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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on Transport Statistics

Workshop on statistics on the volume of road traffic (vehicle-kilometres)

(Copenhagen, 1-2 December 2005)

Volume of Road Traffic in Sweden

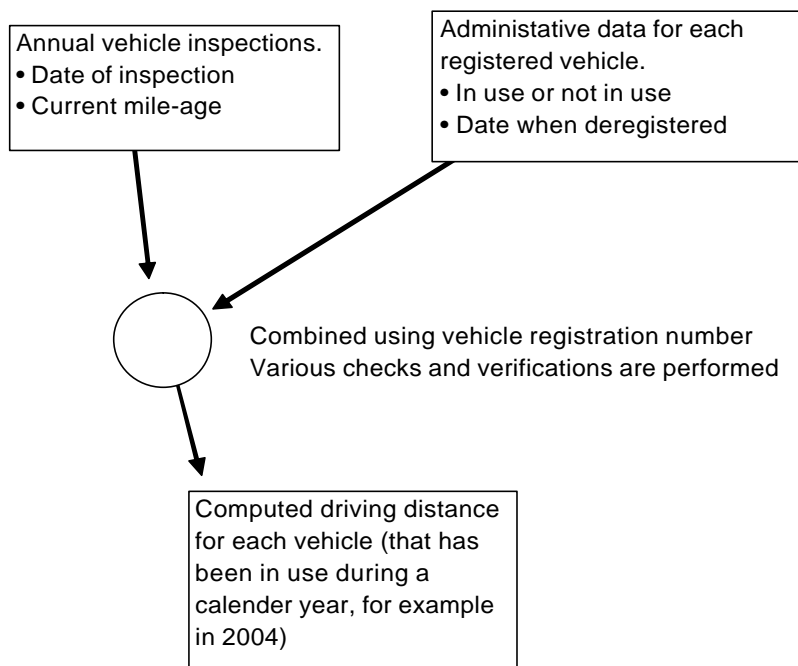Transmitted by Statistics Sweden

1.   Principal method

One way of obtaining an estimate of the volume of road traffic in Sweden is to calculate driving distances for registered vehicles that have been in use based on available register information. This is done by Statistics Sweden on commission for the Swedish Institute for Transport and Communications Analysis (SIKA).

The statistics are produced by calculating a yearly driving distance for (in principal) each registered vehicle in Sweden. The driving distances are calculated for a certain calendar year (such as 2004, 2003, etc.). For these calculations, Statistics Sweden uses data from two main sources:

1) The compulsory annual inspections made by the Swedish Vehicle Inspection Company (SBP);

2) Administrative data for each registered vehicle in Sweden from the Swedish Road Administration (VV).

The two sources are combined by using the unique registration (licence plate) number which exists for all registered vehicles in Sweden. Based on the combined data, the yearly driving distance for each vehicle has been calculated. Below is an illustration of this calculation:

Principle sources for producing the vehicle driving distances:

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┌─────────────────────────────┐   ┌─────────────────────────────┐
│ Annual vehicle inspections. │   │ Administative data for each │
│ • Date of inspection        │   │ registered vehicle.         │
│ • Current mile-age          │   │ • In use or not in use      │
│                             │   │ • Date when deregistered    │
└─────────────────────────────┘   └─────────────────────────────┘
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Combined using vehicle registration number
Various checks and verifications are performed

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┌─────────────────────────────┐
│ Computed driving distance   │
│ for each vehicle (that has  │
│ been in use during a        │
│ calender year, for example  │
│ in 2004)                    │
└─────────────────────────────┘
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The compulsory annual inspections are carried out individually for each registered vehicle throughout the year. At the time of these inspections, the mile-age of each vehicle is registered and kept by the Swedish Vehicle Inspection Company (SBP). Therefore, it is possible to calculate the mile-age between the two occasions at which the vehicle was inspected. Since it is also known (from the SBP data) at what date the inspection was done, it is possible to calculate the number of days between the two inspections. The ratio of these gives us an average daily driving distance for each vehicle:

$$\text{Daily driving distance} = \frac{M2 - M1}{D}$$

where   M2 = the mile-age at the annual inspection the current year

             M1 = the mile-age at the preceding annual inspection (normally the previous year)

             D   = the number of days between two inspections (excluding any days when the vehicle was not in use)

By using the ratio, a yearly distance is then calculated. For example, to obtain a driving distance for 2004, the above- calculated average daily distance is simply multiplied by 365.

The vast majority of vehicles in Sweden are inspected on a yearly basis and therefore a new estimated driving distance can be obtained for each year.

Data on all registered vehicles and weather the vehicle is in use or not, as well as if it has been deregistered, is taken from the Swedish Road Administration (VV). For those vehicles which have been deregistered at the end of the year, it is possible to obtain the date of deregistration and calculate the number of days it was registered during the year of interest. For

example, a vehicle that was deregistered on 1 December, has been used for 365 –3 1 = 334 days during that particular year.

2.   Checks and verifications

Unfortunately, it can not be assumed that all data obtained from the compulsory inspections are without errors. Therefore, a number of checks are performed before the actual driving distances are calculated.

The most common sources of errors that have to be corrected are:

- The mileage figure containing an extra zero or missing zero (for example 30,000 kilometres when it should be 3,000)
- The kilometre reader for a certain vehicle reaches its maximum value and restarts at zero
- Some generally incorrectly registered vehicle mileages

When a possible error is found, it is usually corrected automatically (using certain pre-decided criteria). If the error is considered to be severe, the vehicle is simply excluded from the calculations.

3.   Types of vehicles included

Data on calculated driving distances are produced in the same manner for cars, lorries (light commercials, trucks and road tractors) as well as for buses. Driving distances are produced for motorcycles as well, but with a slightly different calculation method. For motorcycles it is assumed that they are not used during the winter and therefore the daily distance is based on the "summer" period from April to September instead of the whole year.

4.   Model based calculations for certain vehicles

Since new vehicles do not have to be inspected until they are three years old, it is not possible to obtain any kilometre readings at all for these vehicles. So, in these cases, it is simply assumed that they have the same average yearly driving distances as other new vehicles that are included in the driving distance calculations. These imputations (or model based calculations) are done by type and age of vehicle and type of fuel. For cars, the distinction is also made whether or not the vehicle is a taxi. These so-called model based calculations are done for the following categories:

a) Brand new vehicles
b) Privately imported vehicles
c) Vehicles that have been deregistered during the year (and have therefore not been inspected)

5. Availability and coverage

Driving distances have been produced by Statistics Sweden for the year 1998 and onwards. The exception is for motorcycles, where data only exists from the year 2000 and onwards. Even though inspection data can be obtained for 1993 and onwards, they are not available for all individual vehicles before 1998.

In the first half of 2005, data on the 2004 driving distances have been produced for cars, lorries and buses. Data for 2004 on motorcycles will be available later during the fall of 2005 as it is necessary to wait until most of the summer inspections have been completed (and that the mileage has been registered for these motorcycles).

It should be mentioned that the driving distances cover the total distances for the vehicles and that it is not easy (if at all possible) to distinguish between distances driven within Sweden and those abroad.

The 2004 driving distance results show that the coverage is 92 % for cars, 87 % for lorries and 95 % for busses. The coverage for motorcycles in 2003 was about 90%. The coverage is calculated as follows:

$$\text{Coverage} = \frac{\text{Vehicles with a calculated driving distance} + \text{Vehicles not in use at all during the year}}{\text{Total number of vehicles in the register}}$$

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