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## THE DANISH EDUCATION REGISTERS

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# THE DANISH EDUCATION REGISTERS\*

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## Abstract

Collection of systematic information on education is a long established practice in Denmark. Since 1910, the Danish Ministry of Education's annual reports collect information about individual-level test scores in e.g. compulsory schooling. Today, several registers from compulsory schooling to adults continuing education and training stem from administrative education reports. Therefore, for cohorts born 1945-1990, 97 percent of the Danish population has a valid education identifier. For the immigrant population born in the same cohorts the coverage is 85-90 percent. Despite a higher level of missing information on immigrants, the level is still low in an international context.

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## Introduction

Denmark has a long history of collecting administrative data on education. Dating back to 1910, individual-level test scores in e.g. compulsory school are available through the Danish Ministry of Education's annual reports. Today, the administrative education reports define several registers, and collaborations between Statistics Denmark and The Danish Ministry of Education reassure high-quality data.

This paper describes the Student Register (SR), the Academic Achievement Register (AAR), the Population's Education Register (PER), and the Adult Education and Continuing Training Register (AR). Descriptions of the registers are based on Statistics Denmark's online high quality documentation for education (1). Common to these registers are the individual-level information on students enrolled in Denmark and the link to unique education and education institution identifiers. AR and PER combine information from surveys and the institutions' administrative records, whereas SR and AAR use information only from the administrative records. Each year the education institutions provide individual-level information on enrollment status, completed levels of education, and exams.

The registers only provide information on educations authorized by the Danish Ministry of Education and of more than 80 hours of duration, except for AR. Starting in 2007, the registers include all educational institutions where the students are eligible for aid. While in 1974, SR begins collecting information on individuals from they enter 8<sup>th</sup> grade, in 2007 this activity starts in pre-school. SR contains two register subgroups: SR1 and SR2. Both will be described in the following.

PER is the most widely used education register as it contains information on individuals' highest completed education for almost every person living in Denmark from 1981 until today.

## **Content**

This section presents the central variables in SR, AAR, PER, and AR. First, we describe the variables common across registers and then the variables specific for each.

### GENERAL VARIABLES

All the education registers build on a unique personal identifier. The registers automatically include all individuals attending an education in Denmark and link information within and across years through this personal identifier.

The education registers also include a unique institution identifier, individual's enrolment and completion dates, and identifiers for ongoing and completed education. Length of education (typically stated in months) exists in all data sets. The Danish Ministry of Education defines a standard length of schooling for each type of education. Any additional time spent on completing a level of education appears from the date of completion.

### STUDENT REGISTER 1 AND THE ACADEMIC ACHIEVEMENT REGISTER

Compulsory schooling in Denmark is equivalent to primary and lower secondary education, whereas upper secondary education is a separate type of education. SR1 contains grade-level information on compulsory and upper secondary schooling and vocational education. AAR mainly provides subject-specific test scores for the final grades of compulsory schooling, and all the formal tests in upper secondary education.

These data contain great detail, as tests are defined as oral or written exams and whether the subject is mandatory or elective. The Danish Ministry of Education provides all written tests, eliminating potential differences in tests within one year.

Compulsory schooling test scores started in school year 2001/2002. A sample of the 1989 birth cohort shows that 93 percent have a valid test score in 9<sup>th</sup> grade. The academic track of upper secondary education includes grade-point average from 1977/1978 and subject-specific test scores from 1997/1998. The technical tracks of upper secondary education and some types of vocational training include subject-specific test scores from 2003/2004. For those taking single courses at high-school level test scores are available from 2004/2005.

Data breaks exist in 2007 (for upper secondary education) and 2008 (for compulsory schooling) because of the introduction of an international equivalent grading scale. A variable for determining the type of grading scale is available.

## STUDENT REGISTER 2 AND POPULATION'S EDUCATION REGISTER

SR2 and PER target individuals' education history defined by completed or ongoing levels of education. Given several similarities between SR2 and PER, we concentrate on the main differences between them.

A unique four-digit education code identifies the level of education in SR2, whereas an eight-digit education code defines the education level in PER. Only in PER the first and second digits define the main education group such as short-, medium- and long-cycle university degree; the third to sixth digits define the type of education in more detail, and the last two digits define the exact title – e.g. paediatric specialist. The eight-digit code from PER easily transforms into the international ISCED codes.

Education identifiers in PER are backdated accordingly if the length (and content) of a specific type of education changes significantly. In contrast, the education identifier in SR2 is unique over time. Statistics Denmark recommends education identifiers from SR2 for historical purposes but PER for general use, as PER is easier to handle.

PER defines the highest completed level of education for each individual, whereas SR2 defines any completed level of education. Until 2007, the highest completed education was defined by length of schooling and thereafter the most recent completed level of education. Now, the highest completed level of education is defined by the education identifier (the first two digits), then length, and the most recent date of completion.

#### ADULT EDUCATION AND CONTINUING TRAINING REGISTER

AR collects information on public adult education and training. Information is restricted to training outside the workplace or training completed by a test if the type of education is on-the-job training. AR identifies course completion and whether tests are provided and taken. While these data are high quality, some measurement error exists for training courses not completed by an exam or where attendance is not compulsory.

The register can be connected to additional information from surveys on adult education and continuing training. Every six months since 1997, a survey collects information on private adult training and education. The information is comparable over time, but as the surveys contain information on private and not public types of training, the information is not systematically collected. Additional information is also added from a cross-EU survey from 2008 (response rate of 70 percent in the net sample). This survey will repeat in 2011 and thereafter every fifth year and is recommended for international comparisons of adults' continuing training and general level of education.

## **Validity and Coverage**

The education registers are generally high quality, despite variations in the quality across different populations and cohorts. This section focuses on the validity of PER, the most widely used register.

Statistics Denmark reports the average measurement errors to be zero to three percent in PER, but up to 10 percent in the most recent year. However, the education institutions correct most errors in the following year.

PER covers education and training completed in Denmark. From 1996-2003 2.3 percent of all Danes enrolled in university or college studies abroad and thus are excluded from the Danish education registers (3). PER mainly uses information from SR but adds self-reported information on completed education for individuals completing education before 1974 and for immigrants with no Danish schooling records. This information comes from the Immigrant Census in 1999 and 2008 or the 1970 Population and Housing Census, respectively.

Using a 70 percent sample of the Danish population in 2007, Figure 1 (Figure 2) presents the data sources in PER for different ethnic Danish (immigrant) birth cohorts. In total, 99 percent of the ethnic Danish population have valid education information in PER, whereas the corresponding number for immigrants is 85-90 percent. The figures show a clear trend of increasing information from the SR register compared to the other data sources. For example, for ethnic Danes in 1945, 15 percent are identified through SR and 82 percent from the 1970 census. In 1960, 97 percent of all education information is from SR. As SR is a higher quality data source than the Immigrant

Census and the 1970 Population and Housing Census, the figures document increased quality across cohorts.

## **Conclusion & Comments**

The education registers cover several parts of the education system. Today we identify students' records through compulsory schooling, further education, and continuing adult training. Generally, the registers are high quality. In compulsory schooling we observe test scores for 93 percent of a cohort and using PER, 97 percent of the Danish population born 1945-1990 have valid education information. As the registers do not automatically record education acquired outside Denmark, 85-90 percent of the immigrant population (born 1945-1990) are covered in PER. Despite the lower coverage for immigrants, the coverage is still high internationally.

Inconsistencies, however, show up in the registers, as the education system or types of education change over time. E.g. the introduction of the new grading scale in 2007/2008. Further, the registers continue expanding, most recently to adult education and continuing training. All registers are therefore not available for exactly the same periods.

## Reference List

- (1) Statistics Denmark. High Quality Data Documentation for Education [in Danish]. 2010. Available from <http://www.dst.dk/TilSalg/Forskningsservice/hkt4forsker/hkt4variabellisteforsker.aspx?population=26690>.
- (2) Statistics Denmark. Population and Housing Census in 1970 - Education [in Danish]. Statistics Denmark; 1977.
- (3) The Danish Educational Support Agency. Student Aid Abroad [in Danish]. The Danish Educational Support Agency; 2008.

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Figure 1: Education data sources in PER for the ethnic Danish 1945-1990 birth cohorts

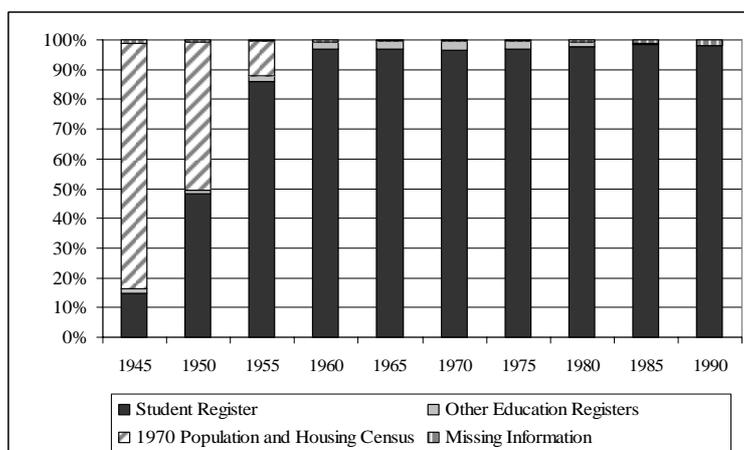


Figure 2: Education data sources in PER for the immigrant 1945-1990 birth cohorts

