CIVITAS
Sustainable and smart mobility for all
2030

CIVITAS indicators

Perceived road congestion (TRA_FC_PCG)

DOMAIN

Transport	Environment	Energy	Society	Economy

TOPIC	**Functionality of the transport system**	
IMPACT	**Congestion** *Reducing congestion in the urban area*	**TRA_FC**

Category

Key indicator	**Supplementary indicator**	State indicator

CONTEXT AND RELEVANCE

Perceived congestion refers to the subjective experience of overcrowding on road networks, where individuals feel that traffic is slow, travel times are longer, and the roads are excessively crowded. It is shaped by personal experience, expectations, and the psychological impact of traffic conditions. Factors such as population size, urban design, and the availability of public transportation may influence how congested individuals perceive their surroundings to be.

This indicator provides a measure of the level of perceived congestion in the experiment area. **It is a relevant indicator when the policy action is aimed at reducing perception of congestion. A successful action is reflected in a LOWER value of the indicator after the experiment compared to the BAU case.**

The indicator can also be employed to measure the perceived effect of traffic calming measures on private transport. In this context, a pilot is considered successful if the implementation of traffic calming leads to little or no increase in the perception of road congestion. This would indicate that the road safety benefits of traffic calming do not come at the expense of worsened congestion perception.

DESCRIPTION

The indicator is a score representing the perceived road congestion in the pilot area as reported by a sample of individuals. The score ranges from 1 to 10, with 10 reflecting maximum perceived road congestion. The indicator is **dimensionless**.

METHOD OF CALCULATION AND INPUTS

This indicator relies on a **survey** asking a sample of individuals for their perception of road congestion in the experiment area. Organising a sample survey requires some resources and implies some complexities, but multiple question may be asked at the same time, allowing to compute several indicators as needed. See the dedicated "Guidelines for surveys" for methodological indications.

The indicator should be computed exogenously, by applying the method described and then coded in the supporting tool.

Method 1	
Computing a perceived road congestion score from responses collected by means of a sample survey	Significance: **0.40** 
INPUTS **The following information is needed** to compute the indicator: • **Responses of a sample of individuals to a question regarding the perceived road congestion in the pilot area.** A suggested formulation of a question regarding perceived road congestion is provided in the document "Guidelines for surveys", part of the MUSE Evaluation Framework.	
METHOD OF CALCULATION	

If the formulation of the question suggested in the Guidelines for surveys is used, the indicator is to be computed by calculating the average of the perceived road congestion scores reported by respondents (see equation below).

The suggested formulation according to the Guidelines for surveys is:

> *Question: Considering a scale from 1 (no congestion at all) to 10 (heavy congestion), how would you rate the level of road congestion in [the experiment area]?*
>
> *Available responses*: integers from 1 to 10, including endpoints.

EQUATIONS

The equation computing the index is the following:

$$\boldsymbol{PerCGIndex} = \frac{\sum_{i=1}^{R} \boldsymbol{PerCG_i}}{\boldsymbol{R}}$$

Where:

$PerCG_i$ = Survey respondent i's perceived road congestion score

R = Number of respondents in the sample

ALTERNATIVE INDICATORS

This indicator measures perceived road congestion in the pilot area based on survey responses. It is relatively simple to implement, particularly if a sample survey in the pilot area is already planned for other indicators. In this case, adding a question on perceived road congestion would be nearly effortless.

It should be noted that this indicator captures qualitative and subjective evaluations, rather than objective measurements. Perceived road congestion depends, at least in part, on social norms, routines, expectations, and the psychological impact of traffic conditions. Meanwhile, indicators **TRA_FC_CG1**, **TRA_FC_CG2**, **TRA_FC_CG3**, and **TRA_FC_CG4** may be used to assess objective road congestion, i.e., the overcrowding of road networks.