ITALY:
TOURISM AND ROAD TRANSPORT EMISSIONS

WORKSHOP FOR MST PILOTS AND THIRD MEETING OF THE WORKING GROUP OF EXPERTS

Madrid, 14-16 December 2022
A joint effort between two public administrations, Istat and ISPRA

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A joint effort between two public administrations

**ISPRA**

**Italian Institute for Environmental Protection and Research**

It is a public research organization enjoying technical-scientific and regulatory independence. It receives general guidance from the Minister of the Ecological Transition. It is the Italian reference institution both for technical-scientific and monitoring and control activities aimed to environmental protection and sustainability.

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**Istat**

**Italian National Institute of Statistics**

It is a public research organization. It is the main producer of official statistics in the service of citizens and policy-makers. Through its mission, Istat develops detailed knowledge of Italy’s environmental, economic and social dimensions and assists all members of society in decision-making processes. It operates in complete independence and continuous interaction with the academic and scientific communities.
Tourism is of great importance for European economies, and environmental protection is a key factor for its future. Indeed, environment is one of the main attractions of tourism.

Tourism is generally seen as a productive sector dedicated to creating income and the statistics available on tourism are essentially designed to measure its economic role (TSA), and form another perspective, the amount of flows in terms of nights and trips, measured both from demand side and supply side, whereas the effects of tourism on the environment are not truly systematically measured;

On the other hand the environmental impact of tourism is receiving a growing global attention, as can be noticed in the general framework of the Sustainable Development Goals (SDGs) and Agenda 2030.

In the first edition of pilot studies in MST, Italy moved from the “accounting scheme” approach to release - as experimental statistics- the integrated economic and environmental account for tourism, based on 2015 data, by linking the SEEA and TSA frameworks (UNWTO, 2018). In 2022, a definitive new edition – not exp.stat.- was made (2019 data, with an updated account system methodology).

At national level, Istat and Ispra, which have a long tradition in cooperation, in 2018 signed a protocol dedicated to strengthening relationships to address the informative gap relating to the availability of primary data, helpful in detecting this nexus between tourism and the environment and defining a common scope of action.

The two data source used in this study, one from Istat and one from Ispra, are both regulated at supranational level (European Regulation 692/2011 on European Statistics on Tourism, and the United Nations Economic Commission for Europe (UNECE) framework for environmental data).
Hypothesis and Motivation: «Is it possible to produce environmental tourism indicators, using already available official statistical data?»

In this second edition of pilot studies, Italy proposes an alternative way to the “accounting scheme” approach to exploit basic data from official statistical sources (Istat-Ispra), but collected for priority purposes other than “tourism and the environment”.

The project is the first attempt in Italy to estimate the level of emissions - in terms of the primary air pollutants - produced by residents travelling for tourism with private road means of transport for domestic trips.

It was managed by combining primary data both from the sample survey “Trips and Holidays”, by ISTAT, and from the “Database of Average Emission Factors of Road Transport in Italy”, by ISPRA.

Pilot focus on national and sub-national spatial levels (domestic tourism trips), whereas in terms of time, from 2015 to 2019.
Policy aims

SOURCE/DATA

- How to increase the statistical information both on tourism and the environment?
- Is it possible through the integration of official statistics as well as environmental monitoring data?

NEEDS

- How many emissions (tons) were produced by domestic tourism trips in Italy, carried out by private road transport, in terms of the main air pollutants?
- Which and how many (tons) are the main emissions of air pollutants by type of road transport?
Methodology (1)

The first part of the methodology was developed in Istat:

- The sample survey “Trips and Holidays”, gives the official estimates of the number of trips by main means of transport, by selecting those made by private motorized transports (rental and private cars, motorhomes, caravans, motorbikes, scooters, others such as vans, trucks, lorries). The survey provided the selected flows by municipal origin and destination matrix;

- The estimate of the distances covered by each trip was performed by using the municipal distance matrices released by Istat

- By matching the trip datasets and the distance matrices, using the unique Istat code per municipality of origin and destination as key, it was possible to estimate the distances of 95.6% of the trips, which were subsequently validated using commercial road graph systems (e.g., Google Maps)
Methodology (2)

The second part of the methodology was developed by ISPRA:

- The classification of private road vehicles by fuel used, engine capacity and Euro standard was determined;

- The ISPRA “Database of Average Emission Factors of Road Transport in Italy” was used as a reference to estimate pollutant emissions. This database is used to draft the National Inventory of Atmospheric Emissions, carried out annually by ISPRA;

- A selection of air pollutants estimated was realized based on their relevance, the atmospheric pollutants selected and analyzed were: carbon monoxide (CO); volatile organic compounds (VOC); nitrogen oxides (NOx); fine particulate matter (PM2.5) and carbon dioxide (CO₂);

- Thus five indicators were produced, one for each air pollutant considered, and their emissions were calculated at a national level over the period 2015-19.

- An estimate of the emissions produced by trips to a specific region in each reference year was also determined.
Key figures an data at national level

Source: ISPRA elaboration based on Istat data
Kilometers travelled (in billions) due to domestic trips by private road vehicle type. Year 2015-2019.

Source: ISPRA
Percentage growth of each issue considering 2015 as the base year

Source: ISPRA
Percentage compositions of each air pollutant’s emissions by vehicle type throughout the entire reporting period (2015-19)
Key figures an data at regional level

Source: ISPRA
Kilometres driven and average mileage to travel to the region of destination (2019)

Source: ISPRA
CO2 emissions from domestic tourism trips distributed by destination region (2019)
Results

- Car is the most widely used private road vehicle during domestic trips in 2015-2019, and also the leading producer of all air pollutants considered.

- The trend in emissions over the reference period is very similar, but overall it is not stable, increasing in alternating phases and reaching a peak in 2018 (the year with the highest number of trips according to the ISTAT “Trips and Holidays” survey).

- Proceeding with the regional analysis, two results are evident:
  
  - The longest journeys are made on average to southern Italy;
  
  - Apulia as the destination to which the most air pollutants are emitted, followed by a group of central-northern regions.
The indicator has no regulatory references but allows to fill an evident information gap in terms of tourism - environment.

Furthermore, the indicator is fully in line with the auspices of the Glasgow Declaration on Climate Action in Tourism presented at COP26 in November 2021.

Besides, there was no specific report addressed to policy makers; however, all the indicators related to tourism and environment are included in the ISPRA Environmental Data Yearbook and in its related reports, presented to policy makers - https://annuario.isprambiente.it/sys_ind/macro/28 (Italian version only).
Database of ISPRA’s Environmental Data Yearbook

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https://annuario.isprambiente.it
Conclusions

- The challenge of the present work is to contribute to the monitoring of a part of the tourism-environment issue, without referring to accounting schemes, but instead using an integrated analysis of two official statistical activities;

- Given the use of official data sources and theoretically compliant with the requirements of European and international statistical protocols, the method presented here could be replicable in other European countries, thus having the possibility of comparing an aspect of the environmental impact of domestic tourism in a comparable.
Informative links

- Data from “Trips and holidays” survey are stored in the Istat datawarehouse: [https://www.istat.it/en/analysis-and-products/databases/statbase](https://www.istat.it/en/analysis-and-products/databases/statbase)

- Fact sheet indicator “Road Transport Emissions for Tourist Purposes”: [https://annuario.isprambiente.it/sys_ind/995](https://annuario.isprambiente.it/sys_ind/995)

- The methodological process preparatory to the population of the new indicator is available at the following [https://www.mdpi.com/2071-1050/13/22/12712](https://www.mdpi.com/2071-1050/13/22/12712)
Thanks

- BARBARA DATTILO | dattilo@istat.it
- GIOVANNI FINOCCHIARO | giovanni.finocchiaro@isprambiente.it