Trends in Rail transport

Snejana MARKOVIC-CHENAILS
Economics Adviser
markovic@uic.org

UNECE 7-9 September 2020 Transport and Economics
UIC, its missions

Promoting the development of rail transport at world level in order to meet challenges of mobility and sustainable development.

KEY CHALLENGES IN TERMS OF

- Innovation
- Standardisation
- Transmission
- Dissemination
- Strategic Advice
5 UIC Global cooperation issues
Serving the entire Railway Community

- Environment & Sustainable Development
  UN Climate Conferences COP
- Safety & Security
- Freight / Intercontinental corridors
- Railway Signaling & Control Command
- Standardisation, Harmonisation
  UIC Leaflets, International Railway Solutions IRS
SYNERGIES DEVELOPED BY UIC WITH LEADING INSTITUTIONS

ADB: Asian Development Bank
BSEC: Black Sea Economic Cooperation
EEC: Eurasian Economic Commission
ECO: Economic Cooperation Organisation
EIB: European Investment Bank
ESCAP: The Economic and Social Commission for Asia and the Pacific
FISAIC: Fédération Internationale des Sociétés Artistiques et Intellectuelles de Cheminots
ISO: International Organization for Standardization
OSJD: Organisation for Cooperation between railways
UNECE: Economic Commission for Europe
UNIFE: Union des Industries Ferroviaires Européennes
USIC: International Railway Sports Association
Statistics at UIC

UIC collects statistics from its members:
- Data are company based
- Data are given and validated by UIC members

Synopsis: global picture of railways:
early available
but provisional numbers

RAILISA:
UIC on line data base
available at http://uic-stats.uic.org/

Visit us!

More on our website at https://uic.org/support-activities/statistics/
Synopsis
Provisional annual data - All continents

> Length of lines
> Rolling Stock
> Average staff strength
> Train performance in train-km
> Rail Traffic in pass., pass-km, tonnes, tonne-km
> High speed traffic

Available mid year for n-1

download it at  http://uic.org/statistics
Length of lines 2019

- Asia Oceania: 32%
- America: 20%
- Africa: 7%
- Europe*: 31%
- Russian Federation: 10%

* Europe: including Turkey
Passenger-kilometres 2019

- Asia Oceania: 81%
- Europe*: 14%
- Russian Federation: 4%
- Africa: 0.5%
- America: 1%

Europe*: including Turkey
Tonne-kilometres 2019

- Asia Oceania: 37%
- Russian Federation: 28%
- America: 27%
- Europe*: 6%
- Africa: 2%

*Europe*: including Turkey
High Speed Traffic 2019 (billion pkm)

- CR High Speed 2019; 774,7
- JR 2018; 103,7
- KORAIL 2018; 15,3
- THSRC 2018; 11,6
- SNCF 2019; 60,0
- DB AG 2019; 33,2
- RENFE 2019; 16,1
- Italy 2017; Trenitalia (FS) + NTV; 15,0
- RZD 2019; 6,2
- Other Europe*; 17,5
- ONCF 2019; 0,8

High Speed Traffic in China

Billion of Pkm


46.3 105.8 144.6 214.1 282.5 386.3 484.1 581.8 680.5 774.7

UNECE 7-9 September 2020 Transport and Economics
Trends in rail
Length of lines – 2004 – 2018 time series

Data source: UIC, OECD, World Bank, Eurostat, World Factbook

Africa – Total length of lines in 2018: ~77700 km

America – Total length of lines in 2018: ~365000 km

Asia & Oceania (Russia and Turkey excluded)
Total length of lines in 2018: ~346000 km

Europe (Turkey included)
Total length of lines in 2018: ~270000 km

Russia – Total length of lines in 2018: ~85600 km

World – Total length of lines in 2018: ~1142000 km
Length of lines (km)

Assessments made from various data sources: UIC, OECD, Eurostat, World Bank, World Factbook
Passenger Traffic Performances– 2004 – 2018 time series
Data source: UIC, OECD, World Bank, Eurostat, World Factbook
Passenger-km (million)

Assessments made from various data sources: UIC, OECD, Eurostat, World Bank, World Factbook
Freight Traffic Performances – 2004 – 2018 time series
Data source: UIC, OECD, World Bank, Eurostat, World Factbook

- Africa – Total t.km in 2018: ~170 bn
- America – Total t.km in 2018: ~3334 bn
- Asia & Oceania (Russia and Turkey excluded) – Total t.km in 2018: ~4370 bn
- Europe (Turkey included) – Total t.km in 2018: ~710 bn
- Russia – Total t.km in 2018: ~2597 bn
- World – Total t.km in 2018: ~11190 bn
Assessments made from various data sources: UIC, OECD, Eurostat, World Bank, World Factbook
Maps
Density of the network
2018 (km of lines per 1000 km²)

data source – length of lines and surface area: UIC, World Bank, World factbook CIA
Density of the network
2018 (km of lines per 1000 km²)

data source – length of lines and surface area: UIC, World Bank, World factbook CIA
Density of the network 2018 (km of lines per 1000 km²)

data source – length of lines and surface area: UIC. World Bank. World factbook CIA
Density of the network 2018
(km of lines per 1000 km²)

data source —
length of lines and surface area: UIC, World Bank, World factbook CIA
Annual distance run per inhabitant (km)
2018
data source – pkm and population: UIC, OECD, World Bank
Annual distance run per inhabitant (km)
2018
data source – pkm and population: UIC, OECD, World Bank
Annual distance run per inhabitant (km) 2018

data source – pkm and population: UIC, OECD, World Bank
Annual distance run per inhabitant (km) 2018
data source – pkm and population: UIC, OECD, World Bank
Freight performance per GDP ppp 2018 (t.km per million € GDP ppp)

data source – tkm and GDP ppp: UIC, OECD, World Bank
Freight performance per GDP ppp 2018 (t.km per million € GDP ppp)

data source – tkm and GDP ppp: UIC, OECD, World Bank
Freight performance per GDP ppp 2018 (t.km per million € GDP ppp)

data source – tkm and GDP ppp: UIC, OECD, World Bank
Freight performance per GDP ppp 2018 (t.km per million € GDP ppp)

data source – tkm and GDP ppp: UIC, OECD, World Bank
In the EU-28, about 20% of inland freight transport (i.e. rail+road only) is accomplished by rail and this proportion is quite stable over the last 15 years, even if a slight decrease is recorded (-1.5 percentage points).

On the other hand, in Russia, Belarus, Ukraine, Georgia, Armenia, rail freight transport represents more than 65%, but the trend is negative except Russia for which the trend is stable.

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).
In Northern America, the modal share of rail freight (against road) varies from a year to another one between 40 and 48% on average in the region, and the rail share increases in Mexico and in the US (+3 and +5 percentage points over the period, respectively) and decreases in Canada (-3).

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).
Proportion of inland freight transport 2018 accomplished by rail.
Data source: OECD, Tkm

In China and in India, the modal share of rail freight strongly decreases over the last 15 years from 70% in 2004 to 28% in 2018 in China and from 39% to 21% in India. Inversely in Australia, rail share increases from 51% to 65%.

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).
In the EU-28, the modal share of rail passenger transport is about 8% of the total inland passenger transport and this proportion is generally stable over the last 15 years (2004-2018) even if it can be noted a slight positive trend. In Eastern Europe, rail represents on average more than 30% of inland pkm but tends to significantly decrease.

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).
Inland passenger transport: rail and road.

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).

Proportion of inland passenger transport t2018 accomplished by rail
Data source: OECD, Pkm

In Northern America, rail represents less than 1% of inland passenger transport.
In China, the proportion of rail passenger transport is on average of about 49% and strongly increases over the period 2004-2018, from 39% in 2004 to more than 57% in 2018. Inversely the rail share tends to reduce in India, from 14% to 5% over the same period (average=9%).

Note: because of missing values, the mean proportion allocated to rail and the linear positive/negative trend (green/purple arrows) have been assessed over the last 15 years (2004-2018).
Rail’s share in inland transport – global remarks

To have a general view, if we consider all countries with data (in Europe, Northern America and in Asia and Oceania),

> There is a decrease in the rail share (against road) for freight of about 10 percentage points between 2004 and 2018 (from ~ 49% to 39%). This is due to the stronger increase of freight transport by road than by rail especially in China and in India

> The modal share allocated to rail represents about 11% of passenger-km and a slight negative trend is recorded since 2004.

Data source: OECD, Tkm
Thank you for your kind attention

Snejana Markovic-Chénais

markovic@uic.org