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**LEARNING FOR JOBS: THE OECD POLICY REVIEW OF VOCATIONAL EDUCATION AND
TRAINING IN SWEDEN**

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EDUCATION AND TRAINING IN SWEDEN**

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APRIL 2008



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LEARNING FOR JOBS: THE OECD POLICY REVIEW OF VOCATIONAL EDUCATION AND TRAINING (VET) IN SWEDEN

SUMMARY: STRENGTHS, CHALLENGES AND RECOMMENDATIONS

1. This review of vocational education and training (VET) in Sweden is part of the OECD policy review of VET – a programme of analytic work and individual country reviews designed to help countries make their VET systems more responsive to labour market needs. The review in Sweden assesses the main challenges faced by the VET system and presents an interconnected package of six policy recommendations, presented in terms of the challenge, the recommendation itself, the arguments for the recommendation and suggested aspects of implementation.

Strengths

2. Sweden's upper secondary VET:
- Builds on strong compulsory school performance by international standards at age 15.
 - Displays a modest rate of dropout.
 - Has relatively high status.
 - Allows room for local innovation.

Challenges

3. At the same time, a number of challenges have been identified:
- Youth unemployment in Sweden is relatively high.
 - The number of 15-19 year-olds is set to decline sharply.
 - Upper secondary VET does not attempt to make students 'job ready' – leaving a potential mismatch with a labour market governed by collective agreements in which employers may be reluctant to take on such young people.
 - More than half of VET trainers are over 50.
 - The separation of school-based VET from a fast-changing and technology-driven workplace makes it hard to keep up with labour market needs.

- Currently, the social partners have limited influence over upper secondary VET.
- Data on labour market outcomes of VET are inadequately exploited – e.g. to provide better information to students choosing courses.

Recommendations

1. We recommend maintaining the current non-selective arrangements for upper secondary school programmes (Section 2.1).
2. Sweden needs a stronger mechanism through which the social partners¹ can convey labour market requirements to VET providers. To this end we recommend that a National Commission for VET should be established, composed of different government ministries and the social partners (Section 2.2).
3. Competition between schools needs to be fair and to be seen as fair. To this end we recommend scrutiny of the regulations to ensure that public and independent schools experience the same regulatory regime (Section 2.3).
4. We recommend that information on the labour market outcomes of VET should be published on a school and programme basis. The National Register should be fully exploited, and possibly supplemented by regular surveys of recent leavers (Section 2.4).
5. We recommend that the 15-week work placement that is part of upper secondary VET should be subject to quality control and made mandatory for all upper secondary VET programmes. Only VET programmes capable of attracting work placements should be provided, linking the provision of VET skills to labour market requirements more closely (Section 2.5).
6. We recommend the development of an apprenticeship system to complement school-based VET on the grounds of both cost and quality. It should be developed jointly by the government and the social partners and take full account of international experience (Section 2.6).

¹ Term “social partners” refers to employers and employees’ representatives.

CHAPTER 1. INTRODUCTION

This chapter describes the OECD policy review of VET, the review in Sweden, summarises the main features of the Swedish VET system in upper secondary schools and sets out an assessment of its strengths and challenges.

1.1 The OECD policy review of Sweden

4. This review is one of a series of reviews of vocational education and training (VET) in OECD countries (see Box 1.1). Its terms of reference are at Annex A.

Box 1.1. Learning for jobs: the OECD policy review of vocational education and training

This policy review seeks to help countries **increase the responsiveness of VET systems to labour market requirements**. It aims to improve the evidence base, identify a set of policy options, and develop tools to appraise VET policy initiatives.

A programme of *analytical work* draws on evidence from all OECD countries. It includes an international questionnaire on VET systems, reviews of previous OECD studies and the academic literature on topics such as costs and benefits of VET, indicators to assess the quality of VET provision and analysis of labour market outcomes based on statistical data from labour force surveys and PISA (the OECD's Programme on International Student Assessment).

Country policy reviews that provide country-specific policy recommendations will be carried out for Sweden, the United Kingdom, Hungary, Australia, Norway, Mexico, Korea and Switzerland between the end of 2007 and the end of 2008.

The results of both the analytical work and the country reviews will feed into the *final comparative report*.

A second phase of this work, with further country reviews, is expected to take place in 2009 and 2010.

5. The review follows the standard methodology established for the OECD policy review of VET. At the outset, the Swedish authorities were invited to complete a detailed questionnaire. Armed with the questionnaire responses and other background information, two members of the OECD Secretariat went to Sweden on 22-24 October 2007 for an initial fact-finding visit to assemble information about the characteristics of VET and, within the terms of reference, to identify the main policy challenges. This initial research provided the basis for a return visit. The same team, plus two international experts (Nancy Hoffman of the United States and Stefan Wolter of Switzerland – see Annex A for biographical details) conducted further interviews in different parts of Sweden on 2-7 December 2007 (see Annex A for the programme of visits) in order to develop policy recommendations. This review presents their analysis and recommendations.

6. Publicly funded VET in Sweden is concentrated at the upper secondary level, although there are also some post-secondary programmes, such as advanced vocational education, and a limited amount of tertiary-level VET. This review concentrates on the upper secondary sector.

7. The review takes place at a time marked by a strong impetus for educational reform. Among other initiatives, the Swedish government has established an Upper Secondary Commission (*Gymnasieutredningen*) to develop plans for a three-track upper secondary system, with a new apprenticeship system alongside modernised versions of the current academic and vocational tracks. The reforms would increase the distinction between the academic and vocational tracks in terms of selection, curricular content and routes into tertiary education. The Commission will report at the end of March 2008. This nearly simultaneous OECD review cannot compete with the Commission in terms of detailed knowledge of Sweden and its educational system. Instead, its aim is to add value by drawing on international evidence and experience. It is necessarily selective, concentrating on aspects of the VET system where the OECD team felt that they had something useful to say.

1.2 The structure of the report

8. Chapter 1 places the Swedish review of VET in the context of the OECD policy review of VET, presents the structure of the report, describes the main features of Sweden's upper secondary VET system and examines its strengths and challenges. Chapter 2 offers policy recommendations for improving the VET framework: maintaining a non-selective system, creating effective mechanisms for partnerships with stakeholders, ensuring fair competition among schools, enhancing the quality of information on labour market outcomes, improving the quality and coverage of work placement (and thus link VET programmes more firmly to labour market needs) and supporting the development of an apprenticeship programme.

9. Each policy recommendation is set out as:

- *The challenge* – the problem that gives rise to the recommendation.
- *The recommendation* – the text of the recommendation.
- *The supporting arguments* – the evidence that supports the recommendation.
- *Implementation* – suggested means of implementing the recommendation, for example with an initial pilot which is then evaluated, and taking account of the need to engage key stakeholder groups.

1.3 A snapshot of upper secondary VET in Sweden

10. A 1992 school reform extended VET upper secondary programmes by one year, aligning them with three years of general upper secondary education, increasing their general education content, and making core subjects compulsory in all programmes (Friberg *et al.*, 1994). Now, in Sweden, 98% of those leaving compulsory schooling immediately enter upper secondary schools, and most complete their upper secondary education in three years (Skolverket, 2006a).

11. Upper secondary education is divided into 13 vocationally-oriented and four academic national programmes. Slightly more than half of all students follow vocational programmes. All programmes offer broad general education and basic eligibility to continue studies at the post-secondary level. In addition, there are local programmes specially designed to meet local needs and 'individual' programmes. The local programmes are created by a municipality board of education and combine national courses from different programmes. The individual programmes are for students who, owing to insufficient qualifications (for example, failing grades in Swedish, English or mathematics) or other reasons, cannot enter a national or local programme directly (Skolverket, 2006a; ReferNet Sweden, 2007). Some 9% of all upper-secondary students pursue specially designed programmes and 7% follow individual programmes (OECD EAG data base; Skolverket, 2006a).

12. The goals of upper secondary VET are to prepare students for the labour market and/or further education and training and to foster active citizenship and personal development.

13. All upper secondary programmes include:

- Eight core subjects (which occupy around one-third of total teaching time in both vocational and academic programmes): English, artistic activities, physical education and health, mathematics, natural science, social studies, Swedish or Swedish as a second language, and religious studies.
- Optional courses.
- Subjects which are specific to each programme.
- A special project.

14. Vocational programmes are expected to include 15 weeks of workplace training (*Arbetsplatsförlagd utbildning* – APU) over the three-year period. Schools are responsible for arranging workplace training and verifying its quality. Most municipalities have advisory bodies: programme councils (*programråd*) and vocational councils (*yrkesråd*) composed of employers' and employees' representatives from the locality. The councils advise schools on matters such as provision of workplace training courses, equipment purchase and training of supervisors in APU.

15. The Swedish school system is decentralised, and most upper secondary schools are managed by municipalities. Municipality-run upper secondary schools contain on average 614 students. In 2005, about 13% of students attended independent upper secondary schools² (Skolverket, 2006a). Each municipality is required to establish objectives for its schools in a school plan. Each year, the school submits a 'quality review' to the municipality and the municipality delivers its report on the quality review to the National Agency for Education (Skolverket).³

1.4 Strengths and challenges in the Swedish VET system

16. The Swedish VET system has many strengths, but also faces major challenges. Annex B sets out some key statistics on VET in Sweden and presents some international comparisons.

Strengths

- Sweden's upper secondary VET builds on strong compulsory school performance by international standards at age 15 (near the end of compulsory education), with relatively few students lacking basic cognitive skills – potential dropouts (Annex B).
- Dropouts at upper secondary level are a problem in all OECD countries, but by international standards the problem is modest in Sweden (Annex B).

² Unlike public schools, independent schools are not run by the state, a municipality or a county council. They are nevertheless funded from public funds and are therefore free of charge for students.

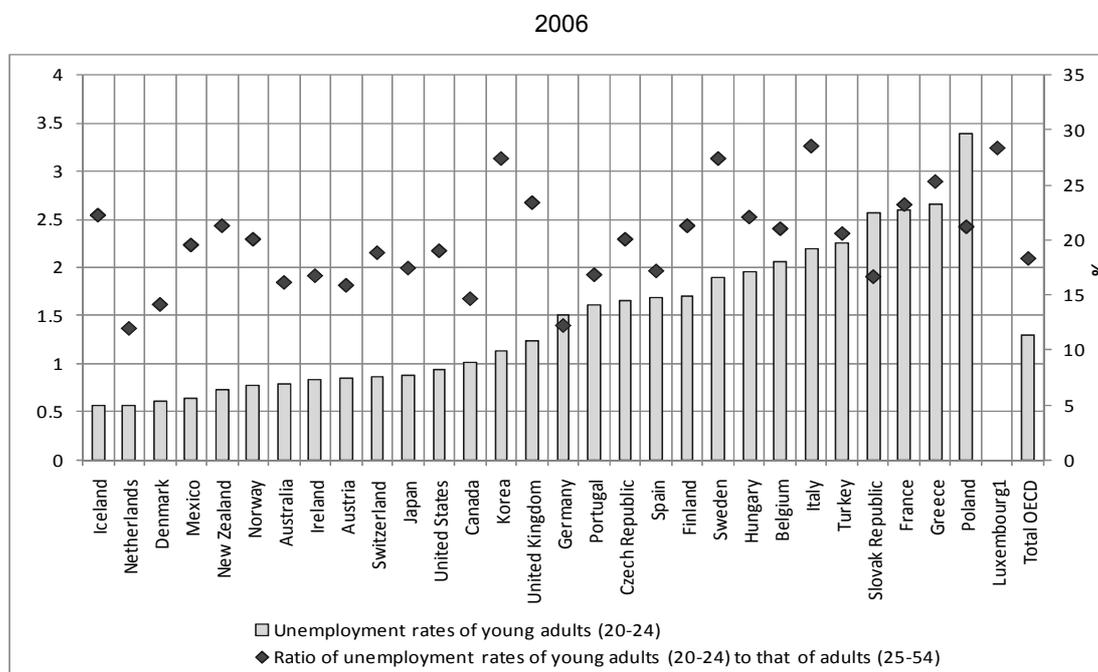
³ Skolverket is the central administrative authority for the Swedish public school system. Its role is to define goals in order to administer, to inform in order to influence and to review in order to improve; see www.skolverket.se/sb/d/190.

- By international standards, VET has relatively high status. Although it does not have the same status as the academic curriculum, the visiting team saw little evidence that VET suffered from the stigma attached to it in many other countries.
- The relative autonomy of municipalities creates room for local innovation in the delivery of VET.

Challenges

- Young adult unemployment in Sweden is relatively high by international standards and high relative to adult unemployment (see Figure 1.1). Although this is partly due to strong employment protection legislation and the (implicit) minimum wages determined by collective bargaining, it raises the question of whether the Swedish education system is delivering the required skills.

Figure 1.1. Young adults' unemployment



1. 2005.

Source: OECD database, OECD.Stat website, <http://dotstat/wbos/default.aspx>

- The 15-19 age cohort is set to decline sharply in the next decade, increasing the risk of skills shortages (Annex B). Sweden's old-age dependency ratio⁴ is now 30% and is projected to rise about 10 percentage points over the next 20 years (OECD, 2006) This puts a premium on the capacity of the education system to provide young people with the full set of skills required by the labour market (Sweden, Prime Minister's Office, 2007).

⁴ The old-age dependency ratio relates to the number of individual likely to be "dependent" on the support of others for their daily life. Old-age dependency ratio of those 65 and over was calculated relative to the number of individuals aged 20-64.

- The labour market context also poses some challenges to the traditional Swedish conception of upper secondary VET as preparation for the labour market rather than as training that will make graduates job-ready. In countries with labour markets less constrained than in Sweden, employers can offset the costs of the necessary training in entry jobs for young people by offering lower wages. If there is limited employment protection the risk of taking on young people with unproven skills is relatively small. But in Sweden, the costs and risks may make it unattractive to recruit young people that typically require extensive training and experience before they become fully productive, since their wages are pegged to those of older workers. In effect there is a mismatch between the principles underlying upper secondary education and those of the labour market.
- There are growing challenges to the sustainability and quality of school-based VET. More than half of VET trainers are over 50 (Skolverket, 2007b). Their retirement combined with widespread difficulties in recruiting trainers, represents a large challenge to school-based VET in its current form. This comes on top of a problem faced by all school-based VET systems: their separation from the skills requirements of a fast-changing and technology-driven workplace.
- Sweden's large separation between the world of work and the world of education and school-based VET is significant in comparison to other Nordic countries (Table 1.1).⁵ Given the social partners' direct knowledge of the labour market, this separation increases the risk that VET may not meet labour market requirements. There are also few forums at which the key VET stakeholders – government, trainers, social partners – can agree on common objectives. In Sweden high levels of taxation are widely accepted, with the expectation that the government will provide many services at no charge. One risk of this historic arrangement is that employers may be reluctant to provide VET themselves, even though it can provide the skills needed by their labour force.
- While Sweden has good data and a strong analytic capacity, and there is good research at national level on VET outcomes, data on labour market outcomes of VET are not systematically used to assess the value of specific programmes and institutions.

⁵ The influence of the social partners is strongest in Denmark and in Norway and Finland they have a decisive say in some areas of VET. For example, in Norway, the social partners decide on the occupational qualifications delivered in upper secondary VET (Trade and Journeyman's certificate).

Table 1.1. Social partners' involvement in VET

Estimated percentage of VET upper secondary programmes in which social partners have advisory or decision-making role, by different aspects of VET

	<i>Curricula</i>		<i>Practical training content</i>		<i>Duration of practical training</i>		<i>Acquired competences</i>		<i>Examination requirements</i>		<i>Delivered qualifications</i>	
	D	A	D	A	D	A	D	A	D	A	D	A
Denmark	95%	95%	100%	95%	100%	95%	95%	100%	95%	100%	95%	100%
Finland	53%	53%	0%	53%	0%	0%	53%	53%	53%	100%	47%	0%
Norway	0%	100%	100% ¹	0%	0%	100%	0%	100%	0%	100%	100%	0%
Sweden	0%	98%	0%	98%	0%	98%	0%	98%	0%	98%	0%	98%

Note: D – decision making; A – advisory role; m- missing.

Note: Total score in each category might be bigger than 100% .This is because social partners involved at different levels may have a say over the same aspects of VET. For example, In Denmark, the Advisory Council for Vocational training (REU) has advisory status towards the Minister of Education (national level). The Council advises on the overall structure of the system. At local and sectoral levels Trade Committees and Local Trade Committees can decide on many elements of VET within the overall structure.

1. The apprenticeship model (2+2) for IVET consist of two years at school and two years as apprentice in a company. Figure refers to apprenticeship component of the programme.

Source: OECD, *The OECD International Survey of VET Systems: First Results and Technical Report* , unpublished

CHAPTER 2. POLICY RECOMMENDATIONS

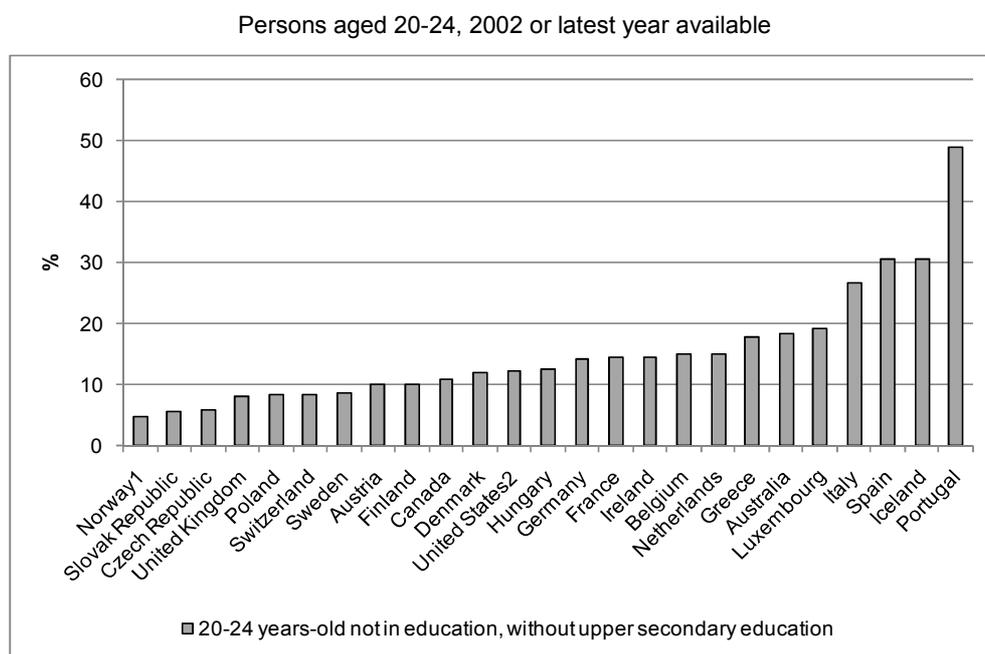
This chapter sets out six recommendations designed to sustain some of the existing positive features of Swedish VET and to improve responsiveness to labour market needs. These include a recommendation to sustain the non-selective arrangements for VET and academic tracks in upper secondary school; to establish more systematic structures to engage stakeholders – particularly the social partners – in VET planning and policy; to ensure that competition between public and independent schools is fair; and to provide a more effective range of information to potential students and others about the labour market outcomes of VET programmes. It also advances two recommendations designed extend VET in the workplace. First, it recommends making the 15 weeks of work-placement in upper secondary VET programmes a fully mandatory requirement. Second, it supports the reform proposals to introduce an apprenticeship track.

2.1 Selection and upper secondary VET

The challenge

17. A proposal to tighten selection criteria for admission to general upper secondary courses is under consideration by the Upper Secondary Commission. A related option designed to further differentiate VET from tertiary preparation would drop the requirement that upper secondary VET students complete the same core curriculum (for example in mathematics, English and Swedish) as those in academic upper secondary programmes and by removing the automatic eligibility of VET students for tertiary education. The apparent intention is to increase student motivation, to achieve high performance in VET and in academic programmes and therefore to decrease the problem of dropouts at upper secondary and tertiary level. This would reverse a reform undertaken in the early 1990s.

18. At upper secondary level, dropout rates are low by international standards. In Sweden more than 90% of those aged 20-24 have attained at least upper secondary education (see Figure 2.1), higher than in most OECD countries.

Figure 2.1. Dropout from upper secondary education

Source: OECD and the Canadian Policy Research Networks (2005), "From Education to Work. INES-Network B, special Yalle data collection", OECD, Paris.

19. In Swedish national data a dropout is a person 16-19 years old who has left upper secondary school without a final certificate. Of those who entered upper secondary school in autumn 2002, 68% received their final certificate within the normal three years; after four years the completion rate rose to 75%. The VET completion rate is slightly below the rate for the academic track, but individual programmes account for around one-third of all dropouts, although they enrol only 7% of upper secondary students.⁶ While this last type of dropout represents a real challenge (deserving separate examination), greater selectivity in academic programmes will not help.

20. Upper secondary dropouts are a heterogeneous group. Students are counted as dropouts if they miss a single required core course or are just short of the 2 500 points required to complete their programmes – a quite different group from those who leave during the first year, with few courses completed.⁷ In general those without a leaving certificate perform less well on the labour market than those with an upper secondary diploma, but this depends on the programme; for example 80% of students from the vehicle programme who lacked the final certificate were employed three years after leaving school, a higher rate than for some other upper secondary programmes (Skolverket, 2002).

21. A large proportion of students labelled "dropouts" return to schooling through Sweden's strong lifelong learning options (Skans, 2007).

⁶ Statistics Sweden: www.skolverket.se/sb/d/1613/a/10735#paragraphAnchor1; Table 4.5A.

⁷ Every fourth person who did not complete upper secondary school left during the first year, while nearly six out of ten did so in their third year (Statistics Sweden, 2007).

Recommendation 1

We recommend maintaining the current non-selective arrangements for upper secondary school programmes.

Supporting arguments

22. There are three main arguments against the introduction of academic selection for entry into the academic programmes. First, it would have little direct substantive impact, because these programmes already involve a substantial amount of self-selection. Second, it might distort choices, by stigmatising VET upper secondary programmes as being for the less able. Third, selection into upper secondary academic programmes is a very blunt instrument with which to increase survival rates in tertiary education.

Little substantive impact

23. Selection would have little direct impact on flows into the two tracks. There is good evidence that students already self-select into VET or academic tracks on the basis of their academic strengths and weaknesses. Vocational track students perform slightly less well than academic track students, for example in maths and Swedish, indicating that those with weaker academic skills are already choosing VET (see Annex B). Moreover, selection will not significantly improve the input of academic tracks as academic track students already show good achievement as measured for instance by failure rates in mathematics.

Distortion of choice

24. VET in Sweden enjoys relatively good status, contrary to many other OECD countries. Teachers and employers told us that the quality of applicants to VET has been rising and that students are proud to be in programmes leading to work and further education. In addition, about 10% of students move from VET to tertiary education, indicating that VET is not a “dead end” that blocks the path to a university education.

25. Introducing selection criteria may distort the choice between VET and academic tracks by stigmatising VET. Selection would send a clear signal to employers, teachers, students and parents that vocational upper secondary qualifications are for the less able. For example, an able student who wants to work “hands on” with computers might shun the relevant vocational track to avoid any hint of lesser ability. There is a risk of precipitating a vicious circle, with teachers, students, employers and parents all reinforcing a negative view of VET. Furthermore, employers emphasised to us that they did not wish to see general academic requirements reduced. They perceive that intellectual demands are increasing in most professions and trades and that strong critical thinking, maths, Swedish and English skills are essential in working life.

There are better approaches to tertiary dropout

26. Tertiary education is not the focus of this review. However if the goal is to lower dropout rates in tertiary education (which are relatively high by international standards⁸) other solutions might be considered. Introducing selection into academic upper secondary programmes might result in improved tertiary survival rates, since such a measure would reduce the number of students in upper secondary programmes that provide direct access to tertiary education, i.e. it would select at the outset those few who are likely to complete it. However this would be undesirable if Sweden aims to maintain or increase

⁸ Survival rates in tertiary education in Sweden are around 60%, ten percentage points lower than the OECD average. See Table A3.6 at: <http://dx.doi.org/10.1787/068037263103>.

current tertiary graduation rates. Moreover such a measure might also raise inequity in the access to tertiary education. Evidence confirms that, in secondary systems with multiple sorting mechanisms, the relationship between students' family background and their performance, with consequences for tertiary enrolment, is stronger (see for example, OECD, 2008).

Implementation

27. Maintaining non-selective entrance to VET and academic upper secondary education raises no implementation issues.

2.2 Developing partnerships among VET stakeholders

The challenge

28. As indicated, Sweden is unusual in that there is very little formal framework for co-operation between VET providers and the social partners. This means that:

- There are no national standing arrangements for consultation with the social partners on emerging policy initiatives such as, currently, the development of an apprenticeship system.
- Standards and qualification systems used in upper secondary education tend to lack labour market credibility. Plumbers and electricians trained in upper secondary VET require a subsequent "apprenticeship" with an employer to gain a qualification sponsored by the social partners and recognised in the labour market.
- Relationships between the various levels are unclear and *ad hoc*. There are some local consultative arrangements involving individual schools and municipalities and some sectoral bodies, but few regional or national arrangements and few links between consultative bodies at different levels.
- VET tends to be relatively immune to economic pressures in terms both of responding to labour market demand and of the cost of provision.
- Employers tend to see themselves as outsiders *served* by the education sector, not as partners and stakeholders who *shape* VET.

Recommendation 2

Sweden needs a stronger mechanism through which the social partners can convey labour market requirements to VET providers. To this end we recommend that a National Commission for VET should be established, composed of different government ministries and the social partners.

Supporting arguments

29. There are three arguments for this recommendation. First, stronger co-operation is a necessary support for reforms of VET, such as the development of an apprenticeship system. Second, qualifications delivered by the VET system are more valued by employers when employers are engaged in their design. Third, employers appear ready for fuller engagement.

Support for other necessary reforms

30. If the VET system is to meet labour market needs, it will require stronger involvement of the social partners. For example, in Finland, the introduction of a six-month work placement programme in upper secondary VET was preceded by joint action by central and local governments and social partners' organisations to obtain the needed training places in firms. Ireland's successful apprenticeship system, introduced in the 1990s, built its success on dialogue with social partners. They were involved, with the government, in the design, introduction and implementation of the system. This approach helped ensure the system's legitimacy among the social partners, students and their parents (Field and O'Dubhchair, 2007).

31. The National Commission would provide a forum in which the social partners and other stakeholders can air their views about VET policy, reach consensus in some areas, and guide policy development. In the longer run, this national body could provide the basis for the establishment of an institutional framework for social partners at sectoral and/or local levels. Box 2.1 gives examples of institutional involvement of social partners in VET across different levels from two other Nordic countries.

Box 2.1. Mechanisms for social partners' involvement in Norway and Denmark

In Norway the National Council for Vocational Education and Training is a tripartite body involving the Ministry of Education, major trade unions, employers' organisations, students' and apprentices' organisations and teacher unions. Its overall goals are to develop mutual trust and consensus, to contribute to policy development, to develop and monitor national VET and to ensure the relevance and quality of VET.

Vocational training councils at the local level are established on the basis of recommendations by the Council. There is one council for each of the nine vocational study programmes. Members are drawn from national employers' and employees' sectoral organisations. Councils develop the content of the education programme and monitor competence needs in working life.

In Denmark, the Advisory Council for Initial Vocational Education and Training advises the Minister of Education on all matters concerning the VET system. For example, it is responsible for monitoring labour market trends and, on this basis, recommend the establishment of new qualifications. Its members represent the social partners, school leaders and teachers associations, and persons appointed by the Ministry of Education.

At the sectoral level employers and employees are equally represented in trade committees. They advise on specific VET qualifications relevant to their sector, ensure the relevance and quality of VET programmes in relation to the labour market, approve training places, are responsible for the final VET examination (Journeyman's test) and for issuing certificates to VET trainees.

The trade committees appoint members of the local training committees that advise VET institutions on all matters concerning VET (Danish Ministry of Education, 2005b).

Making qualifications meaningful in the labour market

32. Many research studies show that qualifications delivered by the VET system are more valued by employers if they have been consulted during the definition of standards and qualifications (Ryan, 2000; Deissinger, 2007).

Box 2.2. Examples of social partners' involvement in skills identification and delivery of qualifications

In Finland in addition to a vocational upper secondary school certificate, students receive a certificate of "skills demonstration" attesting that the skills they have gained are relevant to working life. Skills demonstrations are designed, implemented and assessed in co-operation with representatives of working life. Each education provider appoints a tripartite body whose role is to approve, implement and supervise skills demonstration (Finnish National Board of Education, n.d.).

In Denmark, students have to pass an examination to obtain VET qualifications. Representatives from local industry act as external examiners (Danish Ministry of Education, 2005a).

Employers ready for more engagement

33. Encouraged by the government, some employers are actively seeking opportunities to co-operate with schools. Positive examples include the *Teknikcollege*, which started as a bottom-up initiative launched by an industry sector suffering from a skills shortage. In this initiative large or medium-sized companies in the region influence and contribute to education content and may share costs. The social partners are also involved in steering groups responsible among other things for the quality of VET. The Federation of Private Enterprises (*Företagarna*) (speaking for some smaller employers) confirmed the concern with skills shortages and underlined its interest in practical training as a potential solution. A survey carried out in 2005 by the Federation shows that the economic development of small firms depends on their ability to find qualified employees. Around 32% of enterprises wanted to hire employees with VET upper secondary qualifications, 27% were looking for tertiary skills and only 10% for academic upper secondary levels of education (*Företagarna*, 2006).

Implementation

34. The proposed National Commission might include representatives from large and small employer organisations, unions (including teachers' unions), municipal officials and officials from the Ministry of Employment and Enterprise, the Ministry of Education and Research, the Swedish National Agency for Education, the Swedish National Agency for School Improvement and other relevant bodies. We emphasise the need for involving all ministries concerned by VET.

35. Some fear that if social partners have a larger role, students will no longer be broadly educated but trained narrowly for a trade. The Commission will want to ensure that industry partners have a stake in helping students attain the broad skills and knowledge that lead to the capacity for learning on the job, career changes and active citizenship.

36. The Commission might take on the following tasks:

- Provide a context in which the social partners can offer policy advice to the government on all matters affecting VET.
- Provide practical and timely advice about current and future labour market needs to ensure that VET programmes are designed to meet those needs. Track trends and set a regular schedule for reviewing and updating the national programmes and piloting new ones.
- Recommend ways to strengthen the current 15-week VET work placement and co-design and build support for the apprenticeship programmes to be proposed by the government (see section 5 and 6).

- Identify appropriate content, quality criteria, standards and size of VET programmes, including new VET qualifications based on projected demand in specific fields. Create standardised completion requirements for national programmes. If set by industry, such certification should be transferable from one workplace to another within Sweden.
- Recommend ways to improve regional co-operation and reduce duplication of national VET programmes.
- Serve as a “think tank” or incubator of new ideas arising in the field and disseminate promising new practices on the basis of a thorough evaluation. It could capitalise on local innovation via an innovation fund to build stronger partnerships between schools and social partners. The fund might operate as a competitive grants programme to encourage collaboration among schools, municipalities and social partners.

2.3 Fair competition among schools

The challenge

37. While school choice is not the focus of this report, competition between public and independent privately managed schools and how it is regulated has an impact on the quality and relevance of VET to Sweden’s labour market needs.

38. Overall, all schools, including authorised independent schools, are fully funded per student by the municipality and tuition is free of charge. Permission to start an independent school is given on the condition that the school follows the nationally provided syllabus and teaches the same democratic values as schools run by the school-boards. (Skolverket and Swedish Association of Independent Schools web sites, see list of references). However, independent schools are not subject to requirements set at municipal level (Skolverket, 2006b).

39. Competition among schools for students is becoming tougher in the face of an approaching fall in the youth population and augmenting private sector. Independent schools have increased their share of the upper secondary student population, to 15% in 2006/07, up from 1.5% in the early 1990s.

40. During the visit we often heard that competition between independent and municipality schools is less than fair. For example critics of independent schools suggested that independent schools would hire “anyone” as a teacher without bothering about qualifications. On the other side it was suggested that municipalities use discriminatory practices in allocating funds to independent schools to prevent students from leaving public institutions.

Recommendation 3

Competition between schools needs to be fair and to be seen as fair. To this end we recommend scrutiny of the regulations to ensure that public and independent schools experience the same regulatory regime.

Supporting arguments

41. There are two arguments for this recommendation. First, competition can only help ensure the quality and efficiency of VET if it is fair. Second, fair competition is an essential precondition for other reforms in the VET system, including the introduction of a fully mandatory period of work placement for all VET students.

Fair competition for efficiency

42. If the choice of school were akin to choice in the economist's perfect market, competition would drive improved quality by rewarding and expanding good schools and squeezing out bad ones. In practice the school market is very imperfect. If competition is to be constructive, it must meet at least two preconditions. One is good information for potential consumers about the outcomes of different programmes and schools, and a policy recommendation to that effect is made below. The second precondition – the concern here – is that school choice should not be distorted by artificial advantages for certain schools. If competition between schools and programmes is biased, students will not necessarily choose the best VET providers, damaging efficiency.

A precondition of other reforms

43. Other recommendations made in this report aim to reinforce national standards and accountability mechanisms for VET, for example through stronger involvement of social partners. For this to work, it has to apply equally to both the public and the independent sector. For example, if the recommendation of a mandatory, quality-controlled 15-week work placement (section 4.1) is to be implemented meaningfully, it has to apply to public and independent schools alike. Otherwise VET programmes that can attract students but lack placements with employers will simply migrate to the independent sector.

Implementation

44. The relationship between independent and public sectors is already under examination by the upper secondary school commission. Without providing a detailed road map for the improvement of competition between schools we recommend an initial review of regulations and practices governing the current arrangement followed by appropriate legislative action.

2.4 Better information on labour market outcomes

The challenge

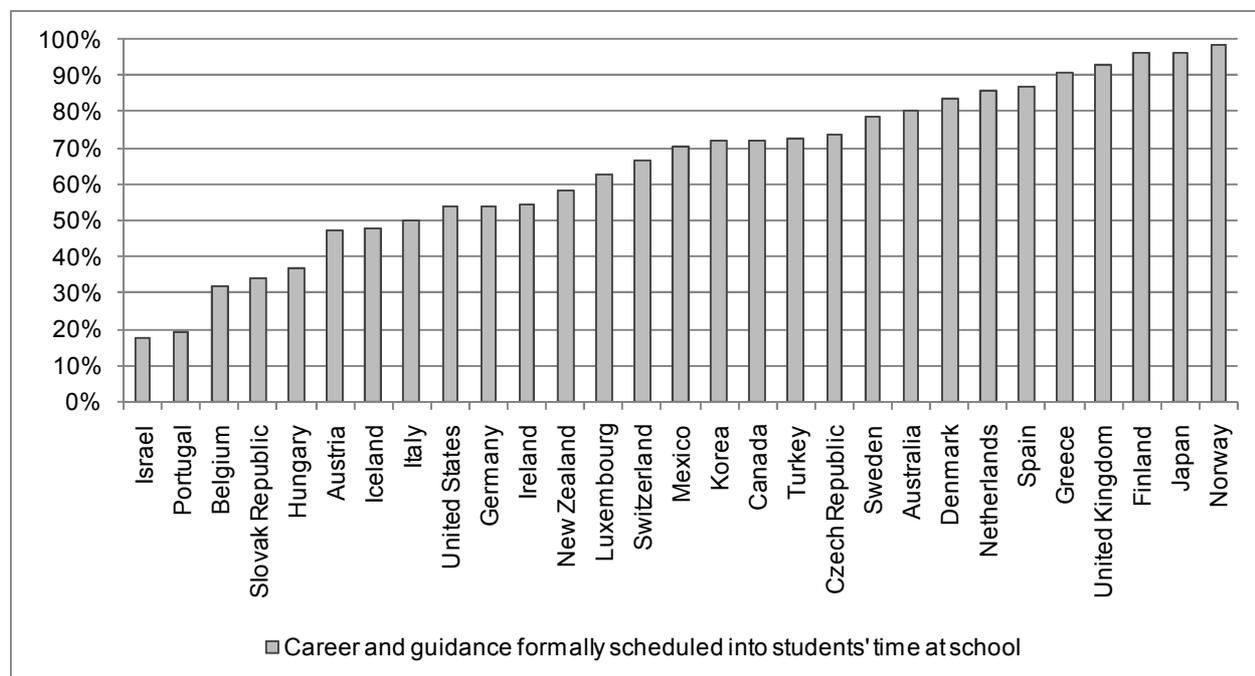
45. Swedish students have an extensive variety of schools and upper secondary programmes to choose from. While Section 2.5 presents recommendations for limiting this choice to VET programmes that attract work placements, much choice will remain. Easier access to information about the labour market outcomes of different courses would help students to make informed choices.

46. In visiting municipalities and schools, the team noted a lack of regular follow-up of upper secondary students, so that schools often have little or no information about students' labour market outcomes.

47. According to PISA data for 2006, 15 year-old students who are about to move from compulsory to upper secondary school are relatively more exposed to contacts with local business and industry and have relatively better access to career guidance than their peers in other OECD countries (see Figures 2.2). At the same time there are variations in the quality and quantity of counselling (Skolverket 2003, Skolverket 2007a).

Figure 2.2. Students with careers guidance scheduled into their time at school

Based on principals' answers, 2006



Source: OECD PISA database.

Recommendation 4

We recommend that information on the labour market outcomes of VET should be published on a school and programme basis. The National Register should be fully exploited, and possibly supplemented by regular surveys of recent leavers.

Supporting arguments

48. This recommendation is advanced for two reasons. First, to make sensible career choices students need good information, not only on what they will learn, but also on the labour market outcomes for previous students, as a guide to their own prospects. Second it would provide a strong foundation for the careers guidance provided to students.

Improving students' choice

49. Labour market outcomes are a fundamental measure of the extent to which VET programmes meet labour market needs, and they send an important signal to students, providers and other stakeholders about the choices offered to students. Adequate data would make it possible to see the transition to the labour market of the cohort finishing upper secondary schooling a year or two earlier.

50. Data at institution level will guide students to VET institutions with the best labour market outcomes. The data would allow for comparisons among schools for students and parents, and help schools and municipalities to plan provision. In the past, schools have had few incentives to take account of labour market requirements, since their success depended on their ability to fill places in schools. If the 15-week

work placement becomes mandatory, schools will need to ensure that popular programmes correspond to labour market demand.

Good quality career guidance

51. Effective career guidance needs to be supported by good data. To be meaningful, counselling available to pupils at the end of compulsory school should be based on good quality and up-dated information on the transition to and performance on the labour market of recent upper secondary graduates.

Implementation

52. Sweden has rich sources of data, including, like other Nordic countries, a National Register, which identifies individuals on the basis of personal identification numbers. These are linked to a range of administrative data sets, including those on education and employment.⁹ However, this linkage does not seem to be realised on a regular basis, particularly at the local and school level. In the first instance, better management and exploitation of these data may be the easiest and the most cost-effective way of generating information on students' labour market performance. This would be a relatively cheap and simple option.

53. A further option would be a special destinations survey, undertaken around one year after leaving, on the model of the complete census of all those leaving higher education in Australia (see www.graduatecareers.com.au/content/view/full/24). Such a survey would establish whether the graduates are working and if so in what occupation, whether they are pursuing further study, or whether they are unemployed or otherwise not in the labour market. If the information were gathered through a special survey of all leavers, schools would be able to use it to evaluate the success of their graduates according to the programmes followed and other background information.

2.5 Work placement as a lever of change

54. In many countries students can choose among VET programmes that provide different amounts of training with employers,¹⁰ offering a spectrum of possibilities, with apprenticeship at one end and short work placements in largely school-based models at the other.¹¹ This diversification is in line with the government's plans for the Swedish upper secondary sector. It is anticipated that about 10% of students might undertake apprenticeship training while most VET students would remain in the school-based VET system.

⁹ The education register was established in 1985 and used for the first time in the 1990 census; the employment register was established and used for the first time in the 1985 census. (United Nations Economic Commission for Europe, 2007).

¹⁰ For example, Germany, Austria and Finland have both apprenticeship programmes and programmes which are largely school-based.

¹¹ Apprenticeship training is defined here as a form of VET in which substantial part of the programme is delivered in a firm with some general education provided alongside in schools or in other relevant institutions. In contrast, in school-based VET education and training is provided mainly at school.

The challenge

55. Some schools organise work placements¹² in firms by developing relationships with enterprises and work representatives. These relationships are informal and, while informality may leave room for innovation, it may also lead to little or no co-operation. Personalities sometimes make the difference. In one school the trainer found work placements in construction through former colleagues in the sector, but another school reported that it had no control over the quality of work placement, as only one firm in the locality offered training places for the programme.

56. Evidence on the current use of 15-week work placements is patchy. The most recent data (Skolverket, 1998) indicate that only about 60% of students get the full 15 weeks of training. The figures vary by programme: for example, only 21% of the schools offering the media programme found work placements for their students. Most employers interviewed thought that practical training in its current form was not sufficient to prepare students for employment.

57. Compared to other Nordic countries, in Sweden students in upper secondary VET spend relatively little time in workplace training - around 15% of study time. By contrast, nearly all Danish students spend between half and two-thirds of their upper secondary studies in work placement. In Norway, students have two years in upper secondary VET schooling before starting a two-year apprenticeship.

Table 2.1. Time spent by VET students in the workplace

Estimated percentage of upper secondary VET students, by time spent in work placement in firms (as ratio of the total programme length)

	Percentage of programme spent in work placement				
	75% or more	Between 50% and 75%	Between 25% and 50%	Less than 25%	Other or missing
Denmark	0	95	0	0	5
Finland	21	0	0	79 ²	
Norway ³	0	80	0	0	20
Sweden ¹	0	0	0	67 ⁴	32 ⁵

1. For example in Sweden the 67% means that 67% of all upper secondary VET students spend no more than 25% of their study time in work placement. Programmes within and between countries are not comparable in terms of duration.

2. At least 6 months in three years are spent by students in work placement.

3. Norway has a 2+2 VET system at the upper secondary level. After two years of school-based VET students can move to apprenticeship.

4. Varies among programmes and institutions. In Sweden work placement should represent at least 15% of the programme length (15 weeks over three years)

5. Missing. Refers to VET provided in adult education: *Gymnasial vuxenutbildning (Komvux)* and *Folkhögskolan yrkes*.

Source: OECD, *The OECD International Survey of VET Systems: First Results and Technical Report*, unpublished.

¹² Work placement refers to any kind of placement with employers in the framework of the study programme, regardless of its duration and content. The term refers both to short placements in which students get a “flavour” of real work and to longer-term training with employers during which students carry out tasks similar to those of other employees.

58. Provision of places in upper secondary programmes, including VET programmes, is determined by students' preferences among competing schools. Selection into upper secondary programmes is mainly based on students' residence – proximity to the school – and on compulsory school grades if there is strong competition for places in a given school. Those who do not obtain their first choice may apply for the same programme in another institution. In principle, therefore, students get a place in the programme of their preference although not necessarily in the school of their first choice. In this model, rational choice, driven by the expected outcome of the programme, is supposed to guarantee a match between VET and labour market needs.

59. Survey evidence confirms that some students take into account expected labour market outcomes when choosing their educational pathway (Skans, 2007). Statistical data also show that labour market trends are to a certain degree echoed in student choice, for example the expansion of a sector such as construction has been accompanied by an increase in student applications for the associated programme (see Annex B). Despite this evidence, the match between skills provision through VET and employers' requirements remains imperfect for a number of reasons.

60. Physical and financial constraints limit the response to students' preferences¹³. During our visit we were told that municipalities cannot always expand programmes in response to demand from students and employers (e.g. construction, car repair) because of limits on the number of places in these more costly VET programmes.¹⁴ According to the Swedish Trade Union Confederation (LO), many expensive vocational programmes are under-provided when compared to labour market demand (Skans, 2007).¹⁵

61. Students are generally 16 years old when they choose a programme and thus an occupational orientation, at a time when they often do not have a clear idea about what they want to do in life. Some students in their first year of upper secondary education, interviewed in the course of the review, were still unsure about their specialisation. In the technology programme one student was considering a career as a dancer, another as a policeman. For example Skans (2007) shows that in Sweden students' choices of tertiary education depend little on expected labour market outcomes.

62. In the absence of clear information about the outcomes from VET programmes, VET providers have few incentives to close programmes that have poor labour market outcomes if programmes remain popular among students. Currently, students' choices may therefore correspond somewhat imperfectly to labour market needs. For example, while the number of students applying for the media programme has decreased slightly over the last years (according to Skolverket data) it remains popular. Yet the numbers

¹³ There are incentives for schools to respond to students' preferences, since their public funding is allocated by the municipality on the basis of the per capita cost in each programme (money "follows the student"). Municipalities are entitled to levy taxes to finance their activities, including upper secondary VET, and they receive general grants from the state that can be used according to their needs (Swedish Association of Local Authorities and Regions, n.d.).

¹⁴ In 2007, the average cost per student of an upper secondary school VET programme varied between USD 8 779 (converted using purchasing power parity) in the Child and Recreation Programme and USD 16 881 in the Natural Resource Use Programme. This average cost, calculated by the Swedish National Agency for Education, includes all education costs, including tuition, physical facilities, school meals, teaching materials, equipment and school libraries, as well as costs for pupil welfare, study and careers advice, school management, administration and the costs of in-service training such as course fees for teachers (OECD, *The OECD International Survey of VET Systems: First Results and Technical Report*, unpublished)

¹⁵ In principle students can move to another municipality if the programme they want is not provided in their locality. The student's municipality pays the student's tuition to the other locality. Because municipalities may find it beneficial not to provide expensive programmes, the link between provision of upper secondary programmes and funding rules may require further investigation.

cannot be justified by expected labour market outcomes, which are rather low compared to other programmes, as measured by the share of media students receiving workplace training during their upper secondary study, finding a job in the sector after leaving upper secondary education as well as in terms of earnings (see Annex B). The availability of up-to-date, good quality information is one potential solution.

Recommendation 5

We recommend that the 15-week work placement that is part of upper secondary VET should be subject to quality control and made mandatory for all upper secondary VET programmes. Only VET programmes capable of attracting placements should be provided, linking the provision of VET skills to labour market requirements more closely.

Supporting arguments

63. There are three main arguments for this recommendation. First, it gives employers a greater stake in provision, since collectively they will effectively acquire a veto over courses of no interest to them. Provision will thus be more closely linked to labour market requirements. Second, work placement is a key element of VET programmes, not readily replaced by a simulated workplace environment. Third, 15 weeks of work placement may encourage employers to think constructively about what might be gained from having apprentices.

A greater stake for employers in provision

64. As indicated above, upper secondary VET programmes match labour market needs very imperfectly at present. If VET programmes are limited to those that attract work placements, work placement will be a test of employers' interest in the skills it provides to students. Where a small proportion of students currently receive practical training in firms, the programmes will either have to shrink or develop stronger relationships with local employers. The offer of places in VET will therefore become more closely tied to labour market expectations. This may involve a transition that is not without cost, but the disruption to the VET system may be minimised by retirements among VET trainers, and from the student point of view, the improved link with the labour market, and therefore in their employment prospects, should outweigh the fact that their choices will be more constrained.

65. Examples of the transition from a VET system regulated by students' choice to more market-based approaches can be found in other countries. Box 2.3 shows how Denmark addressed this issue.

Box 2.3. VET provision linked to the requirement of practical training

In Denmark, practical training in a firm is an integral part of vocational education and training. Students participating in VET courses are expected to find an employer who will accept them for training. The number of available training periods in firms has been decreasing and trainees who are unable to find a place in practical training have been able to continue training through a compensatory practical training scheme in a school (*skolepraktik*). However, since 2005, the number of trainees admitted to school-based training in programmes with poor employment perspectives and in very popular programmes has been limited. The Ministry of Education can also limit access to programmes in which students are unable to find a training place in a firm owing to the overall employment situation in the sector (Danish Ministry of Education, 2005b).

Work placement or simulated workplaces?

66. In Sweden, VET students and their trainers reported that practical experience in the workplace was extremely important, and international evidence supports this (see Box 2.4). In the many occupational

sectors where technology is changing rapidly, such as car repair, electronics or even plumbing or tourism, teaching students about the most recent technologies and production methods is more cost-effective if it takes place in real workplaces. In addition, many soft skills – for example dealing with difficult customers – cannot readily be simulated in a school environment. Work placements also provide critical information to the student about the line of work they might or might not wish to pursue, and to employers about potential recruits.

Box 2.4. Can the learning experience of the workplace be simulated?

Most evidence suggests that training in an authentic work environment has particular advantages. One Danish study (Aarkrog, 2005) shows that learning at school and at work are complementary. Students were followed during their last year of school-based training and one period of on-the-job training in clothing shops. It was found that knowledge about the workplace is not developed in artificial situations; it is best acquired and assimilated as part of the real work community. Students saw simulation of the workplace situation (playing the roles of customer and sales assistant) as artificial and useless. One pilot evaluation of the introduction of work placement in Finnish VET (Bridge from Vocational Education to Work) found that work-based learning taught students entrepreneurship and the technical and social skills needed for their future occupation and promoted maturity. According to the students, they learned most in terms of practical occupation-specific skills, initiative, co-operation skills, self-confidence, independent thinking, willingness to change and to develop, independent problem-solving skills and the use of information sources (Lasonen, 2005).

Besides the benefits for students, employers also favour skills gained on the job over those obtained at school. In Germany, the occupational qualifications gained in school-based VET are often not recognised or valued by firms, who prefer candidates from the dual system (in which most of the practical training is provided by firms). In one German state, where the share of students enrolled in school-based VET is higher than usual, shadow “practice firms” have been created for school-based VET.¹ In a survey of employers’ perception of training in practice firms, most employers viewed it as preferable to classroom teaching but less valuable than work placement (Deissingner, 2007).

1. These work like a normal company but there is no real exchange of goods and money. A real company needs to provide a name, money and support. Although a practice firm’s function is to create conditions similar to a real workplace they remain pedagogical institutions.

Work-placement as a half-way house to apprenticeship

67. Insisting on 15 weeks as a minimum may encourage some employers to start experimenting with long periods of work placement– perhaps in areas of skills shortages. These will become similar to apprenticeships, and may also lead companies to adopt a full apprenticeship model. Clearly this is much more likely in an environment where local employers, through the offer of work placements, have a real say in the mix of provision in school-based VET. Given the arguments for apprenticeships noted below, these developments are to be encouraged.

Implementation

68. Implementing this reform will be tricky, and it may require staging. Part of the anticipated impact is a change in workplace – school relationships, which may take some time to come about. Some unplanned effects are difficult to predict. A pilot programme should therefore be conducted and evaluated (comparing outcomes of students in the pilot with outcomes of a control group). The interpretation of the results will require some subtlety, taking account of the points made below.

69. Many countries face shortages of work placements in firms. In some sectors and some regions of Sweden, it may prove very difficult to obtain work placements. We do not propose closing programmes immediately, but it may make sense to reduce their size (even if they are popular with students) and invite

employers in the relevant sector to consider collectively whether and how they wish this programme to continue. A 15-week work placement over a three-year programme does not place heavy demands on local employers, and they may decide that in the long run it is in their interest to maintain the programme locally by providing placements. Alternatively they may decide that they are not sufficiently interested in recruiting students from the programme to justify the costs involved in providing work placement. In this case, it is probably best to close the programme. The necessary deliberations will require local employers to meet with schools and plan provision.

70. VET programmes such as the media programme currently attract a limited number of good quality work placements. At the same time, many students in these programmes continue on to tertiary education rather than enter the labour market directly. The skills they acquire – for example how to use and manipulate digital photography – are valuable practical skills that are quite widely applicable in the labour market. The best option for such a programme may be to retain it as a general upper secondary programme not requiring work-placements.

2.6 Introducing apprenticeship training in Sweden

The challenge

71. Swedish school-based VET faces a profound challenge in terms of sustainability and quality, given the retirement and recruitment crisis in trainers and the fact that schools can often not afford the most modern equipment or the highly trained professionals who know how to use it. While 15 weeks of good quality work placement offers a useful initiation in the workplace, it is a very limited time in which to train young people for jobs. During the visit we saw, for example, that students studying car mechanics worked on older car models.¹⁶ A VET trainer in car mechanics confirmed that repair work done by students on old cars at school bears little relation to the computer-based diagnosis of repair requirements in modern cars.

72. One solution could be for more upper secondary students to follow general academic rather than VET programmes and then obtain on-the-job training. One argument in favour of this might be the increasing need for broader mathematics and literacy skills in *all* jobs, as Swedish employers pointed out to us.

73. However, the Swedish labour market is an obstacle to the suitability of this model. Given collective bargaining and employment protection, employing a young person entails relatively high costs and risks, so that employers will not readily accommodate the cost of training a young person. One possibility might be to deregulate the labour market, limiting employment protection for young people and giving employers more flexibility in terms of their remuneration. This would provide a framework within which employers could develop their own training efforts, in effect replacing the work of schools. In the absence of deregulation, reform of upper secondary VET to provide more young people with job-ready skills will be necessary.

Recommendation 6

We recommend the development of an apprenticeship system to complement school-based VET on the grounds of both cost and quality. It should be developed jointly by the government and the social partners and take full account of international experience.

¹⁶ We also visited well equipped workshops in schools having partnership with a firm. For example in one school, Peugeot installed a centre for employee training and allowed students from the school to work on its vehicles. But as we were told they were notable exceptions.

Supporting arguments

74. There are several reasons to promote apprenticeships in Sweden.

- School-based VET will come under intense pressure in the coming years, given the retirement and recruitment challenge. Training a portion of the cohort in a different way would alleviate this.
- Apprenticeships are potentially more cost-effective than school-based training, because they make use of expensive, up-to-date equipment which those in the workplace know how to operate.
- Apprenticeships are closely linked to labour market requirements, in that employers will only offer them in areas of interest to them, taking account of training costs and their labour market needs. Thus, if there is a need for specific skills in a sector or more generally on the labour market, firms might propose training that could not be effectively offered in school-based VET, for example because of financial constraints.
- Research suggests that on-the-job training often provides a more realistic and therefore a better learning environment than schools.
- In many contexts, apprentices undertake productive work and thus add to economic output. This is possible, but much less common, in the case of school-based VET.
- Apprenticeships provide valuable information both to potential employers and apprentices about future employment possibilities.
- Apprenticeship limits students' choice in the sense that students may choose only among apprenticeship places offered by employers. In Sweden, where students' choice is at the core of the education system this limitation might raise fears that too many students would be forced by apprenticeship arrangements to choose a profession that does not appeal to them. Evidence from Switzerland suggests that this is a limited problem.¹⁷

Implementation

75. Introducing an apprenticeship system would not be easy. Big changes are often needed to accommodate an apprenticeship training system in the educational, economic, fiscal and legal framework. Without the necessary structural reforms, companies are likely to be reluctant to offer apprenticeship training posts, the selection of students may be sub-optimal and the programmes may be of insufficient quality.

76. In 2008, the Swedish government is starting a pilot with some 4 000 apprenticeship training posts. Apprenticeship systems are diverse and there are many potential pitfalls. There is no single apprenticeship training system that can or should be copied without careful prior analysis. Many features are country-specific and Sweden would have to decide how to adapt them to achieve a coherent system. The following points highlight some of the most important issues.

¹⁷ In 2005 in Switzerland, 82% of apprentices declared that the profession of their apprenticeship corresponded to their wishes. Even in the least desired profession (in Switzerland, retail sales), 77% of apprentices declared that the profession/employer corresponded to their initial wish. In Sweden in 2005, 86% of first-year students were enrolled in the national programmes of their choice, with academic programmes having the highest rate and Handicraft programme the lowest (only 52% of students with their first choice) (Skolverket, 2006a).

77. A study comparing apprenticeship systems in five European countries (Germany, Austria, Denmark, Ireland and the United Kingdom) concludes that a VET system requires a strong institutional component to guarantee high quality of training in firms, to prevent employers from free-riding on the training efforts of others and offering little training because of apprentices' high payroll costs (Ryan, 2000). The same study lists elements of the apprenticeship system that have an impact on quality, such as the legal framework of apprenticeship, the existence of a national body to advise the responsible authority (e.g. Ireland's National Apprenticeship Advisory Committee), and mid-level committees that determine many aspects of VET, with mandatory representation of social partners.

Responsibility for apprentices

78. In Germany, Austria and Switzerland employers hire their apprentices, so there should be no mismatch between employers' needs and apprenticeship training posts in the short run. Also in Denmark it is the employer who hires trainees. VET schools (VET colleges) help students to find a company through their network, and through various activities such as visits to companies. But it is then the responsibility of the trainee to find an employer and to sign a contract. Responsibility for apprenticeship training systems may be shared (schools and companies or many companies together sharing the same apprentices). In some countries a third partner is created. Training companies, e.g. in Switzerland, train apprentices on behalf of a pool of companies by selecting apprentices and paying their salary. Their profit comes from lending the apprentices to member companies, which pay the training company an annual fee for the number of apprentices they wish to employ during the training phase.¹⁸

79. The question of responsibility is important for at least three other reasons:

- If companies are responsible for apprentices, they also act as the intermediary between the parents and the apprentices, because apprentices are generally under the age at which they can legally sign a labour and training contract. This means that parents are legally bound to fulfil certain obligations *vis-à-vis* the employer on behalf of their children and generally assume greater responsibility for their child's training and work obligations.
- An employer who chooses and recruits the apprentices also has more responsibility and interest in a successful apprenticeship.
- Given that apprentices undertake work akin to that of regular employees, it is logical for them to receive a salary, and this can improve motivation. In some countries, labour laws are too restrictive to make hiring an apprentice interesting for a company. Whether or not it is advisable to pay apprentices a salary therefore depends very much on how well labour laws fit the needs of apprenticeship contracts.

80. Given that Sweden today has an almost exclusively school-based system and most employers have no experience with apprenticeship training, a variant of the Swiss arrangement of professional training companies would be easier to introduce than the Germanic apprenticeship training systems in which firms are entirely responsible for apprentices.

¹⁸ First empirical results on this type of apprenticeship training (see Walther *et al.*, 2005) show that these companies achieve high-quality training owing to their professional knowledge. However, although economies of scale are possible (owing to the large number of apprentices), the training comes at a rather high price. The participating companies profit not only from the work apprentices do when they are at the worksite, but also by the opportunity to select the best future employees. Results also show that the number of apprentices, who remain with the company they work for during the apprenticeship training is rather high, even compared with the traditional form of dual apprenticeship training.

Incentives for employers to provide apprenticeship training posts

81. The willingness of companies to provide training opportunities depends on the expected economic benefits. New research shows that – depending on the framework of the apprenticeship training system and on labour market regulations – a company providing training may sometimes expect benefits from training that more than cover their expenses (for an overview of the literature and empirical results, see Wolter *et al.*, 2006). The benefits to firms are of two types:

- The productive contribution of the apprentice. This depends on the time the apprentice spends in the company (see Table 4.2), on the training obligations and regulations, and on the apprentice's ability. The benefits also depend very much on how the company organises its work processes. Research shows that in Switzerland in two-thirds of cases the in-work benefits are already sufficient to pay all training expenses and the apprentices' salaries (Wolter and Schweri, 2002), but in Germany this is not the case (Beicht *et al.*, 2002). One reason is that Swiss apprentices tend to undertake more productive work than in Germany. (Independent of this, there is conclusive research on the impact of the cost-efficiency of apprenticeship training on the number of apprenticeship training posts offered by firms - see Mühlemann *et al.*, 2007b).

Table 2.2. Net cost (benefit) of apprenticeship training in Switzerland

In EUR per year, 2004

Year of apprenticeship training/ Duration of apprenticeship training	1 st year	2 nd year	3 rd year	4 th year	Total
Two-year apprenticeship	-3 611	-4 393			-8 004
Three-year apprenticeship	-1 207	-2 831	-3 844		-7 882
Four-year apprenticeship	4 444	1 979	-2 527	-5 156	-1 260

Source: Mühlemann *et al.* (2007a).

- Apprenticeship represents a “low-cost” opportunity to train future workers in job-specific skills while learning about their ability to perform well in the company (Autor, 2001; Clark, 2001). The productivity of good workers may not be obvious to other employers, so an employer taking on apprentices may obtain their services cheaply (Acemoglu and Pischke, 1998, 1999; Bassanini and Brunello, 2008; or for an overview Leuven, 2005). These benefits depend on labour market regulations and transparency. Given Sweden's compressed wage structure, it should be possible for employers to make extensive use of this source of benefits.

82. Not all of these benefits will be immediately evident to employers. The implication is that financial incentives for companies willing to engage in apprenticeship training in Sweden might initially be necessary but this should eventually be economically sustainable without subsidies.

Continuous dual training or sequential training?

83. Classic continuous dual apprenticeship training involves one or two days of schooling in the vocational school and three or four days of training and working in the company throughout the three or four years of apprenticeship training. Some professions require substantial theoretical and practical training before an apprentice is able to do meaningful work. Many different models have therefore emerged, with apprentices spending months or even up to two years in school or in specialised training centres before working in a company. The more the apprentice has to acquire prior knowledge before being able to

perform productive work, the costlier the training is for the company (see Wolter and Schweri, 2004, for simulations), unless this part of the training takes place prior to the actual apprenticeship.

84. International experience in this respect can be summarised in three points:

- There does not seem to be a “one-size-fits-all” solution to the organisation of the learning and training sequences during apprenticeship training. This means that the most effective systems offer professions and firms the flexibility to choose the system best adapted to their needs.
- Flexibility regarding the duration of apprenticeship training is important for both employers and apprentices. The typical duration of training is in the range 2-4 years.
- When prior theoretical knowledge has to be acquired, the government may organise this in vocational schools at public expense. But it is important to consider whether company-organised and company-paid ways of doing this would be more effective and efficient.

What apprentices learn at the workplace

85. Clear learning goals for apprentices have to be set and monitored. The government has to decide who is in charge, first of defining the overall vocational profile and standards, second, of monitoring and evaluating apprentices’ progress, and third of grading and granting credits and diplomas. A successful apprenticeship system requires the involvement of social partners in all aspects of the process, particularly through sectoral, professional and employers’ organisations. This entails reducing the power of vocational schools to define content, as this would partly be delegated to companies and professional associations. Potential problems arise when the vocational content is too narrowly defined (too profession- and firm-specific), as this would reduce apprentices’ future intra- and inter-professional mobility. As indicated above, Sweden needs stronger partnership bodies to address this issue.

86. In the first instance, apprenticeships need to serve the short-term economic interests of companies since this will ensure a sufficient supply of training posts. This will also allow apprentices a smooth transition to the labour market without lengthy additional profession-specific learning. In the long run, however, it is in the interest of former apprentices and the government, and to a lesser extent in that of individual companies, for the acquired knowledge to allow mobility throughout an entire working life. Balancing short and long-term interests and adjusting content to developments in professions and on the labour market requires constant adaptation of training regulations. In many countries, experience shows that keeping an apprenticeship system up to date is one of the most difficult tasks.

Tutor training and education

87. In an apprenticeship system, more of the teaching and training activity becomes the responsibility of trainers and tutors in companies. Although formal training requirements for tutors in companies are costly, they improve quality, underpin the common standards which support apprentices’ mobility after training and raise the status of tutors and trainers in companies. Moreover, with the likely future shortage of vocational teachers in upper secondary schools in Sweden due to demographic changes, this could relieve some of the pressure vocational schools will face in the coming years. It would be wise to introduce formal training for tutors and training gradually as schools may resent the competition created by the introduction of apprenticeship training. This could help to limit the resistance of “formal” vocational school teachers to competition from professionally trained tutors in companies.

88. Teacher training institutions, with their tradition of training schoolteachers, may not be able to create the appropriate programmes and it might be preferable to create a specific institution, as was done in

Switzerland with the creation of the Federal Institute for Vocational Education and Training (www.ehb-schweiz.ch). This institute trains VET teachers and VET company trainers, while teachers for general and academic schools are trained in teacher training universities.

Certification and grading

89. Currently, the evaluation of workplace experience acquired during the 15-week work placements is the province of the vocational schools. But they are not necessarily the best placed, either logistically or in terms of their human capacities, to undertake the evaluation and certification of full apprenticeships. However, if company trainers are given some of the responsibility, uniform standards must be ensured across companies or confidence in the results would be undermined. A prerequisite for uniform grading would be the training of trainers or industry experts and appropriate supervision.

90. With the implementation of a full-scale apprenticeship system, the Swedish government and the social partners would also have to consider a professional evaluation, grading and certification process that would guarantee recognition of apprenticeship diplomas throughout the economy.

Managing diversity in workplace training within a common framework

91. Although apprenticeship systems have many advantages, learning opportunities are not the same for all apprentices, since companies, even in the same sector, differ in terms of products, markets, clients and technology. If all vocational subjects were exclusively taught in companies, the outcomes for apprentices would often be too heterogeneous to ensure inter-company mobility after training. Therefore, where apprenticeship training exists, vocational subjects are not exclusively taught in companies and not everything the apprentice needs to know is learned “on the job”. The question is where the additional learning should best take place. It has traditionally been the school, where vocational subjects are taught in parallel with the learning that takes place in companies.

92. Teaching in schools may be preferable in three circumstances. First, learning in school helps to prepare apprentices for new tasks in companies, where they can apply their more theoretical knowledge. Second, some types of group teaching may be more effective than individual tutoring and therefore better carried out in schools. Third, some VET teaching in schools is evaluative and assesses whether the company-based learning has led to the desired outcomes. This also helps to check whether the distribution of learning outcomes is unevenly distributed because of different learning opportunities in companies. If this is the case, schools can provide extra assistance to apprentices whose learning opportunities have been less favourable.

93. All these functions of vocational schools could, in principle, be transferred elsewhere. In many cases, industries or professional associations have taken over some of these functions and offer extra courses or tutoring for all apprentices in their profession or sector. In many countries this is widespread and thus considered as the “third”¹⁹ place of learning. Compared to courses in schools, inter-industry courses have the advantage of relying on the most up-to-date technologies and equipment available to companies and the personnel able to handle them. Although Sweden has a well-established infrastructure of upper secondary schools in vocational education, it would also be advisable to promote the “third” learning place in collaboration with the social partners.

¹⁹ Apprenticeship training is also called dual education because there are two learning sites (school and company). In the past years some experts speak of “triad” education because three learning sites have emerged (school, company and inter-industry courses).

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ANNEX A. BACKGROUND INFORMATION

1. Terms of reference for Sweden

1. Social partners' influence. Whether current arrangements offer sufficient opportunity for social partners locally and nationally to influence the content of VET programmes, and if not, how such influence might be constructively enhanced.
2. Whether the current decentralised Swedish system provides municipalities and institutions the right level of autonomy and flexibility to adjust the provision of VET to local labour market needs, and whether it is balanced by accountability.
3. Whether the Swedish model, in which the choice of students determines the numbers receiving different types of VET meets labour market needs at present, and how it might be reformed to do so more fully.
4. What other reforms might be adopted to improve the responsiveness of the Swedish VET system to labour market needs (*e.g.* reforms that address drop out from upper secondary VET, VET teacher shortage).

2. Biographical information

Simon Field is a senior analyst in the Education and Training Policy Division of OECD's Directorate for Education. Simon has a Ph.D. in philosophy and social policy from the University of Cambridge and a M.Sc. in Economics from Birkbeck College London. With the OECD since 2001, he has worked on issues including equity in education and human capital and is currently leading the activity on vocational education and training. He is from Northern Ireland. (simon.field@oecd.org)

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Stefan Wolter is the Director of the Swiss Coordination Centre for Research in Education and Professor and Head of the Centre for Research in the Economics of Education at the University of Berne. He is a trained economist and holds a Ph.D. in Economics from the University of Berne where since 2005 he is a professor of economics of education and is head of the Centre for Research in Economics of Education. He is from Switzerland.

3. Programme of the review visits

Main Visit, 3-7 December 2007

Monday, 3 December, Stockholm

Meeting with directors and policy makers from Ministry of Education and Research
Meeting with representatives from Ministry of Employment
Meeting with representatives from Ministry of Enterprise, Energy and Communications
Meeting with representatives of the Swedish National Agency for Education (Skolverket) and Swedish National Agency for School Improvement (MSU)
Meeting with representatives of the Federation of Swedish Enterprise
Meeting with representatives of LO, The Swedish Trade Union Confederation
Presentation on Teknikcollege

Tuesday, 4 December, Örebro

Meeting with the leadership of Upper Secondary Education in Örebro
Visit to Tullängsskolan (Teknikcollege)
Visit to another Upper Secondary School with vocational programmes.

Wednesday, 5 December, Katrineholm, Flen

Meeting with head of Upper Secondary Education in Katrineholm
Visiting Duveholmsgymnasiet with vocational programmes
Visit to Prins Wilhelms Gymnasium in Flen

Thursday, 6 December, Stockholm

Meeting with the Upper Secondary Education Committee of Inquiry
Meeting with Federation of Private Enterprises (Företagarna)
Meeting with researchers in the area of education and labour market

Friday, 7 December, Stockholm

Meeting with National Union of Teachers in Sweden and the Swedish Teachers' Union
Meeting with The Swedish Association of Independent Schools
Meeting with SALAR
Meeting with state secretary Bertil Östberg and directors and senior policy makers from Ministry of Education and Research

Fact Finding Visit, 22-23 October 2007

Monday, 22 October, Stockholm

Meeting with representatives of the Ministry of Education and Research
Discussion with the national coordinator
Meeting with the Head of the Upper Secondary Education in Huddinge Municipality and with the Director of SALAR
Meeting with representatives of the Swedish National Agency for Education (Skolverket) and Swedish National Agency for School Improvement (MSU)
Meeting with statistical expert from Skolverket and from Statistics Sweden
Meeting with researchers from IFAU and the Stockholm Institute of Education

Tuesday, 23 October, Huddinge, Stockholm

Study visit and meeting with schoolhead, teachers and students in an upper secondary school with the VET programmes in Huddinge -

Return to Stockholm

Meeting with representatives of LO, The Swedish Trade Union Confederation

Meeting with representatives of the Federation of Swedish Enterprise

Meeting with representatives of the Swedish Construction Industry Training Board

Wednesday, 24 October, Stockholm

Study visit and meeting with schoolhead, teachers and students at an Advanced Vocational Education provider

Meeting with the Upper Secondary Education Committee of inquiry

Meeting with the Tertiary Education Committee of inquiry

Summary and final discussion with representatives of the Ministry of Education and Research

ANNEX B. INTERNATIONAL AND NATIONAL STATISTICS

1. Sweden in international comparison

Table B.1 Performance of 15-year-olds in science, reading and mathematics

Mean score and variation in student performance on PISA science, reading and mathematics scale, 2006

Country	Science scale				Reading scale				Mathematics scale			
	Mean score		Standard deviation		Mean score		Standard deviation		Mean score		Standard deviation	
	Mean	S.E.	S.D.	S.E.	Mean	S.E.	S.D.	S.E.	Mean	S.E.	S.D.	S.E.
Australia	527	(2.3)	100	(1.0)	513	(2.1)	94	(1.0)	520	(2.2)	88	(1.1)
Austria	511	(3.9)	98	(2.4)	490	(4.1)	108	(3.2)	505	(3.7)	98	(2.3)
Belgium	510	(2.5)	100	(2.0)	501	(3.0)	110	(2.8)	520	(3.0)	106	(3.3)
Canada	534	(2.0)	94	(1.1)	527	(2.4)	96	(1.4)	527	(2.0)	86	(1.1)
Czech Republic	513	(3.5)	98	(2.0)	483	(4.2)	111	(2.9)	510	(3.6)	103	(2.1)
Denmark	496	(3.1)	93	(1.4)	494	(3.2)	89	(1.6)	513	(2.6)	85	(1.5)
Finland	563	(2.0)	86	(1.0)	547	(2.1)	81	(1.1)	548	(2.3)	81	(1.0)
France	495	(3.4)	102	(2.1)	488	(4.1)	104	(2.8)	496	(3.2)	96	(2.0)
Germany	516	(3.8)	100	(2.0)	495	(4.4)	112	(2.7)	504	(3.9)	99	(2.6)
Greece	473	(3.2)	92	(2.0)	460	(4.0)	103	(2.9)	459	(3.0)	92	(2.4)
Hungary	504	(2.7)	88	(1.6)	482	(3.3)	94	(2.4)	491	(2.9)	91	(2.0)
Iceland	491	(1.6)	97	(1.2)	484	(1.9)	97	(1.4)	506	(1.8)	88	(1.1)
Ireland	508	(3.2)	94	(1.5)	517	(3.5)	92	(1.9)	501	(2.8)	82	(1.5)
Israel	454	(3.7)	111	(2.0)	439	(4.6)	119	(2.8)	442	(4.3)	107	(3.3)
Italy	475	(2.0)	96	(1.3)	469	(2.4)	109	(1.8)	462	(2.3)	96	(1.7)
Japan	531	(3.4)	100	(2.0)	498	(3.6)	102	(2.4)	523	(3.3)	91	(2.1)
Korea	522	(3.4)	90	(2.4)	556	(3.8)	88	(2.7)	547	(3.8)	93	(3.1)
Luxembourg	486	(1.1)	97	(0.9)	479	(1.3)	100	(1.1)	490	(1.1)	93	(1.0)
Mexico	410	(2.7)	81	(1.5)	410	(3.1)	96	(2.3)	406	(2.9)	85	(2.2)
Netherlands	525	(2.7)	96	(1.6)	507	(2.9)	97	(2.5)	531	(2.6)	89	(2.2)
New Zealand	530	(2.7)	107	(1.4)	521	(3.0)	105	(1.6)	522	(2.4)	93	(1.2)
Norway	487	(3.1)	96	(2.0)	484	(3.2)	105	(1.9)	490	(2.6)	92	(1.4)
Poland	498	(2.3)	90	(1.1)	508	(2.8)	100	(1.5)	495	(2.4)	87	(1.2)
Portugal	474	(3.0)	89	(1.7)	472	(3.6)	99	(2.3)	466	(3.1)	91	(2.0)
Slovak Republic	488	(2.6)	93	(1.8)	466	(3.1)	105	(2.5)	492	(2.8)	95	(2.5)
Spain	488	(2.6)	91	(1.0)	461	(2.2)	89	(1.2)	480	(2.3)	89	(1.1)
Sweden	503	(2.4)	94	(1.4)	507	(3.4)	98	(1.8)	502	(2.4)	90	(1.4)
Switzerland	512	(3.2)	99	(1.7)	499	(3.1)	94	(1.8)	530	(3.2)	97	(1.6)
Turkey	424	(3.8)	83	(3.2)	447	(4.2)	93	(2.8)	424	(4.9)	93	(4.3)
United Kingdom	515	(2.3)	107	(1.5)	495	(2.3)	102	(1.7)	495	(2.1)	89	(1.3)
United States	489	(4.2)	106	(1.7)	m	m	m	m	474	(4.0)	90	(1.9)
OECD total	491	(1.2)	104	(0.6)	484	(1.0)	107	(0.7)	484	(1.2)	98	(0.7)
OECD average	500	(0.5)	95	(0.3)	492	(0.6)	99	(0.4)	498	(0.5)	92	(0.4)

Source: PISA 2007 database.

Table B.2 Young adults at risk of exclusion

	1	2
	20-24-year-olds not in education and without upper secondary education completed (2002)	20-24-year-olds neither employed nor in education (2003)
	%	%
Australia	18.3	13.3
Austria	9.9	12.2
Belgium	15.0	17.1
Canada	10.9	13.2
Czech Republic	5.9	18.0
Denmark	11.9	8.2
Finland	10.1	16.5
France	14.5	14.4
Germany	14.2	15.6
Greece	17.8	21.4
Hungary	12.5	19.9
Iceland	30.6	6.2
Ireland	14.3	11.3
Italy	26.6	24.3
Luxembourg	19.2	8.2
Mexico		27.6
Netherlands	15.1	7.5
Norway ¹	4.6	10.6
Poland	8.4	25.5
Portugal	48.8	12.3
Slovak Republic	5.5	29.6
Spain	30.5	14.8
Sweden	8.6	11.8
Switzerland	8.4	12.7
Turkey		47.8
United Kingdom	8.0	15.3
United States ²	12.3	16.5

1. 2003.

2. 2001.

Source: OECD (2005), "From Education to Work", INES-Network B, special Yalle data collection; Quintini *et al.* (2007), "The Changing Nature of the School-to-Work Transition Process in OECD Countries", IZA DP. No. 2582, Discussion Paper, Bonn.

Table B.3. Young adults in unemployment

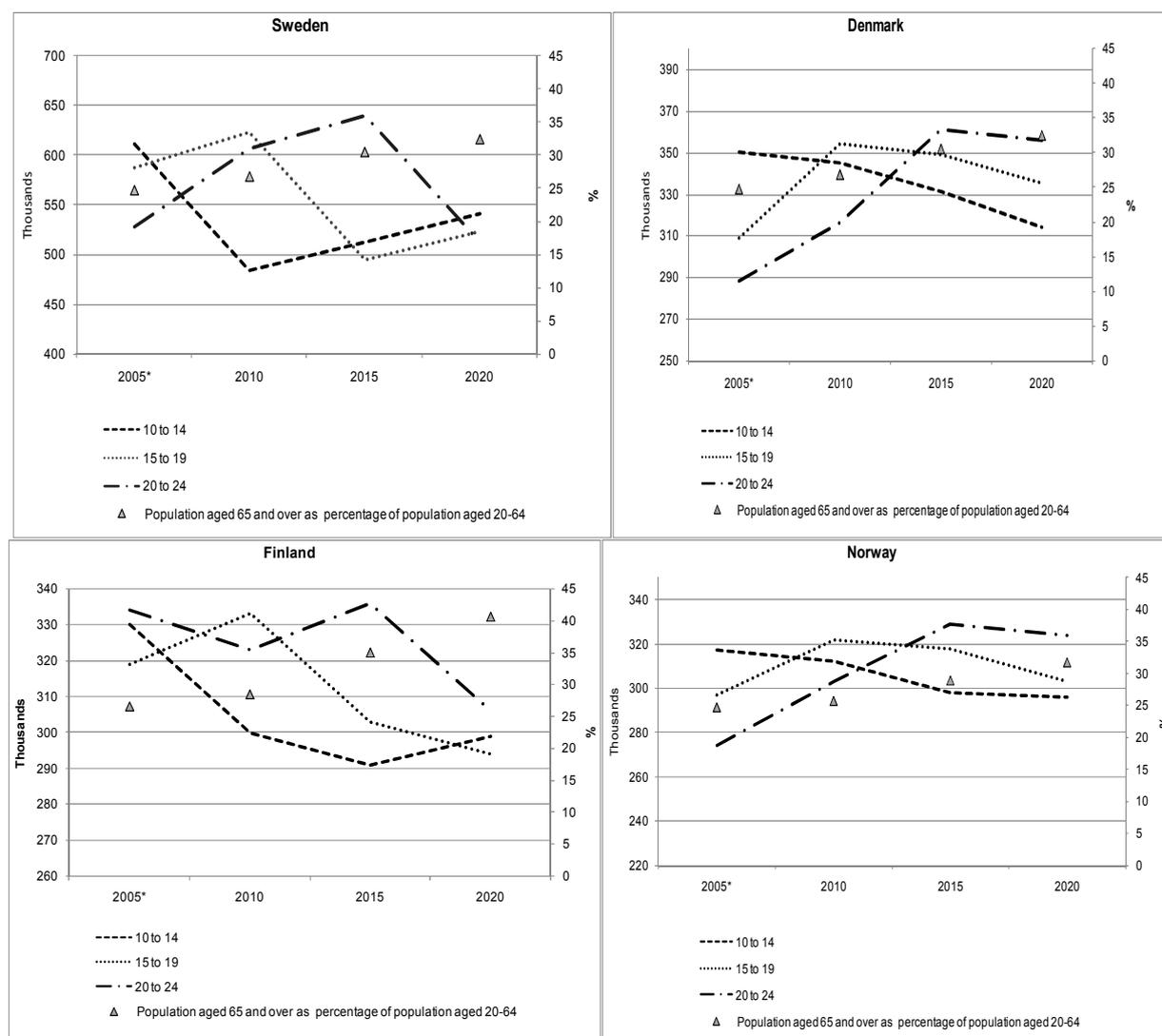
Unemployment rates and incidence of long term unemployment among those aged 20 to 24, 2006

	Unemployment rate of young adults (20 to 24) (%)	Unemployed young adults (20-24) as % of the total population 20 to 24	Ratio of the unemployment rate of young adults (20 to 24) to those of adults (25 to 54)	Incidence of young adults (20 to 24) in long term unemployment (6 months and over) (%)
Australia	7.0	5.7	1.84	27.0
Austria	7.5	5.6	1.81	33.0
Belgium	18.0	10.2	2.4	52.0
Canada	8.8	6.9	1.67	:
Czech Republic	14.5	8.3	2.29	65.5
Denmark	5.3	4.2	1.61	17.0
Finland	14.8	10.2	2.43	19.4
France	22.7	12.4	2.65	46.9
Germany	13.2	9.4	1.39	61.0
Greece	23.2	12.2	2.89	71.5
Hungary	17.2	8.1	2.52	54.6
Iceland	4.9	4.0	2.54	:
Ireland	7.3	5.5	1.91	48.7
Italy	19.2	9.9	3.26	67.4
Japan	7.7	5.4	1.99	:
Korea	9.9	5.4	3.13	9.8
Luxembourg ¹	12.7	6.4	3.24	9.8
Mexico	5.7	3.5	2.23	3.5
Netherlands	4.9	4.0	1.36	44.1
New Zealand	6.4	4.9	2.43	18.4
Norway	6.8	5.0	2.29	20.9
Poland	29.6	16.9	2.42	59.5
Portugal	14.1	8.9	1.92	64.5
Slovak Republic	22.5	13.2	1.9	77.2
Spain	14.8	10.1	1.96	35.2
Sweden	16.6	11.8	3.13	19.3
Switzerland	7.6	6.2	2.15	:
Turkey	19.7	9.9	2.35	51.6
United Kingdom	10.9	8.3	2.67	34.6
United States	8.2	6.1	2.17	14.4
OECD total	11.3	7.5	2.09	38.7

1. 2005.

Source: OECD database. OECD.Stat website, <http://dotstat/wbos/default.aspx>.

Figure B.1. Ageing populations
Population projections, in thousands



* 2006 year of reference for age dependency ratio.

Source: OECD (2006), *Society at a Glance OECD Social Indicators 2006*, OECD, Paris; *UN World Population Prospects: The 2006 Revision Population Database*; <http://esa.un.org/unpp/index.asp?panel=2>.

Table B.4. How many students attend VET programmes

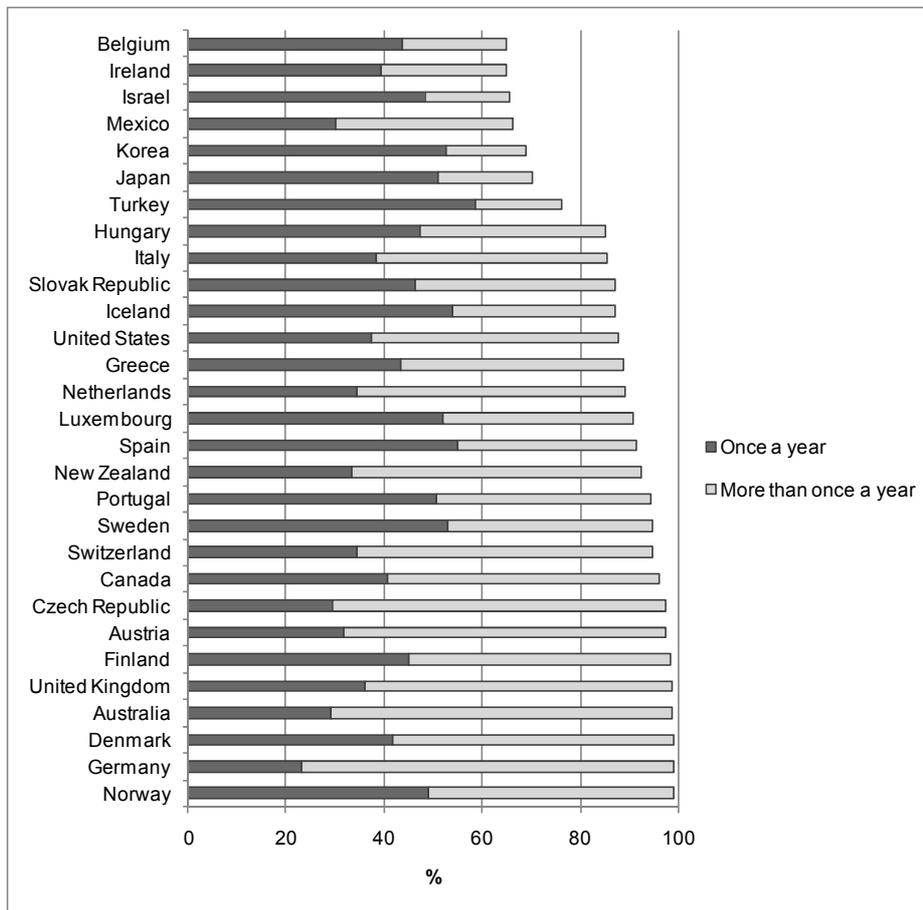
Change in the percentage of upper secondary student enrolments in VET (young and adults combined) (1998-2005)

	1998	1999	2000	2001	2002	2003	2004	2005
	%	%	%	%	%	%	%	%
Denmark	52	53	55	54	53	53	47	48
Finland	52	53	55	57	57	59	60	64
Norway	52	54	57	58	58	59	61	61
Sweden	41	49	49	52	50	53	53	53

Source: OECD database. OECD.Stat website, <http://dotstat/wbos/default.aspx>

Figure B.2. Business involvement in schools

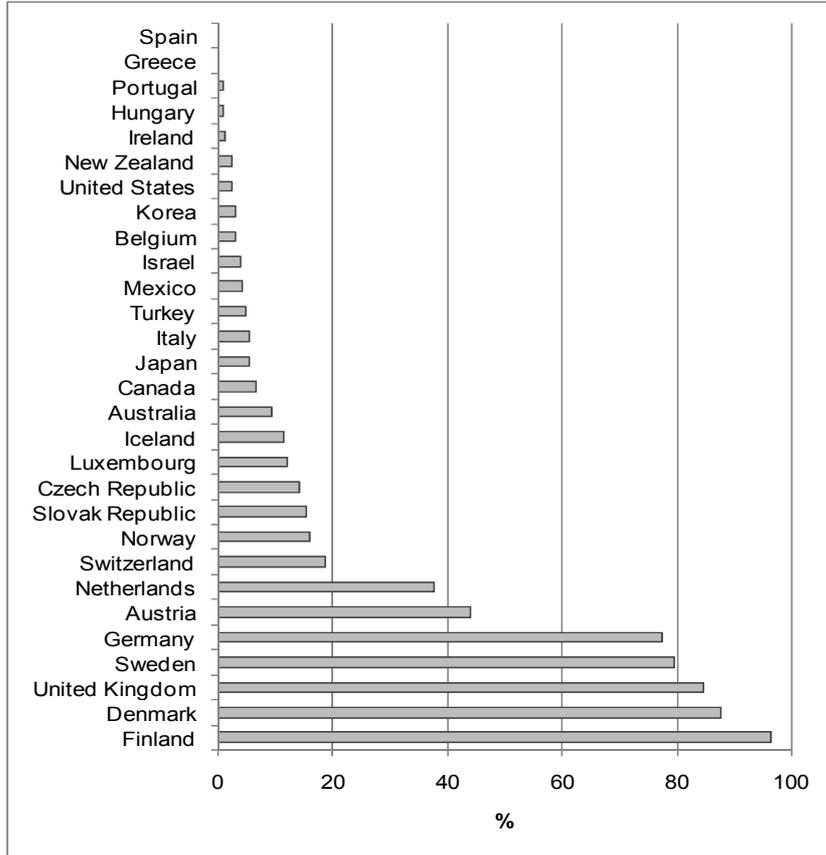
Percentage of 15-year-olds students in schools where the principal reported students had the opportunity to participate in job fairs, lectures (at school) by business or industry representatives and visits to local businesses and industries as part of their normal schooling, 2006



Source: PISA 2007 data base.

Figure B.3. How many students receive some training with local businesses

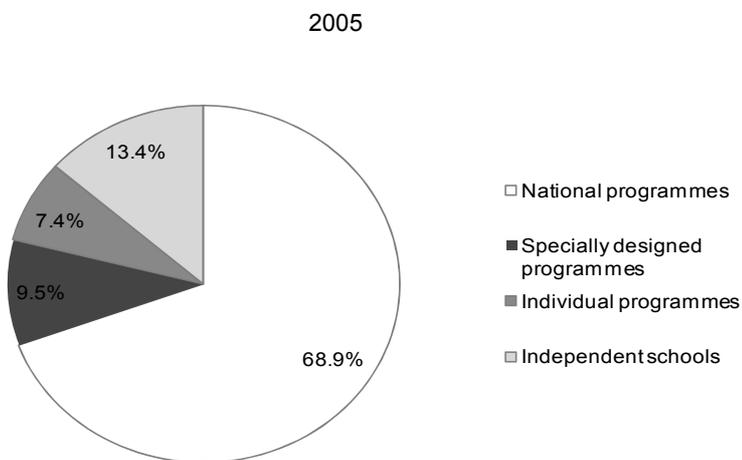
Percentage of 15-year-olds students in schools where the principal reported that more than half of students from the school received some training in local businesses as part of school activities during school year, 2006



Source: PISA 2007 data base.

2. Statistical picture of upper secondary VET in Sweden

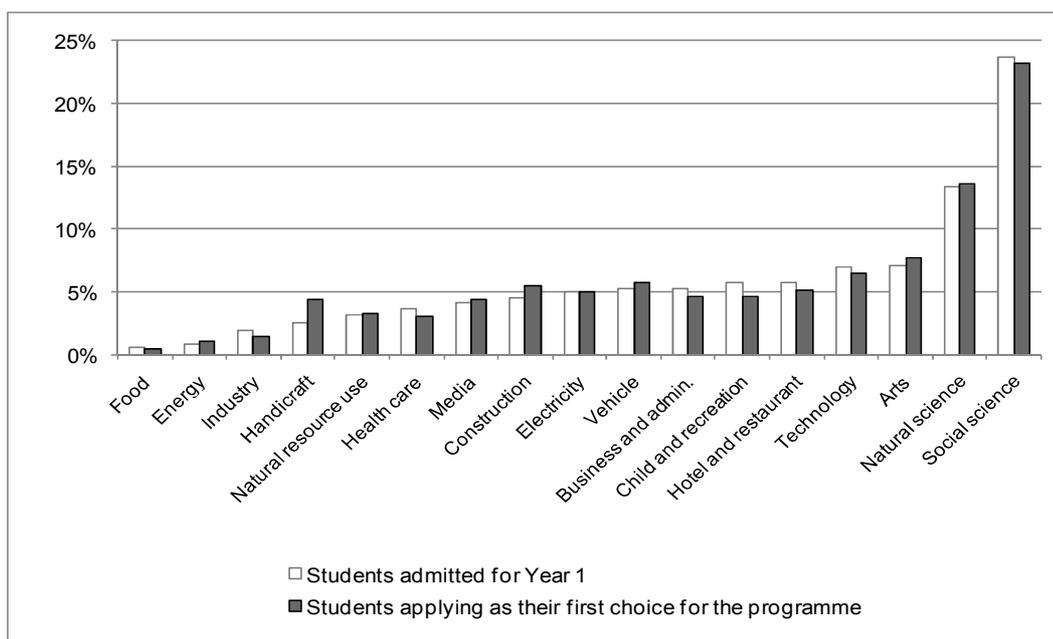
Figure B.4. Students in upper secondary programmes



Source: Skolverket (2006), "Descriptive data on pre-school activities, school-age childcare, school and adults education in Sweden 2006", Report No. 283, Skolverket, Stockholm.

Figure B.5. Entry into the programme of choice

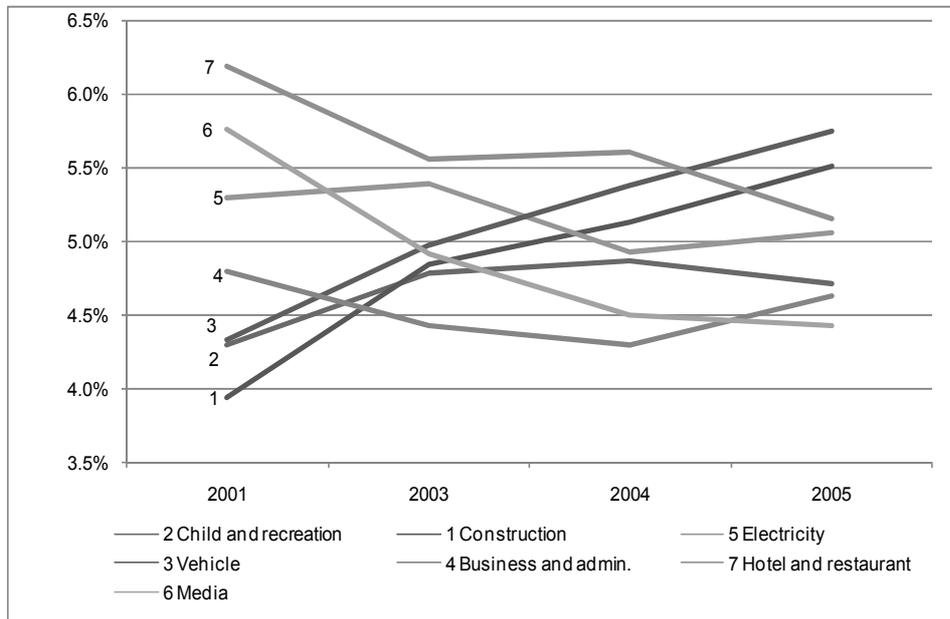
Number of students expressed as a percentage of the entire cohort: applications and admissions, school year 2005/2006



Source: Skolverket; <http://www.skolverket.se/sb/d/1613/a/7336#paragraphAnchor21>.

Figure B.6. How students' preferences change

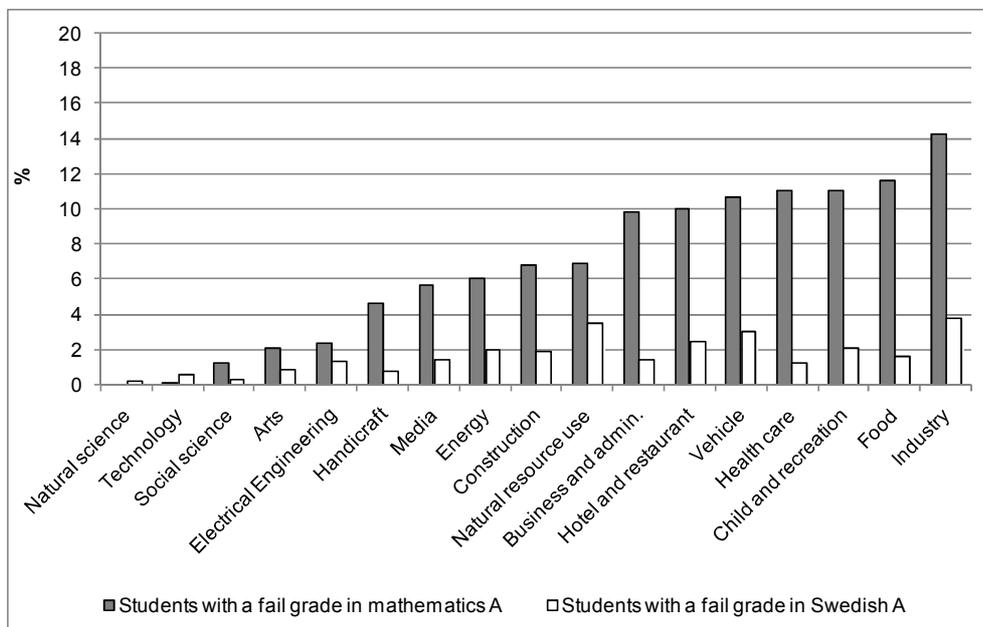
Trend in students' choice: students applying (as their first choice) for a national programme, 2001-05



Source: Skolverket; <http://www.skolverket.se/sb/d/1613/a/7336#paragraphAnchor21>.

Figure B.7. Failing courses

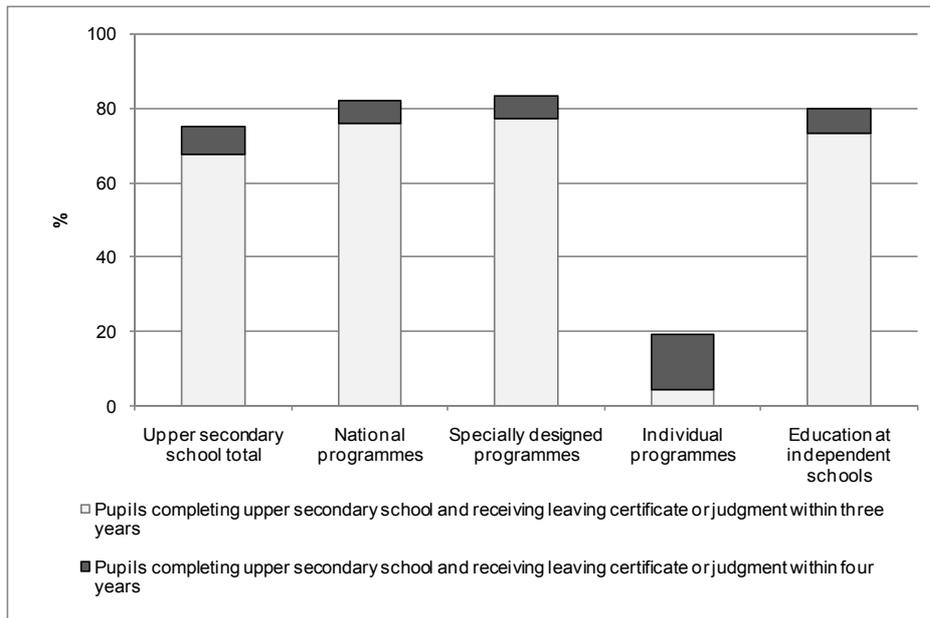
Failure rates in mathematics and in Swedish of students in national programmes, 2005/2006



Source: Skolverket; <http://www.skolverket.se/>.

Figure B.8. Upper secondary completion

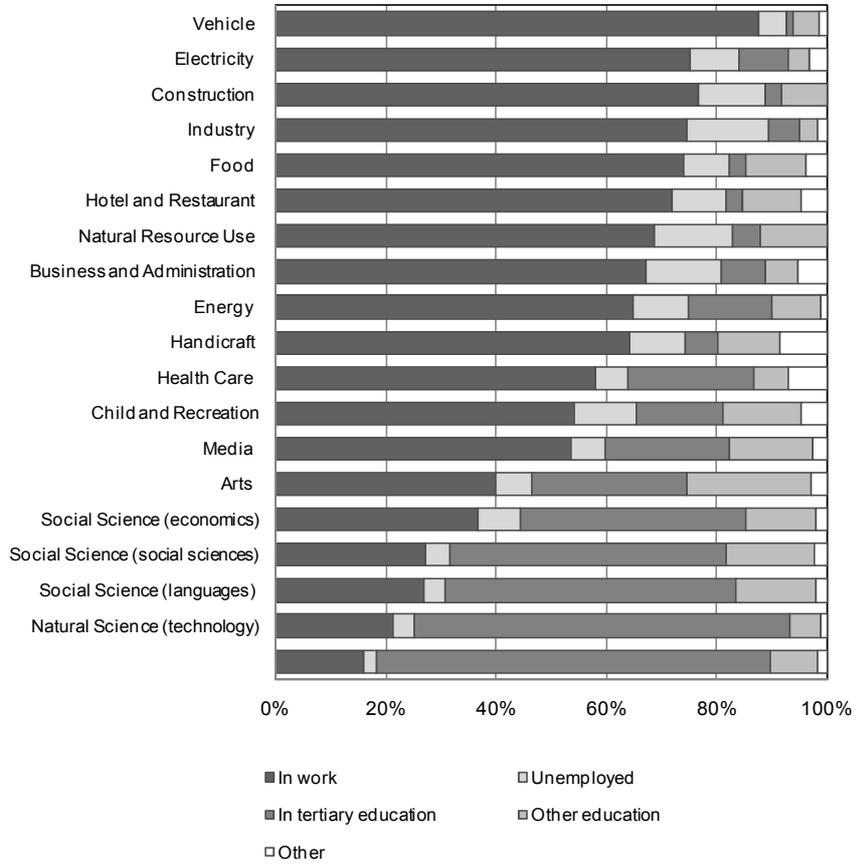
Percentage of students who entered upper secondary school in October 2002 and completed within three or four years



Source: Skolverket; <http://www.skolverket.se/>

Figure B.9. What happens to upper secondary graduates, by programme

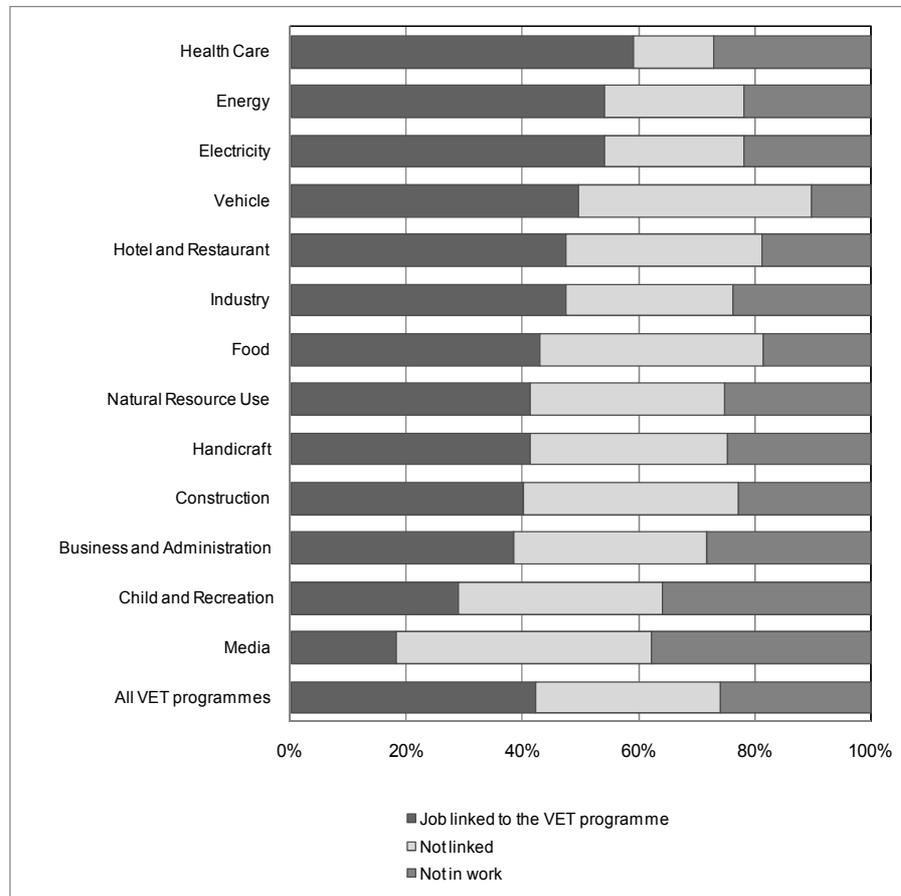
Main activity of 1997 graduates from national programmes, three years after graduation



Source: Source: Skolverket (2002), "Efter Skolan", Rapport 223, Stockholm.

Figure B.10. Where VET graduates work

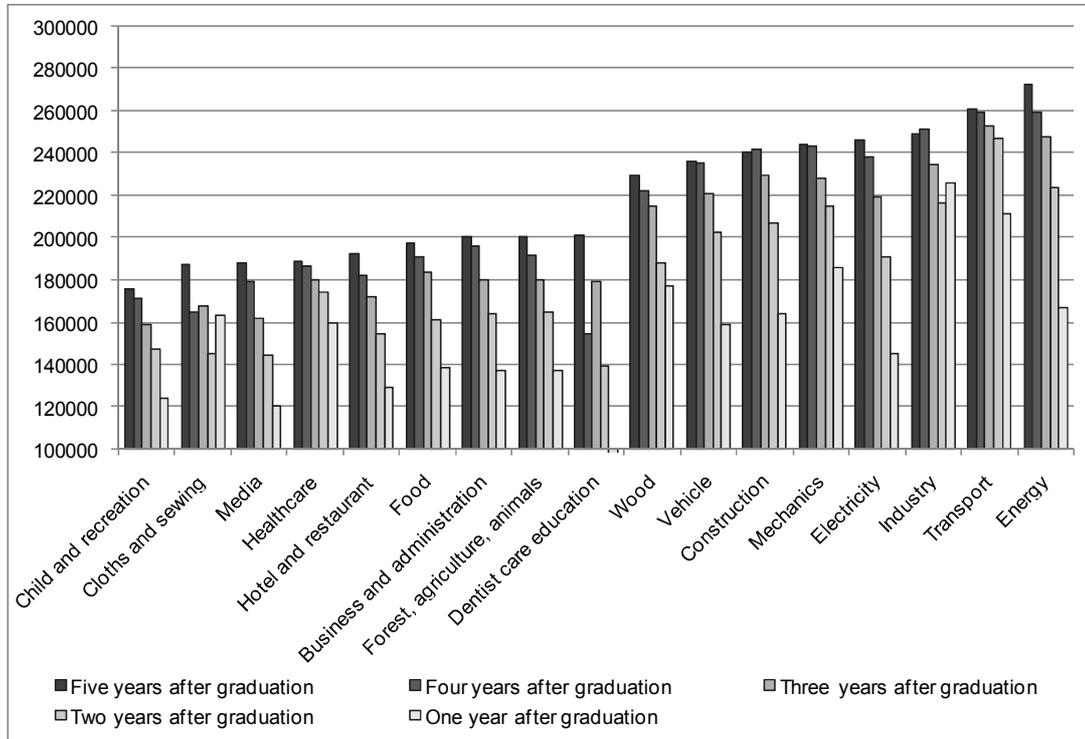
Percentage of 1997 VET graduates who perceive that their professional task is linked to their field of studies, by VET programme



Source: Source: Skolverket (2002), "Efter Skolan", Rapport 223, Stockholm.

Figure B.11. Earnings of VET graduates

Median work-related earnings (SEK) in 2005 of employed persons who graduated in the years 2000-04 from a VET program in Sweden



Note: Work-related earnings includes salaries, sick and parental leave benefits, and own-business income; excludes study aid, unemployment benefits, housing aid, and employment programme benefits. Employed persons includes persons employed on 9 November 2005, and excludes students working part-time and retirees. Data are based on a register of individuals.

Source: Statistics Sweden data base.