

**Documentation of statistics for
Adult Education Survey (AES) 2011**

1 Introduction

The purpose of Adult Education Survey is to give a description of the adult populations participation in life long learning. The survey has been carried out in all EU-countries after the same guidelines. This makes the Adult Education Survey the best Danish survey for international comparisons on participation in the life long learning.

2 Statistical presentation

The AES (Adult Education Survey) describes the adult Danish population's (aged 25-64 years) participation in life long learning activities, both in the formal and non-formal education system. Respondents answered among other things about the content of their ongoing education activities, the costs involved, and the volume of the education. .

2.1 Data description

The AES (Adult Education Survey) describes the adult Danish population's (aged 25-64 years) participation in life long learning activities, both in the formal and non-formal education system. Respondents answered among other things about the content of their ongoing education activities, the costs involved, and the volume of the education. Usage of computer and web as well as knowledge of foreign languages were a part of the survey too. Formal education leads to a public acknowledged exam or qualification. Non-formal education is courses, seminars, workshops, job training etc. which don't lead to an acknowledged competence.

2.2 Classification system

The sampling has been made given the groups: 25-34 years, 35-49 years and 50-64 years.

2.3 Sector coverage

The educational sector.

2.4 Statistical concepts and definitions

Formal Education: Educational activities leading to a public recognized examination or qualification. Formal education is typically offered by an educational institution like a technical school or university and tend to include a longer time period as an individual course. The educations are structured in relation to target, time period and support, and ends up with a recognized proof of exam. The process of learning is intended by the student. Typical exams are e.g. public school, baccalaureate, HF etc, vocational educations like office and trading educations, social worker, university educations like math, economics or law.

Non-formal education: Non-formal education consists of courses, seminars and similar without any public recognized exam. Non-formal education don't lead to a public recognized proof or similar. They give no formal competences, but has learning as a main purpose.

Work-related reasons for participating in an education are defined based on a wish to gather new knowledge or get new skills, which are needed at the workplace or for higher salary or for being promoted.

In relation to international comparisons the AMU courses are categorized as being non-formal education.

2.5 Statistical unit

Persons.

2.6 Statistical population

Persons aged 25- 64 years of age living in Denmark at the time of the survey.

2.7 Reference area

Denmark.

2.8 Time coverage

The AS survey was conducted in 2011.

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

Persons.

2.11 Reference period

The Data collection of the AES survey was conducted between 16th of August 2011 and 3rd of October 2011. All questions on participation in education, instruction hours, etc. relates to the latest 12 month before the interview. Administrative registers used in the survey are based on the latest update related to the reference period.

2.12 Frequency of dissemination

AES was conducted 2006 as a pilot survey. The results are not published.

The AES is planned to be carried out every 5th year, starting from 2011 onwards with an expected publication in News from Statistics Denmark in the middle of the following year. Data collection for the next AES is planned to take place in the period from 01-07-2016 to 31-03-2017.

2.13 Legal acts and other agreements

The Act on Statistics Denmark.

AES has been conducted according to the Commission's regulation (EU) no 823/2010 of Sept. 17th, 2010 about implementation of the regulation of the European Parliament and the European Council (EF) no 452/2008 about conducting and development of statistics about education and life long learning of adult persons.

2.14 Cost and burden

Nor evaluated since participation is voluntary.

2.15 Comment

No supplementary documentation is available.

3 Statistical processing

Data comes from interviews conducted in 2011. 3660 interviews with persons in the age group 25-64 years have been conducted.

The sample has been drawn from the Population register. The net sample size is 5837 persons.

3.1 Source data

The gross sample size of the AES survey was 7,335 respondents. A part of this sample has not been contacted because of a "researcher protection" ("forskerbeskyttelse") which is standing rejection by the respondents to be contacted for research purposes. The difference between the gross and the net sample - i.e. 1,489 persons - is caused by this rule (which is present for all research conducted in Denmark when sampling from the Central Person Register).

Population: The Danish population of age 25-64 years.

Sampling Frame: Central Person Register (CPR).

Total overview:

Net sample: 5,837

- 25-34 years: 2,434
- 35-49 years: 1,733
- 50-64 years: 1,670

Respondents: 3,660 (response rate 63 pct.)

The majority (55 pct.) of the interviews was conducted by web-interviews, and 45 pct. was interviewed by phone. Different administrative sources are used to select the sample. Administrative sources are also used to obtain various background information on the people interviewed, for example on educational level or workplace.

The following registers has been used for the AES:

- Central Person Register (CPR)
- Population Register,
- Educational Classification Module (BU)
- Register based-labor force statistics (RAS)
- Employment Classification Module (AKM).

3.2 Frequency of data collection

Approx. every 5th year.

3.3 Data collection

The persons selected were checked for telephone number, and contacted by phone if possible. The persons for whom a phone number could not be identified were contacted by letter asking either to get in touch with Statistics Denmark by phone or alternatively to answer the interview on the web. Web-interviews are used as a supplement to telephone interviews, because the experience from other surveys has shown it is some certain age groups who can't be reached by phone. In other words the usage of web-interviews increases both the representativeness and the as well as the response rate.

3.4 Data validation

In order to assure a high quality of the data some control procedures were build-in in the as well in the web as in the telephone set-up for the interviewing. Data was also edited for validity and consistency between the answers.

3.5 Data compilation

A weighting procedure on sex and age was carried out in order for the sample to reflect the distribution of the two variables in the universe. For each of the three age groups the results were enumerated to represent the total universe.

It is estimated that a mix of web- and telephone interviews has given a higher response rate compared to the procedure where only web interviews or only telephone interviews respectively were conducted. The usage of web-interviews helps to make the survey more representative and to increase the response rate as certain groups who can't be contacted by telephone are willing to answer the web interview.

The weighting procedure in the AES is based on a regression estimator. In the regression estimator auxiliary information is exploited in the estimation procedure. In the case of the Danish AES survey the auxiliary information comes from the statistical registers of Statistics Denmark. The basic idea in the regression estimator is that relevant auxiliary information (chosen in a way that it covariates with variables of interest in the survey) contain information about study variables. This information is utilized in the estimation process to obtain better estimates. The stronger the correlation between target variables and auxiliary variables, the better is the final estimate. The quality is improved by lowering the standard error on estimates and/or by correcting for non response bias. An important characteristic of the regression estimator is the calibration property. Since information from administrative registers is used as auxiliary information the final estimates are based on distributions from administrative registers and not from the response population. This means that the final estimates are calibrated according to the auxiliary information from administrative registers. The estimation is carried out using the SAS-macros CLAN developed by Statistiska centralbyrån in Sweden. The variance (and standard error) estimate is based on a Taylor approximation.

3.6 Adjustment

No further corrections are carried out apart from what has been described in Data Validation and Data Treatment.

4 Relevance

AES is mainly used by public authorities and international organizations and it s the major detailed survey giving details about adults participation in life long learning activities on an international bases.

4.1 User Needs

AES (Adult Education Survey) can be used by a number of users, among others by ministries, research institutes, international organizations, journalists, and others with an interest in the educational area.

4.2 User Satisfaction

No user satisfaction survey has been conducted.

4.3 Data completeness rate

AES has been conducted according to the Commission's regulation (EU) no 823/2010 of 17th Sept. 2010 about implementation of the regulation of the European Parliament and the European Council (EF) no 452/2008 about conducting and development of statistics about education and life long learning of adults.

EU recommended that the interviews were conducted by the assistance of an interviewer, preferably as face to-face interviewer or by computer assisted interviewing (CAPI) in order to limit mistakes and inconsistencies in the answers. For cost reasons the interviews were conducted as computer assisted interviewing and as web-interviews. recommendedii.in

5 Accuracy and reliability

The AES is in general a reliable survey. However, when analyzing data based on breakdown of several variables the basic number of respondents can be very small which increases the uncertainty considerably. Results from the AES survey can be used for labor market analysis, in research projects and in the public debate.

5.1 Overall accuracy

Equivalent to other surveys based on samples the results of this survey have some sampling errors attached. The sampling errors are related to the sample selection and the patterns of non-response. Non-response occurs when an interview with a selected person is not carried out. Non-response increases the inaccuracy rate because the probability of conducting an interview with all selected people is uneven. In other words, it is the same kind of sections of the populations where interviews are not being carried out at the same extent as other sections of the population. Consequently the level of representatively is affected.

In the AES survey it was decided to apply intervals of confidence at a 95 significance level. The uncertainty has been calculated for participation in formal education and participation in courses.

For AES a gross sample of 7,335 persons was drawn from the population register (CPR). 20 pct. of the sample size cannot be contacted either because they have chosen the option in the Central Person Register law to refuse participation in surveys, have passed away, or have emigrated. Of the remaining group, the response rate was 63 pct. If the number of completed interviews are calculated against the total gross sample of 7,335 persons the response rate is 50 pct. this must be considered as satisfactory for an interview this length.

For tables based on break-downs of various variables it can occur that the result is based on very few respondents. This means that the re-scaling to the total population can sometimes be based on very few respondents. Consequently, the tables must be looked upon with an additional uncertainty compared to results based on a larger number of respondents.

5.2 Sampling error

The sampling error is calculated as an interval of +/- around an estimated value, usually expressed by 95 pct. confidence level.

The uncertainty for the participation rate in non-formal education is as follows:

Sex Estimated proportion 95 pct. confidence interval Total 52,7 pct 51,1-54,3 pct. Male 55,0 pct. 52,7-57,3 pct. Female 50,4 pct. 48,1-52,7 pct. Age Estimated proportion 95 pct. confidence interval 25-34 years 52,3 pct 49,7-54,9 pct. 35-49 years 57,4 pct 54,6-60,2 pct. 50-64 years 47,7 pct. 44,9-50,5 pct.

5.3 Non-sampling error

Apart from coverage errors related to sex and age groups no estimations have been conducted in relation to other uncertainties than sampling errors. In surveys like this also errors arising by the respondent's misunderstanding of questions or concepts are present. For interviews conducted as telephone interviews these types of error are limited.

5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

5.6 Quality assessment

For sample based surveys the results have some sampling errors involved. The sampling errors are related to the sample selection and the patterns of non-response. Non-response occurs when an interview with a selected person is not carried out. Non-response increases the inaccuracy rate because the probability of conducting an interview with all selected people is uneven. In other words, it is the same kind of sections of the populations where interviews are not being carried out at the same extent as other sections of the population. Consequently the level of representatively is affected. The register used for sampling has a total coverage of persons.

The AES survey is based on a sample was 5.837 persons aged 25-64 years (3 age groups: 25-34 years, 35-49 years, 50-64 years). The sample is made so that persons between 25 and 34 years have a larger probability of being selected. This is done to assure a sufficient number of respondents in this group. In the weighting procedure this is accounted for in such a way that the survey reflects the total population in the three age groups. the unit is individual persons.

The respondents were selected using stratified random sampling. The population was divided into three non-overlapping strata, and samples were selected from each stratum independently. The three strata are defined by the age groups.

Stratum Age group 1 24 - 35 years 2 34 - 49 years 3 50 - 64 years

In the Danish AES it has been decided to apply intervals of confidence at a 95 significance level.

For AES 2011 a sample of 7,335 persons was drawn from the population register (CPR). 20 pct. of the sample could not be approached because of protection laws in the register against research purposes. Of the remaining group a response rate of 63 pct. was reached.

5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](#). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

5.8 Data revision practice

Final figures are published.

6 Timeliness and punctuality

The AES is in general published according to agreed timing.

6.1 Timeliness and time lag - final results

Only final results are published.

6.2 Punctuality

The AES results are in general published according to the announced timing.

7 Comparability

Data from the EU countries are published by Eurostat. Comparable data have in 2014 been available from OECD's PIAAC-survey.

7.1 Comparability - geographical

Comparable data for the AES-surveys within EU are being published by Eurostat.

7.2 Comparability over time

The AES survey was conducted in 2011. Comparison with the former AES survey from 2008 is not possible because the results from the 2008 survey have not been enumerated.

7.3 Coherence - cross domain

International statistics:

Labor Force Survey (LFS) since 2003

Eurostat: [Eurostat AES](#).

The OECD-PIAAC survey (Program for the International Assessments of Adult Competences) also includes questions about participation in formal and non-formal education. In general the results seen from the PIAAC survey are at a somewhat higher level compared to the AES survey:

Education: Formal Non-formal Survey: PIAAC 14,0 pct. 61,4 pct. AES 12,6 pct. 52,7 pct

The PIAAC survey is larger than the AES survey and is based on face-to-face interviews in the respondent's home. The differences in the two surveys are mainly based on the differences in survey design, differences in the conceptual approach to the subject and the actual formulation of the questions. Questions which are memory-based will in general lead to a certain under-estimation. The size of this under-estimation will in general depend on how you try to recall the information, e.g. how the questions are introduced, whether the interviewer is actively involved, how the questions are put forward, if visuals are used etc.

7.4 Coherence - internal

Not relevant for these statistics.

8 Accessibility and clarity

The Danish AES is published in the news release of NYT fra Danmarks Statistik (News from Statistics Denmark) and in the StatBank Denmark. The main results of AES will be published by Eurostat in a common European report.

8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

8.2 Release calendar access

The Release Calendar can be accessed on our English website: [Release Calendar](#).

8.3 User access

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

8.4 News release

Link to News Release (in Danish) from Statistics Denmark 17th June 2014, AES 2011: [Nyt fra Danmarks Statistik, 27. juni 2011, Voksne i uddannele 2011](#)

8.5 Publications

No publication apart from NYT fra Danmarks Statistik.

8.6 On-line database

[AES 2011](#): Adult education by sex, age, level of education, employment status, urbanity and reason for non-formal education.

8.7 Micro-data access

Researchers have access to anonymised sets of micro data based on agreement with Eurostat.

8.8 Other

Not relevant for these statistics.

8.9 Confidentiality - policy

[The general discretion policy of Statistics Denmark](#).

8.10 Confidentiality - data treatment

The general practices of Statistics Denmark has been applied.

8.11 Documentation on methodology

No other public methodological documentation is available. EU (i.e.. Unit 5: Education, Health and Social Protection) is currently working on a report: Adult Education Survey 2011 - EU Quality Report. However, when this report is available is not known.

8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

9 Contact

The administrative placement of this statistics is in the division of Population and Education. The person responsible is Johanne Snog Gillesberg, tel.: +45 39 17 31 25, e-mail: jsg@dst.dk

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