

Documentation of statistics for Home to work commuting 2024

1 Introduction

The statistics measure commuting between place of residence and workplace within Denmark, including the distances between commuters' homes and workplaces. Commuting statistics viewed as commuting between municipalities can be compiled from 1980 onwards. The distance between home and workplace was first calculated in 2006. The statistics are comparable in its current form from 2008 onwards.

2 Statistical presentation

The statistics provide an annual, individual-based account of employed persons' commuting between place of residence and workplace on the last working day of November. The distance between commuters' home and workplace is also calculated in kilometres (km). The commuting statistics are published the StatBank, where the data can be distributed on place of residence, workplace, commuting distance, gender, industry (DBO7), and socio-economic status.

2.1 Data description

The commuting statistics are published annually, providing information about commuters' place of residence, workplace, and the distance between them. The statistics are based on the Register-based Labour Force Statistics (RAS). RAS has information on the population's primary attachment to the labour market on the last working day of November. It includes, among other things, information on employed persons' residential and workplace addresses, which together form the basis for the commuting statistics.

In the StatBank, the commuting statistics can be distributed on place of residence, workplace, commuting distance, gender, industry (DBO7), and socio-economic status. Since RAS includes a range of additional information such as age, origin, and education, various background characteristics can be linked to the commuting statistics as needed. Read more in the [documentation of RAS](#).

2.2 Classification system

The commuting statistic is made on the basis of the Register-Based Labour Force Statistic (RAS). In RAS a short reference period are used - the last week of November. This point of time is chosen partly because information about wage earner jobs historically has referred to the situation at the end of November, and partly because December is an atypical month from a employment related point of view. RAS is compiled according to the international guidelines from ILO (International Labour Organization) for classification of the population's affiliation to the labour market.

2.3 Sector coverage

The statistic covers all sectors.

2.4 Statistical concepts and definitions

Commuter: A person who is employed on a workplace address that is different from the residential address. In the statistic commuters is thereby defined as employed persons who has a commuting distance between workplace and residence that is different from zero. Employed persons whose workplace and residential address are the same will have a commuting distance that is zero and will therefore not be defined as commuters. Employed persons without commuting distance are included in tables in the Statbank with the value "no commuting".

Commuting distance: The shortest road distance from the employed persons residential address and workplace address. The return journey is not included in the commuting distance.

2.5 Statistical unit

The statistical unit is persons and distance in km.

2.6 Statistical population

The population is residents who are defined as employed in the Register-based Labour Force Statistics (RAS) at the end of November.

2.7 Reference area

Denmark.

2.8 Time coverage

The statistics can be compiled from 1980, and data are available in the StatBank from 1993 onwards (i.e., at the end of November 1992). Commuting distances have been calculated from 2006 (i.e., at the end of November 2005).

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

Number of persons and distance in km.

2.11 Reference period

RAS is counted on the last workday of November - i.e. the 29th. of November 2024.

2.12 Frequency of dissemination

The statistic is published annually.

2.13 Legal acts and other agreements

§6 in Law about Statistics Denmark. Statistik](https://www.dst.dk/da/OmDS/strategi-og-kvalitet/kvalitet-for-statistikproduktion/lovgivning.Statistik](<a href=)).

2.14 Cost and burden

RAS is exclusively compiled on the basis of administrative and statistical registers. Therefore there is no response burden.

2.15 Comment

More information about commuting can be located on [the subject page](#). More information about the data foundation on [the subject page for employment](#).

3 Statistical processing

The commuting statistic is compiled on the register-based labour force statistic (RAS), which is based on the Labour Market Account (LMA) - a longitudinal register. A comprehensive data validation is done in the production of AMR. RAS is compiled taking a snapshot (on the populations primary attachment to the labour market) on the last working day in November based on LMA. Based on the information about the address of residence and workplace for employed persons the commuting distance is calculated.

3.1 Source data

The commuting statistics are compiled based on RAS, which, from the publication on 28 April 2015, is based on the Labour Market Account (AMR). In this context, the commuting statistics have been revised back to November 2008. At the same time, the dating of the statistics was changed so that the statistics are now dated according to the reference point at the end of November.

For the commuting statistics, the information on employed persons' workplace and residential addresses in RAS is particularly relevant, as these data form the basis for calculating commuting distances.

3.2 Frequency of data collection

The statistic is published yearly.

3.3 Data collection

Data for the statistics are collected through deliveries from the Register-based Labour Force Statistics (RAS).

3.4 Data validation

The non-hourly-based AMR (AMR-UN) forms the data basis for RAS and, consequently, the commuting statistics, with data validation carried out during the production of AMR-UN.

3.5 Data compilation

The commuting statistic is compiled on the register-based labour force statistic (RAS). RAS compiles the primary affiliation to the labour market at the end of November. Read more about the data production in RAS [here](#).

Especially two variables from RAS are central for the commuting statistic - the address of residence and the workplace. Based on these information the distance between the persons residence and workplace is calculated. The calculation requires that all movements between residence and workplace is done by car; the shortest road distance is prioritized; and regimentations, turn restrictions and level crossings are taken into account. Approximately 93 pct. of all relations between residence and workplace can be calculated. The remaining 7 pct. can't be calculated due to inadequate information about address; the workplace is outside of Denmark or on a ship; or logic isolation. Logic isolation is e.g. a laboratory that has to be placed isolated and therefore is placed on an island without official ferry service.

In some cases the distance can be calculated even though the address is inadequate. If the address in RAS can't be retrieved from the address database a manual relocation to the nearest adjacent address in the database is done. Since this process is time consuming the relocation is only done for those addresses that have at least 100 persons employed or 20 persons resident.

If the reason is logic isolation an address in the port, from where there is information about ship transfer to the island, is defined. From this address a sail route to the island is specified and the length of this imaginary sail route is added to the distance between the start address and the end address.

All other non placeable addresses is gathered in municipal centers. The centers is calculated based on existing addresses of residence and workplace. On that basis the distance is calculated.

A commuting distance can thus be calculated for all employed persons in RAS except for those working abroad or on ships.

The average commuting distance is based on the commuting distance for all commuters.

3.6 Adjustment

No corrections of data besides what is described under data validation and data compilation.

4 Relevance

The statistic is relevant for users interested in mobility on the labour market and the data foundation makes it possible to connect detailed information for analysis.

4.1 User Needs

The commuting statistic is widely used by many external users who use data to analyze mobility on the labour market. Besides the data foundation makes it possible to connect detailed information for analysis.

4.2 User Satisfaction

There has not been conducted any analysis of the user satisfaction with the statistic. However, a number of users committees are set up by Statistics Denmark with the purpose to support the dialog with the users, and involve them in the development of the statistics. There is thus also a user's committee pointed out for labour market statistics, which is involved in the work with the commuting distance.

4.3 Data completeness rate

There is no regulation in the field. RAS is, in the extent possible with register-based data, following the international guidelines from ILO (International Labour Organization).

5 Accuracy and reliability

The commuting statistics are based on the Register-Based Labour Force Statistics (RAS), which are used to describe the population's attachment to the labour market. RAS is compiled from a wide range of data sources that are integrated, error-checked, and harmonised within the labour market accounts. RAS is produced as a snapshot at the end of November based LMA. Therefore, RAS does not carry the same level of uncertainty as statistics based on sample surveys.

It is also important to be aware that the calculated commuting distance reflects an ideal situation where every person is believed to travel from residence to workplace by the shortest route and by car.

5.1 Overall accuracy

The register-based labour force statistic is the data foundation for the commuting statistic. In terms of sources of uncertainty it is especially the following that is relevant to the commuting statistic:

- *Determination of the primary attachment to the labour market for a person with more than one job at the end of November:* In these cases the primary job is determined by the number of hours worked. The job with the most hours is defined as the primary. For self-employed and assisting spouses the information about working hours is always imputed, and in some cases that goes for employees as well. For employees the imputed part has though decreased from 14 pct. in 2008 to barely 4 pct. in 2017. The imputation can in some cases mean that the wrong job is pointed out as the primary.
- *Employed distributed by industry:* There are some uncertainties concerning which workplace the specific employee job is situated, because some reports from the employers are insufficient. The insufficient reports causes a necessary search for and correction of errors regarding the workplaces, but even though the errors are corrected in the best possible way there will continuously be uncertainties about parts of the information about workplaces - especially on a detailed level. The uncertainties are especially linked to the detailed distributions of employment in the public sector and particularly on the municipality sector. In that area the distributions on industries within "residential care activities" (industry 87) and "social work activities without accommodation" (industry 88) are uncertain on a more detailed level, but also between the two industry. Detailed distributions on "Education" (industry 85) are also affected by uncertainties.

5.2 Sampling error

Not relevant for this statistic.

5.3 Non-sampling error

Nothing further to note.

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

RAS - the data foundation of the commuting statistic - is a total count and the data foundation is the Labour Market Account (LMA). In LMA various data sources are integrated, corrected and harmonized in one joined system. Since RAS is a total count of the population there is not the same uncertainties as with statistics based on surveys. Read more about the quality assessment of RAS in the [documentation](#).

Concerning the calculated commuting distance it is also substantially to be aware that it reflects an ideal situation where every employed person is assumed to be travelling from residence to workplace at the shortest possible route and by car. The distance is therefore a measure of how far a person must travel to get to work, and not an expression for the real traffic pattern. Accessibility, preferences and other habits are not taken into account. Neither is public transportation which will often follow another route than the shortest. And finally it also happens that the workplace address refers to a head office while the real workplace is placed differently.

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

When the commuting statistic is published data is considered final. However data can be revised as a result of changes in methods or new information available. Since the data foundation for RAS changes to the labour market account (LMA) following changes have been made:

1. At the publication of figures for the end of November 2013, where the labour market accounts were used as the data basis for RAS for the first time, the data for 2008-2012 was revised.
2. At the publication in April 2016 the data was again revised back to 2008. This revision had only a very limited impact on the employed population and thus on commuting statistics.

6 Timeliness and punctuality

Commuting statistics for commuting between municipalities are published approximately 11 months after the reference date. Commuting distances are published approximately 17 months after the reference date.

6.1 Timeliness and time lag - final results

Commuting statistics for commuting between municipalities are published approximately 11 months after the reference date. Commuting distances are published approximately 17 months after the reference date.

6.2 Punctuality

The statistic is typically published at the scheduled date without delay.

7 Comparability

The statistics can be compiled from 1980 and are comparable from 2008 onwards. Historically, there have been various data breaks in the RAS statistics, which are described in the statistical documentation for RAS.

7.1 Comparability - geographical

There is no EU regulation for the statistics, and only a limited number of countries have a data foundation that allows for the compilation of a comparable commuting statistic.

7.2 Comparability over time

Over the years some changes have been done in the data foundation RAS, which have influence on the possibility to compare the statistic over time. The commuting statistic is like RAS comparable from 2008 and forward. Particularly the following data breaks in RAS is important to the commuting statistic.

Data break

In 2015, RAS switched to use the Labour Market Accounts as its data source, and RAS was revised back to 2008. A minor revision of the time series back to 2008 was subsequently carried out in the 2016 publication. In particular, the data break between 2007 and 2008 is significant for comparability. Isolated, this data break led to a decrease in employment of 35,000–50,000 persons. It is not possible to perform a double count for 2007 or 2008 because the previous data source ceased to exist (transition from the Central Information Sheet Register to eIncome). The Central Information Sheet Register, like eIncome, consisted of employer reports submitted to the tax authorities. Employers had the option to indicate that an employee had been employed for the entire year. If this was not the case, the employer was required to provide the start and end dates of the employment period. It is assessed that, in some cases, employers reported that the person had been employed for the entire year even when this was not the case, resulting in an overestimation of employment levels.

There is also a data break in 2003 (November 2002). Changes in the labor market created a need for adjustments in the statistics, and at the same time, improved data sources made the changes possible. The changes in the statistics resulted, among other things, in a change in the priority order for persons in more than one status. For example, the priority was changed for persons who were simultaneously receiving early retirement benefits and employed.

Changes in Danish Industrial Classifications

In 1993 the classification changes from DSE77 to DB93. In 2003 it changes to DB03, and in 2008 to DB07. Read more about the [changes and the classification](#).

Municipal reform

The commuting statistic is published on municipal level in the StatBank. From November 2006 the statistic is published on the new municipalities after the structural reform. In the period November 1980–November 2006 the statistic is made up on the municipalities before the structural reform. November 2016 is therefore published with data from both before and after the reform.

7.3 Coherence - cross domain

The commuting statistics are compiled for employed persons in RAS. A commuter is defined by being employed in RAS and besides of that have an address of residence which is different from the workplace address.

7.4 Coherence - internal

Nothing to remark.

8 Accessibility and clarity

In the StatBank the statistics is published can be found under the subject [Home to work commuting](#). For further information, go to the [subject page](#).

8.1 Release calendar

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

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.

8.2 Release calendar access

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

8.4 News release

Not relevant.

8.5 Publications

Not relevant.

8.6 On-line database

The statistics are published in the StatBank under the subject [Home to work commuting](#) in the following tables:

- [AFSTA3](#): Employed persons (end November) by area of workplace, socioeconomic status, sex, commuting distance and time
- [AFSTB3](#): Employed persons (end November) by region, socioeconomic status, sex, commuting distance and time
- [AFSTB4](#): Average commuting distance (end November) by region, socioeconomic status, sex and time
- [AFSTA4](#): Average commuting distance (end November) by area of workplace, socioeconomic status, sex and time
- [PEND100](#): Employed (end November) by municipality of residence, area of workplace, sex and time
- [PEND101](#): Employed (end November) by region, industry (DB07), commuting, sex and time
- [LABY44](#): Employed persons (end November) by municipality group of residence, sex and commuting distance

8.7 Micro-data access

Researchers and other analysts from authorized research institutions, can be granted access to the underlying micro-data by contacting [Research Services](#).

8.8 Other

Data is available for DST Consulting and Statistics Denmark's Division of Research Services. More detailed information can be delivered by contacting DST Consulting.

8.9 Confidentiality - policy

[Data Confidentiality Policy](#) for Statistics Denmark is applied.

8.10 Confidentiality - data treatment

Discretion is made according to Statistics Denmark's confidentiality policy. This means among other things that data cells with less than three observations are not published.

8.11 Documentation on methodology

There are no separate documentation on methodology for the statistics.

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 these statistics is in the division of Labour Market, Social Statistics.
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