



METHODOLOGICAL EXPLANATION

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ROAD TRAFFIC – VEHICLE KILOMETRES

This methodological explanation relates to the data releases:

Road traffic – vehicle kilometres, Slovenia, annually (First Release)



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1 PURPOSE

The purpose of the annual survey is to monitor the annual volume of road traffic, i.e. the number of vehicle kilometres (vkm) of registered road motor vehicles and those in the registration process (hereinafter: registered vehicle) according to their main features. The key statistics:

- The number of vehicle kilometres performed by road motor vehicles registered in Slovenia by type and age of vehicle
- The number of vehicle kilometres performed by road motor vehicles registered in Slovenia by type of vehicle on national and foreign road network
- The number of vehicle kilometres performed by road motor vehicles registered in Slovenia and abroad by type of vehicle and by type of road

2 LEGAL FRAMEWORK

- [Annual Programme of Statistical Surveys \(LPSR\) \(only in Slovene\)](#)
- [National Statistics Act \(OJ RS, No. 45/95 and 9/01\)](#)
- Gentlemens Agreement between the Statistical Office of the Republic of Slovenia and Eurostat, OECD – International Transport Forum and UNECE through Common Questionnaire.

3 UNIT DESCRIBED BY THE PUBLISHED DATA

The unit described by the published annual data is a road motor vehicle registered and in the registration process (hereinafter: registered vehicle) in Slovenia or abroad. The calculated data relate to vehicle kilometres performed in one year.

Road motor vehicles registered in Slovenia are examined by type of vehicle, i.e. depending on the type of vehicle, drive and fuel type, by age class and by national and foreign road network.

Road motor vehicles registered in Slovenia or abroad are examined by type of vehicle, i.e. depending on the type of vehicle, drive and fuel type, and by the type of roads on the national road network.

4 SELECTION OF OBSERVATION UNIT

The entire target population of registered road motor vehicles is observed in order to collect the features of all the observation units.

The coverage is full.

The number of national vehicles is about 1.7 million, while the number of all vehicles in Slovenia is about 11 million.

5 SOURCES AND METHODS OF DATA COLLECTION

Data are collected annually.

The data are obtained from the following statistical surveys:

- Travel survey, MZI (for 2016-2018)
- Daily passenger mobility survey, TR-MOB, SURS, 2017 (for 2019), 2021 (from 2020)
- Road goods transport, TR-CES-B/T, SURS
- Road public scheduled transport, TR-CES-P/M and TR-CES-P/L, SURS

The data are obtained from the following administrative sources:

- Data on traffic volume, Slovenian Infrastructure Agency at the Ministry of Infrastructure (DRSI)
- Central Register of Vehicles and Traffic Documents, Ministry of Infrastructure (MZI)
- Results of technical inspection of motor vehicles, Ministry of Infrastructure (MZI) (for 2020 and 2021)
- National transport model 2016, PNZ, d.o.o. and MZI (2016-2020)
- Revised national transport model 2021, PNZ, d.o.o., Appia d.o.o., Slovenian National Management Centre (NCUP) at MZI (from 2021)
- Accommodation statistics, SURS (for 2020)
- DARSGo data on electronic tolling of vehicles with a maximum permissible weight of more than 3.5 tons, Družba za avtoceste v Republiki Sloveniji d.d. (DARS) (from 2021)
- Interurban public transport of passengers, Družba za upravljanje javnega potniškega prometa d.o.o. (DUJPP)

6 DEFINITIONS

Vehicle kilometre (vkm) is a unit of measurement representing the movement of a road motor vehicle over one kilometre. The distance to be considered is the distance actually run. It includes movements of empty road motor vehicles. Units made up of a tractor and a semi-trailer or a lorry and a trailer are counted as one vehicle.

Type of vehicle is defined by the vehicle category in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009) and type of drive and fuel.

Road vehicle is a vehicle running on wheels and intended for use on roads.

Motor vehicle is a vehicle intended for driving on roads using its sole means of propulsion, except vehicles running on rails and bicycles with auxiliary engine. Included are all vehicles from categories M1, M2, M3, N1, N2, N3, L1e, L2e, L3e, L4e, L5e, L6e, L7e, T1, T2, T3, T4, T5, and C, in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009).

Moped is a two- or three- or four-wheeled road vehicle which is fitted with an engine having a cylinder capacity of less than 50cc and whose maximum authorized design speed does not exceed 45 km/h. Included are all vehicles from categories L1e, L2e and L6e in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009).

Motorcycle is a two-wheeled road motor vehicle with or without a side-car or a three-wheeled road motor vehicle, all with a cylinder capacity of 50cc or over or a vehicle with maximum authorized design speed which exceeds 45 km/h. Included are also fourwheelers not exceeding 400 kg of unloaded weight (550 kg for vehicles carrying goods). Included are all vehicles from categories L3e, L4e, L5e and L7e in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009).

Passenger car is a road motor vehicle with at least four wheels intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). Included are all vehicles from categories M1 in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009). Included is also a special purpose passenger car, which is designed for purposes other than the carriage of passengers. This category includes e.g. fire brigade vehicles, ambulances, hearses, driving school cars, racing cars, etc.

Bus or coach is a passenger road motor vehicle designed to seat more than nine persons (including the driver). Included are all vehicles from category M3 in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009). They are divided into urban buses and coaches (interurban and international).

Minibus or minicoach is a passenger road motor vehicle designed to seat more than nine persons (including the driver). Included are all vehicles from category M2 in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009). They are divided into urban minibuses and minicoaches (interurban and international).

Goods motor vehicle is a motor vehicle with at least four wheels, intended for carriage of goods. Included are all vehicles from categories N1, N2 and N3 in accordance with the classification of vehicles laid down in Annex I to the Rules on Conformity Assessment Procedures for Vehicles (OJ RS, No. 105/2009).

Type of drive and fuel is the principal type of motor energy used by the vehicle.

Petrol, mixture – a light hydrocarbon oil for use in internal combustion engines, excluding those in aircraft. Research Octane Number (RON) 91, RON 95, RON 98. Includes low-level (10%) blending with ethanol (E-10).

Diesel, biodiesel and combinations – a petroleum-distillate fuel used in compressionignition engines. Biodiesel is a mixture of diesel and vegetable or animal oil, instead of mineral oil.

Electric – a vehicle that uses one or more electric motor(s) as the only source of propulsion.

Petrol-Hybrid – a vehicle using two distinct types of power: from a gasoline internal combustion engine and an electric motor; includes plug-in-petrol hybrid vehicles.

Diesel-Hybrid – a vehicle using two distinct types of power: from a diesel internal combustion engine and an electric motor; includes plug-in-diesel hybrid vehicles.

LPG – Liquefied Petroleum Gas

CNG – Compressed Natural Gas

Bi-fuel Petrol/LPG – vehicle with two separate fuel storage systems (petrol and LPG) that can run part-time on the two different fuels and is designed to run on only one fuel at a time.

Bi-fuel Petrol/CNG – vehicle with two separate fuel storage systems (petrol and CNG) that can run part-time on the two different fuels and is designed to run on only one fuel at a time.

Other fuel – any other fuel type that does not fit the other categories.

Maximum permissible mass of the loaded vehicle is the total of the mass of the empty vehicle declared by the manufacturer and the load capacity.

Age of vehicle is the difference between the year of production of the vehicle and the current year.

National vehicle is a road motor vehicle registered in the Republic of Slovenia and bearing a Slovene vehicle registration plate.

Foreign vehicle is a road motor vehicle not registered in the Republic of Slovenia and bearing a foreign vehicle registration plate.

National road network comprises all public roads in the Republic of Slovenia.

Foreign road network comprises all public roads outside the Republic of Slovenia.

Public roads are state and municipal roads. A public road is a road that a state or a municipality, in accordance with the criteria for the categorization of public roads, declares as a public road for certain categories and can be freely used by everyone in the manner and under the conditions laid down by law and other regulations.

Motorway is a state road intended for long-distance traffic of motor vehicles and is marked with the prescribed traffic signs: its component parts are also entrance lanes (on-ramps) and exit lanes (off-ramps) and the service traffic surfaces.

Highway is a state road reserved for the traffic of motor vehicles that fulfils the prescribed conditions and is marked with the prescribed traffic signs. It connects the most important centres of regional importance and relates to motorways; its component parts are also access and exit points.

Other roads are all other roads which are not considered as motorways and highways.

Road traffic on national road territory. The number of vehicle kilometres (vkm) of national and foreign road motor vehicles on national road territory is taken into account.

Road traffic of national vehicles. The number of vehicle kilometres (vkm) of road motor vehicles registered in Slovenia on national and foreign road territory is taken into account.

7 EXPLANATIONS

7.1 CLASSIFICATIONS

Data are published:

- by type of vehicles, according to the classification from road transport *Type of vehicle_vkm*;
- by age of vehicles, according to the classification from road transport *Age of vehicle_vkm*.

More information about classifications is available on:

<https://www.stat.si/StatWeb/en/Methods/Classifications>

7.2 DATA PROCESSING

DATA EDITING

Data were edited with the combination of systematic corrections, individual corrections and imputation procedures.

Data imputation methods were used to impute the missing values and replace the outliers. The outliers were determined by the marginal value method, by which we determined the shares of values at the upper and lower limits. The following imputation methods were used: **internal donor method and the donor auxiliary variable ratio method**.

For more, see the general methodological explanations [Statistical data editing](#).

WEIGHTING

Weighting was not performed.

SEASONAL ADJUSTMENT

Seasonal adjustment was not performed.

DATA PROCESSING OTHER

CALCULATION OF VEHICLE KILOMETRES

Vehicle kilometres are calculated for vehicles that participate in traffic (registered and in the process of registration).

Vehicle kilometres for each vehicle are calculated based on the difference in kilometres driven from the odometer reading at the annual roadworthiness tests. The period of roadworthiness tests varies according to the vehicle category. For the calculation, we primarily consider the last annual period. If the data are not available, we take into account the kilometres driven in the past. For vehicles for which no data are available, vehicle kilometres are assessed using imputation.

Until 2019, the annual vehicle kilometres for vehicles from the registered vehicles register were calculated as the difference between the kilometres driven between individual years, regardless of the month of the roadworthiness test. For this reason, the vehicle kilometres did not necessarily refer to the current calendar year, but also to the previous year, the more so the earlier the vehicle underwent a roadworthiness test.

From 2020, we adjusted the calculation of vehicle kilometres due to the effects of the COVID-19 epidemic. Additional input data were used in the calculation, i.e. the month of the roadworthiness test of the motor vehicle (if there was none, the month of the first registration of the vehicle). The pre-corona year 2019 was set as the base year, as until then the traffic situation had been stable between the years. Mileage of vehicles that did not have a roadworthiness test in December was adjusted by vehicles that passed a roadworthiness test in December, so that the share between the average mileage in the current year and the average mileage in the base year in a given group of vehicles was equal to the share between the average mileage in the current year and the average mileage in the base year of vehicles that passed the roadworthiness test in December. Thus, for the estimation of vehicle kilometres, we largely took into account the kilometres driven, which were performed only in the observed year.

Traffic model assumptions were less suitable for estimating vehicle kilometres for 2020.

When calculating the vehicle kilometres of foreign vehicles on the Slovenian road network for 2020, we used an additional input data source – the accommodation statistics.

In further calculations of vehicle kilometres from 2021 we used additional and revised input sources and upgraded the methodology.

7.3 INDICES

Indices are not published.

7.4 PRECISION

The survey is not conducted on the basis of a random sample.

7.5 OTHER EXPLANATIONS

Data that are statistically protected to respect the confidentiality of reporting units are replaced with the letter »z«.

In all the matrixes in the SiStat database the totals do not always add up due to rounding to thousand and million.

The values of the estimates of the number of vehicle kilometres were influenced also by the government Ordinance Temporarily Prohibiting Roadworthiness Tests and other Procedures Related to Motor Vehicle Registration and Tachograph Workshop Activities in the Republic of Slovenia, which was adopted on 16 March 2020.

8 PUBLISHING

- SiStat Database: [Transport](#) – Road transport – Road traffic; (absolute data, NUTS 0).
- SiStat Database: [Transport](#); (absolute data, NUTS 0).
- First Release (Transport, Road transport): »Road traffic – vehicle kilometres, Slovenia, annually«.
- First Release (Transport, Registered road vehicles): »Transport, Slovenia, annually«.
- First Release (Development and Technology, Development Indicators): »Sustainable development indicators, Slovenia, annually«.
- EUROSTAT (Statistical Office of the European Union)
- The Organisation for Economic Co-operation and Development (OECD)

9 REVISION OF THE DATA

9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

Provisional data become final after one year. Regular planned revisions are a consequence of including a new/more complete/additional data source. Data revision is planned. Due to the needs of users for timely information, data are published that meet the criteria of the quality of official statistical data but do not meet the quality that can be met with complete coverage. Data are revised when recent, completed and more quality data respectively can significantly contribute to the quality of data-based decision-making and when due to publication deadlines determined by the European legislation less accurate data are published on the basis of incomplete coverage.

Publishing of provisional and final data is planned. Due to the needs of users for timely information, provisional data are published that meet the criteria of the quality of official statistical data but do not meet the quality that can be met with complete coverage. Data are revised when recent, more complete and better data can significantly contribute to the quality of data-based decision-making.

In the final estimates any potential corrections or revisions both of input data sources and of the calculation methodology are included.

9.2 FACTORS INFLUENCING COMPARABILITY OVER TIME

Registration of mopeds with the maximum speed of 25 km/h has been obligatory since May 2017 (possible already since April 2017). Since 2017, the number of registered mopeds in the vehicle base has been increased and, consequently, the number of their number of vehicle kilometres has also increased.

Due to the coronavirus (COVID-19) epidemic, the registration of road vehicles in Slovenia was not possible between 17 March 2020 and 19 April 2020.

Since June 2022, the amendment to the Drivers Act simplifies the conditions for obtaining a driver's license for mopeds and motorcycles up to 125 cubic centimetres.

There was no break in the time series on road traffic of national road motor vehicles on the national and foreign road territory together, so all time series are comparable. When separating into domestic and foreign territory, there was a break in the series from 2021, so these data are not comparable with previous years.

In the time series on road traffic on the Slovene road territory from 2021 additional input sources and an upgraded calculation methodology were used, as well. Due to a break in the series, these data are also not comparable with previous years.

There was also a break in the data series in the vehicle categories M2 and M3, so these data are not comparable with previous years.

10 OTHER METHODOLOGICAL MATERIALS

Methodological materials on SURS's website are available at <https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>.

- Questionnaire:
 - SURS does not collect data for this survey by using a questionnaire.
- Quality report for the survey:
 - Road traffic – vehicle kilometres (TR-VKM)

Theme: Transport, SubTheme: Road Transport

- Methodological explanations:
 - [Registered road vehicles](#)

Theme: Transport, SubTheme: Road Transport

- [Directive 2014/45/EU](#)
- [Glossary on Transport Statistics](#) (Glosar za statistiko transporta)
- [Motor Vehicle Act](#)(Zakon o motornih vozilih) (only in Slovene)
- [Rules on the Registration of Motor Vehicles and Their Trailers](#) (Pravilnik o registraciji motornih in priklopnih vozil) (only in Slovene)
- [Rules on Conformity Assessment Procedures for Vehicles](#) (Pravilnik o ugotavljanju skladnosti vozil) (only in Slovene)
- (Pravilnik o ugotavljanju skladnosti vozil) (only in Slovene)
- [Rules on Roadworthiness Tests of Motor Vehicles and Trailers](#) (Pravilnik o tehničnih pregledih motornih in priklopnih vozil) (only in Slovene)
- [Road Tolling Act](#) (Zakon o cestninjenju) (only in Slovene)