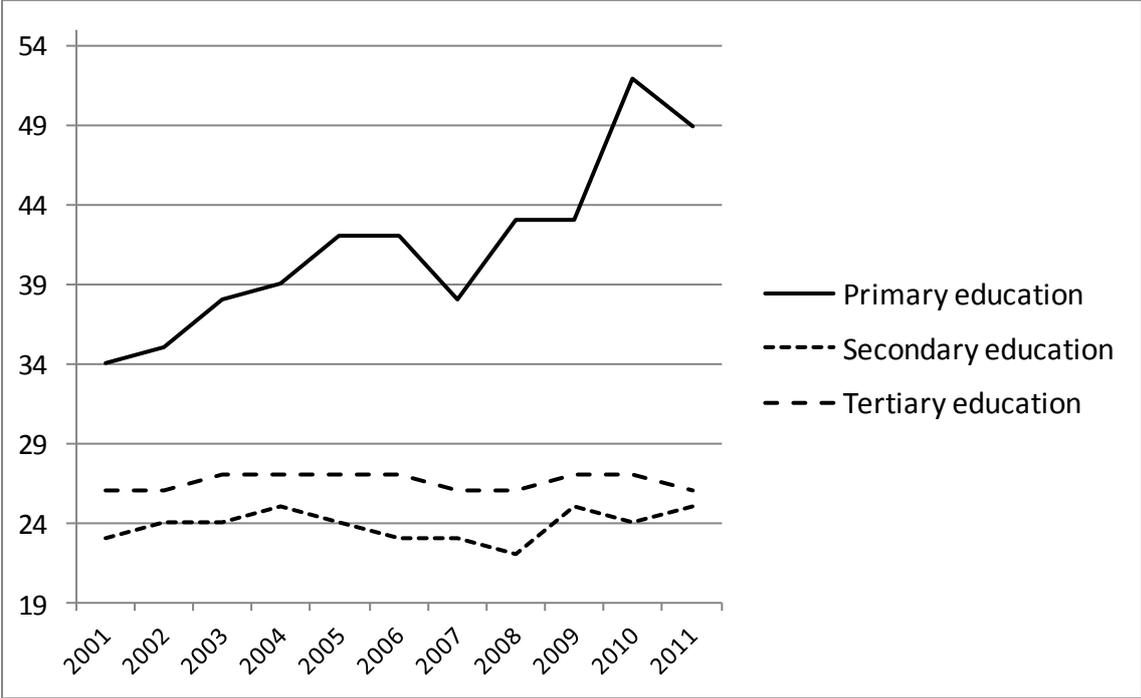


Source: SCB, AKU.

The age of entry has risen, as shown in Chart 1, sharply during the 1990s, but has remained more stable during the 2000s. Divided into different groups, an interesting pattern appears. If we divide young by level of education: lower secondary, secondary and higher, the differences in establishment age considerable. In the group with primary school (lower secondary education) the age of entry was soaring in the 2000s. The employment rate fell from levels of around 50 per cent to around 30 per cent for those of age 20.

Among those who have secondary education, regardless of their orientation, the employment level is stable. It follows the cyclical variations with a dramatic fall during the financial crisis in 2008-10. Those with post-secondary education, which also includes vocational programs, which are less sensitive to the business cycles and here the employment rate is relatively stable during the 2000s.

**Chart 2: Age of entry for groups with different educational background 2001-2011**



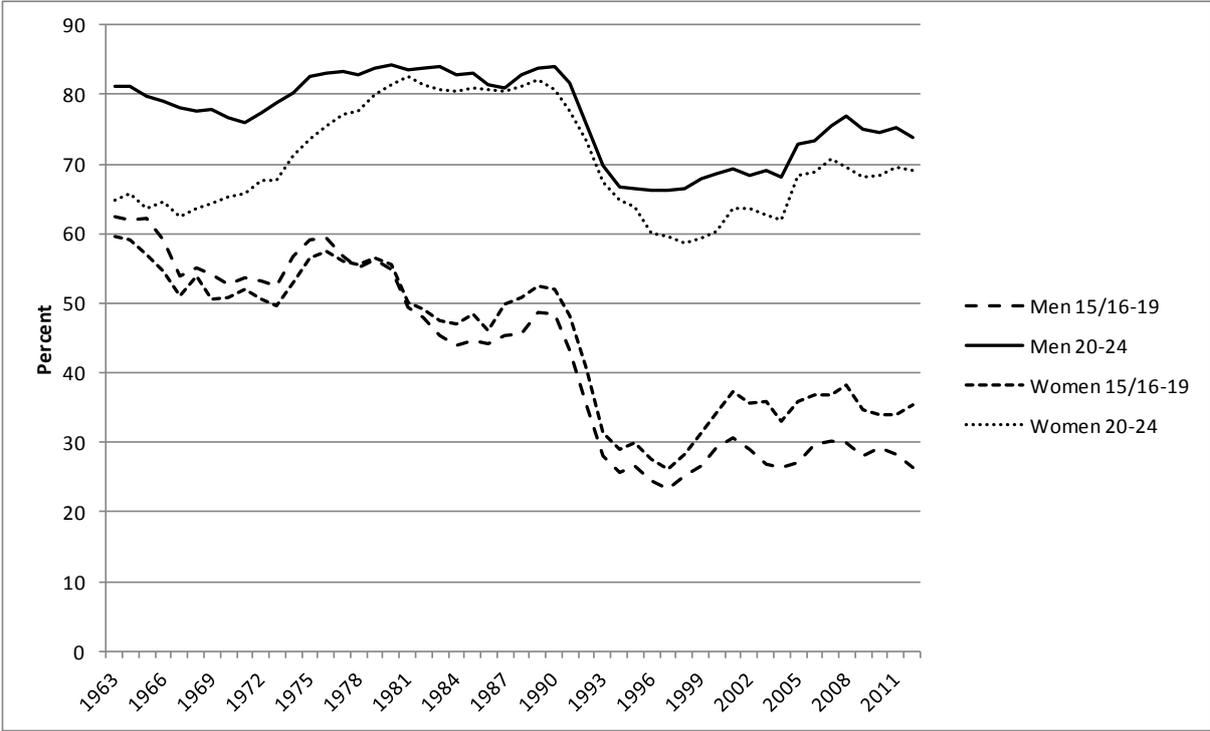
Source: SCB AKU.

**Young people in the labour force**

If we look at the labour force participation of teenagers (15/16-19 years) and young adults (20-24 years) from the 1960s and onwards, dramatic changes are evident. During the 1960 - and 1970, men had a significantly higher percentage established in the labour market, especially among the slightly older youngster. Similarly, there were a significant proportion of teenagers in the labour force until the crisis of the 1990s, but since then this group has become increasingly rare.

The trend in chart 3 largely reflects the significant changes that have occurred in the education systems and the labour market situation of young people. In the early 1960s primary schooling was extended from the past 6 or 7 to 9 years. In the early 1970s, the new secondary education changed when the specific vocational schools were abolished while part of their courses were integrated into the new two-year vocational programmes (Ds 2000:62). During the 1980s, secondary education was expanded and covered more than 90 percent of a cohort in the early 1990s. At the same time, the two-year vocational programs turned into three-year programs and the municipal adult education grew rapidly. At university level the number of students rose sharply in the late 1960s and then in a further surge in the 1990s and 2000s when the number of students more than doubled.

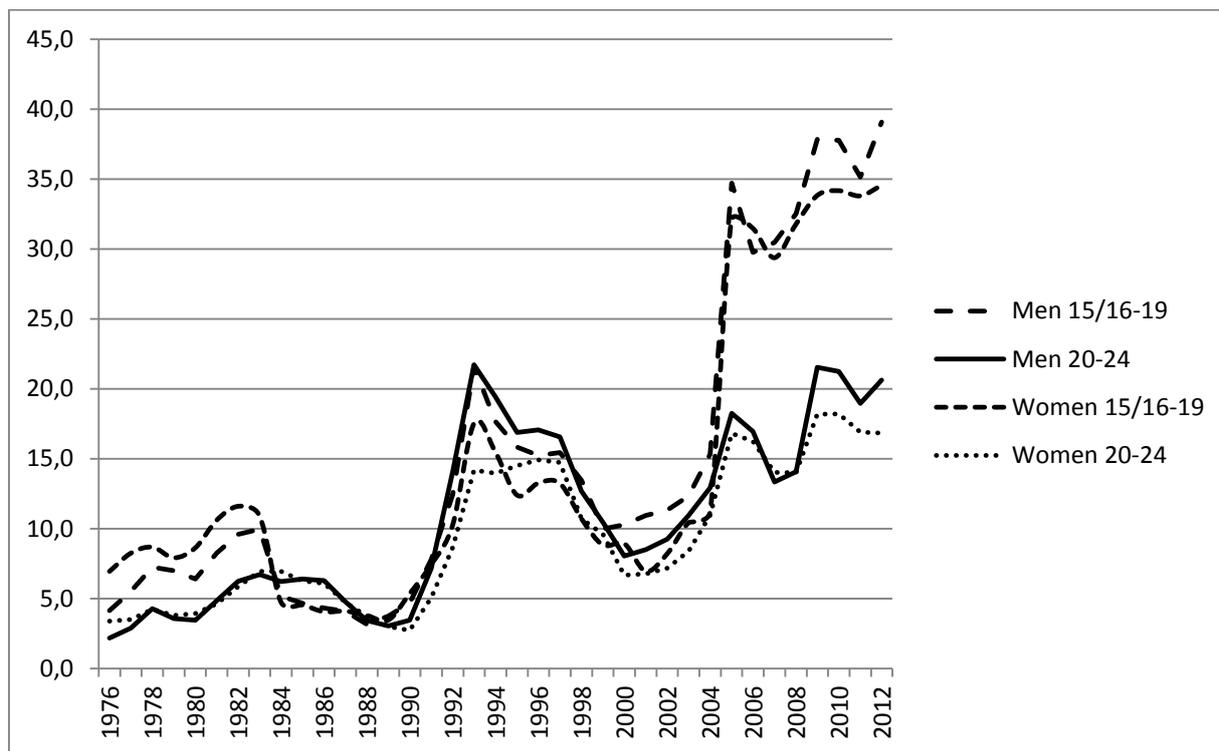
**Chart 3. Labour force participation among men and women, 15/16-19 and 20-24, 1963-2012**



Source: SCB AKU 1976-2012, Schröder 1995. OBS In 2005 the groupings altered, 16-19 turned into 15-19 in the AKU statistics.

The employment situation for young also deteriorated gradually in the 1970s and the beginning of the 1980s and partly recovered during the remainder of the 1980s. The large decline in labour force participation can however be traced to the 1990s crisis. Youth unemployment (16-24) then rose sharply and has since decreased slightly, but not back to the previous low levels. Simultaneously, other societal processes took place that changed the labour force participation. More and more women entered the labour market during the 1960 - and 1970. Young women chose to postpone childbearing and opted out of housework. (Schön 2000, Lundh 2010)

**Chart 4: Unemployment among men and women, 15/16-19, 20-24 years between 1976-2012**



Source: SCB AKU 1976-2012, In 2005 the AKU statistics was altered and that increased unemployment figures .

### Entry into work

Overall, the school-to-work transition has become more difficult. More young people are inactive in their 20s, even when account is taken of the prolonged study times. What are the transition patterns for different groups? Virtually all who attended elementary school have, since the 1980s, switched to secondary education (Dahlgren, 1985).

Employment among those aged 16-64 has decreased significantly since 1990. This is partly a result of the educational expansion since more people in education, at least in the short run, means fewer in work. However, the employment rate has also decreased significantly among those with only primary education. Within that group, the employment rate fell from just under 70 to about 50 percent in the mid-1990s and has not recovered much since then. Even for those with secondary education, but without university grades, employment fell sharply in the early 1990s, from 85 to 70 percent. However it rebounded decently during the late 1990s and during the latter half of the 2000s. Another problematic group in terms of employment is students with less than two years in tertiary education, ie without a formal exam.

It comes as no surprise that young people with an interrupted secondary or primary education has substantially less chances to get a work. Their school-to-work transition problems also seem exacerbated the longer the time spent outside of both school and work

(SOU 2003:92). In 2002, as many as a quarter of the country's 20-year-olds had canceled a secondary education, most of them during the third and last year (SCB 2003, Murray 2007).

Statistics Sweden (2007) showed that young people without completed secondary education were significantly less likely to enter the labour market. Of those who started a secondary education program in 2000, and had not completed the same in 2005, almost four out of ten were completely or partly outside the labour market. In comparison with the group who had completed secondary education, the differences were significant. More than twice as many had large establishment problems. Those who had completed secondary school in 2005 showed an establishment rate of 44 percent, versus 26 percent among those who did not complete their studies. (SOU 2003:92; Franzen & Kassman 2007).

Regarding the school-to-work transition after secondary education there are differences between academic and vocational programs, although these became more assimilated after the reform in 1991-94 when all programs were triennial and college preparatory. Vocational programs have generally had a higher proportion of drop-outs and drop-out rates increased in scope in that profession lines became three-year pre-university and after 1991 (Hall 2009).

After completing secondary school, students from educational and vocational programs have different pathways to employment. The year after graduation, about half of the students from the study oriented programs started at college / university, while the proportion at work was about a third. From the vocational programs, almost two thirds were in the labour force, while a fifth was studying. Overall a significantly higher proportion of students from the vocational programs were unemployed (SCB 2012b).

For those who have a degree in advanced vocational training or a vocational education are the chances of getting a job remarkably well. Of the students who completed their degrees in 2010, 86 per cent for a job or a business within six months of graduation. Nearly half also indicate that their work wholly or largely in line with the training. Those who have a degree in any of the areas of health and social work, or in infrastructure planning and construction, are the ones who make the greatest impression that the work complies with the training. These are also those students who made most states work as their main occupation years after graduation. The students of grade feel that their work complies with their education are those who have studied in the field of security, and it is these that the least extent working one year after graduation (National Agency for Higher Vocational Education, 2011).

## **Secondary education**

With regard to the establishment of the college and university students, the recurring pattern – which we will return to later on – is the late entry into the labour market. Mainly because students start to study late and takes a long time in coming. The main employment three years after graduation, however, work. Over 90 percent of those graduating in 2006/07 had a job for at least one hour, and 82 percent had work as dominant employment. Here men had higher start-up rates than women.

It is notable, however, that those who were graduates of a language or humanities education had work to a lesser degree than others. Only 70 percent had a job or business as their principal activity three years after his graduation. Significantly more of them were in the unemployment rate, did nothing or had continued to study after their previous degree (SCB 2010 SCB 2012b).

About 9 out of 10 among the college graduates had jobs entirely or partially within the area they were trained. The proportions that had jobs varied between different specializations. The lowest proportions were among university graduates from the humanities and linguistics where about a third of those who graduated in 2006/7, and had a job, were working in a different area than the training was geared toward (SCB 2012b).

The largest difficulties with labour market entry are among those who do not fulfil or even start a secondary education. The group of young people who neither study nor work is usually called "marginalised" or inactive youth and it increased significantly during the 1990s economic turmoil, particularly among women. After a decline in the early 2000s, the group of young people standing outside again increased (Socialstyrelsen 2010). Several studies indicate that there is significantly higher risk of being marginalised among those who dropped out of high school or secondary schooling. This disadvantage is greater for the older than for the younger ones, regardless of gender, social background, place of residence, foreign birth or other factors (SOU 2003:97; Socialstyrelsen 2010). Vice versa; good school performance in elementary school appears to protect children and young people who might otherwise be categorized as at risk of being marginalised (Socialstyrelsen 2010).

According to SOU 2003:92 it is possible to distinguish a large group of young people without education or work, ie marginalised. In the early 2000s it was estimated to be about 25,000 to 30,000 per year. The group thus contained those who had been marginalised for two years or more. The main difference from others of same age is that the marginalised had not complete compulsory schooling to the same extent as others. Remarkably, very few of those marginalised will return to regular work through education or studies. Instead it seems that the way to enter the labour market again two is through temporary jobs and this was especially so for the inactive 20-24 year olds (SOU 2003:92).

## **2. The education system in Sweden**

The education system is perceived to be the most important institution to provide businesses skilled labour. How education is designed is also an extremely important factor when young people should enter the labour market. In light of the previous chapter that discussed the school-to-work transition and rising entry age, there is so much more reason to examine how the education system can deliver excellence.

Here, three aspects of the education will be examined: its quality, efficiency and relevance. The population of Sweden is more educated today than, say, 1990 or 1970 is clear. The

question is whether the level of skills followed by education level, or if there are gaps. Before we get to that question will be an overview of the education system expansion in Sweden during the last decades presented.

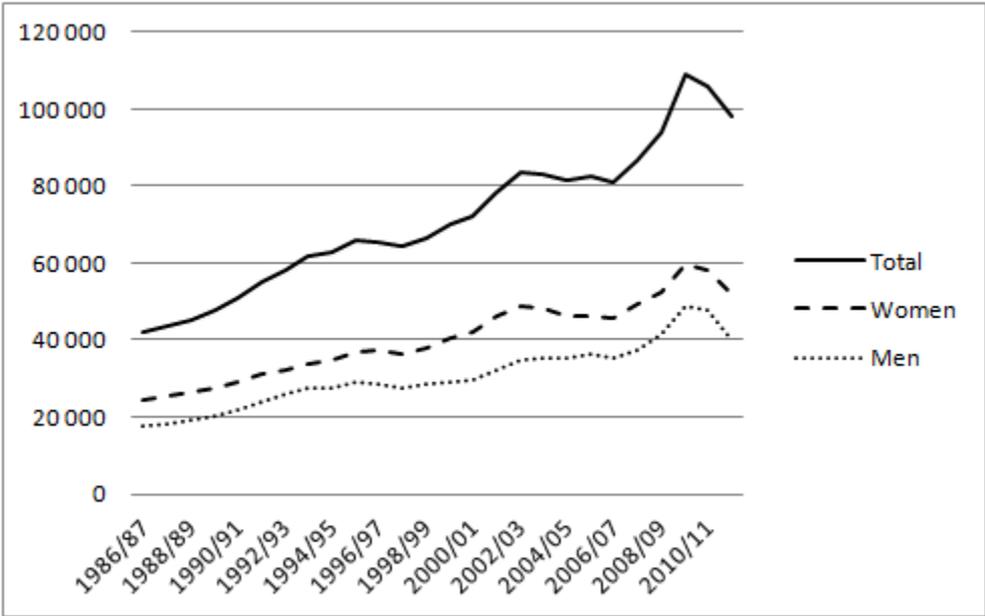
### **Quantitative expansion and a possible overeducation**

One factor that explains the rising entry age the quantitative expansion of different parts of the education system. Considerable resources are spent on education each year in Sweden and the direct public expenditure on education was 6.3 percent of GDP in 2008, an increase from 6.0 percent in 1995. OECD average during the same period increased from 5.6 to 5.8 percent of GDP. In addition, it seems that education spending has continued to increase, even as the share of BNB, until 2010. The Swedish level was not exceptionally high compared with other Nordic countries, where Norway, Denmark and in particular Iceland, had significantly higher expenditures on education. Only Finland had lower expenditures (OECD 2011).

The higher spending in Sweden is partly due to greater investment in primary education, where spending per pupil is about a quarter of the total expenditure on education, while the OECD average was one in five. Resources have also been steadily increasing since the mid-1990s. Between 1993 and 2007 the increase was 8 percent per student. However, it is a small part of the cost of education that really goes to the school's core business, ie. teaching, in Sweden compared to other countries (Ds 2000:58; Fölster & Morin & Renstig 2009).

In Sweden, as in other countries, there has been a sharp expansion in the level of education. The Level of Living Surveys has since 1968 measured the years of schooling or training in its surveys. Between the survey in 1968 and 2000 the number of years had risen from 8.7 to 12.7 years (Richardson 2004). The expansion has taken place primarily at the tertiary level (universities) where two waves of expansion have accounted for a significant portion of the increase. Firstly, during the 1960s when the number of students grew from 36000 to 127000 between 1960 and 1970. Secondly, a wave of new students entered during the 1990s and 2000s when the figures doubled from 200- to more than 400- thousand students. During the same period the numbers of newcomers and grades also rose sharply.

**Chart 5. Number of university entrants from 1986/87 to 2011/12**

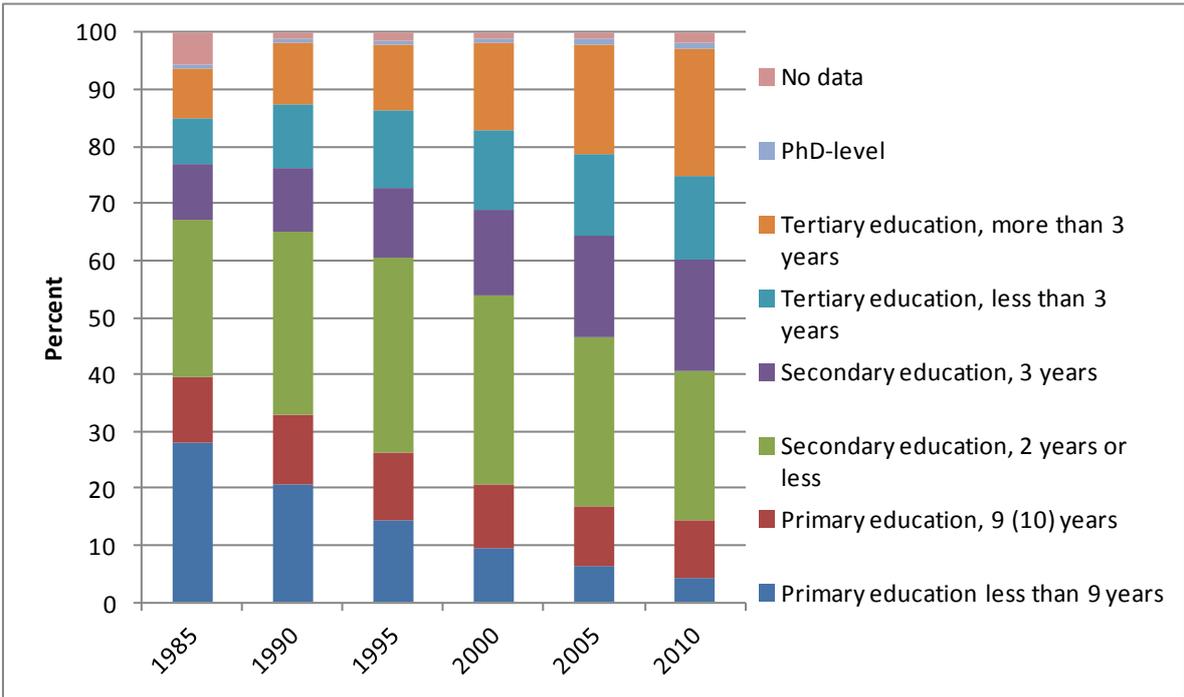


Source: SCB Utbildning

This means that there is a clear and waterproof causality between the high (youth) unemployment during the 1990's first half and expansion of the universities. The expansion goes far beyond that. The expansion has taken place in all sorts of programs and specializations but with the biggest increase in subjects and fields such as humanities and the arts. (SCB Utbildning)

With the demographic changes, ie. that older less educated generations leaves the labour force, the educational background of the labour force change. Figure 5 shows the level of education of Swedes between 25 and 64 and reveals the dramatic developments that have taken place. As late as 1985, almost four in ten working age not even high school, only 25 years later, the proportion was less than 15 percent. Similarly, only 17 per cent of post-secondary education in 1985, and a quarter of a century later, the proportion almost four out of ten. The proportions are thus reversed in 1985 compared to 2010. Nevertheless, the most common level of education is still a two-year high school education, although this level of education is no longer in secondary school since the early 1990s. In 2010, 46 percent of the population is only secondary and most of them had vocational education. In a year attending as many as one million people, aged 16-64, in any form of regular education which corresponds to 16 percent of the total group (SCB 2012).

**Chart 6. Educational level between 25 and 64 years in Sweden 1985-2010**



Source: SCB Utbildningsregistret UREG

Even by international standards, Swedes have a high level of formal education in the working force which has increased significantly over the past two decades. The reasons for this large shift are manifold; the educational choices have elements of both consumption and investment. On the one hand, education tends to increase with wealth and high-incomes in a country. On the other hand, in common with Abramowitz (1995) point out that education gives individuals the ability to develop new technologies and organize work more efficiently resulting in a condition for prosperity. A central issue is that education provides the potential for new learning and new skills that increase the growth potential of the economy (Olofsson 2007).

Most of the investments made in education in recent decades, in varying degrees, been motivated by that education is a means to broaden and deepen the skills and provide a greater opportunity to be adaptable. This in turn facilitates changes of activity in line with technological and organizational development. The intention is to give the individual the tools to become employable and businesses well-trained workforce that can raise the rate of growth in business.

**The case for over education in Sweden**

It is a fact that the average level of education has risen significantly in advanced industrial nations in recent decades (Barro & Lee 2001, 2010). Whether the average skill level of jobs has risen as well is a wide-spread view, but certainly more debated (Acemoglu 2002). However, research from several high-income countries finds significantly increased skill

requirements in recent decades (Green 2006). The question is however how these both facts are related to each other. The question whether the skill level of jobs matches the level of education among the working force is a complex issue. A literature on over education or over schooling started with a paper by Duncan & Hoffman (1981). There is by now a large body of international evidence on the incidence as well as wage effects of what has been called skill mismatch, over education or over-schooling. A more popular and critical study of this phenomenon in the US is Grubb & Lazerson (2012) who argue that the abilities developed in schools and universities and the competencies required in work are often mismatched. As many as at least a third of the workforce is over-educated for the jobs they hold according to the authors.

If we look at Swedish data there are clear signs of over education. Most researchers argue that the level of education has increased more than is required in the workplaces. Le Grand et al (2013) points at the fact that the average length of education has risen faster than the average job's requirements. When we split the working force into three categories: *Correctly matched*, *Overeducated*<sup>2</sup> and lastly the *Undereducated*<sup>3</sup> clear patterns emerge. By that definition, the proportion of employees who are well matched dropped from more than 70 to less than 40 percent, while the proportion of overqualified had risen from just over 10 to more than 50 percent. (Le Grand et al 2013) The result has been a growing group in the labour market is well educated people (in schooling grades) that have simple job.

Tåhlin (2007) points out that the education does not seem to be because the employees are mismatched with their job as regards education programs targeting. The match seems best in technology and health care jobs and worse among social scientists and humanists, but the changes over time are small and cannot explain the education. The unskilled jobs will be fewer in the economy at large, but the differences are significant across sectors. Broken down by sector level, it is visible that it is the manufacturing sector that has lost unskilled jobs (net) dramatically between 1974 and 2000. The decrease in the health care sector is also substantial, while the decline among other services, such as trade, restaurant, and transportation is small. Still, over a quarter of the total number of low-skilled jobs in Sweden and the trend is only slightly downwards given the availability of simple job looks in different industries. Böhlmark (2003) and Le Grand & Szulkin & Tåhlin (2004) have also used LNU and the results in the direction of expanding the training in Sweden also found in their studies. Böhlmark (2003) points out, however, that a mismatch between education and employment, however, is transient, as the work experience, the percentage of trained gradually decline.

Several other studies also point to the phenomenon of over education or over schooling in Sweden. The trend in skill supply, meaning education, has been stronger than the growth in skill demand, meaning job requirements, with rising over education as a consequence.

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<sup>2</sup> Overeducated meaning those whose training length exceeded the job qualification with at least two years

<sup>3</sup> Undereducated meaning those whose training length sub seeded the job qualifications with at least two years.

Johansson & Katz (2007) examined the over and under education between 1993 and 2000. The results indicate that the proportion of over educated had increased and most of them were in jobs that did not require even secondary schooling. Åberg (1999, 2002) compared the educational level for the workforce and job qualification requirements and furthermore how unskilled fared in the new labor market. Although his results show that the proportion of jobs with low skill requirements have decreased, the change was slow and halted in the 1990s. Åberg also found that low-skilled jobs in increasing numbers had gone to individuals with more education than the job's requirements.

### **3. Challenges for the education system in Sweden**

The more people who are affected by a system in the public sector, the more important it is that the quality, efficiency and relevance of the system are of a high standard. If not, the education system may merely consume more and more resources without young people being given the foundation they need, and without society gaining the intended return on its investment. The educational system in Sweden has some features that resembles it to other mature industrial nations, other features distinguishes it. In order to understand the challenges facing it is necessary to briefly describe the educational system.

Formal schooling in Sweden starts at age 7 and primary schooling which is compulsory thereby ends at age 16. The curriculum is rather standardized in primary schooling and focus is laid on general and more academic skills. Almost all students then proceed to upper secondary education. Even those who do not have complete grades in the core subjects often continue in the so called individual programs. They shall complete the compulsory school curriculum and later on transit to one of the general programs. (Nordström-Skans 2007)

Secondary education is divided between a wide set of educational tracks, so called programs. These are of two types, academic and vocational, where the vocational programs are directed towards some quite specific professions whereas the academic programs are targeted at students who wish to continue to higher education. Recently a reform decreased the amount of theoretical subjects that was compulsory for student in the vocational programs, but from the mid 1990s up until recently student of all programs had to take a general set of core courses. Passing these courses was required to have a complete diploma and that in turn granted eligibility to university courses and programs. (Nordström-Skans 2007).

#### **Quality in the educational system**

There are essentially two dimensions to measure if we look at the quality of education. When the results of the education process are assessed, they could either be measured against the set targets for each course or program, or be compared internationally. How does Swedish students perform compared to students from other comparable countries? To

measure quality is, however, is an intricate task, and therefore is there a degree of uncertainty as to the conclusions.

In Ds 2000:58 it was stated that the results for both compulsory and secondary schooling had been falling from the earlier high level. That means that a declining number of students leave upper secondary school with the qualifications required for further studies.

Deficiencies in quality were present at all stages and the lack of quality at compulsory level often persisted or caused studies at secondary or tertiary level to be more time consuming and thereby less efficient. A high number, at least 15 per cent, left compulsory school without the basic competence required for either working life or secondary school studies. The greatest deficiencies were in mathematics.

A declining number left upper secondary school with the qualifications required for further studies. One out of three pupils in the third year of studies during the academic year 1998/99 left upper secondary school without the qualifications required for university studies. The upper secondary school's vocationally-oriented programmes were deficient in basic competence, as well as knowledge and skills in their specific subjects.

What has happened since then? The results at the core exams for grade 9 between 1998 and 2011 indicate that math skills may have deteriorated. The proportion who does not meet the standards increases, from about 10 to 20 percent. The proportion not reaching standards in Swedish and English, by contrast, moved very little (Skolverket 2012). The core exams have however the disadvantage that they are not designed to measure trends which make it difficult to compare. The assessment of Skolverket is however that there are no clear indications that the tests and assignments for math would have changed in a way that would contradict the conclusions. (Skolverket 2012b).

International studies of educational attainment, since the middle of 1990s, have indicated a continuing decline in performance by Swedish compulsory school pupils (Skolverket, 2009a). Declining results are most notable in mathematics and natural science, but are also apparent, although to a lesser degree, in reading comprehension. Another indicator of how the performance by pupils is given by the National Assessment NU2003 which is the most comprehensive evaluation of the level of knowledge in Swedish schools. The advantage of NO 2003 is that it provides a better basis for assessing knowledge across time. Comparisons can then be made primarily with an earlier national evaluation conducted in 1992. In both cases as many as 10 percent of the nation's students attended.

The results show a decline in math performance in grade 9 between 1992 and 2003, and the differences in performance between low and high performing students appear to have increased over time. Also in natural science, the results had fallen between 1992 and 2003, and especially those in physics and chemistry. Also reading comprehension seems to have deteriorated over the period, while the results in English were difficult to interpret. (National Agency 2004b; National Agency 2009b; National Agency 2012b).

If we turn to the international comparisons, they confirm the conclusions of falling quality in the school system. The overall pattern is that Sweden did well or very well in all areas by the end of the 1990s. Particularly good results were achieved in science, thus above average, while math skills were weak at the primary level and strong in high school. When it came to reading comprehension Swedish students performed well at primary level, but average at secondary level. (National Agency for Education 2004) In international surveys, Sweden historically, thus reaching very high in terms of science and secondly reading comprehension while mathematical literacy were more diverse.

It seems that the results have continued to fall during the 2000s. The latest studies (PISA 2003, 2006, 2009, PIRLS 2006 and TIMSS 2003, 2007) gives a depressing picture. Generally, the Swedish pupils are significantly losing ground in comparison with other countries. From being above average in most surveys, Swedish students in the 2000s perform as on average compared to other countries. When it comes to science, they perform below average in PISA 2009 and in mathematics below average in TIMSS 2007. The weaker students are larger in number which means that the spread in the population has increased. The lowest performing students have impaired their skills most in reading and in science. About one in five do not reach the basic knowledge in the three areas studied. In absolute terms, the results have also deteriorated in the 2000s for both reading comprehension and mathematics. (Skolverket 2003, 2006: 2009).

National quality audits by Skolverket suggest that the allocation of resources within the school may be a factor that affects the quality of elementary and secondary education. As we have mentioned Sweden spends comparatively large resources in the school system, but a large part of the resources go to other issues than teaching. Similarly, the review suggests that teachers spend relatively little of their time with students, and a large amount of time is spent on preparation and administration (Fölster & Morin & Renstig 2009: The Agency 2003b).

### **Quality at the tertiary education**

To get an indication of the quality of the tertiary educational institutions, one might well examine how well the students after completing their education, and examine how well the programs are capable of the quality requirements placed on them. Swedish Enterprise ranks every year Swedish academic programs based on various criteria, such as cooperation with the world of work and the share of students that receive a (qualified) job after graduation. Higher Education is currently conducting a four-year project to examine how well the 1600 academic programs meet the requirements of the Higher Education Act and the degree descriptions, and how well the students' learning outcomes consistent with those expected.

The basis for Högskoleverkets (The National Swedish Agency for Higher Education) audits are universities' self-evaluations, students' independent theses, surveys of alumni and students' perception of educational performance in relation to the objectives in the curriculum (Högskoleverket, 2012). Out of the nearly 300 programs at different universities and colleges

just under two-thirds received "high quality", around 15 percent received "very high quality" while about one in five or more than 20 percent were rejected (Higher Education 2012). Compared to a similar evaluation of Higher Education 2001-2006 1700 academic programs were then around ten percent its licensing dispute.

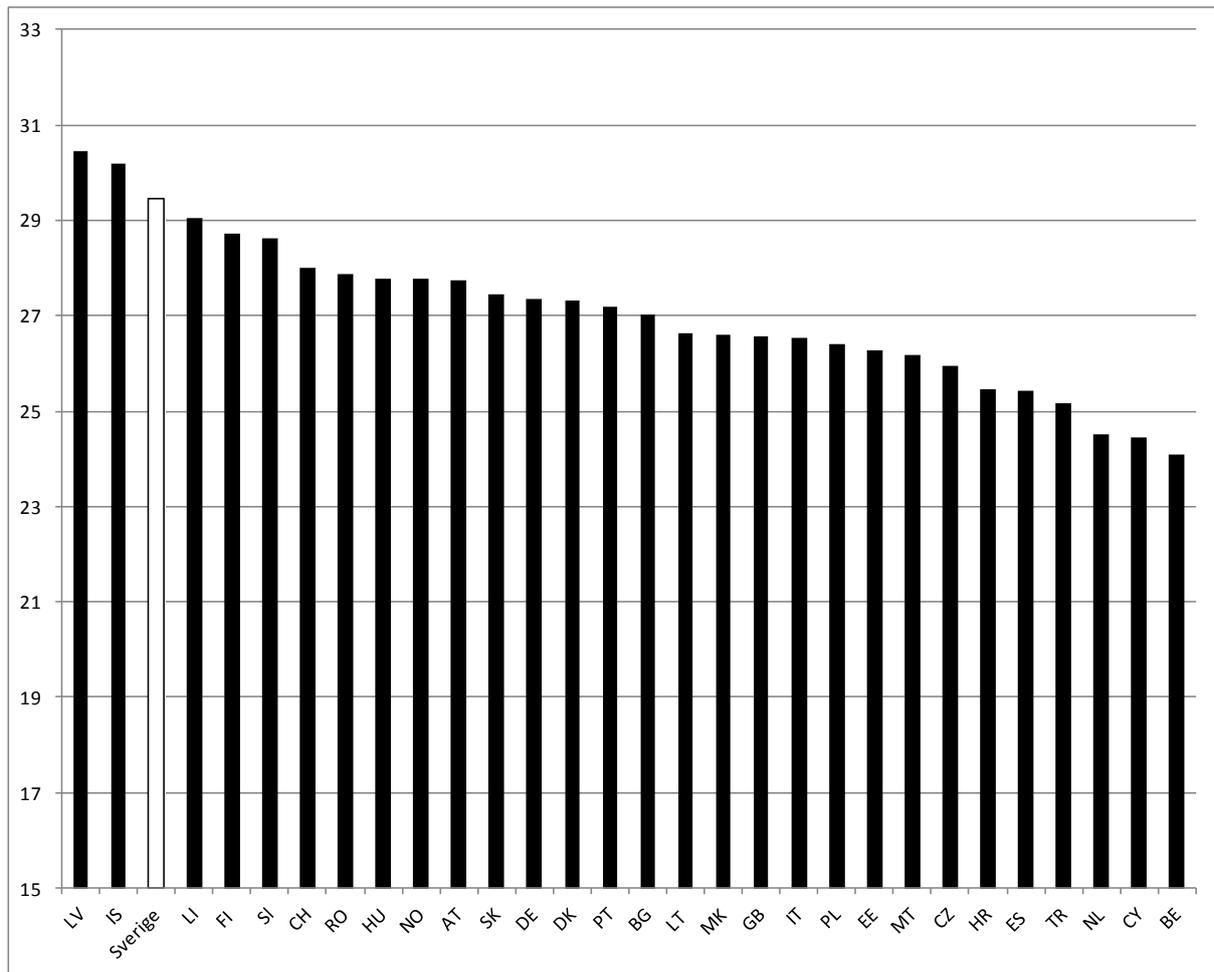
The problem areas observed were essentially the same irrespective of what subject or what training was evaluated. The most common criticism was that the training environment was too small and fragmented, lack of creativity and to teach – skill was too low. The criticism also touched upon the fact that the relationship between education and research was perceived as vague and that the progression of education came in at a late stage. The lack of financial resources, and an increased number of students also led to fewer teaching hours and meant that teachers were heavily congested. Overall, however, the results were positive and from an international perspective was the Swedish higher education quality. It is then worth noting that the present investigation thus far indicates the major quality problems than before (Högskoleverket 2007, 2012).

Concerning the school-to-work transition, Svenskt Näringsliv (The Confederation of Swedish Enterprise) showed in a study that 82 percent of graduates from 2010 to 2011 were employed six to twelve months after graduation (Svenskt Näringsliv 2012). The easiest path to work was for students in health care, while those who read natural sciences and especially humanities and theology had difficulties. On average, 67 percent got a qualified job, ie a job corresponding to their skills. At both the undergraduate and graduate level, a qualified job was easiest to get in the fields health care, medicine and dentistry, while it was more difficult for those with a degree in humanities and theology.

### **Efficiency in the educational system**

The average graduation age in Sweden from universities and colleges is about 29 years. This is higher than in all OECD countries, except two – Iceland and Israel. Sweden has however a rather low percentage of young people in university education, seen from an international perspective. Swedish students were 22,1 when they entered study whereas the average for OECD was 20,5 in 2009. The same goes for age of exam as indicated in Chart 7. These differences in age seem to have a fact already in the 1990ies but the difference has however increased with time. (Ds 2000:58, LU 2011)

**Chart 7. Age of exam in 2009 OECD-countries in Europe.**



Source Eurostat.

The percentage of 19-24 year olds taking part in upper secondary school education is also unusually high in Sweden. This contributes to the late labor market entry which also leads to lower employment levels and lower lifetime earnings. If we look from a business perspective this means that you have fewer years to utilize the competence and skills from your studies.

Study exchanges and study breaks are very common at university level. When so many at some point are absent from their studies for at least one term, and some also change their study orientation, it vastly contributes to the prolonged study time and makes the dimensioning of university places more difficult. The reason behind the study breaks seem from inquiries mostly be within the education itself. It is worth noting that 3 out of 10 of those quitting an education that would have led to an *yrkesexamen* meant that the education had the wrong direction and likewise 3 out of 10 meant that they found it too difficult, ie hard to get the grades (Högskoleverket 2010). These results directly point at the role for the study orientation advisors that frequently had been taken as an issue in Official reports.

### **Matching between actual educational choices and future needs**

One of the main challenges for the educational system is to facilitate matching between the work-related skills of the labour force and the requirements of new jobs. But the educational system should also receive signals that indicate the volumes of jobs in for example nursing that should be matched with roughly the same volumes in appropriate education, ie nursing schools. When demand for nurses decrease the flow of nursing students should do likewise. One way of doing this is by adequate information. Forecasting helps “greasing the wheels” of labour markets. It thereby support individuals in making better informed decisions on educational choices and it guides policy makers as well as schools of different kinds of coming shortages and surpluses.

The yearly labour market tendency survey from Statistics Sweden “Arbetskraftsbarometern” indicates that several education programs have either large surpluses or shortages of students considering the labour market situation. During the years 1997-2009 there was a constant shortage of technicians and engineers. For the majority of the educational groups in the technology sector there was a recruitment need; the university educated engineers but also upper secondary school educated engineers. Despite that, the applications to these education programs had not risen over time. For physiotherapists the picture has been the diametrically opposite. (SCB 2010b) It seems that the educational system on the whole has shortcomings in matching the educational programs with the labour market needs. Partly this is because of the sizing of educational programs, but also caused by too few applicants to some educational programs in order to match the need for such workforce.

### **Relevance in the educational system**

Relevance in the educational system is hard to evaluate and judge. To some extent we are referred to indirect indicators such as the companies own opinion on how well the educational programs are adapted to the working life. We can also measure and compare the involvement in education from business and that might be seen as an indicator of the relevance.

### **The vocational training loses its practical content**

The Swedish vocational training had some elements of the so called dual system in the early 20<sup>th</sup> century. Workplace and vocational school are the two pillars of the “dual system”. The practical part of training takes place at the workplace whereas the theoretical and specialist foundations of the individual occupations are taught at vocational schools. In Sweden the vocational training was not especially regulated, the early period built on a voluntary model based on apprenticeship at the company level with some but soon declining responsibility for the bargaining parties.

From around the 1950s the vocational training was reoriented gradually and Government took charge and command of organizing as well as financing of the training. More and more of the vocational training was put on the regular school system. Most upper secondary schools were municipal and most students attend a school in the municipality of residence.

The expansion of the secondary schooling went along these lines in the 1960s and 1970s when the apprenticeship programs were downsized at the expense of municipal vocational schools.

The great leap in this direction was taken in 1971 when the vocational training was wholly integrated with the upper secondary school. Thereby the theoretical content increased at the expense of the practical parts which were also placed at the schools instead of at a company. The vocational training has over time become much more loosely connected to the working life if we compare with countries like Germany Switzerland and Denmark. (Olofsson 2005, Olofsson 2010, Skolverket 1998)

In 1991 a major reform took place that further enhanced the “academization” of the vocational training. Before the reform the vocational programmes lasted for two years and contained a mix of general education and vocational training. These were extended to three years included more general education, and thereby also gave individuals from vocational programmes general eligibility to continue to higher education. (Ekström 2002)

Students at age 20 or older may attend adult secondary education. Adult secondary education is meant to offer education to adults who lack the equivalent of compulsory school or upper secondary school. When it was organized in the late 1960s there was a large amount of vocational and special courses close to actual occupations and crafts. But since the 1990s the adult secondary education has more and more been a way to give those with a two-year upper secondary education a supplement in their education leading to three-year upper secondary education. Courses and programs that were more vocational and closer to the working life were less pronounced.

Generally Sweden seems to have less emphasis on the practical content in education at secondary level and more emphasis on the theoretical stuff that gives eligibility to continue to higher education. The perspective has been that the education should be broad and general and steer clear of differentiation or selection of pupils early on in order to avoid blind alleys in the educational system.

On the other hand, this phenomenon, is known also in an international context. The international trend of education academization is named “academic drift” which refers to the quantitative expansion of universities and general high school education but also a stronger weight of science-related education content. Academic drift is the process where knowledge, which is intended to be useful, step by step loses its close ties to practice while becoming more tightly integrated with some kind of scientific knowledge. (Harwood 2010) The existence of drift has been widely documented for many countries and fields

From plenty of research we know that two of the main factors that affect the school-to-work entry is whether the education has given specific competencies and in what amount there are direct links between education and employers. A larger emphasis on specific competencies and craft or profession like knowledge will generally lead to a quicker

transition process. The links between education and employers is also useful since it sends a signal to potential employers on the productivity of job-seekers. (Muller & Shavit 1998, Breen 2005)

Concerning the quality and relevance of the vocational training in Sweden we will come back to the lack of relevance and weak apprentice system in Sweden further of this paper. However concerning the quality there was a wide investigation in 2011 by Swedish Schools Inspectorate whose duty is to scrutinize schools. The quality and relevance of the vocational training was not up to standards according to the study. Most of the surveyed schools did not interact with working life sufficiently enough, and only one in five schools in the survey was able to provide on the job training with the quality required. There are also differences in quality between different programs at the same school. In many schools, the ambitions too low, and they seem to be content by letting the pupils pass. Surprisingly many of the schools did not target the on the job-training against the program objectives and course syllabi. Likewise many schools or programs did not interact with the working life in order to adapt the vocational training hereto. (Skolinspektionen 2011)

### **Does collaboration between industry and providers of education work?**

There are numerous programs and institutions that aim at improving the collaboration between industry/business and providers of education. In the higher education some universities such as Kristianstad and Trollhättan has *Verksamhetsförlagd utbildning*, meaning that theory and practice are integrated in the programs. At secondary education there is *Teknikcollege* which is a network of competence centers in which companies collaborate with municipalities and providers of education in regard to technology oriented courses at different level. A third form of collaboration is *Företagsgymnasier*, ie a form of collaboration where companies such as PEAB, Scania, Volvo and Astra Zeneca has started independent schools at secondary level in order to adapt the teaching to the changes at the labour market. Moreover they could more easily combine the theoretical with the practical content.

A couple of major studies of collaboration between industry and education providers have indicated that collaboration has good effects. The recruitment enquiry from Swedish Enterprises (2012) showed that most companies that had collaboration were satisfied. The Report *Högskolekvalitet* also pointed to the fact that half of the students asked have too little contact or interaction with the working life. The dissatisfied were most numerous in the fields, humanities, theology, law and social sciences whereas students from medicine, and health care were more satisfied. There was also a clear and robust correlation between the intensity of collaboration and the chances of doing a fast school-to-work transition.

### **Does the educational system provide relevant competencies?**

When it comes to the receivers of education, ie the pupils and students, there are also several studies and surveys that point to the fact that pupils and students are seldom adequately equipped with relevant competencies after the (many) years in schooling. On the contrary, the survey from Industriförbundet (1999) showed that the secondary schooling did

not fit in with the demands and actual competencies at the labour market. The enquiry made by Skolverket (2005) from interviews with foremen and works managers indicated that although many found the skills and competencies among newly hired youngsters decent or adequate, more than 3 out of 10 found the skills and capabilities worse than 5-10 years ago.

Also among the students there were signs that the programs from university level lacked in relevance. Civilekonomerna (2012) pointed to the fact that as many as 6 out of 10 did not think that their education had given them the adequate skills and competencies. Very few, only 8 percent had received on the job training during their study time and as many as 6 out of 10 wished they had more of that.

#### **4. Conclusion**

This paper set the aim to highlight the educational system in Sweden and foremost its role in late youth entry and high unemployment among young in Sweden as well as skill shortages. The starting point was the rising age of entry, the obstacles in school-to-work transition and high youth unemployment. Can and will the schooling system provide individuals the necessary knowledge and skills required to gain a footing in today's labour market?

To a large extent it is clear that the rising age of entry into the labour market can be explained by the rising volumes of students in secondary and even more in tertiary education in Sweden. People have been given vastly superior chances to study a lot more than a couple of decades ago. The large group of teenagers and young adults who had jobs in the 1960s, 1970s and 1980s are now inside some kind of education. A smaller portion of these age groups are however, neither employed nor studying but inactive or unemployed.

The large investments made on education in Sweden have mostly been motivated with goals such as economic growth and employment. The need for the young and those already at work to acquire a range of skills and to continuously adapt these skills underlies the "learning" or "knowledge" economy". Changes in technology, and particularly the advent of information technologies, are making educated and skilled labour more valuable and unskilled less so. (Eliasson 2007) And to a certain degree that is right. Employment is growing in high-technology, science-based sectors both in the service and industrial sector. And there is certainly a growth in skill demand since the job requirements are higher today.

Nevertheless, the trend in skill supply (education) has been stronger than the growth in skill demand (job requirements) and over education is the consequence. In 1974 no more than 1 in 10 of the employees had an education at least one year longer than required in their present job, i.e. being overeducated. In 2000 close to half of the employees were overeducated and preliminary data from 2010 show that more than half of the employees in Sweden are overeducated. (Tåhlin 2013)

The demand for more education can therefore be put in doubt and at least be qualified. Up hereto, the investments in education have not given appropriate results. What should be

discussed is rather what kind of education can facilitate labour market entry and skills formation better than today. To use the resources in the economy efficiently, it is of utmost importance that the school-to-work transition is smooth and that the competence that is provided in the educational system can be used in businesses and the working life. Since education and skills formation takes time and the technological and organizational changes are rapid it is even more important that individuals and education providers have good incentives to do rational choices whereby resources are well allocated.

From the earlier content in this paper it is clear that the Swedish educational system has deficiencies with regard to three aspects: quality, efficiency and relevance. Furthermore there are string indicators that this seriously affects the entry into labour market. These problems are however also interlinked. Imperfections at one field then lead to imperfections at another. Education is by nature cumulative and in order to build new skills there must be a solid base of knowledge and skills from early on. (Ds 2000:58)

One example is that lack of quality in primary or secondary education gives the result that pupils and student must compensate with adult secondary education that in turn increases the study time which raises exam- and age of entry into the labour market. Another example is when collaboration between business and education providers is so weak that pupils make less carefully prepared choices to secondary or university education.

### **Incentives and information as two clues**

I will point at two features that may help to improve the educational system; adequate incentives and adequate information. In order to make rational decisions individually or inside an organization, you need good incentives and access to correct information about available choices and possible outcomes. An important lesson from economic and social research is that all systems and institutions affect the behavior and give rise to mechanisms for adapting the rules and institutional setup. Actors adapt and soon start to calculate potential costs and benefits from different behavior.

Many official reports, such as LU 2008 and LU 2011, have pointed at the incentives and their role to improve the choices made by education providers and students. Today it seems that the rules, regulations and resource allocation systems are inadequate in order to provide quality, efficiency and relevance. Education providers such as schools, universities and other do have incentives to make sure that pupils and students are examined from their courses. But the incentives to uphold the level of knowledge are not sufficient which leads to grade inflation. If other schools or teachers are inflating grades, any school or teacher that takes a "hold out" stance will place its students at a disadvantage. Thereby educators may feel pressured to give higher grades for fear of students' complaining or turning to other schools.

At the university level the allocation of resources increase the risk of generous judgments of student results since the more students that pass, the more resources are delivered. This

puts pressure on the quality assurance made internally or externally but according to the Swedish National Audit Office the systems are not adequate. (RRV 2014:4)

Another example that can be taken is the apprenticeship programs. These are now being implemented in larger scales than before. The companies are however not compensated for taking apprentices whereas the vocational schools as principals thereby make larger profits by letting companies taking over the responsibility. Thereby the system lack possibilities to put more pressure on companies to raise standards on tutors and other quality enhancing measures. (Olofsson & Panican 2012)

Concerning the relevance for the working life it can be noted that the government funds that finance the education providers are in no way linked to the future performance at the labour market from those that participated in the courses or programs. Therefore, an important tool to equip the educational providers with relevant information about dimensions and content of the educations are missing.

Lastly one should also mention the importance of getting adequate information. The study and vocational guidance has been pinpointed as a major problem in the educational system. There seems to be a lack of steering, leadership and quality assurance as recurrent problems. Diehl (2006) showed from an inquiry that universities usually not give priority to the school-to-work transitions or advising student about study choices. Skolverket (2005, 2007) claims that the study and vocational guides themselves not always have appropriate education and thereby no knowledge in how either the educational system or working life is constructed. The variations between schools were large but the examples of well-functioning guidance were few.

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