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Vocational education and training in Sweden 1850-2008 – a brief presentation

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Introduction

Vocational education and training has a long history in Sweden. During the second quarter of the nineteenth century, pre-modern forms of training, such as apprenticeship regulated by crafts and guilds and the annual circulation of young farmhands and maids, were no longer adequate. Industrialisation in West European countries implied an increasing foreign demand for raw material and other products with a low value added, such as agricultural products and timber. Domestic population growth added to that demand. It was possible to increase production in these areas without changes in production technologies, but supervision and control became more important. New skills, however, were also demanded. Railway construction started in the 1850s, and technology import, albeit on a small scale, implied that labour skill demands from the emerging manufacturing industries began to differ from those in the handicraft sector. In addition, the adoption of a Folk Education Act in 1842 created new starting points for vocational training, since it implied that a very high literacy rate was instituted among young people.

From these premises, it is reasonable to consider the 1850s as the decade when modern vocational education and training was established in Sweden. In the following decades, this part of the education system grew rapidly but in an almost haphazard manner. A similar development took place in many European countries, but by the end of the nineteenth century three distinct ‘models’ could be discerned: An English, a French, and a German model (Greinert 2005). Broadly speaking, the English model was characterised by a minimum of State influence and reliance on market forces to provide labour with skills, whereas the State was the main actor in the French model that relied heavily on vocational training in schools. The German or ‘dual’ model, finally, was based on a formal apprenticeship contract but training and work at a workplace was only one part of the training. The other part, about 25 – 40 per cent of the time, took place in schools. Another feature of the German model was that three actors were involved: the State, Chambers of Commerce (i.e. employers’ organisations), and trade unions. Other countries tended to adopt one of these models, so that the Austrian, Danish, and Swiss systems, for instance, became similar to the German (or ‘dual’) model. Moreover, once one of these models became implemented it tended to remain in place (path dependency, cf. Thelen 2004).

The concept of path dependency is appealing and has strong empirical support. Austria, Denmark, and Switzerland are still characterised by 'dual' systems for vocational education and training. In a similar vein, France and several countries in southern Europe have relied on a State oriented model and in the United Kingdom and Ireland market forces are still important. However, Sweden is an example of a different development. As this article will demonstrate, the Swedish system for vocational education and training was initially similar to the English model, but beginning in the 1930s important steps towards a German model were taken. That development was far from straight-forward, however, and from the late 1960s there is much resemblance to the French model. Such change of characteristics is very unusual and in the final section of this article some possible explanations are briefly discussed.

The main purpose of this article, however, is to present the long-term quantitative development of Swedish vocational education and training from the mid-nineteenth century up to the present. The origins in the nineteenth century of three major parts of the system of vocational education and training are presented below, followed by a brief overview of the development of the total system 1860-2005. A somewhat more elaborated discussion for the three sub-periods 1850-1920, 1920-1970, and 1970-2008, is followed by a concluding discussion.

Origins of vocational education and training in Sweden

Vocational education and training in Sweden consists of several parts that have existed more or less independent of each other for a long period of time, in some cases up to the present day. The relative independence of the various parts is partially explained by the fact that the origins were different. In this section, the origins of three major parts are discussed; vocational training preparing for occupations in agriculture, commerce and infrastructure, and handicraft and manufacturing industry, respectively.

Agriculture: The first agricultural school was founded in 1834 as a private initiative by Edvard Nonnen. He was able to secure a limited financial support from the State in spite of resistance from the Peasantry in the *Riksdag*. The peasants' reluctance to support the school is easy to understand since the school would not benefit the entire agricultural sector. It was obvious from start that the main beneficiaries would be large landowners with a need for foremen who could supervise farm hands and day labourers. Since large landowners were influential additional schools were started in the 1840s. By 1850, the State took a greater financial responsibility and decided that each county should have a Farm school under State supervision. This proved to be a very sustainable organisation that lasted almost one hundred years (Juhlin Dannfelt 1913; Rydå 1981). Around 1860 Dairy schools as well as Forestry schools were started. Their training was targeted at specific rural sectors that were becoming

increasingly important. The export of timber and, later, pulp and paper became a staple in Swedish exports from the mid-nineteenth century and the State as well as large owners of forest willingly employed forest supervisors. Dairy farming had been important for a long time and from the mid-nineteenth century it started to develop into a more commercial direction with a considerable export of butter by the end of the century. Dairy schools are particularly interesting since they constituted one of the few examples of vocational schools that were directed towards young women (Sommerstad 1992).

The emergence of the Agricultural high schools was quite different. Their origin was the short courses in agriculture that were started at a couple of the residential Folk High Schools in the 1870s. The first residential Folk High Schools had been founded about a decade earlier with the purpose to provide farmers' sons with a higher education (and they were often referred to as 'farmers' colleges') but they were not intended to be vocational (Tengberg 1968). However, even though some of the idealist pioneers were reluctant to transform residential Folk High Schools, the school boards were controlled by free-holding farmers with a more practical outlook. The end result was a compromise, where the residential Folk High Schools were kept as two-year educational institutions but where students could, if they wished, switch to Agricultural high school after one year and spend the last year with a more vocational orientation. The teaching in the Agricultural high schools supplemented the practical training the boys got at home and facilitated future learning from manuals, pamphlets, and books. The farmers were by the 1880s a very influential group in political matters. Thus, although the first Agricultural high schools were financed through the same channels as all other residential Folk High Schools, the farmers soon managed (in 1887) to obtain specific State financial support (SCB 1984).

Commerce and infrastructure: Several commercial schools were founded from the late eighteenth century onwards but they were small and short-lived and it is probably more correct to regard the 1850s' as the 'founding decade' for specialised commercial schools that turned out to have a longer lifespan. The first schools were private establishments but from the 1880s' and 1890s' the municipalities, too, became more active in this field. In the beginning of the twentieth century there were at least 54 commercial schools of varying size and quality in the country, mainly but far from exclusively in the big cities. However, only a few of them enjoyed the 'quality guarantee' that State supervision implied. Thus, commercial training retained an unregulated character with a large variety of providers well into the twentieth century. In contrast, vocational education and training providing for novelties in infrastructure in the nineteenth century, such as the railway, telegraph and telephone, postal services, and navigation, were strictly regulated and in most cases provided for directly by the State. Navigation schools were started in the 1840s', training of telegraph operators in the 1870s', and of post-office employees in 1903.

Handicraft and manufacturing industry: The traditional supply of skills to the handicraft sector came through the apprenticeship system. However, between 1846 and 1864 all legal regulations concerning

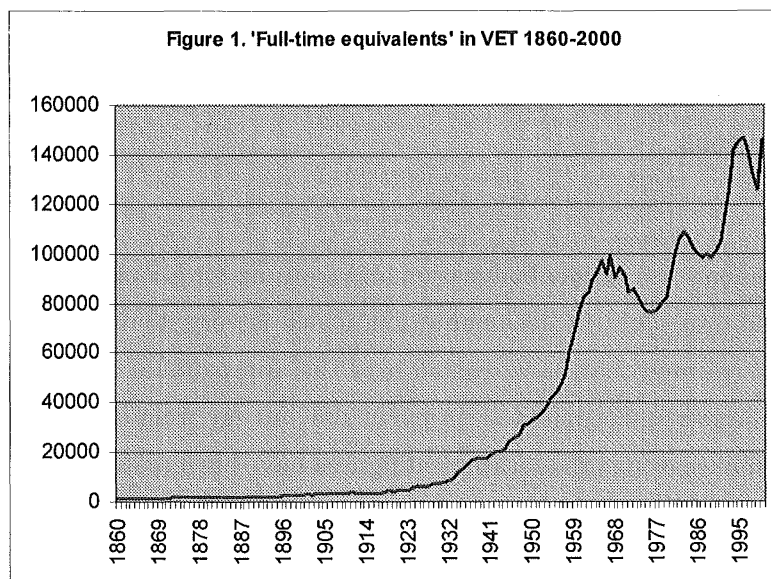
crafts and guilds were abolished, including the regulation of apprentices. In several European countries, apprenticeship became regulated in modern forms towards the end of the nineteenth century (Pettersson 2006) but despite intensive lobbying by the handicraft associations such a development never took place in Sweden (Söderberg 1965, Lindell 1992). Still, the apprenticeship tradition was strong and in the handicrafts as well as in several branches of manufacturing industry an informal apprenticeship system evolved, where young people aiming at becoming skilled workers endured a period of low pay in exchange for opportunities to learn and train at the workplace. In addition, technical Sunday- and evening schools emerged. The first 'Mechanical school' had been founded in Stockholm already in 1799 but very few pupils attended that school (Larsson 2001). Additional schools were founded during the first decades of the nineteenth century, but since these schools were established before compulsory schooling was introduced in 1842, a substantial part of their curriculae consisted of teaching in reading and writing. In the 1850s, however, a number of technical Sunday- and evening schools were founded. The timing is partly explained by a public inquiry which was published in 1850. The investigator, L. J. Wallmark proposed a three-level structure for technical education and training, of which the first should consist of Sunday- and evening schools. Wallmark's proposals were far from realised, mainly because the State refused to support these schools financially. The schools that were established, private or municipal, evolved as a supplement to the informal apprenticeship system. This implied that the actual technical courses that the schools offered were limited and had only few pupils. Instead, most pupils attended courses in, for instance, writing, mathematics, book-keeping, and drawing. The Sunday- and evening schools soon became popular and they were, from the 1870s' onwards, by far the largest form for technical education, albeit the level of actual technical training remained low.

The overall quantitative development 1860-2005

When presenting the quantitative development of vocational education and training for a long period of time, two major problems are at hand. The first concerns documentation, which is very uneven for the various forms of vocational education and training that have existed over the approximate 150 years' period discussed here. Several forms are largely undocumented, in particular but far from exclusively for the period up to about 1920. The principal reason is that statistical figures have been systematically collected only for forms that were organised or supervised by the State. Commercial training, for which no coherent documentation exists before 1920, is one important omission. It has been estimated that commercial training corresponded to about fifteen per cent of the number of people in vocational education and training in the beginning of the twentieth century (Nilsson 2008). Above all, the restriction that only State organised or supervised forms of training have been recorded implies that all in-company training, with a few exceptions, is excluded. As will be shown further down, 'apprenticeship training' must have formed a very substantial part of the total volume of vocational education and

training well into the 1950s. The term ‘apprenticeship training’ is put in quotation marks to point out that there was no legal regulation. In several branches of manufacturing industry and in most handicrafts, however, collective agreements regulated parts of the training as well as the employers’ obligations in other respects, from the early 1900s’ up to the 1960s’ (Olofsson 2005). Thus, young workers were often called apprentices and it was understood that part of their work effort was devoted to in-firm training. An official inquiry from 1908 revealed that it was common for apprentices to receive a lower wage than normal for their age for a period of three to four years, but that period could vary between branches from less than a year up to seven years. In the 1940s’, the schooling component in the collective agreements tended to become more important, but at the same time the attractiveness of apprenticeships was diminishing. (Kollektivavtal 1907/08; Olofsson 2005).

The second major problem stems from the fact that where documentation exists, courses and programmes have been very different from each other and they are sometimes difficult to compare. Up to the 1960s’, most of the training was part-time but the extent of the various courses differed markedly, from a few weeks to a couple of years. Other programmes were full-time but they, too, varied enormously in length from a couple of months up to several years. To make all these programmes and courses approximately comparable they have been transformed into ‘full-time equivalents’, where one unit equals the standard school-year of 1950 or 39 weeks of full-time schooling (for a more detailed description, see Ljungberg & Nilsson 2009). With all omissions and other problems taken as given, the overall quantitative development is presented in figure 1.



Source: Unpublished source material to Ljungberg & Nilsson (2009)

The most predominant trait in the long-term development is the enormous expansion of ‘full-time equivalents’ from 1945 to 1970 when the number increased about five times. This expansion, as well as the subsequent continued increase has four components. First is the ‘transfer’ of training from

companies, mainly undocumented, to schools where it was properly registered. That transfer was more or less completed by the early 1970s'. Second is the secular increase in education in general during the twentieth century, which affects also the number of students in vocational training. The third component is the lengthening of school-based vocational education and training. This component has been particularly strong in two periods; the 1960s' with a massive transfer from part-time to full-time courses, and the 1990s' with the extension of vocationally oriented programmes from two to three years. These three components have worked more or less in the same direction, namely to increase the annual number of 'full-time equivalents'. The fourth component is less straight-forward. It is the changing attractiveness of vocational education and training to existing alternatives. This component will be discussed briefly in the following sections where each of the three sub-periods is presented.

A diversified system, 1850-1920*

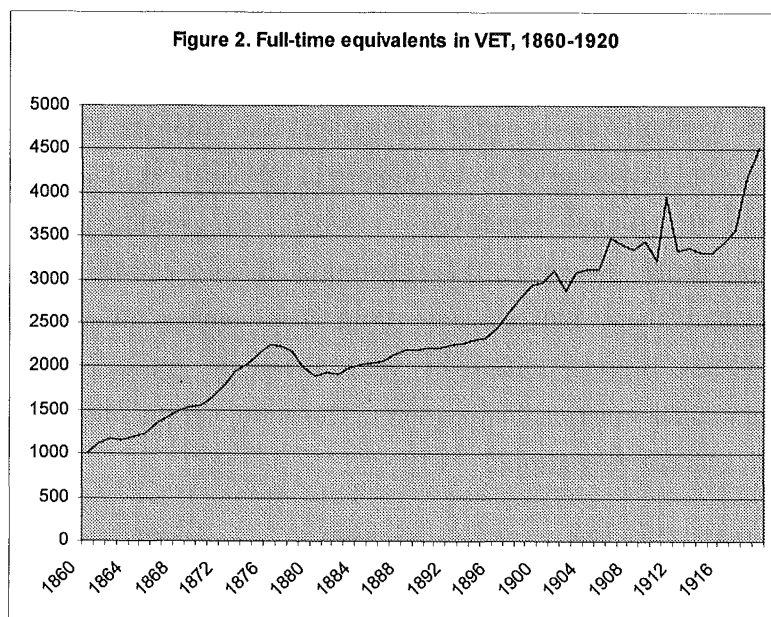
In this period, most institutions for vocational training were started by individual initiatives. During the initial phase, however, State support was crucial. As section two demonstrates, most of the vocational training facilities that were founded or expanded during that decade were driven or financially supported by the State. State involvement was in principle restricted to areas of 'national importance' but those areas could be defined in several different ways. Up to the 1850s', State support was basically restricted to higher education (universities and grammar schools), where young men were educated for a future career in the civil services (including the State church). The involvement in Navigation schools could be defended on a similar basis since navigation and shipping could be converted to naval use in times of conflict. The extension of State support to agricultural, dairy, and forestry schools implies a wider definition of 'national importance' in which the growing political importance of farmers is obvious. Numerically, however, these training facilities were small; agricultural, dairy, and forestry together had about 300 pupils in 1860. That modest number, in combination with the fact that only a few private initiatives were taken in commerce and manufacturing industry, indicates that demand for vocational education in the middle of the nineteenth century, outside the apprenticeship system, was not very strong.

The contrast to the development from the 1870s' and, above all, from the 1890s', is striking. Vocational education and training in Sweden in the latter part of the nineteenth century was characterised by the existence of a multitude of organisers, mainly private or municipal. In the 1870s' and 1880s', a substantial number of commercial and technical schools were founded on private initiative and the Agricultural high schools also came about without State involvement. The foundation of new training

* This section is based on Nilsson (2008).

facilities in different parts of the country seems to have been a response to a latent demand; the number of participants in all programmes and course is estimated to have increased from about 1,000 in 1850 to 7,700 in 1870 and 11,600 in 1890. The main part of the expansion took place in part-time Sunday- and evening schools, however, with the consequence that the increase in full-time equivalents is less impressive (se figure 2).

Municipalities had been involved in vocational training for quite some time on a small scale in some of the major cities. Financial support existed in Stockholm, Gothenburg, Malmö, and a few other cities, for schools with training in book-keeping, drawing, and civics, already since the 1820s. That support was extended to technical Sunday- and evening schools in the late 1870s' (together with a limited State support). From the 1890s', municipal involvement became stronger and a number of vocational schools were founded. The increasing municipal involvement should be seen as a response to a growing need to keep young people busy as much as a response to a growing demand for vocational skills. Part-time vocational training in schools was a way to satisfy both these demands, but as Sweden's economic, social, and technological development progressed, discontent grew with the state of art in vocational education and training. After a prolonged process of investigations and debates, a new structure was launched in 1918 and amended in 1921.



Source: See figure 1.

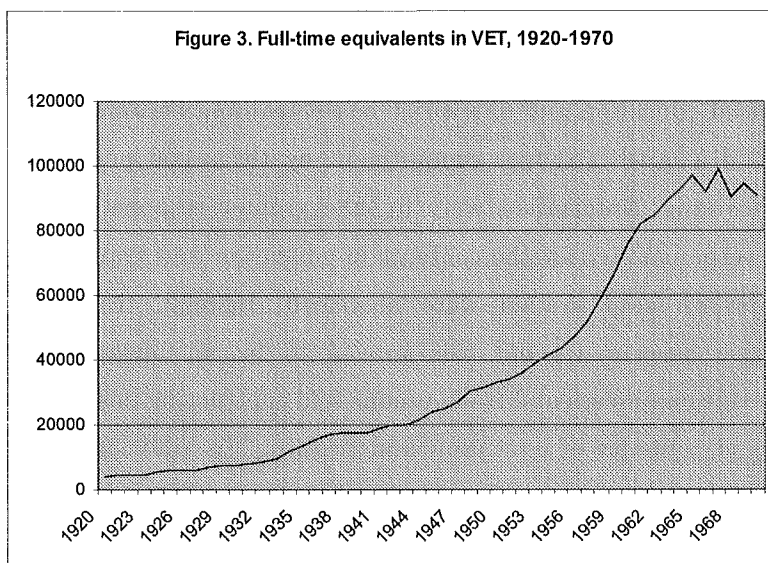
Domination by the social partners, c 1920-1970

The system for vocational education and training that came into existence in 1918 was not all-embracing but large parts were organised in a comprehensive manner. Agricultural training, in agricultural schools or in residential Folk High Schools continued to exist as a separate strand and the two forms were amalgamated in 1940 into (new) agricultural schools. However, schools for technical, commercial, and domestic service were organised in a comprehensive system that was supervised and financially supported by the State. Very few schools, however, were operated by State authorities; this was done by private enterprises or municipalities. Initially, these two agents were roughly of equal size but from the 1930's municipalities became the dominant part. In the interwar period as well as during the 1940s' and 1950s', part-time schooling dominated (SCB 1984). The reality behind the continued reliance on part-time training was the existence of an informal but widespread apprentice system.

The trade union movement had opposed apprenticeship from the beginning, arguing that it would press wages and that training tended to 'lock in' labour in enterprises. The employers' organisation, too, voiced dissatisfaction with the state of affairs, but their concern was mainly the poor quality of the evening classes in the vocational schools. By the end of the 1930s', the social partners came to an agreement in which the roles of school-based education and enterprise-based training became clearer. Above all, however, the agreement implied a much stronger commitment by the social partners to participate in vocational education and training. Enterprises were to take greater responsibility for financing, and the partners to take joint responsibility for the contents of education and training. All attempts of legal regulation of an apprenticeship system were abolished. Instead, training in enterprises became regulated in collective agreements but this proved to be an unsatisfactory arrangement. At branch- and enterprise levels employers and trade unions had contrasting positions on the apprentices' wages, working hours, and contents of education and training. In addition, it was difficult to formulate principles for cost-sharing between enterprises that hired apprentices and those that did not. As a consequence, the collective-agreement regulated apprenticeship system started to disintegrate. It has been estimated that in the early 1940s' there were about 20,000 apprentices altogether (corresponding to 3.8 per cent of all 15-19 years old) but that number was only about 10,000 in 1950 (2.4 per cent of 15-19 years old), even though the demand for qualified labour was increasing. (Olofsson 2006)

The involvement of the social partners deepened in the 1940s' and early 1950s'. They were represented in committees on local, regional, and central level, where all important agreements concerning the scope and content of vocational training were taken. The partners formalised their cooperation in special vocational councils and as a final touch a special government office for vocational education and training was established in 1944. The partners had a very strong representation in the board of this office and some of the central actors were active in the central vocational council as well as in the government office (Olofsson).

Partly as a consequence of the relative failure of an apprenticeship system that was regulated in collective agreements, the State took greater responsibility for vocational education and training from the mid-1950s'. Initially, the main contribution was a more generous financing from 1955 onwards. This not very ambitious contribution proved to get dramatic consequences since the number of pupils exploded in the late 50s' and early 60s'. All forecasts were turned on their heads, and the projected target for 1970 of pupils in municipal and private vocational schools was reached only a couple of years after 1955. The number of participants in courses and programmes amounted to about 91,000 in 1951 (corresponding to 22 per cent of all 15-19 years old), and in 1967 the number of participants in vocational education and training reached 195,000 (33 per cent of 15-19 years old). In terms of full-time equivalents, the expansion was even more impressive, see figure 3. The reason for this was that full-time schooling increased both in absolute and in relative terms, in particular during the 1960s'.



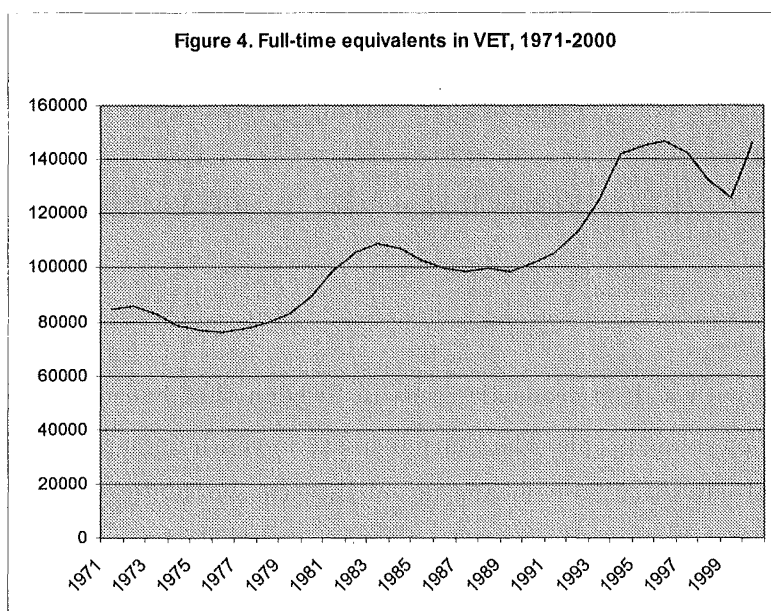
Source: See figure 1.

The increasing importance of full-time training signified profound changes in several respects. The collaboration between the social partners was showing signs of strain because the trade unions promoted full-time education and training in schools whereas the employers chiefly advocated enterprise-based training combined with part-time schooling. Similar disparities of interest had existed before but they had been solved by the partners. In the 1960s', however, the State took firmer hold of the development. A clear sign was the dismantling in 1961 of the special government office for vocational education and training. The State clearly advocated school-based training and put emphasis on the more theoretical parts of the curricula. The consequences of this standpoint became obvious in

1971, when vocational and theoretical programmes were amalgamated into the new, integrated upper secondary school.

The uniform and integrated system, c 1970-2000

The integration in 1971 of vocational *and* theoretical programmes in the upper secondary school was a drastic change and imposed a large degree of uniformity in the Swedish education system. This uniformity was reinforced by the inclusion of several programmes and courses that had, up to 1971, constituted independent vocational programmes, for instance agricultural schools and textile institutes. However, uniformity and integration did not imply that the differences between the two types of programmes disappeared completely. The main difference was that theoretical programmes encompassed three years, whereas vocational programmes normally were only of two years' duration. In spite of this rather short duration, the vocational programmes contained substantial amounts of theoretical courses, which implied that the vocational components were limited. In fact, the new programmes were preparing for work in broad sectors of the economy, rather than training for a specific vocation. That development was partially lamented by the employers' organisation but evidently appreciated by the students. The number of students in vocationally oriented programmes and courses increased steadily up to the late 1970s' (see figure 4) and this development was even more pronounced when compared to the 'theoretical' programmes. The number of students graduating from the vocationally oriented programmes corresponded to 30 per cent 1972/73 and had increased to 48 per cent 1977/78 (Utbildningsstatistisk Årsbok 1978, 1979).



Source: See figure 1.

In the 1980s' the shortcomings with the two-year vocationally oriented programmes were becoming more apparent. Above all, changing demands in the labour market implied that theoretical understanding became more important. It was also perceived that the vocationally oriented programmes could become 'educational cul-de-sacs' since they did not qualify the students for further studies. The solution that came forward in 1991 was to increase the length of the vocational programmes to three years. A main part of the prolongation consisted of theoretical courses, which implies that, in principle, all programmes at the upper secondary level, theoretically as well as vocationally oriented, qualify for tertiary education. In addition, mandatory periods of practice at the vocational programmes were introduced with the purpose to give the students some sort of working life experience.

The second important aspect of the reform in 1991 was the transfer of responsibility of upper secondary education to the municipalities. The municipalities were given lump sums of money that could be allocated more or less at will, since the national legislation was not very severe. Since most of the vocational programmes were more expensive than the theoretical ones, several municipalities were reluctant to organise all of them (Lundahl 1998).

In 1993, private initiatives in vocational schools were given the same financial prerequisites as municipal ones. It is the National Agency for Education that decides whether a private (or independent, as the official term is) upper secondary school qualifies for this grant or not. Initially, this resulted above all in the establishment of 'industrial schools' where big enterprises started schools in close connection to their production sites. Examples are Volvo, ABB, SAAB-Scania, and Perstorp, where these programmes soon became popular (Lundahl 1998). Private upper secondary schools in general became more popular after 2000 and in 2008 about 19 per cent of upper secondary school students in vocational programmes attended private schools

(http://www.skolverket.se/content/1/c6/01/12/61/Gy_Elever_Riksniv%E5_Tabell%204Awebb.xls).

The reforms of the early 1990s' coincided with a deep economic crisis in Sweden that had dramatic effects on the labour market, in particular for young people. The sharp increase in youth unemployment led to an increasing interest in vocational education as a means to enhance the possibilities in the labour market. The subsequent and persistent high youth unemployment has led to doubts about the efficiency of Swedish vocational policy in that respect. However, a recent study indicates that the two-year vocational programmes increased work opportunities between 1993 and 2002 (Olofsson & Östh 2007).

On the other hand, these results refer to students who have completed their studies. Dropping-out and non-completion of studies is a big problem. In 1987, 81 per cent of all twenty-years old had completed an upper secondary education but in 2002 the corresponding figure had fallen to 72 per cent (Murray 2007). That figure has remained almost constant for the last five years. Practically all young people enter upper secondary school, but almost ten per cent drop out from upper secondary school during the first or second year of study. An additional twenty per cent leave after the third year without a complete diploma. In other words, about thirty per cent of a youth cohort has incomplete upper secondary schooling (<http://www.skolverket.se/sb/d/2006/a/12195>).

In an attempt to counteract dropping-out and non-completion the Government has launched an initiative in which the return of apprenticeship plays a certain role. Course plans for apprenticeship training have been approved by the National Agency for Education and are valid as of 1 July 2008. See <http://www.skolverket.se/sb/d/1959/a/10922>. This is not a return to a previous situation with collective agreements but rather one more attempt to revitalise the links between vocational schools and enterprises. The students will spend about half their time in an enterprise and half in a vocational school but the responsibility for the entire programmes lies with the school. Initially, the apprenticeship programme is of a modest scope with 5,000 possible placements. If successful it will be expanded in the years to come.

Epilogue – do current trends represent a reversal to a previous model?

Vocational education and training was established in Sweden during the industrialisation process in the nineteenth century. In the 1890s' the contours of a system was in place in which an informal and unregulated apprenticeship system played a major role. Thus training in workplaces dominated but in addition a considerable amount of supplementary schooling existed. Most of the schooling consisted of courses in general subjects whereas genuine vocational education was of a limited extent. In terms of organisation this system was characterised by a multitude of private, municipal, and State organisers. The system was considered inadequate by many contemporary observers already in the early 1900s' but for various reasons no substantial changes took place until about 1920. The subsequent system was more strictly organised but still based on an apprenticeship system that was not legally regulated but where collective agreements between the social partners were important. It was a system that gravitated towards the 'German' system, in particular when the social partners became more committed from about 1940. However, in the absence of legislation the apprenticeship part was fragile and, in spite of collective agreements, this traditional form for vocational training became less and less important. Instead the State became the main actor and during the 1960s' the development of vocational education and training took a new direction. The apprenticeship system was, for all practical purposes, dismantled and instead school-based vocational education and training became the dominant form. In other words, the system became more similar to the 'French' model.

From the 1990s', new characteristics have emerged. They include multiple organisers by municipalities as well as by private initiatives, a domination of general subjects in the vocational programmes, and

lately a return of an apprentice-based programme. Thus, there are some superficial similarities with the situation in the late nineteenth and early twentieth century that do not apply only to the structure of the system for vocational education and training. The decades around 1900 are often characterised as the initial phase of the second industrial revolution and in a similar fashion the late twentieth century should be regarded as the initial phase of the third. It would go far beyond the limitations of this short article to dwell upon the characteristics of these revolutions, except for one crucial aspect; in both cases, labour demand initially shifted towards new qualifications that the existing system for vocational education and training could not meet. Consequently, the recent reappearance of elements in the Swedish system, such as private providers and an apprenticeship programme, is not a return to a previous model but a reaction to uncertainty in future labour demands.

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