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Productivity in Rail Transport

Productivity in Rail Transport

Note by the secretariat

I. Comparison of UIC indicators with SC.2 rail productivity indicators

1.   The purpose of this document is to show the evolution of the rail productivity since the last questionnaire communicated by the secretariat (questionnaire of 2019, showing data from 2017 and 2018). For this exercise, a subset of countries and indicators has been selected. The 2019 data itself comes from UIC, as, in an effort for harmonization, this exercise also aims to compare UIC and SC.2 questionnaires indicators.

2.   Four indicators have been selected and compared, whenever possible, with UIC indicators:

- Labour Productivity (HS and passenger conventional rail)
- Productivity indicator of freight transport
- Labour productivity indicator (freight trains)
- Productivity of passenger transport (high-speed – conventional rail).

3.   The selected countries for this exercise are the following:

- Austria
- Belgium
- Bosnia and Herzegovina
- Germany
- Hungary
- Luxembourg
- Montenegro
- Russian Federation
- Serbia
- Turkey.

4.   In the charts below, when 2019 data is incomplete or missing, an asterisk is added next to the country name.

Figure I
Labour Productivity (HS and passenger conventional rail)
Km of network in use for High-speed and conventional rail/Number of employees (excluding freight trains employees). Measured in Km/FTE (Full Time Equivalents)
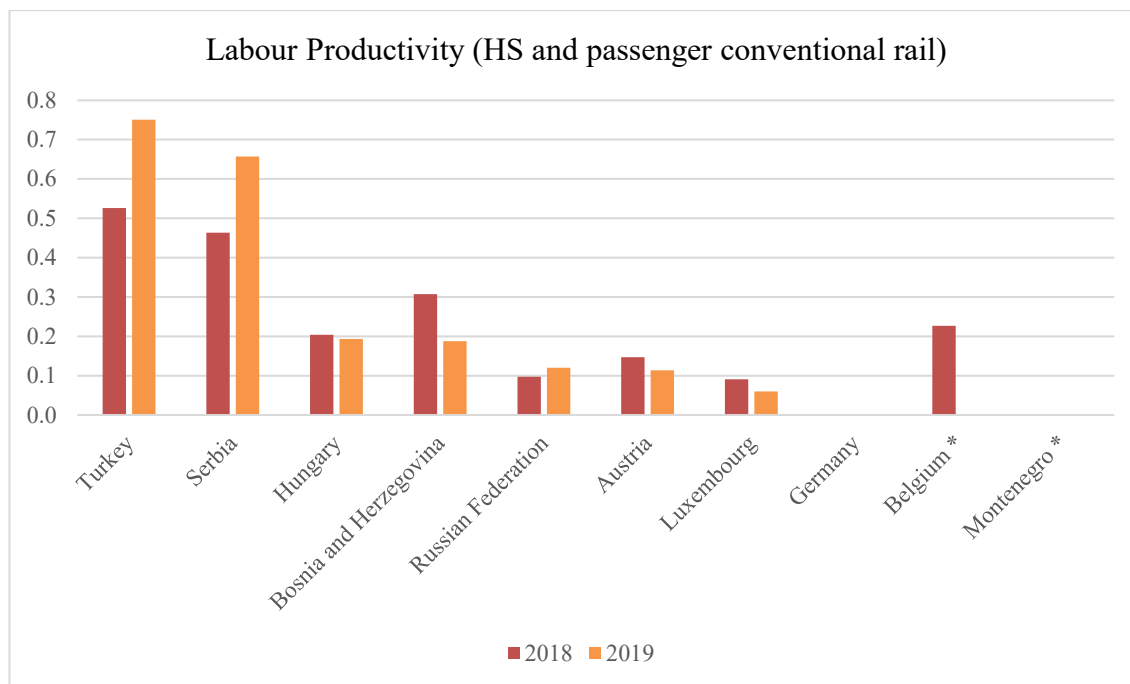
5.   Turkey and Serbia show the highest progression, while productivity is lowering in Bosnia and Herzegovina. The evolution is less noticeable for the other countries.

Notes about the indicators

For 2019, the following UIC indicators have been considered: indicator No. 1112 divided by indicator 3111 (Km of network in use for High-speed and conventional rail/total number of employees working).
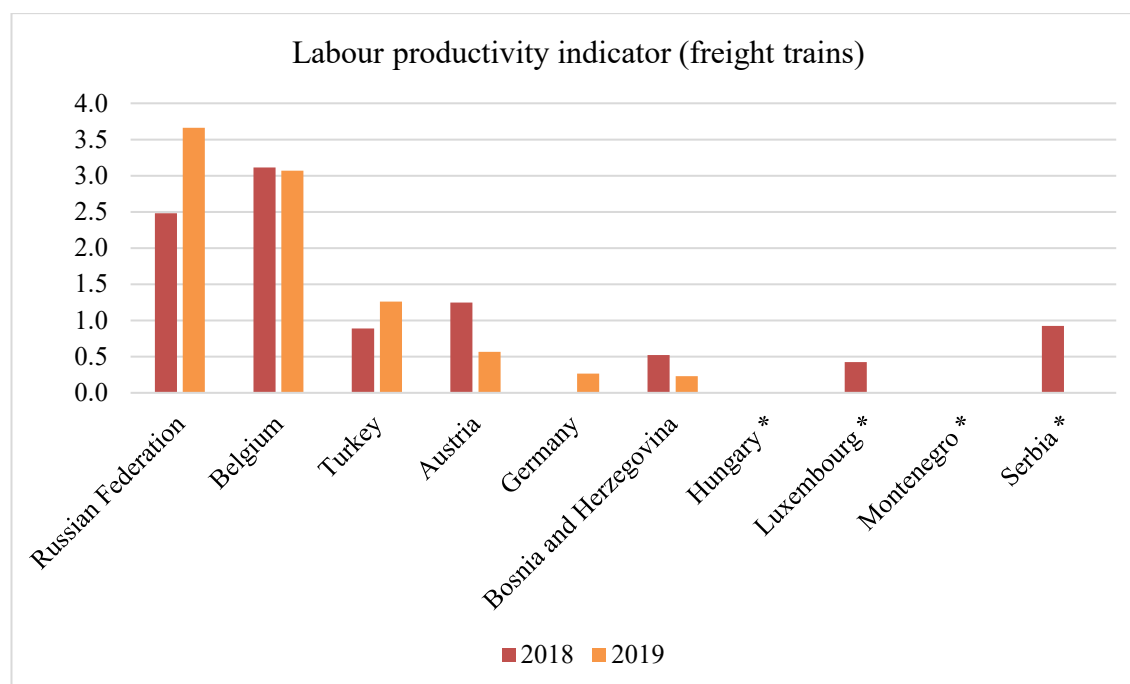
In UIC data, the distinction between employees for passengers/freight trains has not been found. There is the "size of the network operated – total length of lines (national + international) in km" for passengers and freight activities (indicators No. 4334 and No. 4335) but the *Number of employees (excluding freight trains employees)* is not detailed.

No data were available for Belgium and Montenegro in 2019 for UIC indicators No. 1112 and/or No. 3111.

Figure II
Labour productivity indicator (freight trains)
Net tonnes-kilometres of freight trains/total number of employees working in freight railways. Measured in Mt-km/FTE (Full Time Equivalents)

6. The important difference between 2018 and 2019 values for the Russian Federation might be explained by the way the indicators are calculated.

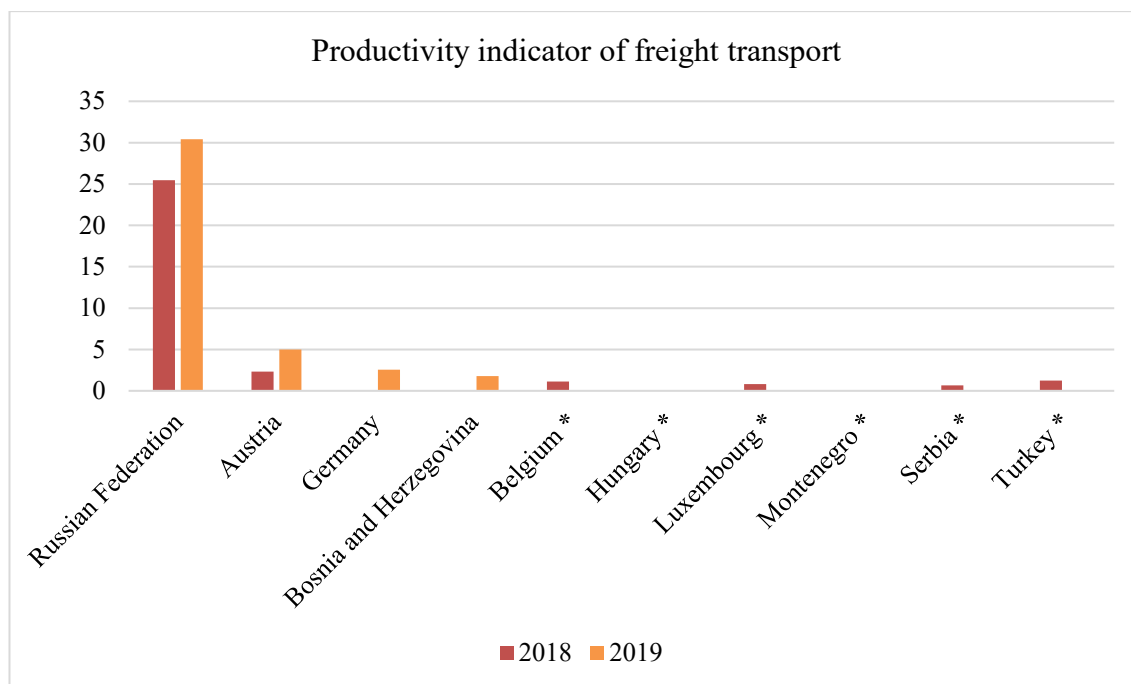**Notes about the indicators**

The labour productivity indicator for freight trains was obtained by dividing UIC indicator No. 6603 (Global Traffic – Freight traffic of the railway operator (domestically)) by UIC indicator No. 3111 (Mean annual staff strength (FTE)).

The same issue applies than with the previous indicator (Labour Productivity (HS and passenger conventional rail): the distinction between employees for passengers/freight trains was not found in UIC data. There an indicator related to the "size of the network operated – total length of lines (national + international) in km" for passengers and freight activities (indicators No. 4334 and No. 4335) but the *Number of employees (excluding passenger trains employees)* is not detailed.

Figure III
Productivity indicator of freight transport
Net tonne-kilometres transported by freight trains/total number of kilometres of network in use. Measured in Mt-km/km

7. 2018 and 2019 data are not easily comparable: for some countries, data is missing in the results from the 2018 SC.2 questionnaire while for others, it is UIC 2019 data which is missing.
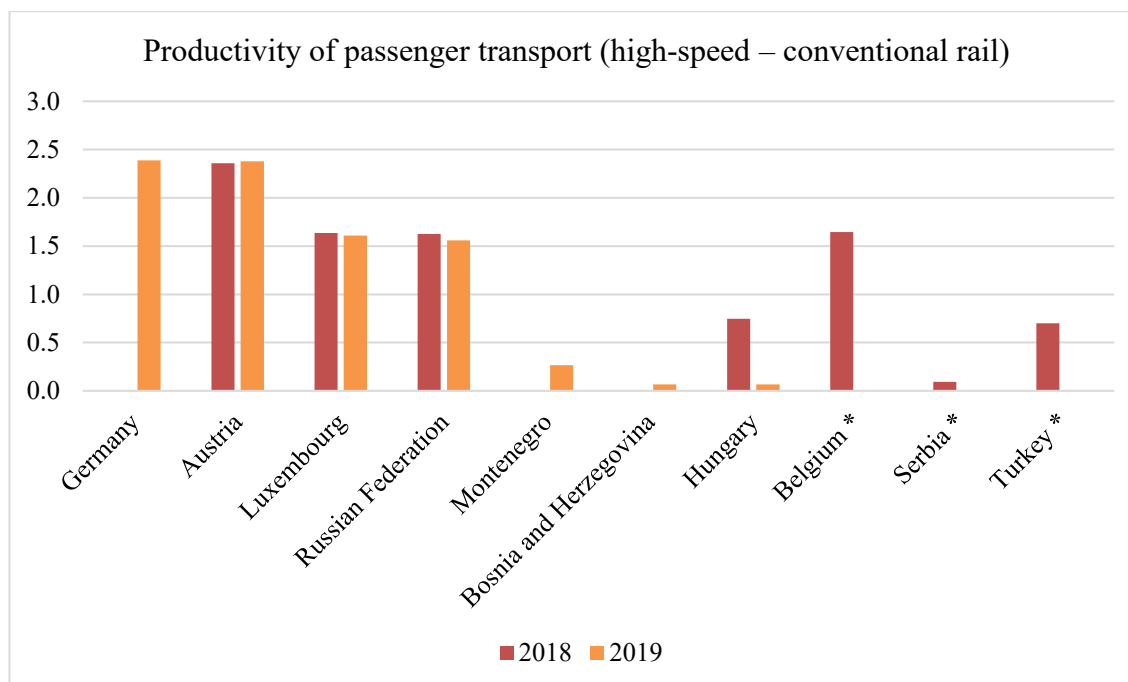
Notes about the indicators

The following UIC indicators have been considered: indicator No. 6603 (Global Traffic - Freight traffic of the railway operator (domestically)) divided by indicator No. 1112 (Km of network in use for High-speed and conventional rail).

Others UIC indicators could be of interest, such as the gross hauled tonne-kilometres: indicators No. 1305 (passengers trains) and No. 1306 (freight trains) for infrastructure manager and for operators, indicator No. 4204. But there is no direct correspondence with the SC.2 indicator defined as the net tonne – kilometres transported by freight trains / total number of kilometres of network in use. Measured in Mt-km/km.

Figure IV
Productivity of passenger transport (high-speed – conventional rail)
Passengers-kilometres moved by conventional and high-speed trains/total number of kilometres of network in use. Measured in Mp-km/km.

Productivity of passenger transport (high-speed – conventional rail)

8.   Germany data for 2018 is missing. For the three countries having the highest productivity, there is not much change between 2018 and 2019.

Notes about the indicators

To get the productivity of passenger transport for high-speed and conventional rail, we divided the UIC indicator No. 5113 (Traffic on the national Territory – PKm) by indicator No. 1112 (Km of network in use for High-speed and conventional rail).

UIC Indicator No. 5113 was not provided in the data shared with the ECE secretariat by UIC, but found on https://uic-stats.uic.org. UIC indicator No. 1153 (Revenue-earning *passenger traffic* on the national territory – total passenger-kilometres) and divided by the length of lines worked – end of year (km, indicator No. 1112) may also correspond.

II.   **Final considerations**

9.   This analysis shows that comparing UIC data and SC.2 questionnaires results is not straightforward, especially when the comparison covers two different years. UIC indicators and SC.2 rail productivity indicators don't necessarily rely on the same concepts and data itself is not always available for all the years and countries selected.

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