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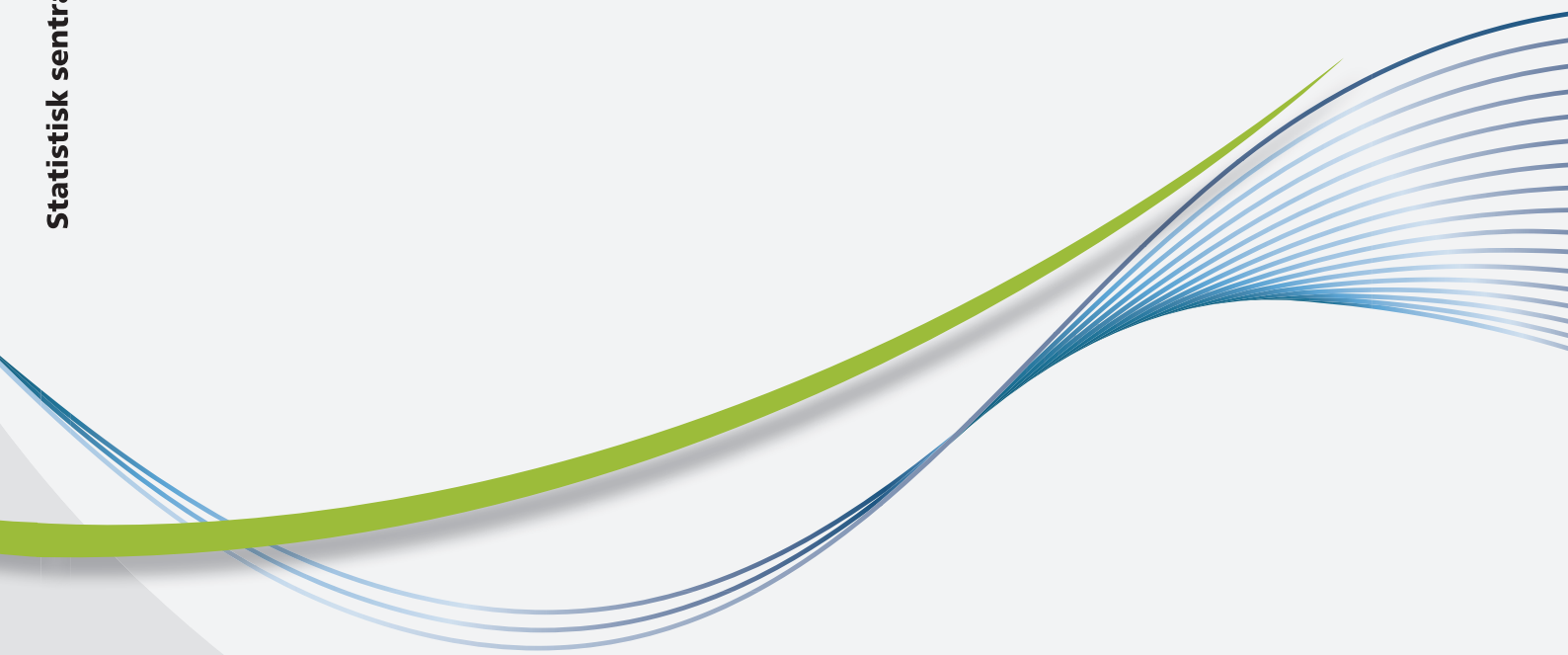
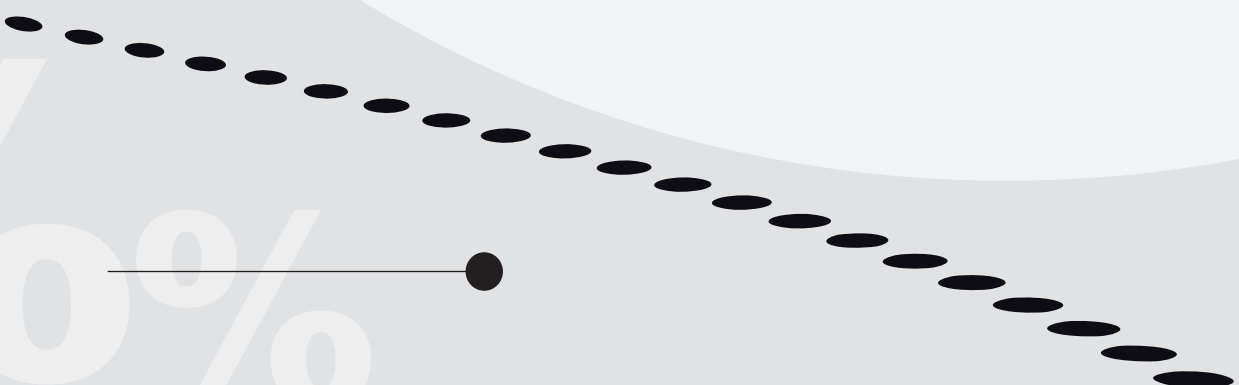
Arve Hetland

Cohort Analysis

Documentation for the cohort analysis component of the OECD data table delivery





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Cohort Analysis

Documentation for the cohort analysis component of the OECD data table delivery

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Symbols in tables	**Symbol**
Category not applicable	.
Data not available	..
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Not for publication	:
Nil	-
Less than 0.5 of unit employed	0
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Preface

This is documentation for one part of a larger delivery of tables per Statistics Norway internal reference W15/0716, specifically the tables delivered as part of the Cohort Analysis.

The table delivery described in this document and in Documents 2016/37 ("Benefit Analysis - Documentation for the benefit analysis component of the OECD data table delivery") were both made for and used in the OECD report "Investing in Youth: Norway" (http://www.oecd.org/norway/investing-in-youth-norway-9789264283671-en.htm).

Statistisk sentralbyrå, 4 May 2018

Torstein Bye

Abstract

This document specifies the data sources, assumptions, and constraint that are relevant to the tables that have been produced and delivered in response to the Cohort Analysis-part of a larger data delivery of tables to OECD (Statistics Norway's reference W15/0716). The specific data sources are not discussed in detail here, but references to further documentation are provided. Also provided here are some simple descriptive statistics of the target population of the analysis.

The delivery for the Cohort Analysis consists of three main tables (plus a presentational variation of each table):

1. NEET spell count
2. Total NEET periods
3. Timing of NEET periods

These tables are not included with this document.

The delivered tables are based on a longitudinal perspective, in that they follow a specific birth cohort, the 1990 cohort, month by month in the period January 2006 to December 2013, and compares various registered statuses for each person in each month.

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1. Assumptions and presumptions

1.1. Target population

The tables for this cohort analysis are based on the 1990 birth cohort of Norway, and their status as being in education, working, and/or self-employed during the period from 1.1.2006 to 31.12.2013.

The target population is the 1990 birth cohort of Norway (those who were 15 years old by January 1st 2006), more specifically those born in 1990 who were also registered as inhabitants of Norway per the National population register ("Folkeregisteret") on 01.01.2006 and on 31.12.2013. Persons born outside of Norway in 1990, but who were inhabitants on 01.01.2006 and 31.12.2013 are also included (i.e. those who immigrated before the age of 15).

The population is shown in two subgroups, those in the population who were born in Norway and those who immigrated (born outside Norway). Immigration is measured by immigration categories (see references), where the following categories are considered as immigrants and all other are considered born in Norway:

B – Immigrants
E – Foreign-born with one Norwegian-born parent
G – Foreign-born to Norwegian-born parents

Note that only category B (Immigrants) are counted as immigrants in official statistics, and thus those "born outside Norway", as used here, are not the same as "immigrants" as used in official statistics.

The definition of the population used in this analysis is can thus be summarized precisely as: Anyone who

1. ever lived in Norway (registered as inhabitant) and
2. were born in 1990 and
3. were registered as inhabitant on 1.1.2006 and
4. were registered as inhabitant on 31.12.2013.

1.2. Education

Educational attainment is linked from the National Education Database (NUDB). The detailed level of education has been grouped into the following categories (one-digit NUS-codes in parenthesis; see References):

1. Compulsory school only (NUS 2)
2. Upper secondary school (NUS 3-5)
3. Some college or short college-level course (NUS 6)
4. University degree (NUS 7-8)
5. Unknown or no education (NUS 0, 1, 9, missing)

Official statistics for education (see References) use the exact same grouping, but use different names for some categories:

1. Below upper secondary education (NUS 2)
2. Upper secondary education (NUS 3-5)
3. Higher education, short (NUS 6)
4. Higher education, long (NUS 7-8)
5. Unknown or no completed education (NUS 0, 1, 9, missing)

The highest educational attainment for the population in these tables is measured as of October 1st 2013.

Status as "in education" is also from NUDB, specifically from the event history table for education summarized for each person (event history table F_UTD_PERSON in NUDB). Note that compulsory school is not registered in the event history as such, but is presented only as an endpoint for that education, in June of the year of completing compulsory school. For the purposes of being "in education" for this analysis the entire cohort is assumed to be "in education" for the first 6 months of 2006. The actual event history starts with secondary school; those who start secondary school in the autumn after finishing compulsory school are considered to be continuous in education from end of compulsory school in June, and are thus considered to be in education over the summer holiday. They will be registered as continuous "in education", including summer holidays and if there are no gaps in the education, until completion. I.e. a person who starts secondary after finishing compulsory, and then moves straight on to university and finishes a degree, will be registered as "in education" continuously until getting the degree (or stopping the studies).

Note that the event history in NUDB includes students studying abroad, *when* this study is supported by Norwegian State Educational Loan Fund (Lånekassen). There may thus be a few who are studying abroad without support from Lånekassen, and these will most likely be flagged as NEET in these tables. We assume, however, that this number is very low.

Also note that those attending folk high school ("folkehøyskole") and who are registered with a NUS-code in NUDB will be considered as "in education". In NUDB these will be registered with NUS-codes 301104, 301105 or 31106 and considered to be in "upper secondary education, basic education". For tables grouped by education, these are grouped under "Upper secondary school".

1.3. Working

Status as "working" is from the event history for employment in FD-Trygd, specifically the event history table F_JOBBER. This table contains all registered employments for all persons, with possible overlapping jobs. For this analysis, we are not interested in how many jobs or how much someone is working, but only whether they are gainfully employed or not. Any person with at least one job registered in the event history table in any given month (during the analysis period) is considered to be working.

1.4. Self-employed

FD-Trygd does not include information about self-employed. Although we are looking at a very young population here, where probably few are self-employed, it was deemed prudent to also consider self-employment. We get status as "self-employed" from the register-based employment statistics (REGSYS). This status is per calendar year and cannot be broken down by month. Therefor a person who is registered as self-employed is for the purposes of this analysis considered to be self-employed the entire calendar year in which that person has status as self-employed.

In REGSYS the total number of self-employed is set, by definition, to be equal to the number of self-employed in the Labour Force Survey (LFS), per fourth quarter each year. Individual status as self-employed is based on tax return data (register data from "Skatteetaten").

As the number of self-employed is based on survey data, this may affect the uncertainty. However, as expected, the number of self-employed in this population is very low; it increases from about 0.1% in 2006 to about 1.4% in 2013 (compared, for example, to employment at least one month for the same population and the same years: 15.2% in 2006 and 76.3% in 2013). See also Table 2.3 below.

1.5. NEET

Based on the statuses as defined above (in education, working, self-employed), for the purposes of this analysis NEETs are the defined as the population (as defined above) less those with status as "in education", those with status "working" and those with status "self-employed". For each month in the period the statuses are checked, and if a person is not in either of the three "exclusion"-statuses" in that month, then that person is considered NEET *in that month*.

Note that no person in this population, by definition, is NEET during

- the first six months of the period (January-June 2006), as everyone are considered to be finishing compulsory education and will thus have status "in education" (as discussed under Education above).
- any year in which they are registered with status "self-employed", as they are considered to be self-employed the entire calendar year (as discussed under Self-employed above).

NEET-spell periods and durations

NEET spells are continuous periods in which a person has status as NEET as defined above, lasting at least one month. The length of a spell is simply the number of consecutive months in which the status is NEET. Any person in the target population can have from zero to several NEET spells, of varying length. These spells are summarized in the delivered tables, as defined in the specification, by the length of each spell, the number of spells, and the timing of spells (number of spells per calendar year in the period).

NEET-spell censoring

The durations of all NEET-spells are right censored 31.12.2013, i.e. if there are months in NEET-status after this, these months are not counted towards the length of the spell. As all persons are non-NEET at the start of the period (see Education, above), no left censoring is necessary for the tables showing the entire period.

For the tables that show the timing, i.e. NEET-spells per year, the durations are explicitly right *and* left censored 31.12. and 1.1. in each year shown (except that there is no left censoring in 2006). The valid spell lengths per year are 0-12 months.

2. Summary statistics for the target population

The following tables show only summary statistics for the population and its statuses summarized per year; no detailed results are presented here. The target population, as defined above, consists of 62377 persons.

Tabell 2.1 Target population by sex and by immigration status

Sex		Immigrated to Norway before 1.1.2006	
Males	Females	Born in Norway	Immigrated
32 060	30 317	58 339	4 038

Source: Statistics Norway

Tabell 2.2 Target population by highest attained education per October 2013

Education	Persons
Compulsory school only	15 425
Upper secondary school	27 197
Some college or short college-level course	19 008
University degree	211
Unknown or no education	536

Source: Statistics Norway

Tabell 2.3 Number of persons in the target population who are under education, working, or self-employed at least one month in the year. 2006-2013

Year	In education	Working	Self-employed
2006	62 377	9 466	56
2007	61 633	19 004	93
2008	60 765	35 289	159
2009	57 972	42 477	194
2010	49 356	44 449	337
2011	42 709	45 496	396
2012	39 092	46 726	676
2013	36 108	47 863	863

Source: Statistics Norway

Tabell 2.4 Number of persons in the target population who are NEET at least one month of the year and who are NEET in December, by year. 2006-2013

Year	NEET at least one month	NEET in December
2006	3 747	2 579
2007	5 469	2 798
2008	8 104	4 216
2009	18 530	11 543
2010	24 775	11 872
2011	21 220	11 464
2012	18 392	10 312
2013	17 445	10 382

Source: Statistics Norway

Tabell 2.5 Summary statistics for the measurements used for NEET spells in the delivered tables, over the entire period 2006-2013[1]

	Persons (N)	Mean	Median	Upper Quartile	Maximum
Total number of NEET spells	62 377	1,31	1	2	14
Total number of short NEET spells[2]	62 377	0,54	0	1	13
Total number of medium NEET spells[2]	62 377	0,20	0	0	5
Total number of long NEET spells[2]	62 377	0,56	0	1	6
Total length of NEET spells, in months	62 377	12,01	6	17	91

[1]Minimum and lower quartile are both zero for all measures presentment in the table.
[2]Short spells: 1-3 months. Medium spells: 4-6 months. Long spells: 7 months or more.
Source: Statistics Norway

References

Data-sources

The population is based on information on all persons from the population register, and then limited to those born in 1990 and registered as inhabitants as of 1.1.2006 and 31.12.2013 as per the demography event history table of FD-Trygd, F_DEMO.

Data for employment, used for the status as "working", is from FD-Trygd table for employment event history, F_JOBBER.

About FD-Trygd, including up-to-date list of tables and variables (in Norwegian only):
http://www.ssb.no/omssb/tjenester-og-verktoy/data-til-forskning/fd-trygd

List of tables and variables available in FD-Trygd (English; out of date and does not include F_JOBBER):
"http://www.ssb.no/a/english/publikasjoner/pdf/doc_200705_en/doc_200705_en.pdf

Immigration status uses the official immigration categories:
http://www.ssb.no/en/klass/#!/klassifikasjoner/82

Data for the highest attained education level as of October 1st 2013 and status as "in education" during the analysis period (2006-2013) is based on the National Education Database, NUDB.
https://www.ssb.no/en/utdanning/statistikker/utniv

For status as "in education" we use the event history table F_UTD_PERSON from NUDB:
http://www.ssb.no/en/omssb/tjenester-og-verktoy/data-til-forskning/utdanning

The Norwegian Standard Classification of Education (NUS2000):
https://www.ssb.no/en/klass/#!/klassifikasjoner/36

Information on self-employment is based on the register-based labour marked statistics (REGSYS), which is again based on the Labour Force Survey (LFS) and registers.

About REGSYS (About the statistics):
https://www.ssb.no/en/arbeid-og-lonn/statistikker/regsys

Documentation for REGSYS (Norwegian only):
http://www.ssb.no/arbeid-og-lonn/artikler-og-publikasjoner/registerbasert-sysselsettingsstatistikk

Other references

OECD (2018), Investing in Youth: Norway, Investing in Youth, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264283671-en.

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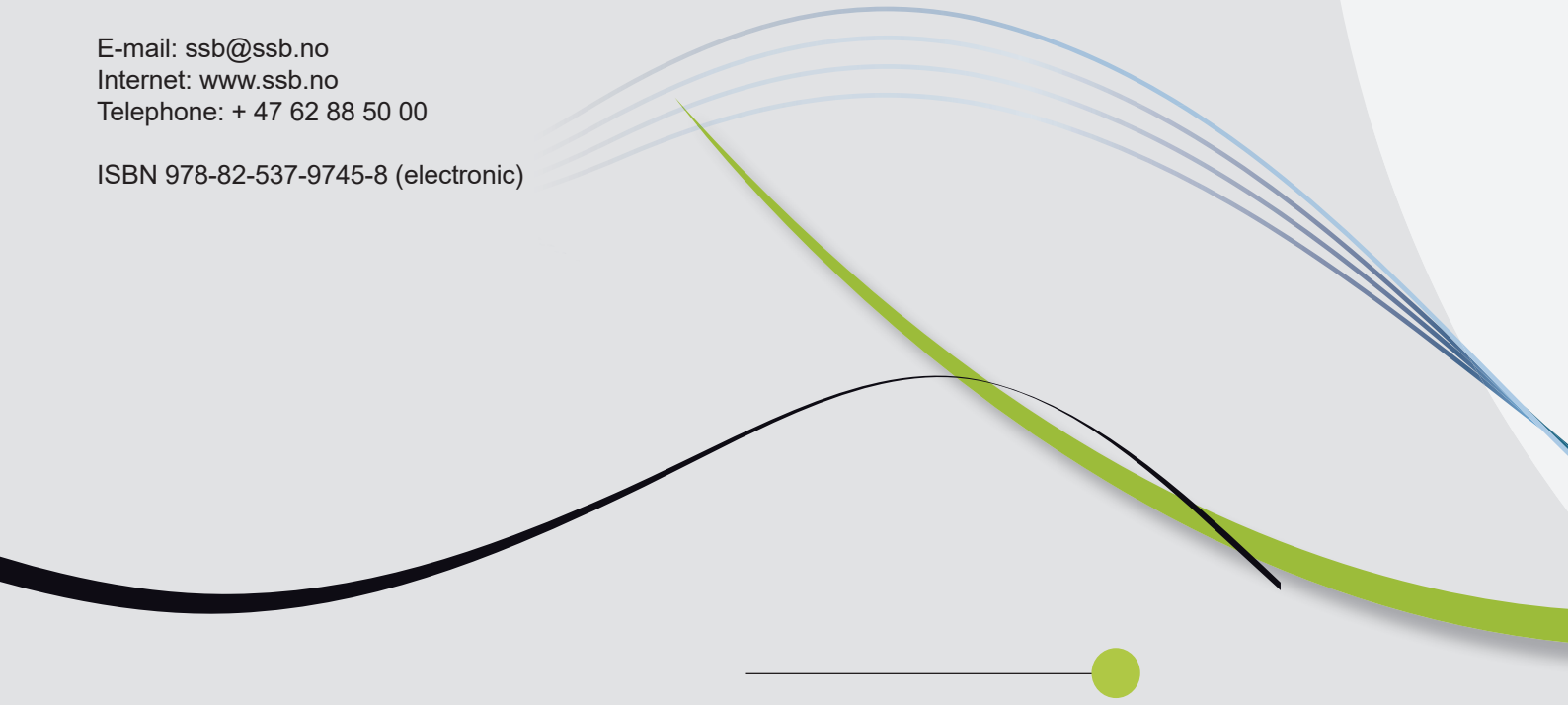

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