

# The Swedish educational system and classifying education using the ISCED-97

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## 1 Short historical overview

Compulsory school attendance was implemented in Sweden in 1842 (Stanfors, 2000). Until the 1960s, Sweden had a tracked school system. Attendance in school was compulsory for children between 7–13 years of age,<sup>2</sup> and the educational track was chosen early (Erikson and Jonsson, 1996). Children who wanted to continue to higher education then shifted from compulsory school (*folkskola*) to lower secondary school (*realskola*), whereas others stayed in compulsory school (*folkskola*) until age 13. Over time, the proportion of pupils who continued to lower secondary school increased, and this process was facilitated when the choice on whether or not to proceed to upper secondary education was postponed by enabling pupils to go from the sixth grade of compulsory school to lower secondary school (Ibid.)<sup>3</sup>. It was decided that women should be accepted at state secondary schools in the 1927 Educational Act (before, they were referred to girls' schools and private schools) (Erikson and Jonsson, 1993; Stanfors, 2000). The 1927 resolution also implied changes that further facilitated the transition from compulsory to lower secondary school.

In order to continue to upper secondary school (*gymnasium*), the completion of the lower secondary educational level was mandatory. The most able students (of those who had parents that could pay for their education) gained an upper secondary school diploma (*studentexamen*), which was in principle a requirement to be accepted at the university until the 1960s (Erikson and Jonsson, 1996).

In the 1960s, the Social-Democratic government implemented a reform of the compulsory and secondary school system.<sup>4</sup> This reform, among other things, intended to equalise opportunities to education and reduce social class and regional effects, but also meet the demand for education at secondary school level from the

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<sup>1</sup> I thank Robert Erikson and Janne Jonsson for helpful comments.

<sup>2</sup> The age when a child could leave school was prolonged by one year in the 1930s (Erikson and Jonsson, 1996).

<sup>3</sup> For a description of the possibilities to shift from compulsory to lower secondary school and the development over time cf. chapter 2 in Erikson and Jonsson (1993).

<sup>4</sup> Some changes, like abolishing secondary school fees, the introduction of free school meals and scholarships for poor students, were already implemented before that (Erikson and Jonsson, 1993; 1996).

large birth cohorts in the 1940s (Erikson and Jonsson, 1996). A comprehensive compulsory school (*grundskola*) was introduced for children aged 7 to 16 years, at the same time the educational system was centralised and standardised nationally. The seventh to ninth grade were still differentiated though, since pupils choose subjects to a high extent. This was in principal abolished in 1969 (Erikson and Jonsson, 1993; Sund, 2007).

In the mid 1960s and in the beginning of the 1970s, upper secondary school (*gymnasium*) was restructured to contain three tracks, consisting of (a) three-year academic programmes preparing for university studies, (b) two-year continuation programmes,<sup>5</sup> and (c) two-year vocational programmes. The two latter programmes provided some opportunity to proceed to higher education, too. The upper secondary school exam was replaced by a grade point system, which became a crucial criterion in the admission to university and university college programmes (Erikson and Jonsson, 1996). Before the 1971 upper secondary school reform, vocational training schools (*yrkesskola*), two-year continuation schools (*fackskola*) and upper secondary schools preparing for higher education (*gymnasium*) were separate forms of schooling (Erikson and Jonsson, 1993). One intention of the reform was to ease a shift from vocational to academic programmes (or vice versa; Olofsson, 2005).<sup>6</sup>

“In sum, one might say that the school system in Sweden was changed from a fairly traditional European system – with early selection, parallel school forms, several selection points, and small exclusive secondary and tertiary levels – to a system reminiscent of the American one, with mass education at secondary level.” (Erikson and Jonsson, 1996: 72f.).

The Swedish tertiary education system was modified in 1977. The university organization (*högskola*) incorporated post secondary non-tertiary education (*postgymnasiala icke akademiska fackutbildningar*) with a duration of two years (Erikson and Jonsson, 1993), such as training courses for comprehensive schoolteachers and nurses (these courses did not, in general, give admission to doctoral studies; see Öckert and Regné, 2000), and work experience could be counted as a merit in the admission to university (Erikson and Jonsson, 1996). Also, adult education was expanded, implying the possibility to re-enter education, which was facilitated by the student loan system (*ibid.*).

University enrolment in Sweden rose rapidly during the 1960s, but decreased in the end of that decade and in the beginning of the 1970s (Jonsson and Erikson, 2007). It remained at a relatively constant level throughout the 1980s and then increased

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<sup>5</sup> Including programmes in general studies (*Social linje*), economics (*Ekonomisk linje*) and engineering (*Teknisk linje*) (Erikson and Jonsson, 1993).

<sup>6</sup> For a detailed description, cf. chapter 2 in Erikson and Jonsson (1993) and chapter 5 in Olofsson (2005).

again in the 1990s (Jonsson and Erikson, 2007; Stanfors, 2000). Compared to the 1940s, when the only universities were located in Lund and Uppsala, the university colleges in Stockholm and Gothenburg,<sup>7</sup> new universities and university colleges were established, and they are now more regionally spread (Öckert, 2001). One general difference between Swedish universities and university colleges is that the latter do not generally provide post-graduate education (Öckert, 2001).<sup>8</sup>

## 2 The Swedish educational system at present

Public pre-school was introduced in the 1970s (Bergqvist and Nyberg, 2001), but it was not until the 1995 School Act that municipalities were obliged to provide pre-school (*förskola*)<sup>9</sup> activities for children whose parents work or study (Bergmark, 2001; Bergqvist and Nyberg, 2001). In 1996, responsibility for child care was shifted from the social service to the school system (Bergqvist and Nyberg, 2001), and the pre-school classes for six-year-olds are a part of elementary school since 1998 (Trydegård, 2001).<sup>10</sup> Pre-schools, open pre-schools (*lekskola*) and registered childminding homes (*dagmamma*) are part of the pre-schooling activities and after-school recreation centres (*fritidshem*), registered childminding homes and open recreation activities are part of the care system for school children (Bergqvist and Nyberg, 2001).

The present Swedish educational system comprises three parts (excluding pre-school): the first consists of nine years of compulsory primary school, the second covers three years of upper secondary school, and the third part comprises tertiary education at universities or university colleges.

Until 1994 (with the new curriculum, implemented in 1995), students chose between “special” or “general” mathematics and English (the former being more demanding and thus more of an “academic” choice) (Erikson and Jonsson, 1993; Sund, 2007). Also students had an option on what second language to study (French or German).<sup>11</sup>

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<sup>7</sup> There were also several specialised professional institutions (Öckert, 2001).

<sup>8</sup> It is common however that university colleges and universities collaborate so that the postgraduate students are registered (and take their exams) at the university, while the education is provided by the university college.

<sup>9</sup> The term day care centre (*daghem*) is not used in official documents anymore (Bergqvist and Nyberg, 2001).

<sup>10</sup> In 1991 it became possible to start school at the age of 6 instead of 7 (Stanfors, 2000). This flexible school attendance was implemented in all municipalities from 1997/1998 (The National Swedish Agency for Education, 2004). A majority of all six-year-olds (that have not yet started first class) attend pre-school classes (Bergqvist and Nyberg, 2001).

<sup>11</sup> In 1980 it became free for the municipalities to decide on other optional subjects in the seventh to ninth grade (Erikson and Jonsson, 1993; Sund, 2007).

The pupil makes a choice on the educational track to follow after nine years of compulsory primary education (usually at age 16). Almost all students continue to upper secondary school (Stanfors, 2000). The average grades at the end of compulsory primary education (ninth grade graduation) based on the 16 best subjects are used for admission to upper secondary school programmes (i.e. there is selection for the popular programmes).<sup>12</sup>

Before the 1990s, a majority of all upper secondary school programmes with two years duration were vocational upper secondary school tracks (Ekström, 2002), with a mix of general and vocational education often lacking the opportunity to continue studying at tertiary educational level.<sup>13</sup> The academic tracks (with training for higher education) were on a three-year basis. In 1991, a reform of the upper secondary school was enacted (Ekström, 2002; Jonsson, 2007; Olofsson, 2005). It was gradually implemented during the first years of the 1990s and fully accomplished by 1995/1996. The reform intended to decrease the discrepancy between academic and vocational upper secondary school programmes, and reduce the socially uneven recruitment into higher education (Broady, 2000; Ekström, 2002). One of the most important implications of the reform was that all two-year upper secondary school programmes were turned into three-year programmes with emphasis on more general education and implying the possibility to proceed to higher education. However, these programmes in practice imply few possibilities to continue to higher education also after the reform, since universities and university colleges tend to set higher demands for admission than just a general qualification (*allmän behörighet*), i.e. specific qualifications (*särskild behörighet*) are needed. The 1990s reform implied that 16 nationally coherent upper secondary school programmes were created (cf. figure 1).

The 'special programmes' were intended to meet local and regional needs that could not be met by the national upper secondary school programmes. The 'individual programmes' are one-year programmes designed for pupils that do not qualify for upper secondary school. The purpose of the individual programme is to prepare students for the national programmes (Broady, 2000), and they do not give access to tertiary education.

During the 1990s, the educational system became less centralized (Broady, 2000) and the possibilities to open private schools increased. Sweden has no strong tradition of private schools, and there were only few of them in the beginning of the 1980s (The National Swedish Agency for Education, 2000). In 1988, the government however decided that private schools are entitled to state subsidies. The conditions

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<sup>12</sup> Since 1998, students have to pass English, mathematics and Swedish in order to qualify for national or special programmes at upper secondary school (Murray, 2007).

<sup>13</sup> Students in these programmes could choose courses that gave them general qualifications (*allmän behörighet*) for admission to university and university colleges.

for private schools were further facilitated by changes of the regulations made in 1992 and 1996. In 2005/2006, almost 8 percent of all elementary school students attended private schools (The National Swedish Agency for Education, 2007).

The two academic upper secondary programmes expanded in the late 1990s, leading to an increasing differentiation within these programmes. The sub-programmes focusing on the sciences within the Natural Science Programme have gained in popularity as being the most prestigious educational programme, demanding the highest compulsory school grades for admission, while the programmes with emphasizes on technology in the same cluster have lost out (Broady, 2000). The sub-programmes under the Social Science Programme have become more heterogeneous with some programmes attracting many of the students that formerly used to attend two-year vocational upper secondary school programmes (Ibid.). Local variation has also increased during the 1990s.

**Figure 1. Programmes at upper secondary school level since 1991/1992**

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National Programmes	
14 vocational programmes:	2 academic programmes:
– Child Recreation	– Natural Science
– Construction	– Social Science
– Electrical Engineering	
– Energy	
– Arts	
– Vehicle Engineering	
– Business and Administration	
– Handicraft	
– Hotel, Restaurant and Catering	
– Industrial	
– Food	
– Media	
– Natural Resource	
– Health Care	

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Special programmes
Individual programmes

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Note: There have been some minor changes of the 1991/1992 educational system up until today. The 16 national programmes were for example extended with a Technical Programme in 2000/2001 (Holmlund and Sund, 2007). The Technical Programme had previously been a part of the Natural Science Programme.

Source: Lundahl and Sander (1998).

Broady (2000) argues that the individual programmes only have worked the way they were meant to for some groups of students. One reason could be that the reform of upper secondary school implied an increased theoretical focus (especially in the so called core subjects mathematics, Swedish and English) to give the possibility to continue to higher education. Thus, no “real” vocational track exists, which might imply the exclusion of students who are weak in theoretical subjects.<sup>14</sup>

The vocational programmes at upper secondary school have a minimum of 15 weeks of work place training (*arbetsplatsförlagd utbildning, APU*), with the remaining time spent in the school setting (Nilsson, 2002).<sup>15</sup> Apprenticeship system based education has not been very common in Sweden (Ibid.).<sup>16</sup> In 1980, the government initiated trials with apprenticeship based training at the upper secondary level, covering around 3000 students during the 1980s (Olofsson and Wadensjö, 2006). The system was made permanent in 1985 and formally maintained in the upper secondary school reform in the 1990s, when it was integrated into the Individual Programmes. In practice, the opportunity to do an apprenticeship became very limited though (Ibid.). The issue of vocational upper secondary school programmes with an emphasis on apprenticeships (*lärlingsutbildning*) has been debated in the last years (cf. Olofsson and Wadensjö, 2006).<sup>17</sup>

In upper secondary school, students take courses with an increasing degree of difficulty for each subject (for example maths A, maths B and maths C), and these are evaluated separately (Holmlund and Sund, 2007). A final course grade is set depending on the performance in the course. The grading system used in upper secondary school is a criterion-referenced grade scale with four levels; fail, pass, pass with distinction and pass with great distinction (Ibid.).<sup>18</sup> The grade setting is decentralized with no standardized tests, but there are national tests in mathematics, Swedish and English. The final average grades in upper secondary school are of great importance for the admission to tertiary education (Holmlund and Sund, 2007). Other than the final average grades, there are also national university aptitude tests (*högskoleprovet*) and work experience to qualify for tertiary education

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<sup>14</sup> For a discussion of the upper secondary school reform and the socially uneven recruitment into higher education, cf. Broady (2000), Ekström (2002) and Jonsson (2007).

<sup>15</sup> The programmes have though been criticized for not providing the minimum amount of 15 weeks of work place training (Olofsson and Wadensjö, 2006).

<sup>16</sup> See Olofsson (2007) and Olofsson and Wadensjö (2006) for a thorough description of the vocational training in Sweden during the twentieth century.

<sup>17</sup> A new upper secondary school system (*GY-2007*) was to be introduced by mid 2007, but this reform was called off after the government shift in October 2006. For a detailed discussion on the development of the vocational education in Sweden cf. chapter 3 in Olofsson (2005).

<sup>18</sup> The maximum weighted grade average of all courses is 20 (Holmlund and Sund, 2007).

(Öckert and Regnér, 2000). However, passing certain subjects in upper secondary school is nonetheless required (Ibid.).<sup>19</sup>

In 1996, an experimental programme combining work experience with post secondary vocational training (*kvalificerad yrkesutbildning, KY*) was introduced (Nilsson, 2002). This training usually has a duration of 40 to 120 weeks (with a third of the time spent on the job), and is equivalent to two years full time studies. It is completed with a qualified vocational training exam (*kvalificerad yrkesexamen*) (Ibid.).

The Swedish educational system has few dead-ends and can be described as being highly standardized with a low degree of stratification (Erikson and Jonsson, 1998). Adult education is provided, giving the opportunity of re-training.<sup>20</sup> For higher education as well as adult education (adult secondary educational programmes, *Komvux*), there is a rather generous student grant and loan system, independent of parental income.<sup>21</sup> Universities and university colleges do not charge tuition fees, except for a small fee to the Student Union (Öckert, 2001).

Undergraduate students at Swedish universities and university colleges can choose to study separate courses or full programmes (Öckert, 2001). The latter tend to have a longer duration and give a degree when completed. A modification of the Swedish tertiary education system, in line with the Bologna process, was implemented in mid 2007. This, among other things, implied a change of the grade point system. Also, a new degree was introduced; the two-year Master exam at the graduate level. There are now two general exams at the undergraduate level: a two-year university college exam (*högskoleexamen*) and a three-year university exam (Bachelor's degree, *kandidatexamen*); on advanced (graduate) level there is a one-year exam (Magister's degree, *magisterexamen*) and a two-year exam (Master's degree). At the research level, there is a Licentiate's degree and Doctorate's degree after two and four years of studies respectively. There are also several professional exams for professions with high skill requirements like the Masters of Laws and the Masters of Business Administration. Figure 2 gives a schematic overview over the current educational system in Sweden.

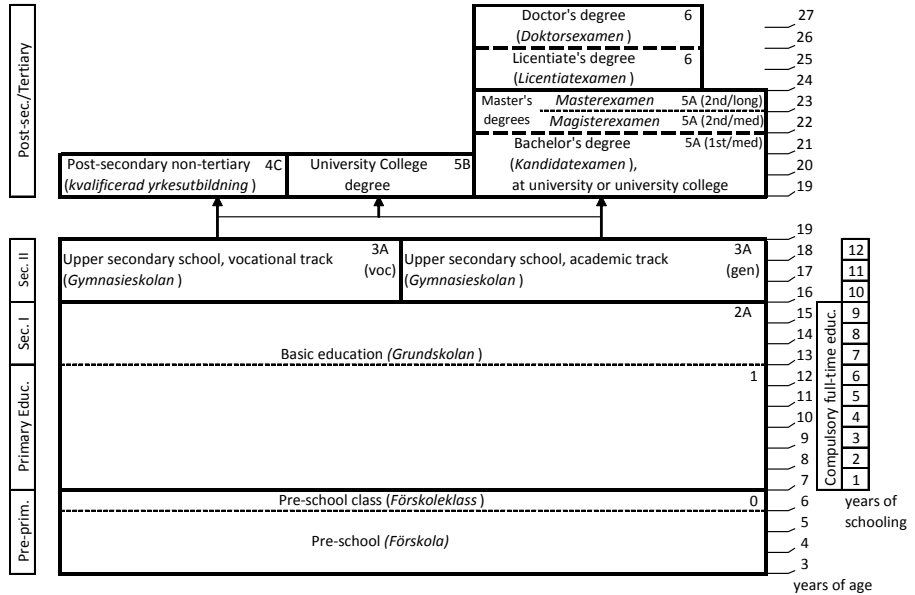
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<sup>19</sup> For a description of the admission to higher education in Sweden cf. Öckert (2001).

<sup>20</sup> "Returning adults" being 25 years or older and with at least four years of work experience have their own admission quota (Öckert, 2001).

<sup>21</sup> There is an age limit at age 45 for receiving student loans and at age 54 for receiving student grants (Centrala Studiestödsnämnden, 2008).

**Figure 2. The current structure of the Swedish educational system**



### 3 Evaluation of the ISCED-97 for Sweden

The Swedish Education Terminology (*Svensk utbildningsnomenklatur, SUN*) was developed in the 1960s. In 1998/1999, it was revised for mainly two reasons. The first purpose was to adjust the Swedish classification to the International Standard Classification of Education 1997 (ISCED-97), and the second aim was to make the classification of education more organised and easy to use (Statistics Sweden, 2000). The new system for the classification of education (called *SUN 2000*) was implemented in July 2000.

The *SUN 2000* consists of two modules, a 'levels' module and an 'orientations' module. The first digit (of three possible) in the levels module is parallel to the ISCED-97 in that it indicates the level of education. The second digit specifies the duration of (full-) time education in number of years. The third digit identifies the type of education and separates between education with an orientation towards a specific occupation and more general educational programmes, but also between educational programmes that give a certificate or degree and those that do not. In the orientations module, the first two digits state the main orientation of the educational programme, which matches the fields of education of the ISCED-97. A third digit and a letter (in the fourth position) can also be used for further specification of the orientation of the educational programme (Statistics Sweden, 2000).



Statistics Sweden uses the SUN 2000 levels module on a three digit level when translating educational attainment into ISCED-97 (Pettersson, 2007-12-05<sup>22</sup>). A difficulty when converting SUN 2000 into ISCED-97 is to consider the complementary dimensions of the educational programmes: the type of subsequent education or destination and the cumulative theoretical duration of the programme for ISCED levels 3, 4 and 5, programme orientation for ISCED levels 3 and 4, and position in the national degree and qualification structure for ISCED level 5 (UNESCO, 1999). The conversion of SUN 2000 into ISCED-97 used by Statistics Sweden tends to emphasise the duration of the educational programme. This does not constitute any problems at lower educational levels, such as SUN 2000 codes 1 and 2, since nowadays tracking in the Swedish educational system does not begin until upper secondary school.

Thus, the Swedish educational attainment codes for the first and second stage of primary education match well with the corresponding ISCED-97 coding. However, at the upper secondary level, Statistics Sweden classifies all educational programmes that are two years or shorter (i.e. from before the upper secondary school reform in the 1990s) as ISCED 3C, even if those programmes prepare students for higher education. All upper secondary school programmes with a duration of three years are classified as ISCED 3A, even if the programmes have a vocational focus, because in theory they all provide access to universities. Nevertheless, since Swedish upper secondary educational programmes with a duration of two years or shorter in many cases did not entitle to higher education, and equivalent upper secondary school programmes lasting three years or longer give this qualification, the conversion of SUN 2000 into ISCED-97 on upper secondary school level used by Statistics Sweden could be considered accurate, reflecting the *probability* to continue to tertiary education.

The national coding of the category 'post secondary non-tertiary education' (with a duration shorter than two years) corresponds fairly well with the international educational classification system (i.e. ISCED level 4), as do the coding of the first stage of tertiary education (i.e. ISCED level 5). Also, the Swedish classification of second stage of tertiary education matches quite closely with the ISCED-97 coding, except that the national classification makes a distinction between the licentiate's and the doctor's degree.

Statistics Sweden's scheme for converting SUN 2000 into ISCED-97 does mark if an educational programmes at ISCED-97 level 3 to 4 has a vocational or general orientation. This information however does not seem to be used in international datasets like the EU-LFS, which will be described in the following section.

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<sup>22</sup> Ulla Pettersson, main responsible for the SUN project at Statistics Sweden, personal communication, 2007-12-05.

**Table 1. Classification of educational levels according to SUN and ISCED-97**

National categories	Years/ duration	SUN codes	ISCED-97 category and sub- category labels	Eurostat codes
No basic education; <i>Förskola</i>	0	0	Pre-primary education/not completed primary education	0
Nine-year compulsory school, years 1-6; <i>Grundskola (the former Folkskola)</i>	1-6	1	Primary education or first stage of basic education	1
Nine-year compulsory school, years 7-9; <i>Grundskola (the former Realskola)</i>	7-9	2	Lower secondary education or second stage of basic education	2A
Vocational upper secondary education; <i>yrkesinriktad (the former Yrkesskola)</i>	<2	310, 313, 317	Upper secondary programmes not designed to prepare for access to ISCED 5	3C (voc)*
Theoretical programme/ prep. for higher studies; <i>teoretisk/ studieförb. (the former Fackskola)</i>	2	320, 323, 327		3C (gen)*
Vocational university entrance qualification; <i>yrkesinriktad (Gymnasium)</i>	≥3	330, 333, 337	Upper secondary programmes designed to prepare for access to ISCED 5A	3A (voc)
General university entrance qualification; <i>teoretisk/ studieförb. (Gymnasium)</i>	≥3	332, 336		3A (gen)
Post secondary non-tertiary education; <i>Högskol-utbildning, eftergymnasial utbildning</i>	<2	413, 415, 417	Post-secondary non-tertiary programmes not designed to prepare for access to ISCED 5	4C (voc)
		410, 412	Post-secondary non-tertiary programmes designed to prepare for access to ISCED 5	4A (gen)
Vocational/lower professional tertiary education; <i>Högre yrkesutbildning (Högskolor)</i>	2	52	Practical/technical/occupationally specific tertiary programmes	5B
Academic/higher professional tertiary education; <i>Högre utbildning (Universitet and Högskolor)</i>	3 ≥4	53 54, 55	Theoretically based/research preparatory programmes or programmes giving access to professions with high skills requirements	5A (med) 5A (med, long)
Licentiate	2	60, 62	Second stage of tertiary education	6
Doctorate	4	64		

Note: \* These codes are not included in the Eurostat tables, as there are no equivalent educational programmes in effect today. This is how Statistics Sweden classifies these programmes.

Finally, it should be noted that in the conversion of SUN into ISCED, only the highest level of education *attended* is reflected. There is no distinction made between studies that are completed or not (i.e. in the sense that the student obtained a final certificate), even if the time spent in the educational programme is approximately the same for those that did not obtain a final certificate as for those who did. This division is though made clear in SUN.

#### 4 Validation of the distribution of educational attainment in Sweden

Table 2 shows the educational attainment distribution for individuals aged 25 to 64 in the Swedish Labour Force Survey 2004 and the Swedish data from the European Union Labour Force Survey (EU-LFS) 2004. The first two columns show the distribution of educational attainment coded according to the national classification, the Swedish Education Terminology (*SUN 2000*), where the first uses a more detailed version of SUN relative to the second, containing aggregate categories for the conversion of SUN into ISCED-97. The latter column corresponds to how Statistics Sweden constructs the ISCED-97. The third column includes an alternative way of converting SUN 2000 into ISCED-97, which is somewhat in between the two previous solutions. The fourth column presents the distribution of educational attainment in Sweden using the ISCED-97 as coded in the EU-LFS 2004.

As pointed out above, the conversion of SUN 2000 into ISCED-97 is unproblematic in the case of the first stage of basic education as well as lower secondary education or the second stage of basic education, and the distributions of educational attainment between the Swedish Labour Force Survey 2004 and the EU Labour Force Survey (EU-LFS) 2004 match well. The upper secondary school level is more complex: When merging the ISCED-97 categories 3A and 3C, as in the EU-LFS data, important information on programme orientation and duration is lost. For post secondary non-tertiary education, the focus of the educational programme is excluded in the EU-LFS classification, too. The EU-LFS also does not pick up the differentiation between university studies of three years only (5A first/medium) and four years and more (5A second medium/long), although this is an important distinction with more than 5% of the population in each of these categories.

The first and second stage of tertiary education could also benefit from some further differentiation, for example by separating first stage of tertiary programmes with duration of four years (*Magisterexamen*) and programmes with a length of five years (*Masterexamen*). This could be achieved by differentiating the two sub-categories 5A (2<sup>nd</sup>, medium) from 5A (2<sup>nd</sup>, long). Also, the split between a doctor's and a licentiate's degree is of relevance. However, the latter distinction is not made in the ISCED-97 framework.

**Table 2. Distributions of educational attainment (in per cent)**

National categories	ISCED-97	Swedish Labour Force Survey 2004			ISCED-97 EU-LFS 2004
		Detail SUN	SUN to ISCED	ISCED ideal	
No basic education	0	—	—	—	—
Nine-year compulsory school, years 1–6	1	7.33	7.33	7.33	6.34
Nine-year compulsory school, years 7–9	2A	10.99	10.99	10.99	10.35
Vocational upper secondary edu- cation, less than two years	3C (voc)	4.58			
General upper secondary educa- tion, less than two years	3C (gen)	1	5.58	5.58	
Vocational upper secondary edu- cation, two years	3C (voc)	18.53			
General upper secondary educa- tion, two years	3C (gen)	7.58	26.11	26.11	50.33
Vocational university entrance qualification	3A (voc)	7.46		7.46	
General university entrance quali- fication	3A (gen)	9.86	17.32	9.86	
Post secondary non-tertiary edu- cation, less than two years	4C (voc) 4A (gen)	3 3.04	6.04	3 3.04	6.90
Vocational/lower professional ter- tiary education, two years	5B	8.51	8.51	8.51	8.61
Academic/higher professional ter- tiary education, three years	5A (1 <sup>st</sup> med)	10.49	10.49	10.49	
Academic/higher professional ter- tiary education, four years or more	5A (2 <sup>nd</sup> , med/long)	6.70	6.70	6.70	16.63
Lic		0.25	0.25		
Doctor	6	0.68	0.68	0.93	0.85

Note: Respondents aged 25–64. Those with educational level unknown were excluded. n=183,699 respondents (after selections).

Source: Statistics Sweden, 2000; the Swedish Labour Force Survey 2004; European Union Labour Force Survey, 2004 (averaged over all four quarters).

It is important to note that the information on educational attainment in the Swedish Labour Force Survey (from which the EU-LFS data is derived) is register data (*Registret för befolkningens utbildning*). This is likely to be an advantage as regards the accuracy and precision of the data, since it eliminates potential recall biases as well as issues on interpretation of survey questions. However, in an international comparative framework, it might introduce difficulties since the majority of countries do not have register data on educational attainment and instead use self-assessed information. This could be problematic when studying absolute levels of education with a cross-country comparative approach, but less so when analyzing trends over time across countries.

To conclude, making the subcategories at ISCED levels 3 and 5 more prominent by using the educational information in a less aggregated way (i.e. taking the orientation of upper secondary educational programmes, and the duration of tertiary education into account) would correspond more closely to the conceptualisation of the ISCED-97 as mapped out by the OECD (1999) and the UNESCO (1999). Another improvement would be to separate students with school-leaving and higher education certificates from those without, since formal certification is likely to be important as regards one's chances in the labour market.

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