

**Documentation of statistics for  
Transport by Road by Danish Vehicles 2016 Quarter 2**

## 1 Introduction

The purpose of the statistics on goods transport by road by Danish vehicles is to monitor the vehicle-kilometer, tones-kilometer and transported goods by national and international freight.

Before 4th quarter of 2009 the statistics were compiled separately in national transport (within Denmark) and international transport (part or all of the journeys done outside Denmark). Since 4th quarter 2009 national and international transport has been joined in one common statistics with one data collecting.

## 2 Statistical presentation

The statistics cover transport with goods by Danish registered goods road vehicles.

The main variables are data on the vehicle, vehicle-kilometres, place of loading and unloading (by provinces), weight of goods, type of goods, kilometres driven, tonnes-kilometre and empty journeys.

### 2.1 Data description

The data collection covers transport done by Danish registered goods road vehicles. Transport by own account and for reward are both included. Empty journeys are included.

The statistics are based on survey on a sample of Danish registered road goods vehicles used for goods transport.

Road goods transport by vehicles only used for collection of domestic waste was not included in the statistics before 4th quarter 2009.

Transport with lorries not used for transport of goods is not included in the statistics. It can be specialised vehicles (mobile libraries, fire trucks, cranes, tow truck, school vehicle, snow plow, sweepers, etc.) and vehicles only used for internal transport outside public accessible roads.

The main variables are data on the vehicle, vehicle-kilometres, place of loading and unloading (by provinces), weight of goods, type of goods, kilometres driven, tonnes-kilometre and empty journeys.

### 2.2 Classification system

The following classifications are used:

- Types of dangerous goods. Class or subclass in accordance with the ADR convention, cf. Council Directive 94/55/EC
- Geographical division according to NUTS classification
- Types of goods by NST 2007 classification

### 2.3 Sector coverage

Goods transport on roads.

## **2.4 Statistical concepts and definitions**

Axles: Number of axles or sets of wheels.

Empty journey: An empty journey starts when an empty goods road vehicle moves from a place of unloading or depot/garage and ends when the vehicle at another place is loaded or parked in a depot/garage.

Goods road vehicle: A road vehicle designed to transport goods, i.e. a lorry or road tractor.

Gross weight of goods: Weight of goods including packaging but excluding weight of transport unit, e.g. container or pallets.

Journey: A journey is the movement of a goods road vehicle from a place of loading to a place of unloading or vice versa. A journey can include stops for breaks, rests etc. A journey can be without goods (cf. empty journey). A journey can be in several stages if during a journey goods are loaded or unloaded at several stops, e.g. roundtrips.

Journey with load: A journey with load starts by loading an empty goods road vehicle and ends when the vehicle is unloaded at another place.

Load capacity: Load capacity for goods road vehicle. In case of road trains the total load capacity for the whole road train.

Roundtrip: A roundtrip is a multiple stage journey and is either a collection trip where an initially empty vehicle are gradually loaded at several stops or a distribution trip where a loaded vehicle is gradually unloaded at several stops.

Tonne-kilometre: A measure representing the movement of one tonne of goods by goods road vehicle over one kilometre.

Total laden weight: Total laden weight is the total permissible weight including vehicle and goods.

Type of goods: Type of goods by the NST-2007 classification.

Type of transport: Transport by own account or for rent or hire.

Type of vehicle: The type of goods road vehicle, e.g. lorry or articulated vehicle.

Vehicle age in years: Vehicle age is the age of the vehicle since date of first registration.

Vehicle-kilometre: A unit of measure representing the movement of a road vehicle over one kilometer.

## **2.5 Statistical unit**

The unit is a journey.

## **2.6 Statistical population**

Danish registered goods road vehicles above 6 tonnes maximum permissible laden weight used for freight

## **2.7 Reference area**

Worldwide transport by Danish registered goods road vehicles.

## **2.8 Time coverage**

1999-

## **2.9 Base period**

Not relevant for these statistics.

## **2.10 Unit of measure**

- vehicle-kilometres in kilometres
- weight of goods in tonnes
- tonnes-kilometre in tonnes-kilometres
- empty journeys in number of journeys

## **2.11 Reference period**

01-04-2016 - 30-06-2016

## **2.12 Frequency of dissemination**

Quarterly.

## **2.13 Legal acts and other agreements**

Data collection is authorised by the Act on Statistics Denmark, consolidated act No 599 of June 22, 2000, section 8, subsection 1.

EC-legislation

- Council Regulation (EC) No 1172/98 of 25 May 1998 on statistical returns in respect of the carriage of goods by road
- Commission Regulation (EC) No 2691/1999 of 17 December 1999 on rules for implementing Council Regulation (EC) No 1172/98 on statistical returns in respect of the carriage of goods by road
- Commission Regulation (EC) No 2163/2001 of 7 November 2001 concerning the technical arrangements for data transmission for statistics on the carriage of goods by road
- Commission Regulation (EC) No 6/2003 of 30 December 2002 concerning the dissemination of statistics on the carriage of goods by road
- Commission Regulation (EC) No 642/2004 of 6 April 2004 on precision requirements for data collected in accordance with Council Regulation (EC) No 1172/98 on statistical returns in respect of the carriage of goods by road

## 2.14 Cost and burden

The total burden of response in 2013 (measured in fixed 2004 values) is calculated as

- 392,000 DKK regarding *International transport*
- 468,000 DKK regarding *National transport*

The burden of response is brought forward based on data from before the change in data collection in 2009 and does not take the change into consideration.

It is the assessment that the change did not increase the burden and that the total burden of response therefore at the most is 860,000 DKK in fixed 2004-values and is expected to be lower.

## 2.15 Comment

The statistics have a [theme page](#).

## 3 Statistical processing

Data are collected from a sample of road goods vehicles using the Danish register of motor vehicles as sample frame. Annually, approximately 8,000 vehicles are sampled.

The collected data are validated with respect to the correctness of reported data and data consistency.

### 3.1 Source data

The source of information is a sample of road goods vehicles drawn from the stock of vehicle registered in the Danish digital motor vehicle register. Data are collected through paper forms and web forms via the common public data collection platform Virk.dk.

### 3.2 Frequency of data collection

Data are collected weekly and publish quarterly.

### 3.3 Data collection

Data are collected through paper forms and web forms via the common public data collection platform Virk.dk. An [information page](#) for data providers are available in Danish.

### 3.4 Data validation

The collected data are validated with respect to the correctness of reported data and data consistency.

Consistency checks ensure coherence between the different data elements, e.g. if the weight of the goods exceeds the maximum laden weight of the vehicle. The checks involve coherence in total laden weight, laden weight, number of axles, kilometres driven and likewise.

Probability checks focus on journeys with very small or large values in kilometres or goods weight and the type of goods.

### 3.5 Data compilation

Data is reported by enterprises with transport by own account or for hire or reward.

The sample for transport by road by Danish road goods vehicles above 6 tonnes total laden weight is approximately 1,800 vehicles each quarter. The sample is around 4.5 percent of the stock of relevant road goods vehicles (lorries and trucks). For each vehicle the data provider must report transport during a single week (Sunday to Saturday). The true sample size is thus 0.35 percent of possible vehicle weeks.

The vehicles are divided into 35 groups according to type of transport, type of vehicle (lorries and trucks), total laden weight, available hitch and average annual kilometers driven. The sample is distributed between the groups to optimize the sample size given the requirements of statistical precision on transport performance measures.

The stratification is determined by the following characteristics (note that not all combinations exist and therefore there are only 35 and not 42 strata):

#### *First digit*

- 1 = 'Solo lorries (mostly)'
- 2 = 'Lorries with hook, 15-18 ton'
- 3 = 'Lorries with hook, 18-24 ton'
- 4 = 'Lorries with hook, 24 ton +'
- 5 = 'Road tractors, -18 ton'
- 6 = 'Road tractors, 18-24 ton'
- 7 = 'Road tractors, 24 ton +'

#### *Second digit*

- 1 = 'For hire or reward'
- 2 = 'Own account'

- Third digit \*

- 1 = "Driven less than median for segment"

2 = "Driven more than median for segment"

3 = "New car (no road worthiness tests)"

The selected vehicles are then distributed evenly over the weeks of the quarter.

The questionnaires are sent out one week at a time to be at the data provider a week before the reporting week begins. The responses are categorised as

1. Active during the week
2. Vehicle sold/deregistered
3. The vehicle is not used to carry goods
4. The vehicle was not active

In case of the last two categories a reason must be specified further. Only sold/deregistered vehicles and non-response is not included in the estimation and thus in the statistics. Sold/deregistered vehicles are about 8 percent of respondents while non-response typically is about 1 percent in first versions and below 0.1 percent in final figures.

All other vehicles are included in the processing. Of these around 60 percent are with information on journeys. The remaining vehicles are reported as inactive in the reference week because of lack of orders, holiday closure or not used for goods transport. The vehicles not used for goods transport could be special vehicles (mobile libraries, fire truck, tow truck, driving school vehicles, snow plows, sweepers) or vehicles used for use off public accessible roads.

The statistics are enumerated to a totals by a weight expressed as the number of weeks in the quarter (typically 13) times the number of vehicles in the population within the stratum (N) divided by the number of vehicles in the sample (excluding non-response and sold/deregistered vehicles) within stratum (n), i.e. the weight is  $13 \cdot N/n$ .

### **3.6 Adjustment**

No corrections are made.

## **4 Relevance**

The statistics are used widely by business associations, news media, consultancies and ministries.

### **4.1 User Needs**

Primary users of the statistics are industry organisations, European Commission, ministries and private enterprises.

The statistics are used to monitor the transport market and development of transport policies.

## **4.2 User Satisfaction**

No systematic collection of user satisfaction is made. There are however often feedback from user.

In particular users with detail industry knowledge is skeptical towards the results. Statistics Denmark works on improving the quality of the statistics in cooperation with the industry organisations through improved awareness among data providers on the importance of their data, through easier and simpler reporting and through collection of data from alternative, administrative sources.

## **4.3 Data completeness rate**

The statistics are wholly covering the requirements in EC-legislation.

## **5 Accuracy and reliability**

The uncertainty in the statistics are considerable, especially in subdivisions and international journeys. The results may be biased due to false reports of stand stills, i.e. the vehicle is falsely reported not to perform transport in the surveyed week.

Statistics are not revised significantly after the first, preliminary figures.

### **5.1 Overall accuracy**

The statistics are subject to considerable sampling errors, particularly in subgroups and in the international transport.

Furthermore, missing data is around 6-8 percent of responses as a result of sold/deregistered vehicles and non-respondents.

There may be missing data which is not recognizable in the form of falsely reported stands stills when the vehicle is incorrectly reported to have stood still in the surveyed week in spite of the contrary. This will lead to underestimation of the true extent of transport.

## 5.2 Sampling error

The coefficient of variance indicates the uncertainty on the variable in percent. A coefficient of 9.2 means that the true value with 95 percent certainty is between the estimated value minus 9.2 percent and estimated value plus 9.2 percent.

According to the EC regulation the statistical results on the main variables weight of goods, kilometres driven with load and transport performance (tonnes-km) for both total transport and national transport must be within a coefficient of 5 percent. At quarterly level the Danish statistics does not meet the requirements.

The uncertainty is greatest in the international transport for which no target value is set.

### Coefficient of variance 2013

**Variable 1st quarter 2nd quarter 3rd quarter 4th quarter** Weight of goods, total (ton) 9,20 7,40 8,77 9,52 Weight of goods, national (ton) 9,76 7,84 9,20 9,96 Weight of goods, international (ton) 23,23 20,11 16,92 19,08 Transport performance, total (tonkm) 6,34 5,52 6,19 6,26 Transportarbejde, national (tonkm) 7,17 6,12 6,96 7,01 Transportarbejde, international (tonkm) 16,76 15,86 16,90 19,08 Kilometres driven, total (km) 4,47 4,10 4,75 4,49 Kilometres driven with load, total (km) 4,67 4,41 5,07 4,84 Kilometres driven with load, national (km) 5,40 5,18 5,81 5,52 Kilometres driven with load, international (km) 15,21 14,22 15,83 17,67 Kilometres driven, national (km) 5,15 4,81 5,44 5,12 Kilometres driven, international (km) 14,90 13,75 15,35 16,88

## 5.3 Non-sampling error

The frame population includes all road goods vehicles above 6 tonnes total laden weight regardless of use, while the target population is road goods vehicles carrying freight. Around 7 percent of the frame population does not carry freight.

The statistics are sensitive to incorrectly reported stand still. Currently there are no alternative sources for the validation of this type of errors. Approximately 20-25 percent of the vehicles in the sample is reported as being inactive in the reference week. Since the weight on average is about 275 (13 \* 38,000 / 1,800), the incorrect reporting could lead to considerable underestimation.

Missing reports are formally modest in cases of sold/deregistered vehicles and non-response. In reality, there may be an unknown underreporting hidden in the categories *stand still* and *no available driver*.

By treating sold/deregistered vehicles as non-response, it is assumed that there is no separate information in the information that the vehicle is sold, but that the transport of the vehicle can be represented by the vehicles which have responded.

## 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

There is considerable uncertainty associated with the statistics.

In particular, in some subgroups and in the international transport statistics there is great uncertainty in the figures. On some key variables in the international transport the confidence interval is between 15 and 25 percent. The national transport is considerably more precise.

Missing data constitutes 6-8 percent of reporting and is partly due to vehicles sold or deregistered between the sampling and the data collection and partly non-response. The latter is around 1 percent in the preliminary figures and less than 0.1 percent in final figures. Adjustments take this into consideration.

Besides the registered missing data, there may also be an underestimation of the results as a result of falsely reported stands stills when the vehicle is incorrectly reported to have stood still in the surveyed week. This type of non-response is difficult to identify due to lack of proper comparable data.

The statistics are not revised significantly over time.

## 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

Quarterly statistics are preliminary and revised regular. Final figures is published in connection to the annual figures typically around six month after the end of the reference year.

The reason for revisions are mostly caused by late replies from data providers.

If significant errors comes to the knowledge of Statistics Denmark an extraordinary revision will be done. Registered user of the online databank, Statbank.dk will be notified in case of such extraordinary revisions.

## 6 Timeliness and punctuality

The statistics are published around 78 days after the reference quarter without delays compared to the announced time.

## 6.1 Timeliness and time lag - final results

For the most recent quarterly data releases the time lag between the reference quarter and time of publishing has been

- 2013, 1st quarter: 80 days
- 2013, 2nd quarter: 79 days
- 2013, 3rd quarter: 78 days
- 2013, 4th quarter: 78 days
- 2014, 1st quarter: 78 days
- 2014, 2nd quarter: 78 days
- 2014, 3rd quarter: 78 days
- 2014, 4th quarter: 78 days
- 2015, 1st quarter: 77 days
- 2015, 2nd quarter: 78 days
- 2015, 3rd quarter: 78 days
- 2015, 4th quarter: 77 days

## 6.2 Punctuality

Since 1st quarter 2012 all quarterly releases has been published according to the pre-announced schedule.

## 7 Comparability

Eurostat publishes EU and EFTA member states compilation of road freight statistics. These statistics are compiled base don common EU-legislation and guidelines.

The present time series has been compiled in its present form since 4th quarter 2009. Before this time national and international transport were compiled in separate statistics.

### 7.1 Comparability - geographical

Eurostat publishes EU and EFTA country statistics on road freight statistics. This statistics are produced according to common EC legislation and guidelines. The common guidelines and descriptions of each country practice can be found at Eurostats homepage (Methodologies used in surveys of road freight transport in Member States and Candidate Countries - 2011 edition):

- [Road Freight Transport methodology 2011](#).
- [Methodologies used in surveys of road freight transport in Member States and Candidate Countries - 2011 edition](#)

## 7.2 Comparability over time

The current time series has been produced as-is since 4th quarter 2009.

Before this separate statistics national and international road goods transport were collected and produced. Methodological description can be found in the publication (in Danish only)

[Godstransport med danske lastbiler, Serien Transport i Statistiske Efterretninger, 2000:20.](#)

### National road goods transport

1979 - 3rd quarter 2009 the statistics on national road goods transport was produced essential using the same methodology as from 4th quarter 2009. It is therefore comparable during the whole period.

### International road goods transport

1979-1993 the statistics were produced based on information from the External Trade Statistics from custom declarations related to the movement of goods across borders.

From 1993 - 3rd quarter 2009 the statistics were produced on the basis of a survey among a sample of Danish enterprises involved in international road goods transport.

The change in 1993 was assessed to have only minor effect on the comparability on the main results of the statistics before and after the change. The statistics are thus assessed to be comparable during the whole period.

## 7.3 Coherence - cross domain

The Danish Road Directorate calculated vehicle-kilometres for all Danish registered motor vehicles among which road goods vehicles above 6 tonnes total laden weight based on the odometer readings at the periodical road worthiness tests. Vehicle-kilometres calculated in this way will be higher than vehicle-kilometres published in the road goods transport statistics since the latter only includes kilometres in connection to goods transport while road worthiness test includes all kilometres regardless of purpose.

Furthermore differences occur due to methodological reasons since

- Road goods transport statistics is a sample based survey with some uncertainty
- vehicle-kilometres based on odometer readings is based on methodological decision in order to periodise odometer reading to calendar-year

## 7.4 Coherence - internal

Not relevant for these statistics.

## 8 Accessibility and clarity

The statistics are published quarterly in *Nyt fra Danmarks Statistik* and all data are available online in *Statbank.dk*.

Selected tables are published in *Statistical Yearbook* and *Statistical 10-year Review*.

### **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**

The statistics are published quarterly in [Nyt fra Danmarks Statistik \(in Danish only\)](#).

### **8.5 Publications**

Road goods transport with Danish road goods vehicles are published together with other transport statistics in tables in [Statistical Yearbook](#) and [Statistical Ten-year Review \(in Danish only\)](#).

### **8.6 On-line database**

The online database, Statbank.dk contain different tables containing data on road goods transport under the topic [Transport of goods by lorry](#).

### **8.7 Micro-data access**

Access to anonymised micro-data is possible through the [Research Services](#).

### **8.8 Other**

Not relevant for these statistics.

### **8.9 Confidentiality - policy**

The statistics is treated according to Statistics Denmark's [Confidentiality policy](#).

### **8.10 Confidentiality - data treatment**

The statistics are based on a sample and the stratification are assessed to ensure sufficient confidentiality to hide enterprise specific information.

## **8.11 Documentation on methodology**

Eurostat publishes EU and EFTA country statistics on road freight statistics. This statistics are produced according to common EC legislation and guidelines. The common guidelines and descriptions of each country practice can be found at Eurostats homepage (Methodologies used in surveys of road freight transport in Member States and Candidate Countries - 2011 edition):

- [Road Freight Transport methodology 2011.](#)
- [Methodologies used in surveys of road freight transport in Member States and Candidate Countries - 2011 edition](#)

## **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 are in the division of Short Term Statistics. The person responsible is Peter Ottosen, tel. +45 39 17 30 25, e-mail: pot@dst.dk

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### **9.1 Contact organisation**

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