

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

[Indicator 9.1.2: Passenger and freight volumes, by mode of transport](#)

## Institutional information

---

### Organization(s):

International Civil Aviation Organization (ICAO)

## Concepts and definitions

---

### Definition:

Passenger and freight volumes is the sum of the passenger and freight volumes reported for the air carriers in terms of number of people and metric tonnes of cargo respectively.

The International Transport Forum (ITF) collects data on transport (rail and road) statistics on annual basis from all its Member countries. Data are collected from Transport Ministries, statistical offices and other institution designated as official data source. Although there are clear definitions for all the terms used in this survey, countries might have different methodologies to calculate tonne-kilometres and passenger-kilometres. Methods could be based on traffic or mobility surveys, use very different sampling methods and estimating techniques which could affect the comparability of their statistics.

- ITF (2016) Trends in the Transport Sector

### Rationale:

Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. Trans-border infrastructure development is best captured by passenger and freight volumes moved by Member States and Regions. A growth in passenger and freight volumes shows a robust infrastructure development happening in States and Regions along with the resultant socio-economic benefit. Air Transport is particularly important not only for the economic and job benefits but also because it is one of the only mode of transport that can be relied on during emergencies and disease outbreaks to reach food, medicines, medical personnel, vaccines and other supplies speedily to the affected persons in the affected areas.

### Concepts:

The International Civil Aviation Organization (ICAO) through its Statistics Division have established standard methodologies and definitions to collect and report traffic (passenger and freight volume) data related to air transport. These standards and methodologies have been adopted by the 191 Member States of ICAO and also by the Industry stakeholders i.e air carriers and airports. The data of ICAO is used by States and also the World Bank for its development indicators. ICAO uses Air Transport Reporting Forms A, AS, B and C to arrive at the passenger and freight volumes for air transport.

Precise definition of all different concepts and metadata related to Air Transport Reporting Forms A, AS, B and C to arrive at the passenger and freight volumes for air transport. approved by the ICAO Statistics Division and Member States can be found at the ICAO website given below - <http://www.icao.int/sustainability/pages/eap-sta-excel.aspx/>

**Comments and limitations:**

Coverage is for all ICAO 191 Member States

## Methodology

---

**Computation Method:**

The indicator is calculated through a sum of the passenger and freight volumes reported for the air carriers through ICAO Air Transport Reporting Forms and grouped by Member States of ICAO.

**Disaggregation:**

The indicator can be dis-aggregated by -Country, Country pair, City Pair, Region, Segment (International and domestic)

**Treatment of missing values:**

- [At country level](#)

For road and rail transport statistics: In case of missing data for a country for which at least one data point is available since 2000, we calculate estimates based on the expected growth rate for the country. The growth rates are computed from other socio-economic variables, such as Gross Domestic Product (GDP), population or urbanization.

For non-ITF country, data points are estimated using the ITF model, which uses several covariates such as GDP, population, transport network coverage... A description of the model can be found in the ITF Transport Outlook 2017.

- ITF (2017) ITF Transport Outlook 2017, OECD Publishing

This model also uses several other data sources to make the calibration more robust in regions where ITF data does not have a good coverage.

- International Union of Railways (2015) Railway Statistics – 2015 synopsis, UIC
- International Road Federation (2011) ITF World Road Statistics, IRF
- De Bod, A., & Havenga, J. (2010). Sub-Saharan Africa's rail freight transport system: Potential impact of densification on cost. Journal of Transport and Supply Chain Management, Vol. 4, pp. 89-101

#### **Methods and guidance available to countries for the compilation of the data at the national level:**

Metadata for ITF data on transport demand, freight and passengers, for road and rail

1. Primary data source: The International Transport Forum (ITF) collects data on transport statistics on annual basis from all its Member countries. Data are collected from Transport Ministries, statistical offices and other institution designated as official data source. Although there are clear definitions for all the terms used in this survey, countries might have different methodologies to calculate tonne-kilometres and passenger-kilometres. Methods could be based on traffic or mobility surveys, use very different sampling methods and estimating techniques which could affect the comparability of their statistics.

- ITF (2016) Trends in the Transport Sector

2. Estimation method: In case of missing data for a country for which at least one data point is available since 2000, we calculate estimates based on the expected growth rate for the country. The growth rates are computed from other socio-economic variables, such as Gross Domestic Product (GDP), population or urbanization.

3. Modelling method: For non-ITF country, data points are estimated using the ITF model, which uses several covariates such as GDP, population, and transport network coverage. A description of the model can be found in the ITF Transport Outlook 2017.

- ITF (2017) ITF Transport Outlook 2017, OECD Publishing.

This model also uses several other data sources to make the calibration more robust in regions where ITF data does not have a good coverage.

- International Union of Railways (2015) Railway Statistics – 2015 synopsis, UIC
- International Road Federation (2011) ITF World Road Statistics, IRF
- De Bod, A., & Havenga, J. (2010). Sub-Saharan Africa's rail freight transport system: Potential impact of densification on cost. Journal of Transport and Supply Chain Management, Vol. 4, pp. 89-101

#### **Quality assurance**

NA

## Data Sources

---

ICAO Air Transport Reporting Forms approved by the Statistics Division of ICAO and its Member States has been used to define standards, methodologies and to collect aviation data since the 1950's. ICAO definitions and metadata is also used by the Aviation Industry as the basis of collecting data and conducting analysis.

## Data Availability

---

**Description:**

Data already provided for all 191 Member States that have air transport activities

**Time series:**

From 1970's

## Calendar

---

Every year by June 10th data for the previous year is available to ICAO Member States at a country level

## Data providers

---

**Name:**

ICAO

**Description:**

International Civil Aviation organisation (ICAO). Data provided to ICAO by ICAO Member States from its Ministry of Transport, Infrastructure or Aviation

## Data compilers

---

International Civil Aviation organisation (ICAO)

## References

---

**URL:**

[www.icao.int](http://www.icao.int)