








CIVITAS indicators

Respect of traffic limitations (SOC_SF_TL)

DOMAIN

				
Transport	Environment	Energy	Society	Economy

TOPIC

Safety

IMPACT

Transport safety

Increasing compliance with traffic limitations

SOC_SF

Category

Key indicator	Supplementary indicator	State indicator
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CONTEXT AND RELEVANCE

Compliance with traffic restrictions focuses on ensuring that vehicles respect legally established access rules within urban areas, such as limited traffic zones, pedestrian areas, or low-emission zones. By limiting motorized traffic in selected parts of a city, these measures reduce conflicts with vulnerable road users such as pedestrians and cyclists, enhance traffic safety, and enable the reallocation of road space to active modes and public transport. They also contribute to environmental sustainability by discouraging car trips and lowering noise levels in urban areas.





This indicator provides a measure of the defiance of traffic restrictions in the experiment area. **It is a relevant indicator when the policy action is aimed at improving road safety by strengthening compliance to access rules. A successful action is reflected in a LOWER value of the indicator, indicating fewer violations of traffic restrictions.**

DESCRIPTION

This indicator measures the share of motorized vehicles that enter restricted traffic zones in the experiment area without authorization. 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 illegally entering restricted traffic areas based on police data	Share of vehicles illegally entering restricted traffic areas based on local measurements on a sample of roads
<p>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.</p>	<p>This method is more complex to apply, since it requires observing the number of vehicles who illegally enter restricted traffic areas. It may also be less significant, because taking measurements is resource-intensive and therefore usually limited. This method may be preferred when police data is unavailable.</p>
Complexity 	Complexity 
Significance 	Significance 

Method 1

Calculation of the index based on police data

Significance: **0.25**



INPUTS

The following information is needed to compute the indicator:

- The number of vehicles entering traffic restricted areas** in the experiment area
- The number of vehicles illegally entering traffic restricted areas** in the experiment area

The experiment would result in the modification of the number of vehicles illegally entering traffic restricted areas in the experiment area. The modification would be the result of one or more interventions directly or indirectly affecting compliance with traffic restriction areas.

METHOD OF CALCULATION

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

- Retrieval of data on the number of vehicles entering traffic restricted areas from police databases.** Access to restricted traffic zones is typically monitored through automated camera surveillance systems, which record the license plates of all vehicles entering such areas. This data should be retrieved from police databases, and it should include both (i) the total number of vehicles detected as entering restricted zones within the experiment area and (ii) the number of those entries classified as unauthorized. The data collection should cover a chosen reference period, preferably at least one full working day.
- Estimation of the indicator** (see following equation).

EQUATIONS

The value of the indicator should be computed as:

$$AcSh = \frac{\sum_c \sum_h \frac{Veh_{c,h}^v}{Veh_{c,h}}}{C * H}$$

Where:

$Veh_{c,h}$ = Number of motorised vehicles accessing a restricted area as recorded by access camera c in hour h

$Veh_{c,h}^v$ = Number of motorised vehicles **illegally** accessing a restricted area as recorded by access camera c in hour h

C = Total number of access cameras

H = Number of hours monitored

Method 2



INPUTS

The following information is needed to compute the indicator:

- A set of traffic counts at a sample of access points to restricted traffic areas** in the experiment area.
- The observed number of vehicles illegally entering the restricted traffic areas via the same sample of access points.**

The experiment would be reflected in the modification of the observed number of vehicles which enter restricted areas unauthorized. The modification would be the result of one or more interventions directly or indirectly affecting the enforcement of restricted traffic areas in the experiment area.

METHOD OF CALCULATION

The indicator should be computed according to the following steps:

- Definition of the set of access points at which vehicles will be counted and unauthorized entries observed.** If the experiment involves interventions on specific roads or access points, measurements should be carried out both at these locations and at other roads that may serve as alternative entry routes to the restricted traffic areas. If in the experiment area there is already a traffic monitoring system in place, the data from the system can be used if relevant to the scope of the experiment.
- Measurement of the total number of motorised vehicles entering restricted traffic areas and of the number of those who do so illegally at each access point.** The measurements should be made at for least 2 peak time hours of a working day. The measurements may be taken by using existing traffic monitoring systems if present, or through mobile access cameras or manual inspection.
- Quantification of the indicator.** The indicator is the share of vehicles which illegally enter restricted traffic areas over the total number of vehicles.

EQUATIONS

The value of the indicator should be computed as:

$$AcSh = \frac{\sum_p \sum_h \frac{Veh_{p,h}^i}{Veh_{p,h}}}{\sum_p h_p}$$

Where:

$Veh_{p,h}$ = Number of motorised vehicles crossing access point p in hour h

$Veh_{p,h}^i$ = Number of motorised vehicles **illegally** crossing access point p in hour h

h_p = Number of hours for which access point p was under observation