ROAD SAFETY INDICATORS

THE RISK OF BEING KILLED IN A ROAD CRASH IS SIX TIMES HIGHER IN ARGENTINA THAN IN NORWAY

Traffic-related mortality rates differ widely between countries. The risk of being killed in a road crash is six times higher in Argentina than in Norway, for instance. The mortality rate among the 33 countries with validated data ranged from 2 to 12 in 2017.

Five countries recorded a mortality rate equal to or below 3 fatalities per 100 000 inhabitants: Norway (2), Sweden (2.5), Switzerland (2.7), the United Kingdom (2.8) and Denmark (3). In the year 2000 the best performing country (the United Kingdom) had a mortality rate of 6.1. Fourteen additional countries form a group of relatively well-performing countries with mortality rates of five or less. Not a single country had achieved such a rate in 2000. Three countries registered a mortality rate above 10 road deaths per 100 000 inhabitants: Chile (10.4), the United States (11.4) and Argentina (12).

Traffic-related mortality rates in all IRTAD member countries are far below in many low- and middle-income countries despite those disparities. The average global mortality rate is 18.3 road deaths per 100 000 inhabitants, according to the WHO's Global Status Report on Road Safety released in 2018. Globally, too, there are large disparities between regions. The mortality rate in Africa is 26.6

while it stands at 20.7 for South East Asia. The WHO estimates mortality rates above 30 for several countries, mainly in Africa.

The mortality rate is useful for comparing the level of road safety across countries. Comparing the number of road fatalities in relation to the total distance travelled provides an indicator for assessing the risk of travelling on a given road network. The number of traffic deaths in relation to the number of vehicles on the road serves as an approximation of crash risk exposure in the absence of data on distance travelled.

The fatality rate measured against the number of motorised vehicles in the fleet ranged from 0.3 to 3.8 in 2017. Six countries (Norway, Switzerland, Sweden, the United Kingdom, Japan and Iceland) registered fatality rates below 0.5 deaths per 10 000 registered motor vehicles in 2017.

In 2000, the four best-performing countries had fatality rates of 1.2. Thus, the fatality risk in these countries has more than halved in the past 16 years. Among countries for which validated data exists, the fatality risk was highest in Chile, which had 3.8 road deaths per 10 000 motorised vehicles or 15 times the rate of top-performing Norway. Importantly, other countries exceed the risk level of Chile, but not based on validated data.

Travel risk measured by distance travelled has decreased in all IRTAD countries since 2010, except for the United States (see Table 3). Six countries recorded fewer than four deaths per billion vehicle-kilometres travelled in 2017: Norway, Sweden, Denmark, Ireland, Switzerland and the United Kingdom (without Northern Ireland). Data on vehicle-kilometres travelled is regularly collected in 22 of the 33 IRTAD countries.

MEASURING RISK AND COMPARING COUNTRIES

Three indicators are commonly used to measure road safety performance and compare safety levels across countries:

1. The number of fatalities per population (mortality rate)

2. The number of fatalities per distance travelled by motorised vehicles (fatality risk)

3. The number of fatalities per number of registered motorised vehicles.

Each indicator has pros and cons and in all cases, country comparisons should be interpreted with greatest care, especially between countries with different levels of motorisation.

Fatalities per population

The number of inhabitants is the most often-used denominator, as this figure is readily available in most countries. This rate expresses the mortality rate, i.e. an overall risk of being killed in traffic, for the average citizen. It can be compared with other causes of death, like coronary diseases or HIV/AIDS. It is useful to compare risk in countries with comparable levels of motorisation. It is not very meaningful to compare safety levels between highly motorised countries and countries where the level of motorisation is low. Usually the mortality rate is given as road fatalities per 100 000 or per million inhabitants.

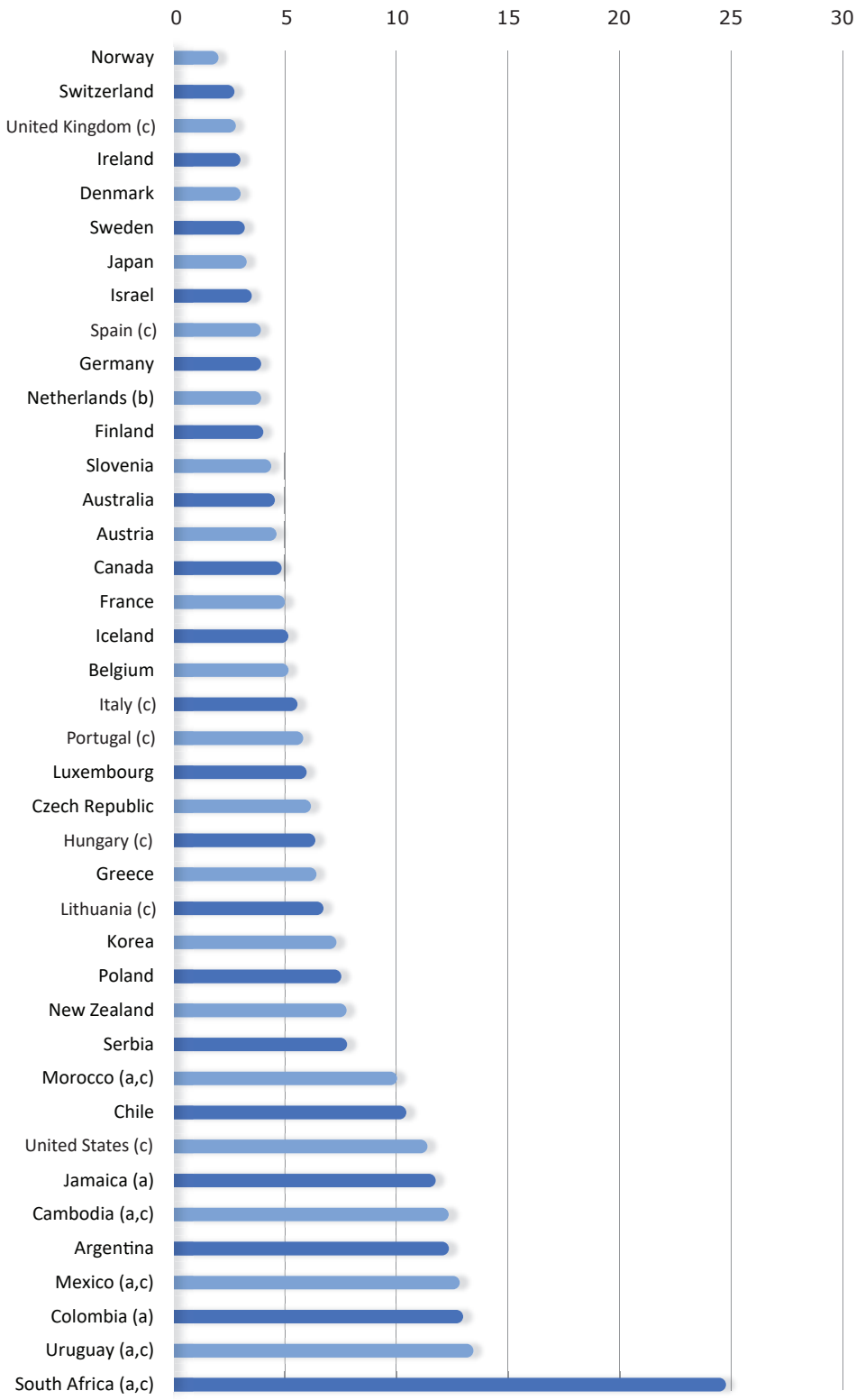
Fatalities per distance travelled

This indicator describes the safety quality of road traffic. Theoretically, it is the best indicator to assess the level of risk of the road network. The fatality risk does not take into account non-motorised vehicles (such as bicycles), which in some countries represent a large part of the vehicle fleet and of road fatalities. Only a limited number of countries collect data on distance travelled. Fatality risk is usually expressed in road deaths per billion vehicle-kilometres.

Fatalities per number of motorised vehicles

This rate can be seen as an alternative to measuring fatalities per distance travelled, although it does take into account the actual volume of traffic. It can therefore only be used to compare the safety performance of countries with similar traffic and vehicle-use characteristics. It also requires reliable statistics on the number of vehicles. In some countries, scrapped vehicles are not systematically removed from the registration database, thereby undermining the accuracy of this indicator. Equally, this indicator does not take into account non-motorised vehicles (such as bicycles), which represent a large part of the vehicle fleet and of the fatality figures in some countries. This indicator is usually expressed as the number of fatalities per 10 000 registered motorised vehicles.

Figure 5. **Road fatalities per 100 000 inhabitants,** 2018 or latest available

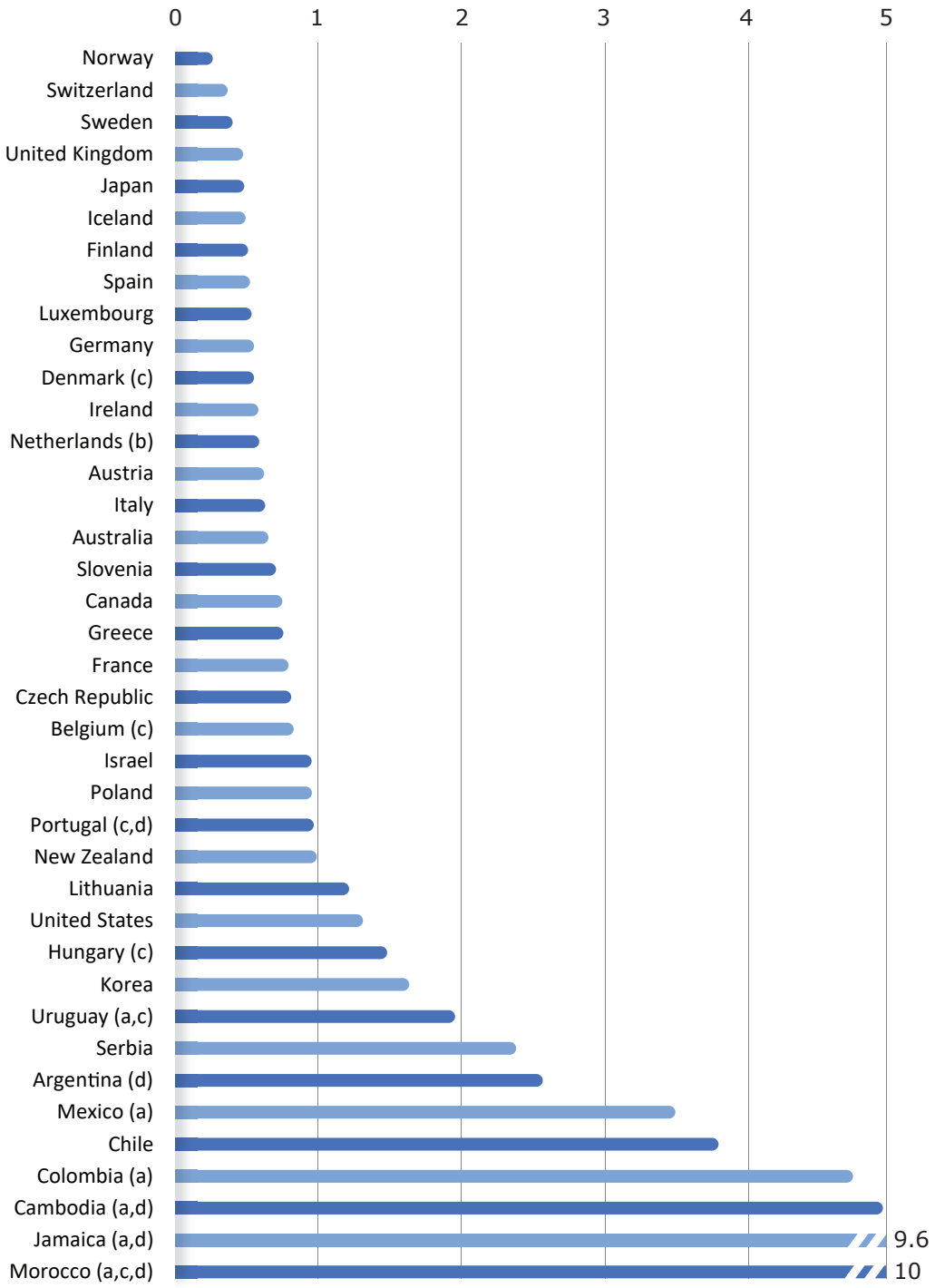


(a) Data as provided by the countries and not validated by IRTAD.
(b) Real data (actual numbers instead of reported numbers by the police).
(c) 2017 data

Figure 6. **Road fatalities per billion vehicle-kilometres,** 2017

(a) Real data (actual numbers instead of reported numbers by the police).
(b) Data only for Great Britain.
(c) 2016 data.

Figure 7. **Road fatalities per 10 000 registered vehicles,** 2017



(a) Data as provided by the countries and not validated by IRTAD.
(b) Real data (actual numbers instead of reported numbers by the police).
(c) Mopeds are not included in the registered vehicles.
(d) 2016 data.