CIVITAS
Sustainable and smart mobility for all
2030

CIVITAS indicators

Respect of speed limits index (SOC_SF_SL)

DOMAIN

Transport	Environment	Energy	**Society**	Economy

TOPIC	**Safety**	
IMPACT	**Transport safety** *Increasing compliance with speed limits*	**SOC_SF**

Category

Key indicator	**Supplementary indicator**	State indicator

CONTEXT AND RELEVANCE

Compliance with speed limits focuses on ensuring that vehicles travel within legally established speed limits across an urban area. This promotes traffic safety by reducing the risk and severity of crashes for all road users, including pedestrians and cyclists. It also supports environmental sustainability by improving traffic flow, reducing fuel consumption and emissions associated with speeding, and lowering traffic-related noise.

This indicator provides a measure of the defiance of speed limits in the experiment area. **It is a relevant indicator when the policy action is aimed at improving road safety by implementing measures to increase compliance with speed limit and encourage responsible driving behaviour. A successful action is reflected in a LOWER value of the indicator, indicating a reduction in speeding.**

DESCRIPTION

This indicator is the share of motorized vehicles which travel above legal speed limits in the experiment area. Being a share, the indicator is **dimensionless**.

METHOD OF CALCULATION AND INPUTS

There are two alternative methods available for calculating this indicator, differing in both the complexity of the quantification and the significance of the results. For either method, **the indicator should be computed exogenously** and then coded in the supporting tool.

METHOD 1	METHOD 2
Share of vehicles exceeding speed limits based on police data	**Share of vehicles exceeding speed limits based on local measurements on a sample of roads**
This method is less complex to apply, since it relies on existing police data. It is also more significant, since police records usually provide larger datasets, both in temporal coverage and in the range of locations measured.	This method is more complex to apply, since it requires taking traffic counts and observing the number of speeding vehicles. It is also less significant, because taking measurements is resource-intensive and therefore usually limited. This method may be preferred when police data is unavailable.
Complexity 	Complexity 
Significance 	Significance 

Method 1

Calculation of the index based on police data

Significance: **0.50**

INPUTS

The following information is needed to compute the indicator:

a) **The number of vehicles detected by speed cameras** in the experiment area
b) **The number of vehicles recorded speeding by speed cameras** in the experiment area

The experiment would result in the modification of the number of vehicles recorded speeding by speed cameras in the experiment area. The modification would be the result of one or more interventions directly or indirectly affecting the speed of motorised vehicles in the experiment area.

METHOD OF CALCULATION

The indicator should be computed **exogenously** according to the following steps:

- **Retrieval of data on vehicle counts and speeding violations from police databases.** Collect information from both fixed and mobile speed cameras, if both are present in the experiment area. Select a defined time period (ideally, one full working day or more) and retrieve data from all active speed cameras during that interval.

- **Estimation of the indicator** (see following equation).

EQUATIONS

The value of the indicator should be computed as:

$$\boldsymbol{SpSh} = \frac{\sum_c \sum_h \frac{\boldsymbol{Veh}^{\boldsymbol{v}}_{\boldsymbol{c,h}}}{\boldsymbol{Veh}_{\boldsymbol{c,h}}}}{\boldsymbol{C} * \boldsymbol{H}}$$

Where:

$Veh_{c,h}$ = Number of motorised vehicles recorded by speed camera *c* in hour *h*

$Veh^{v}_{c,h}$ = Number of motorised vehicles recorded **speeding** by speed camera *c* in hour *h*

C = Total number of speed cameras

H = Number of hours monitored

Method 2

Calculation of the index based on local measurements on a sample of roads

Significance: **0.25**

INPUTS

The following information is needed to compute the indicator:

a) **A set of traffic counts on a sample of road sections** in the experiment area.

b) **The observed number of vehicles speeding on the same sample of road sections**.

The experiment would be reflected in the modification of the observed number of speeding vehicles. The modification would be the result of one or more interventions directly or indirectly affecting the speed of motorised vehicles in the experiment area.

METHOD OF CALCULATION

The indicator should be computed according to the following steps:

- **Definition of the set of road sections** where to count vehicles and observe speeding vehicles. The selection of sections should be made according to the following rules:
  - Sections should include the major roads in the experiment area.
  - If the experiment includes interventions on some specific roads, counts should be made in at least some of these roads as well as in at least some roads that could be used as alternative by motorists.
  - If part of the experiment consists of including some roads in a pedestrian area where motorised vehicles are forbidden, these roads should NOT be included in the sample.
  - If part of the experiment consists of restricting access to some roads (e.g. low emissions zone) these roads can be included in the sample, but a sufficient number of roads outside the restricted area should also be included.

  If in the experiment area there is already a traffic counting system in place, the data from the system can be used, but the requirements above should be respected anyway.

- **Measurement of the total number of motorised vehicles and of the number of speeding vehicles on each section**. The measurements should be made in at least 2 peak time hours of a working day. The measurements may be taken by using existing traffic counting and speed measuring systems if present, or by using a mobile roadside radar.

- **Quantification of the indicator**. The indicator is the share of observed speeding vehicles over the total number of counted vehicles across all sections.

EQUATIONS

The value of the indicator should be computed as:

$$\boldsymbol{SpSh} = \frac{\sum_s \sum_h \frac{\boldsymbol{Veh}^{\boldsymbol{v}}_{\boldsymbol{s,h}}}{\boldsymbol{Veh}_{\boldsymbol{s,h}}}}{\sum_s \boldsymbol{h}_{\boldsymbol{s}}}$$

Where:

$Veh_{s,h}$ = Number of motorised vehicles counted in road section *s* in hour *h*

$Veh^{v}_{s,h}$ = Number of motorised vehicles recorded **speeding** in road section *s* in hour *h*

h_s = Number of hours for which section *s* was under observation