International Transport Forum

ROAD SAFETY ANNUAL REPORT 2021

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International Traffic Safety Data and Analysis Group

International Transport Forum

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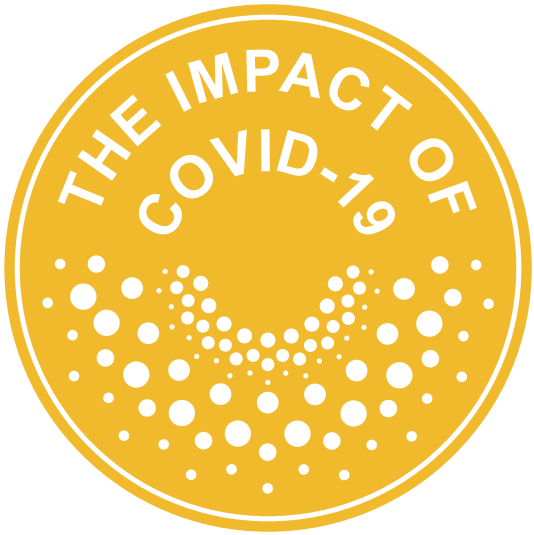

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ABOUT THE INTERNATIONAL TRANSPORT FORUM

The International Transport Forum is an intergovernmental organisation with 63 member countries that organises global dialogue for better transport. It acts as a think tank for transport policy and hosts the Annual Summit of transport ministers. The ITF is the only global body that covers all transport modes. The ITF is administratively integrated with the OECD, yet politically autonomous.

ABOUT IRTAD

The International Traffic Safety Data and Analysis Group (IRTAD) is the permanent working group for road safety of the International Transport Forum. The IRTAD database collects and aggregates international data on road crashes; currently its database contains validated road safety data for 34 countries. It thereby provides an empirical basis for international comparisons and more effective road safety policies. The IRTAD Group brings together road safety experts from national road administrations, road safety research institutes, International Organisations, automobile associations, insurance companies, car manufacturers and others. Currently, the IRTAD Group has 80 members and observers from more than 40 countries.

ACKNOWLEDGEMENTS

This report was prepared by Christos Katrakazas, National Technical University of Athens, and Fred Wegman, Chair of the International Traffic Safety Data and Analysis Group (IRTAD) of the International Transport Forum (ITF), with support from the ITF Secretariat. It is based on data and information provided by the IRTAD Group, Apple mobility data and data from the Oxford University Government Response Tracker.

With 80 members and observers from more than 40 countries, the IRTAD Group has become a central force in the promotion of international cooperation on road crash data and its analysis. The ITF is grateful to all the members of the IRTAD Group for their contribution.

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Executive summary

WHAT WE DID

This report examines the development of road safety in the year 2020 during the Covid-19 pandemic. It assesses how the pandemic has affected mobility patterns and impacted the number of road fatalities. The analysis draws on data on road deaths from 34 member countries of the IRTAD Group. These are complemented by the more detailed crash and mobility data gathered via a survey of 24 countries. In addition, it uses mobility data from Apple Inc. and data from the Oxford Covid-19 Governmental Response Tracker, an online database that collects information on governments' policies against the spread of Covid-19. The 2020 road fatality data is benchmarked against the average for the three pre-pandemic years 2017-19 as the baseline.

WHAT WE FOUND

Severe restrictions on non-essential movements introduced by many governments in early 2020 aimed to counter the rapid spread of the Coronavirus. A stringency index calculated by the Oxford Covid-19 Governmental Response tracker captures how strict these measures were. For most countries, stringency was high at the beginning of the pandemic and subsequently fluctuated according to the number of Covid-19 cases and casualties.

The restrictions massively affected mobility volumes and patterns. In virtually all countries, traffic volumes dropped starting in March 2020. Data on monthly total travel distances show that traffic volumes decreased the most in April and May 2020, as most IRTAD countries entered into a lockdown. Apple mobility data, available for more countries, also indicate a sharp decrease in mobility in March/April 2020 and a slight decrease towards the end of the year during the second wave of Covid-19. Overall, traffic volumes were -12.2% lower in 2020 than the average for 2017-19 across the eleven countries that collect data on travel volume.

The number of road deaths decreased by 8.6% in 2020 across the 34 IRTAD countries with validated data, compared with the baseline. There are substantial differences between countries, but the majority saw fatalities drop as much as -20%, with the most substantial reductions between March and May 2020.

Looking back at the past decade, 2020 is an exceptional year. The average annual reduction in the number of road deaths for the period 2010-19 was -2%; in 2020, it was almost ten times that, at 19.2%. (The United States is left out of the calculation, as its population size distorts the figures). However, the remarkable decline in the number of road deaths in 2020 was still well below the drop needed to achieve the 50% worldwide reduction in fatalities by 2020 targeted by the United Nations' Decade of Action for Road Safety.

Young people under 17 and the elderly aged 75+ saw the most significant reductions of road deaths in 2020, with almost a quarter fewer fatalities. The reasons were closed schools for the young and a high degree of compliance with restrictions among seniors, who were most vulnerable to Covid-19.

All transport modes counted fewer fatalities in 2020. Public transport users and van passengers saw the most considerable reductions. With cycling highly popular during the lockdown, fatalities among cyclists dropped only -6.4%, much less than for other road users.

The number of road deaths also decreased on all types of roads. They fell most on motorways (-19.9%), but rural roads (-15%) and urban streets (-10%) also became safer.

The trend for road fatalities should be viewed in context with the exposure of road users to traffic risks, as captured by kilometres driven or walked. On average, the number of road fatalities per billion vehicle-kilometres travelled slightly decreased in 2020 for the eleven countries with mobility data. However, there are significant variations between countries. For instance, the risk of being killed in a crash in 2020 was -17% lower in Sweden than for the 2017-19 average, but 12% higher in the Netherlands.

WHAT WE RECOMMEND

Monitor mobility patterns to better understand crash exposure risks

More information is needed to explain road safety-related trends and differences between countries confidently. It is particularly important for road safety agencies to extend data collection to mobility patterns. More and better data will enable them to determine if changes in the number of road deaths and serious injuries are the result of changes in the number of trips made and kilometres travelled - broken down by transport mode, age group and road type - or by changes in the risks to which travellers are exposed.

Use data on mobility and crash exposure from the Covid-19 pandemic to plan infrastructure investment

The changes to mobility patterns caused by the Covid-19 pandemic were profound. The number of citizens who took to walking, cycling or new forms of mobility skyrocketed. Many cities adapted their infrastructure at short notice to absorb and encourage active mobility. Promoting active mobility is a long term objective of most governments, and the crash exposure data collected during the pandemic should be used to adapt road infrastructure in ways that ensure safety for all road users, especially in urban areas.

Collect data on road safety-related behaviour more systematically

Our analysis of changes in road fatality and injury rates during the pandemic revealed the inadequacy of the data available on behavioural factors such as speeding and drink driving. The speeding data were not detailed enough to allow meaningful interpretation. Correlating data on alcohol consumption during the lockdowns and drink driving in a robust way was also not possible. Some sources point to deteriorating driving behaviour during the pandemic. Others indicate that road users behaved more carefully during this period, in line with other periods of economic and social hardship. Patterns may vary significantly between jurisdictions.

Accelerate investments to achieve the U.N. target of halving road deaths and serious injuries by 2030

The number of road deaths in IRTAD member countries fell -9% overall in 2020. In many, the fall was closer to -20%, but even this was not enough to meet the international community's target to halve the number of traffic fatalities by 2020 compared to 2010. This underlines that governments have underestimated the efforts needed to reduce road deaths. Before the Covid-19 pandemic, countries experienced small annual reductions in road crash fatalities. Even with the drastic changes in mobility patterns experienced in 2020 that sometimes resulted in empty streets, the -50% reduction target remained a distant goal for most countries. The new target set by the United Nations is to halve the number of road deaths and serious injuries by 2030. The lesson of the past decade is that unprecedented efforts from all countries will be needed to achieve the objective. Economic recovery packages created in the face of the pandemic present unparalleled opportunities to accelerate road safety investment programmes. The Stockholm Declaration agreed by the 3rd Global Ministerial Conference on Road Safety in February 2020 and the Resolution on Improving Global Road Safety adopted by the U.N. General Assembly in August of that year propose new perspectives for addressing road safety and taking it to a new level in concert with all of the U.N. Sustainable Development Goals.

Introduction

What would soon be known as the Coronavirus, or Covid-19, first struck Wuhan, China, in December 2019. It spread more quickly than anyone had predicted. In March 2020, the World Health Organization declared the outbreak of Covid-19 a worldwide pandemic. Countries across the globe imposed drastic restrictions on non-essential movements to counter the virus's rapid spread.

As a result, mobility largely came to a halt as lockdowns hit car traffic and public transport users but also hampered pedestrians and cyclists. The limitations on movements and an economic downturn led to a drop in the number of trucks on the world's roads. Generally, mobility patterns changed. Schools and workplaces closed, turning to remote learning and working. Curfews limited citizens' movements to certain hours of the day. Road travel plummeted, and so did the number of road crashes - or so it seemed.

This report presents an overview of the impact of the Covid-19 pandemic on mobility and road safety in countries of the International Transport Forum's permanent working group on road safety, known as the International Road Safety Data and Analysis Group (IRTAD). The analysis considers safety indicators, exposure data and pandemic-related governmental responses. It compares the main mobility and safety indicators for 2020 with the average of 2017-19, the baseline for comparisons in this study, as well as monthly road fatality data during the year 2020. This allows capturing the dynamic effect of the pandemic's evolution when measures changed continuously. The report is based on fatality data available in the IRTAD database and more detailed mobility and crash data from the 24 countries that responded to an in-depth survey. Additionally, it uses data from the Apple Mobility Trends Report and the Oxford University Government Response Tracker.

Several studies in the wake of the pandemic have examined changes in travel behaviour and mode choice. They found that active travel such as walking and cycling played a significant role in mobility patterns during the pandemic and that public transport use dropped significantly. Among the relevant studies are Bhaduri et al. (2020), De Vos (2020), Jenelius and Cebecauer (2020), Parady, Taniguchi and Takami (2020), Shamshiripour et al. (2020) and Vingilis et al. (2020).

Early research also showed that the rate of road crashes per distance travelled increased during the pandemic (Doucette et al., 2020), while the absolute number of crashes decreased (Katrakazas et al., 2020; Saladié, Bustamanté and Gutiérrez, 2020). Some studies found evidence for increased speeding in 2020. Katrakazas

et al. (2020), for example, pointed to data from Greece and Saudi Arabia showing that average driving speeds increased by between 6 and 11% during the lockdown. Similarly, Inada, Ashraf and Campbell (2021) analysed data for Japan for the period January to May 2020 and concluded that the lockdown had led to more speed-related traffic violations and an increase in fatal road crashes. France's national road safety report for 2020 showed a -21% reduction in road deaths compared to 2019. The most substantial reduction occurred among the elderly, with a -34% decrease in road deaths for those aged 75 and above. Interpreting the impacts of the Covid-19 pandemic on road crashes is complex, however, and the report concluded that a link between the regions most affected by Covid 19 and the regional crash rates could not be established. (ONISR, 2021)

Provisional data from the United Kingdom showed a decrease of -21% in traffic volume (measured in vehicle-miles) and a reduction of -16% in the number of road deaths in 2020 compared to 2019. The decrease in fatalities in 2020 is associated with the Covid-related decrease in road traffic. However, the fatality rate (i.e. the number of road deaths per billion vehicle-kilometres) increased by 6% in 2020 compared with 2019. Pedal cycle fatalities and cycle traffic both increased during lockdowns (Department for Transport, 2021).

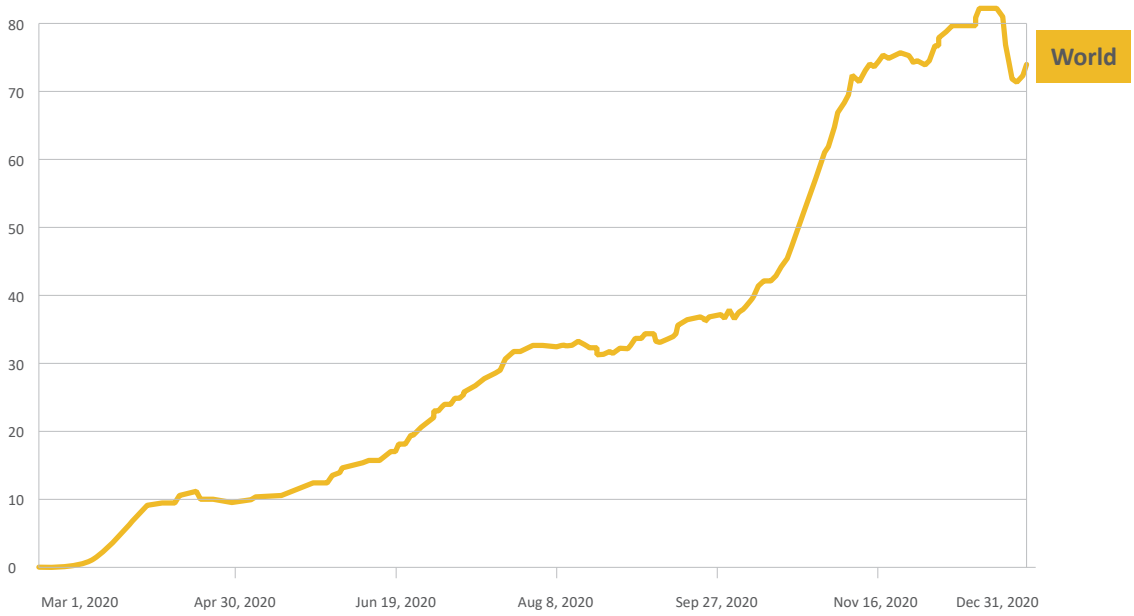
In Italy, the number of road fatalities dropped by -24.5% in 2020 compared to 2019. This decrease concerned all road users, but the occupants of heavy vehicles (-14.6%), motorcyclists (-16.0%) and pedestrians (-23.4%) recorded the smallest decreases. The most significant decline was recorded on motorways, with -39.9% fewer road deaths in 2020 compared to 2019. The number of daily road crashes decreased up to -90% in April 2020 (compared to the same days in 2019). On average, Italy's number of road fatalities decreased by -62% in March 2020 and -74% in April 2020 compared to the same months in 2019 (ISTAT-ACI, 2021).

The United States showed a different trend. Vehicle-miles travelled in 2020 decreased by -13.2%, yet the number of people killed in road crashes increased by 7.2% compared to 2019, to an estimated 38 680 victims. The fatality rate for the United States in 2020 was 1.37 per 100 million vehicle-miles travelled, up from 1.11 in 2019. The main factors behind this increase include impaired driving, speeding and failure to wear a seat belt (NHTSA, 2021a). Early estimates for the first half of 2021 again show an increase in the number of road deaths, which rose by 18.4% compared to the same period in 2020. Vehicle-miles travelled increased as well, but only by 13% (NHTSA, 2021b), suggesting that road safety has continued to deteriorate.

THE IMPACT OF COVID-19 ON MOBILITY

By September 2021, the number of confirmed Covid-19 cases worldwide had surpassed 200 million and resulted in more than 4 million deaths. Most governments imposed lockdowns to limit the spread of the virus through non-essential civilian movements. Figure 1 illustrates the daily new confirmed Covid -19 deaths worldwide from 1 March to 31 December 2020. It shows clearly the two main waves that hit the world, first in March/April 2020 and then in November/December of that year.

Figure 1. Daily new confirmed deaths from Covid-19 in 2020
(Rolling seven-day average)



Source: Johns Hopkins University CSSE Covid-19 Data, quoted from Ritchie et al. (2020).

GOVERNMENT RESPONSES TO COVID-19

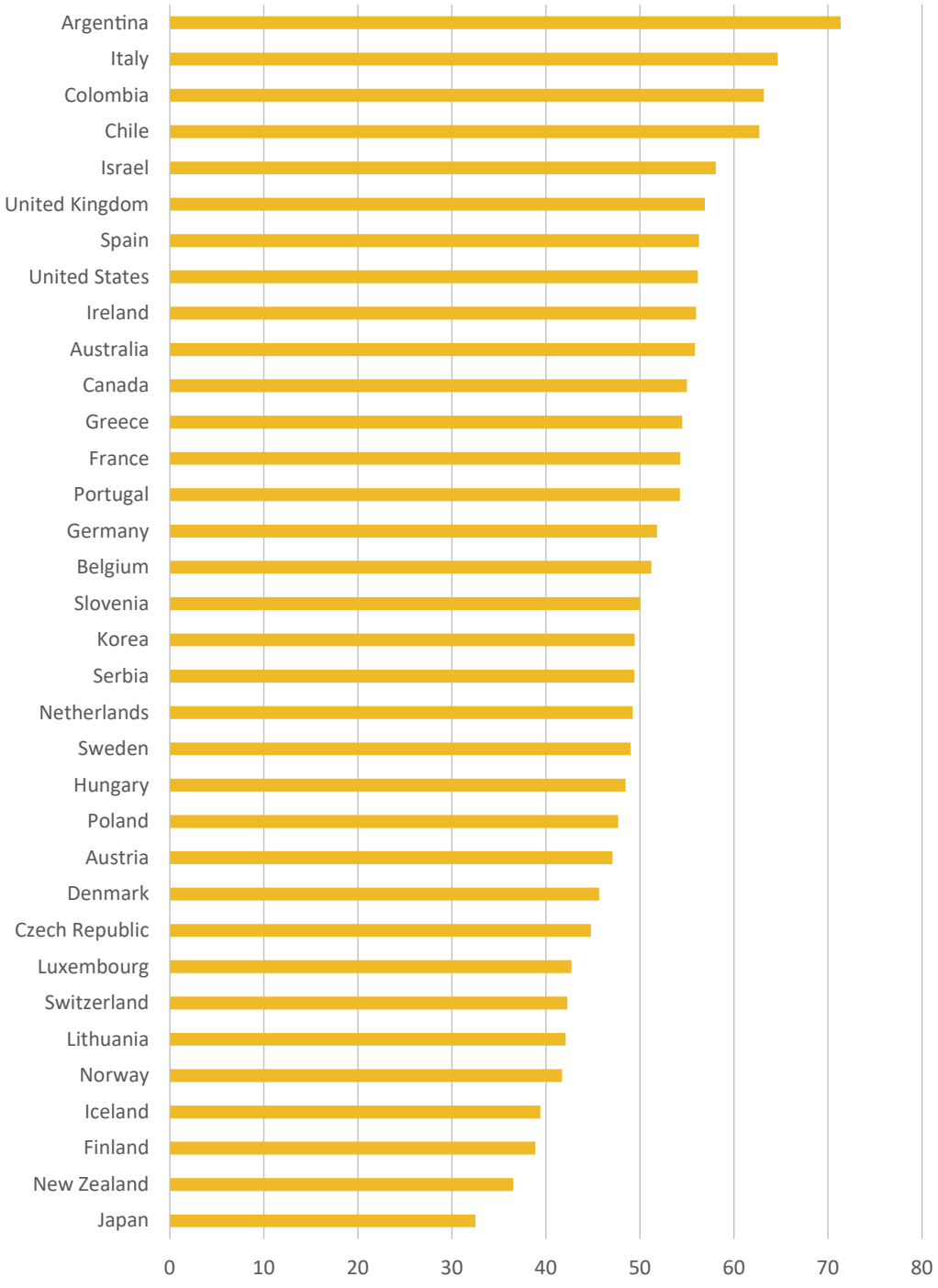
Governmental responses to the spread of Covid-19 for 180 countries are monitored by the Oxford Coronavirus Government Response Tracker, or OxCGRT (Hale et al., 2020). This online database classifies anti-Covid measures into eight categories:

C1: school and university closure
C2: workplace closure
C3: cancelling of public events
C4: limits on gatherings
C5: closing of public transport
C6: orders to "stay at home"
C7: restrictions on internal movements between cities and regions
C8: restrictions on international travel.

These indicators are recorded on a scale from 0 to 4 according to the measures' strictness. They are accompanied by a binary flag denoting whether the measure applies to a specific region or a general area. The strictness of governmental response is estimated in terms of a stringency index based on the eight measures above and the presence (or absence) of public information campaigns. The Oxford Stringency Index is the mean of the confinement and public information campaign indices. It is estimated for each country on a scale of 0 to 100, where 0 indicates that no measures were taken to curb the spread of Covid-19 and 100 indicates very strict measures.

Figure 2 illustrates the mean stringency index for 2020 for the 34 IRTAD member countries. It shows that Argentina, Italy, Colombia and Chile applied the strictest measures overall, while Italy and Great Britain were the toughest within Europe. By contrast, Japan, New Zealand and Finland took more moderate approaches to contain the pandemic.

Figure 2. Restrictiveness of government responses to the Covid-19 pandemic
(Oxford Stringency Index, 100=strictest)



Source: Hale et al. (2020)

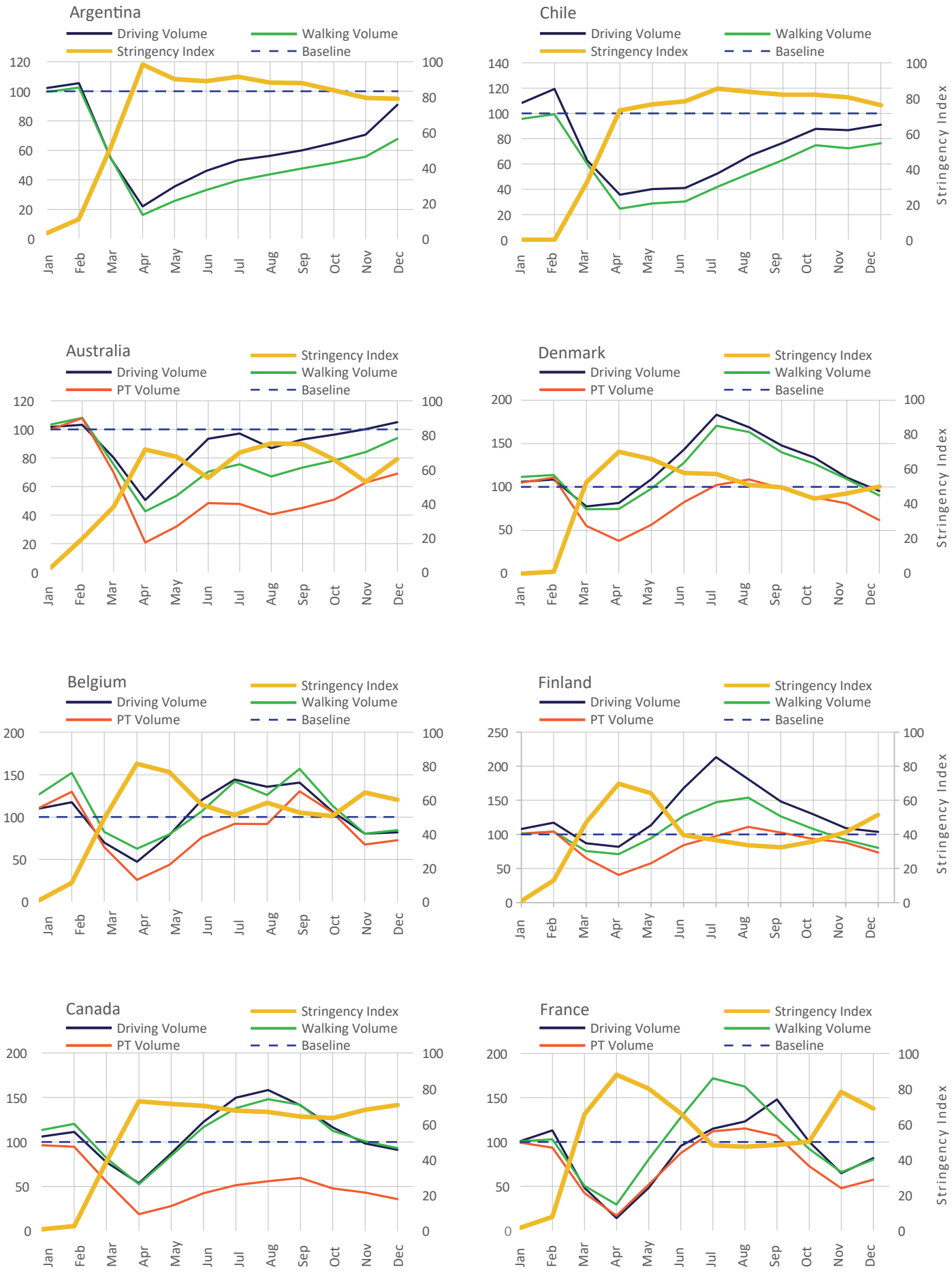
HOW GOVERNMENT RESPONSES TO COVID-19 IMPACTED MOBILITY

Data collected by Apple (2020) give insight into how government responses to Covid -19 affected mobility in 2020. Figure 3 illustrates the evolution of driving, walking and public transport from January to December 2020 against the Oxford Stringency Index and a baseline set at the mobility levels on 13 January 2020.

The data show that stricter measures and lockdowns resulted in significant drops in all three mobility modes, especially during the first wave of the pandemic between February and April 2020. Less important reductions occurred during the second wave between September and December 2020. Public transport usually suffered the most, with the most significant decline in public transport volumes registered in Italy, France, Great Britain, Mexico, New Zealand and Luxembourg.

The mobility data collected by Apple were publicly available from the beginning of the pandemic. They provided an alternative to government data where they had not been released during the preparation of this report. However, the Apple dataset has limitations as it uses a one-day baseline that fails to capture the seasonality of travel demand during any typical year. In addition, data from Apple users cover only a sub-group of the national population and may not entirely resemble average overall behaviour.

Figure 3. How government responses to Covid-19 impacted walking, driving and public transport
(Monthly Apple mobility mapped against Oxford Stringency Index, 2020)



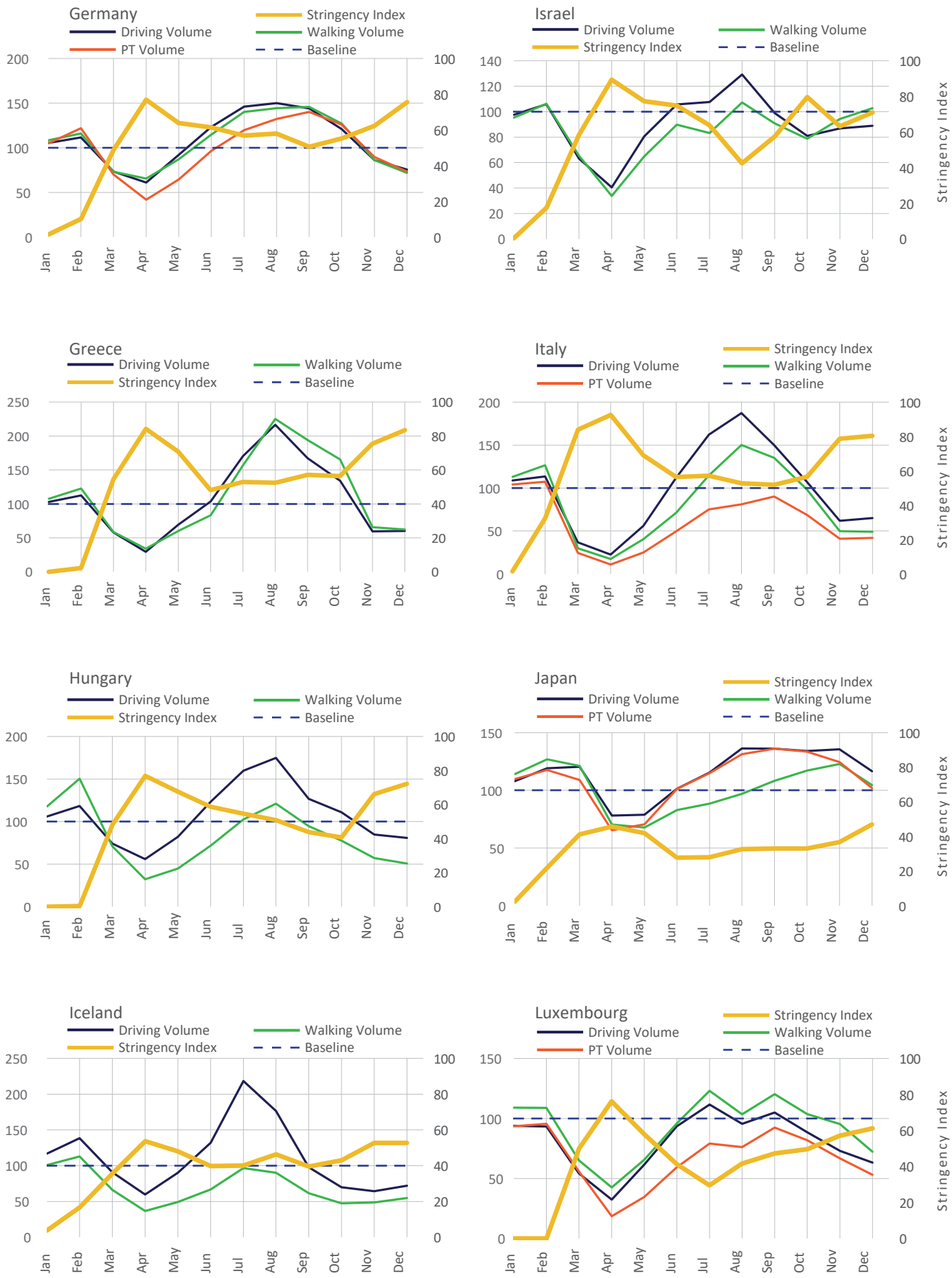


Figure 3. How government responses to Covid-19 impacted walking, driving and public transport

Figure 3. How government responses to Covid-19 impacted walking, driving and public transport

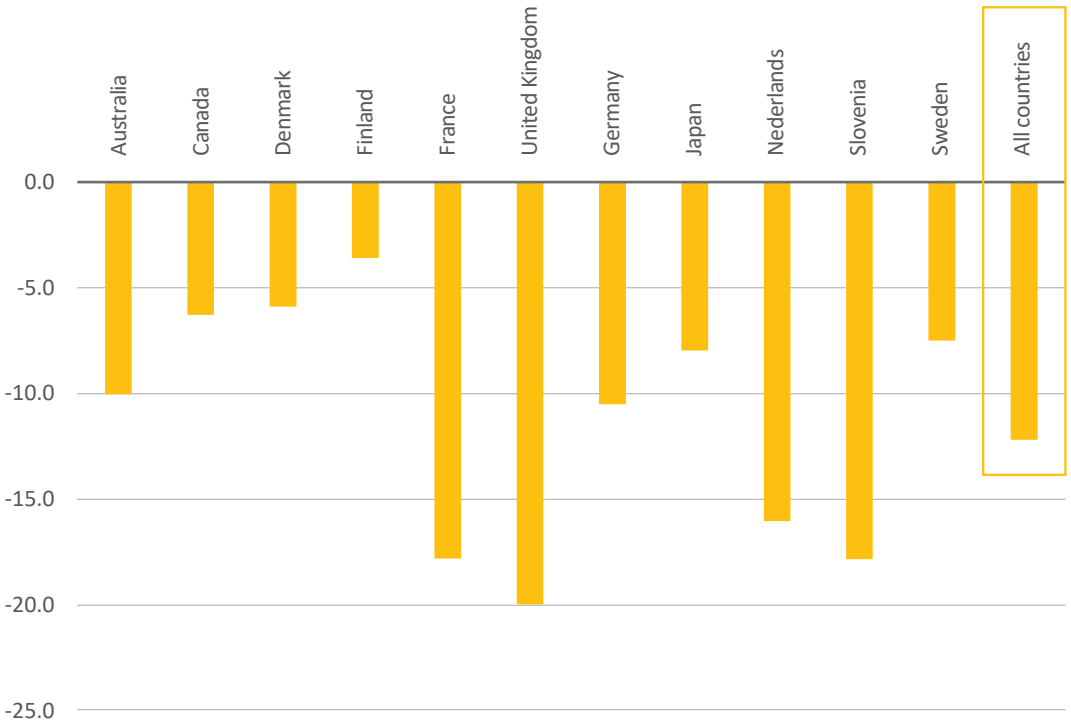
Source: Apple (2020).

HOW COVID-19 AFFECTED TRAFFIC VOLUMES

This section provides an overview of exposure data from eleven countries that captured vehicle-kilometres driven for 2017 to 2020 and complement Apple's data. The exposure data covers Australia, Canada, Denmark, Finland, France, Great Britain, Germany, Japan, the Netherlands, Slovenia and Sweden. For Finland, Great Britain, Germany, the Netherlands and Sweden, only annual data are available.

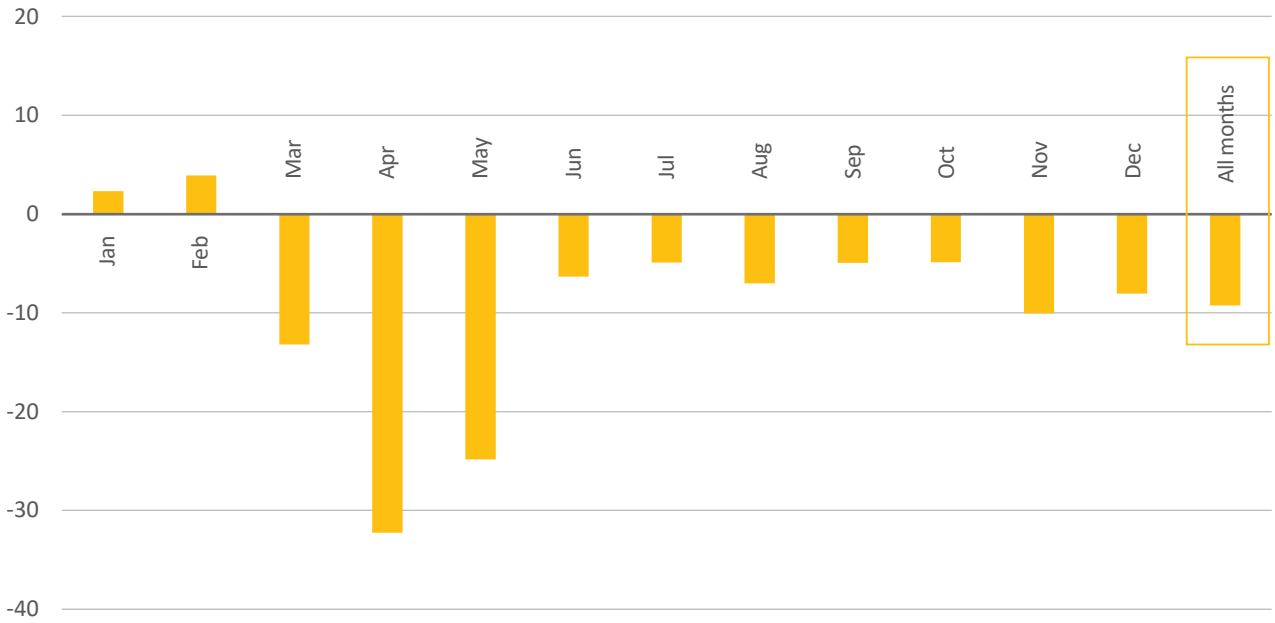
Traffic volume decreased by -12.2% in 2020 on average in the eleven countries compared with the 2017-19 average (Figure 4). The most substantial declines occurred in France (-17.8%) and Great Britain (-20%). Given the exceptional circumstances in 2020, a more significant decrease in distance travelled could have been expected. Disaggregated data by vehicle types were not available but would shed additional light on the overall reductions in traffic by potentially revealing differences between modes.

Figure 4. How total travel distance dropped during the pandemic
(Vehicle-kilometres travelled in 2020 in eleven countries, % change on 2017-19 average)



An analysis of vehicle-kilometres driven by month offers more nuance. Figure 5 shows that the sharpest drops occurred in April and May 2020, when lockdown measures were introduced. Traffic volume decreased -32% in April 2020 and -25% in May compared with the 2017-19 average. For the other months of the year, traffic volume was generally -10% lower in 2020 than the baseline. However, there are wide variations by country. Also, data on monthly vehicles-kilometres were available for only six countries: Australia, Canada, Denmark, France, Japan and Slovenia.

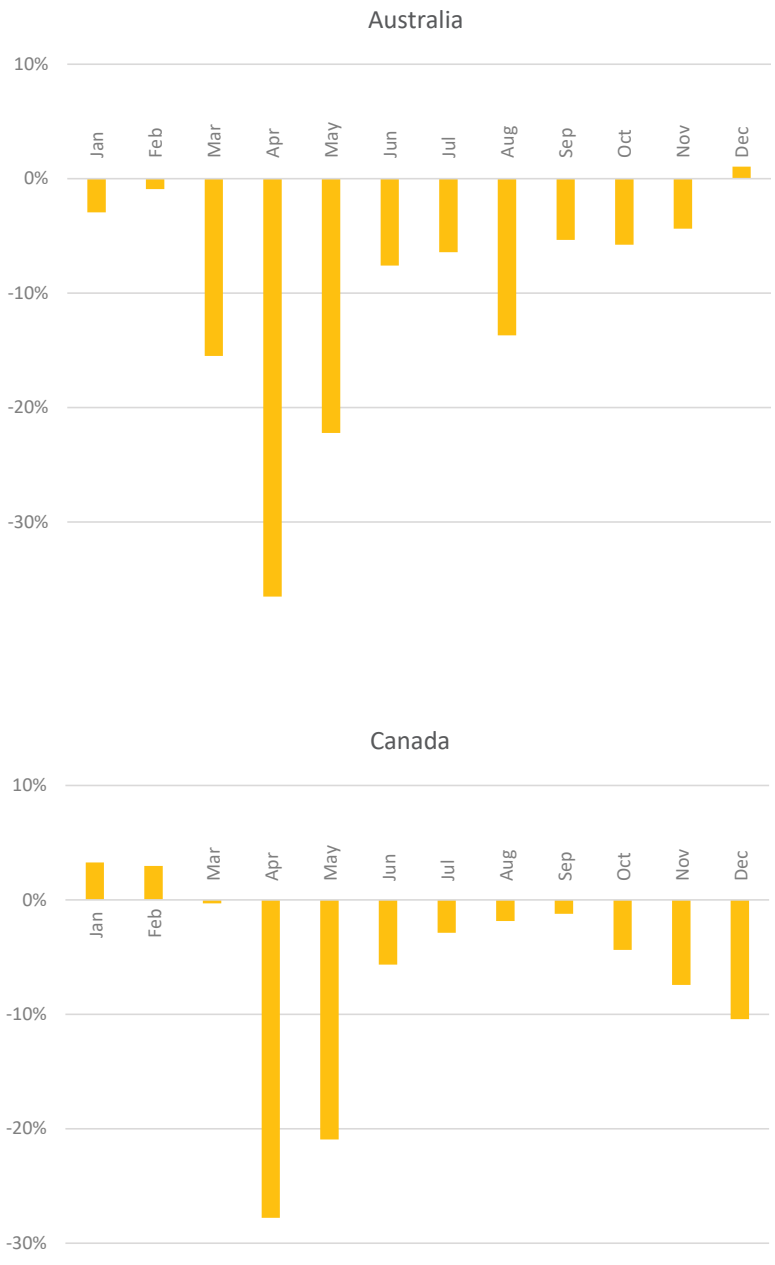
Figure 5. How total travel distance changed month by month during the pandemic
(Aggregate monthly vehicle-kilometres travelled 2020 in six countries, % change on 2017-19 average)

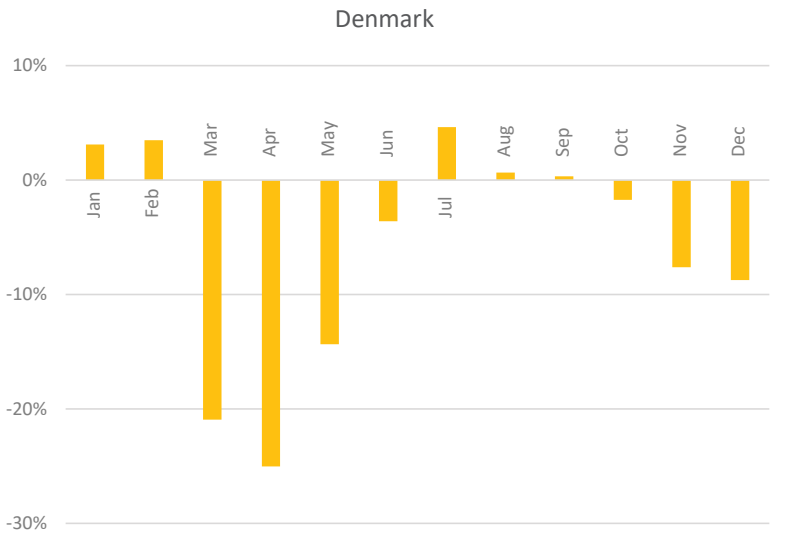


Note: Monthly data are only available for Australia, Canada, Denmark, France, Japan and Slovenia.

Figure 6 illustrates the monthly evolution in 2020 of total distance travelled for each of the six countries that reported monthly data. A sharp drop in vehicles-kilometres is noticeable in April 2020. It ranged from -20% in Japan to -75% in France. When restrictions were lifted in August and September, traffic volumes bounced back nearly to pre-pandemic levels before decreasing again as the second wave of the pandemic hit and restrictions were re-introduced.

Figure 6. How total travel distance changed by country during the pandemic
(Monthly vehicle-kilometres travelled in 2020, % change on 2017-19 average)

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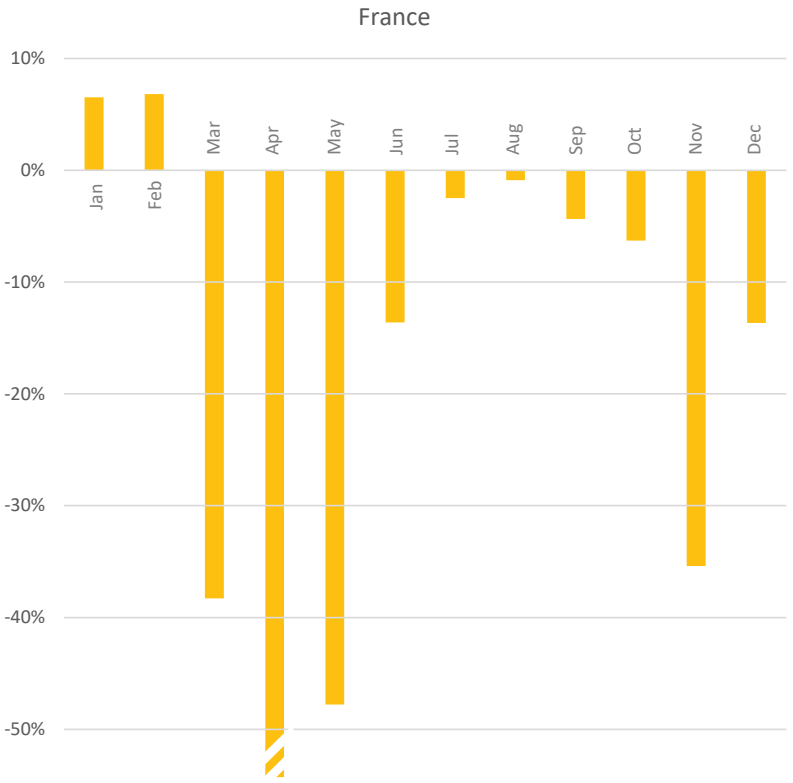
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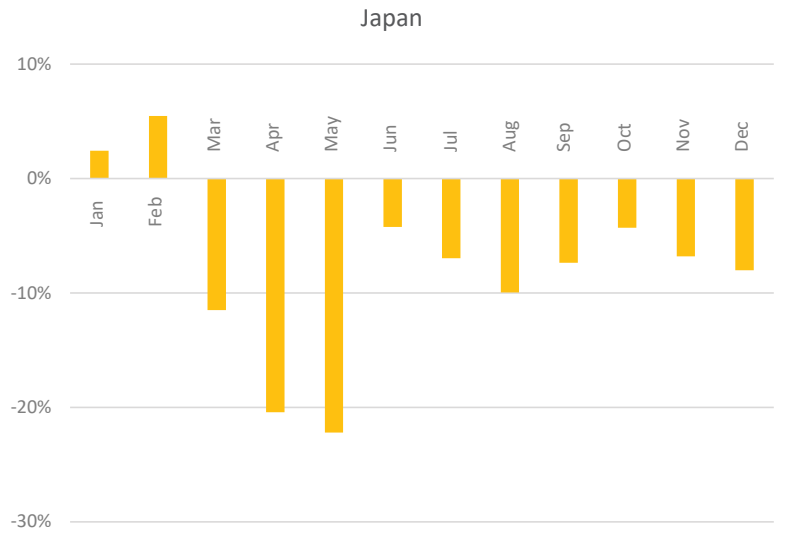
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THE IMPACT OF COVID-19 ON ROAD FATALITIES

This section examines the evolution of the number of road deaths in 2020 when most parts of the world had imposed severe restrictions on mobility to combat the Covid-19 pandemic. It is based on data for 34 countries from the IRTAD database and responses to a survey from 24 countries that provided more disaggregated data.

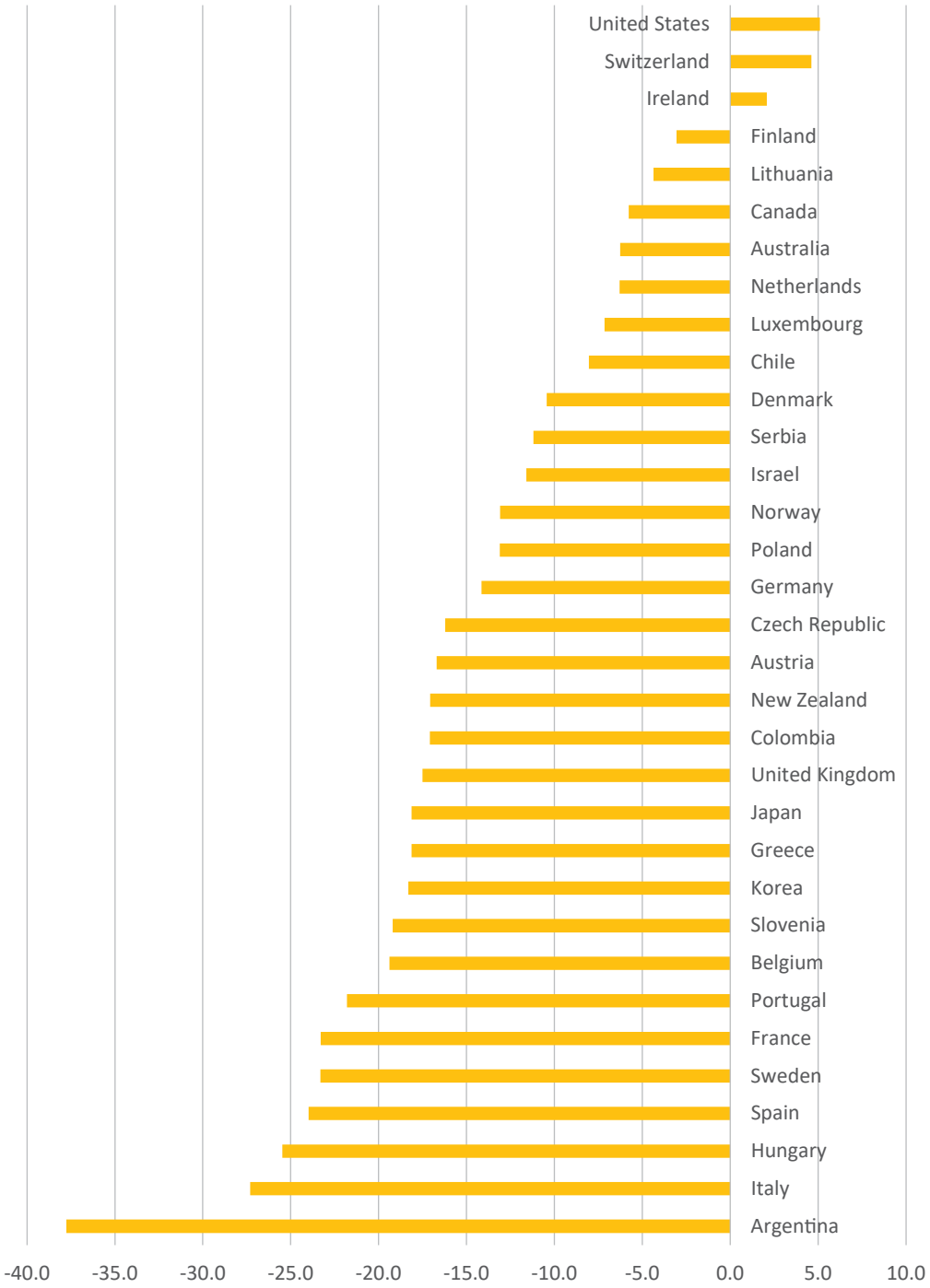
Almost all IRTAD countries with validated data recorded fewer road deaths in 2020 than the mean figure for 2017-19. On average, road deaths decreased by -8.6% across the 34 IRTAD countries in 2020 against the baseline. Iceland registered the most substantial decrease, with -38.5% fewer road deaths in 2020, albeit based on low absolute numbers: eight road deaths were reported in 2020, compared to an average of

13 in 2017-19. Argentina followed a close second, with a reduction of -37.8%. According to the Oxford Stringency Index, Argentina is also the IRTAD country with the strictest anti-Covid measures in place during the pandemic. Italy, Hungary, Spain, Sweden, France and Portugal all recorded more than a -20% reduction in the number of road deaths. Sixteen countries recorded fatality reductions between -10% and -20%. Seven countries reported modest declines between -3% and -8%.

The exceptions to this broad picture are the United States, Switzerland and Ireland. These three countries recorded more road fatalities during 2020 than, on average, in the three years preceding the pandemic (Figure 7). Fatal crashes increased by 5.1% in the United States, 4.6% in Switzerland and 2.1% in Ireland in 2020. If the United States is left out of the calculation, the average overall reduction among all 34 IRTAD countries more than doubles from 8.6% to 19.2%. The United States, with a population of 330 million, accounts for about 40% of all road deaths in IRTAD countries and therefore strongly influences the overall average.

Figure 7. Which countries saw the steepest drop in road deaths during the pandemic?

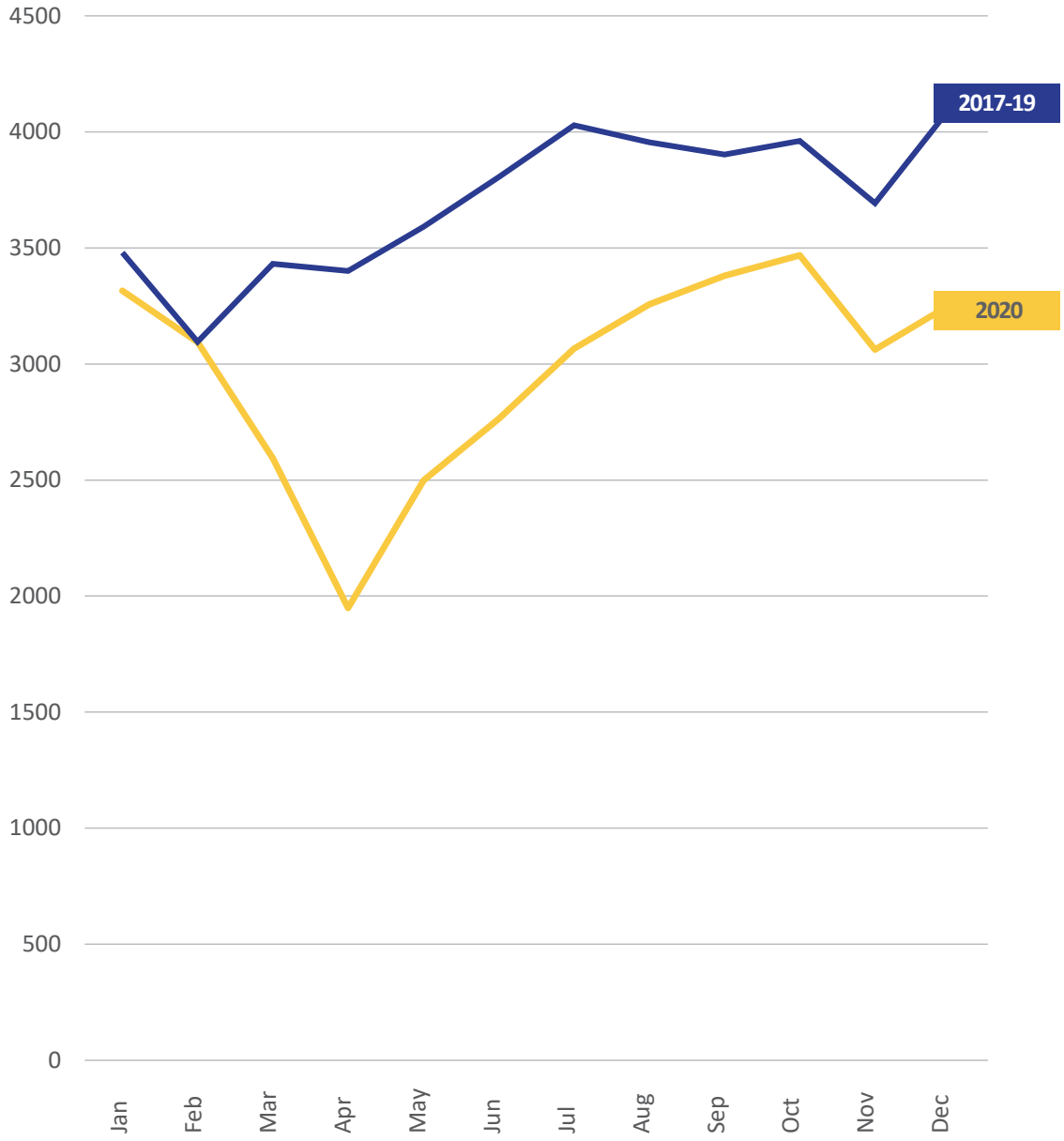
(Road fatalities in 2020, % change on 2017-19 average)



Monthly fatality data are available for 29 IRTAD countries. Figure 8 illustrates the evolution in the number of monthly road deaths in 2020 compared with the average for 2017-19. It shows that the number of road fatalities fell significantly during the first wave of the pandemic. In April 2020, -43% fewer traffic deaths were counted, and -30% in May compared to the baseline. However, a significant impact of the second wave of the pandemic in November 2020 is less clearly discernible.

Figure 8. Overall trend for road deaths in 2020

(Aggregate fatalities in 29 countries mapped against 2017-19 average)



Note: Based on data from Argentina, Australia, Austria, Belgium, Canada, Chile, Colombia, Czech Republic, Denmark, Finland, France, Great Britain, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Lithuania, Luxembourg, New Zealand, Norway, Poland, Slovenia, Sweden, Switzerland.

Figure 9. Comparing the 2020 trend for road fatalities by country with pre-pandemic figures

(2020 fatalities compared to 2017-19 average)

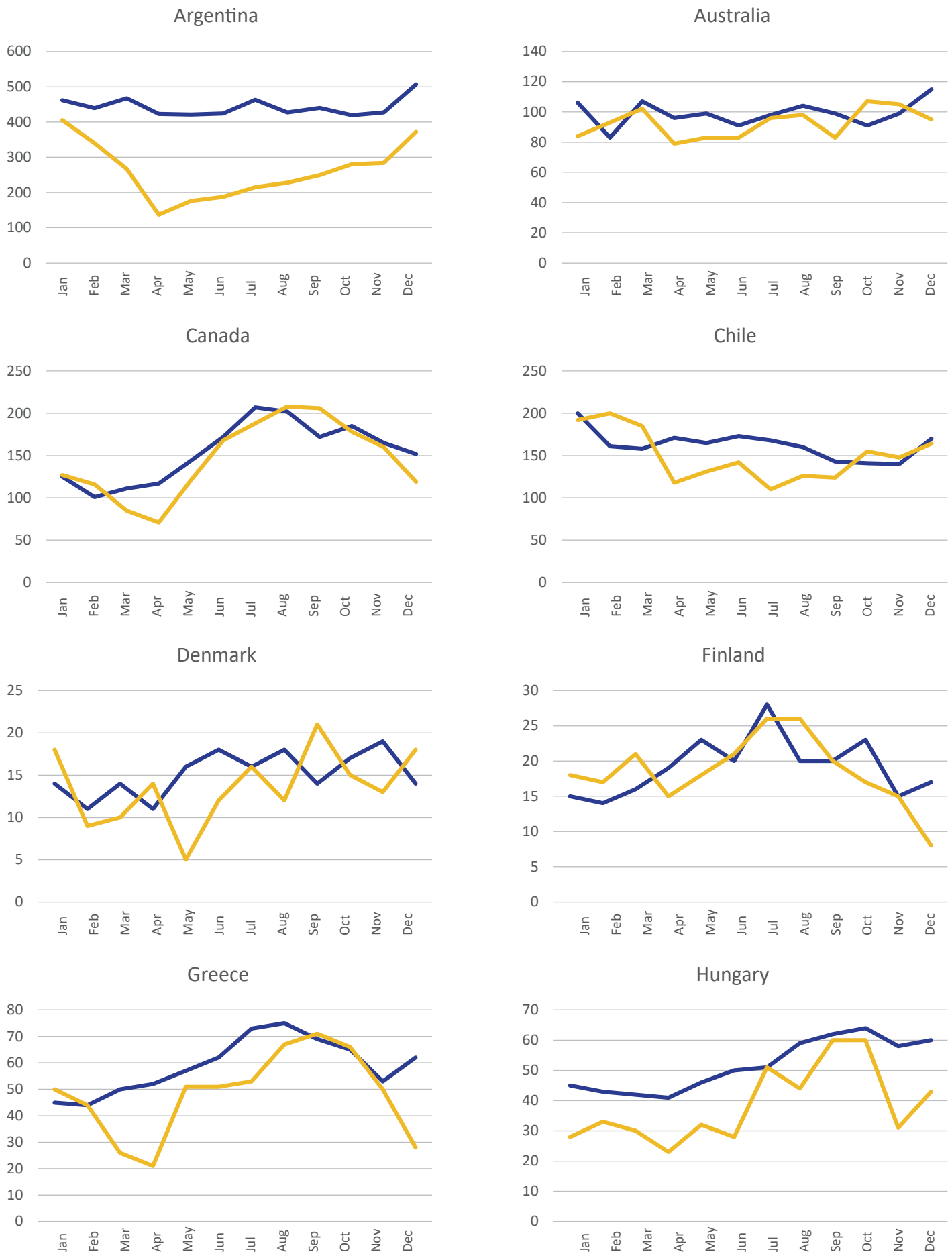


Figure 9. Comparing the 2020 trend for road fatalities by country with pre-pandemic figures

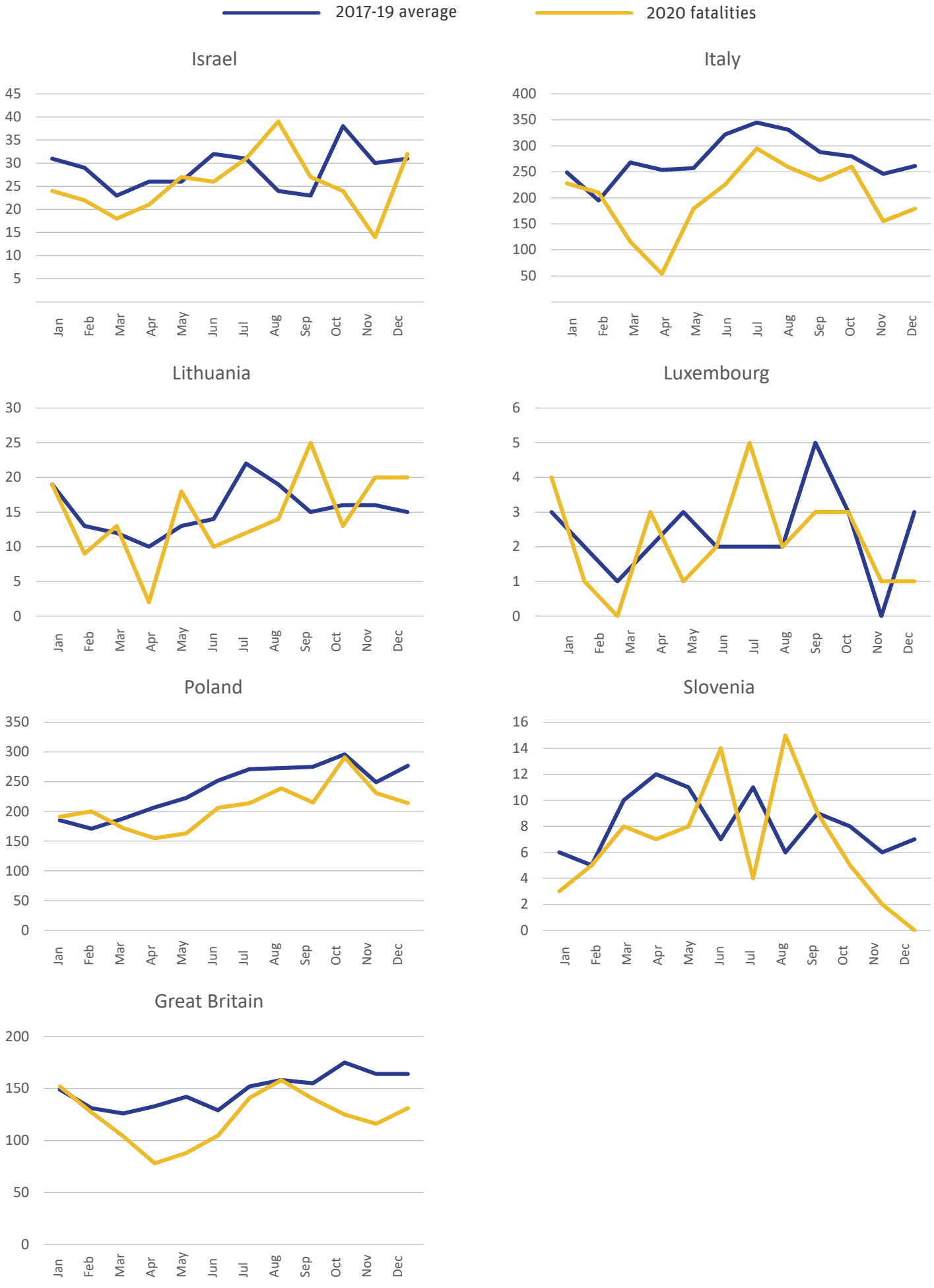


Figure 9. Comparing the 2020 trend for road fatalities by country with pre-pandemic figures

The monthly road death data for individual countries in Figure 9 also shows sharp drops in April and May 2020. The number of crash fatalities decreased by -80% in Lithuania in April, by -79% in Italy and -74% in New Zealand. However, the second wave of Covid-19 that hit most countries in November 2020 had a more varied impact on the number of road deaths that depended on the stringency of the restrictions in place in a country – which, in any case, were usually lighter than in April and May 2020.

Figure 9. Comparing the 2020 trend for road fatalities by country with pre-pandemic figures

Figure 10 depicts the aggregated evolution in the number of road deaths since 2010 for 33 countries. It shows that the trend towards fewer road fatalities accelerated in 2020. This is especially evident if excluding the United States. However, despite the exceptional reduction in road deaths in 2020, the target of the United Nations Decade of Action for Road Safety to halve the number of fatalities by 2020 has not been met. Figure 11 presents the trend over the same period for individual countries.

Note: Data for Argentina, Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom and the United States.

Figure 10. Overall trend for road deaths, 2010-20
(Aggregate, with and without the United States)

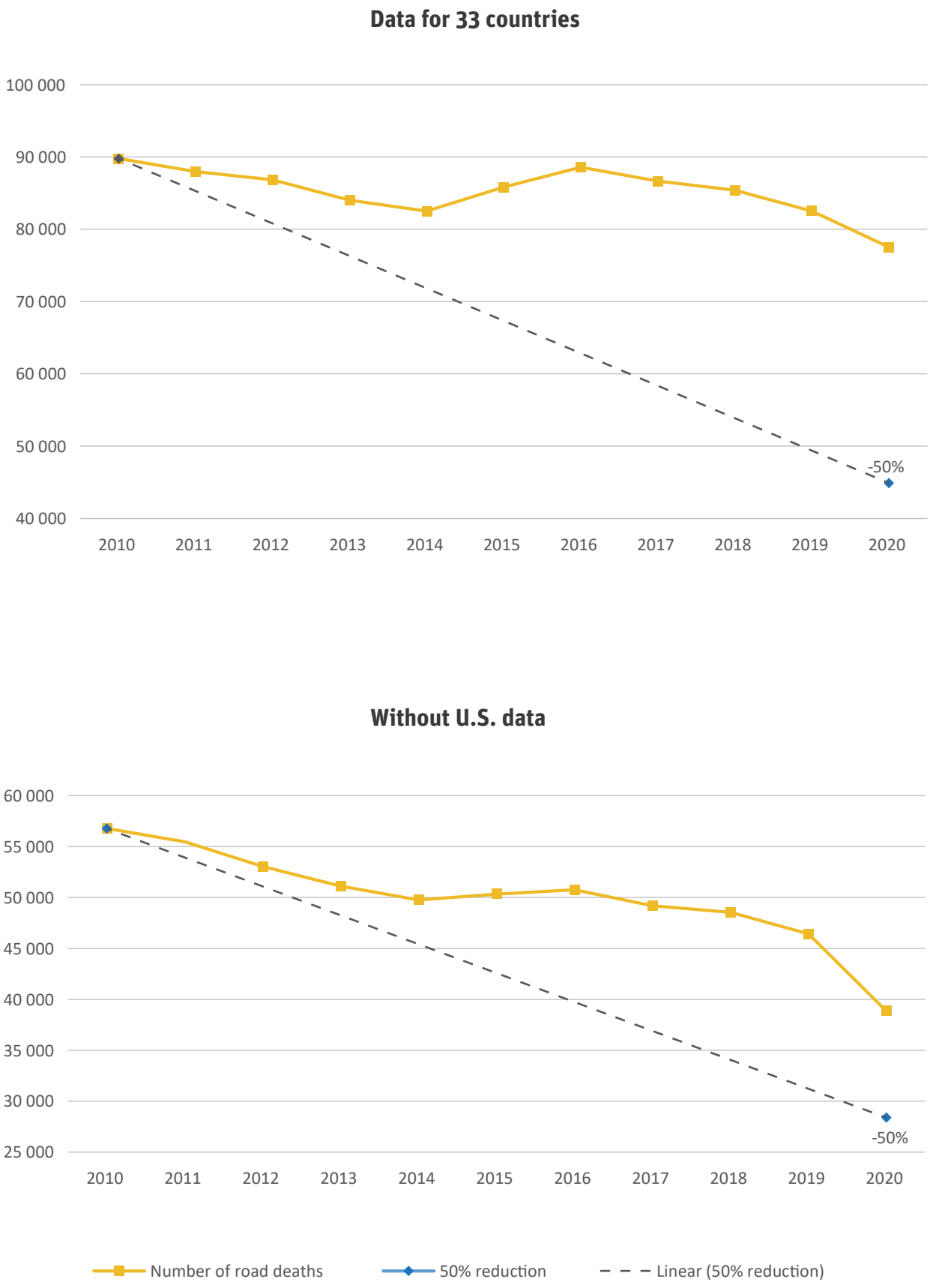
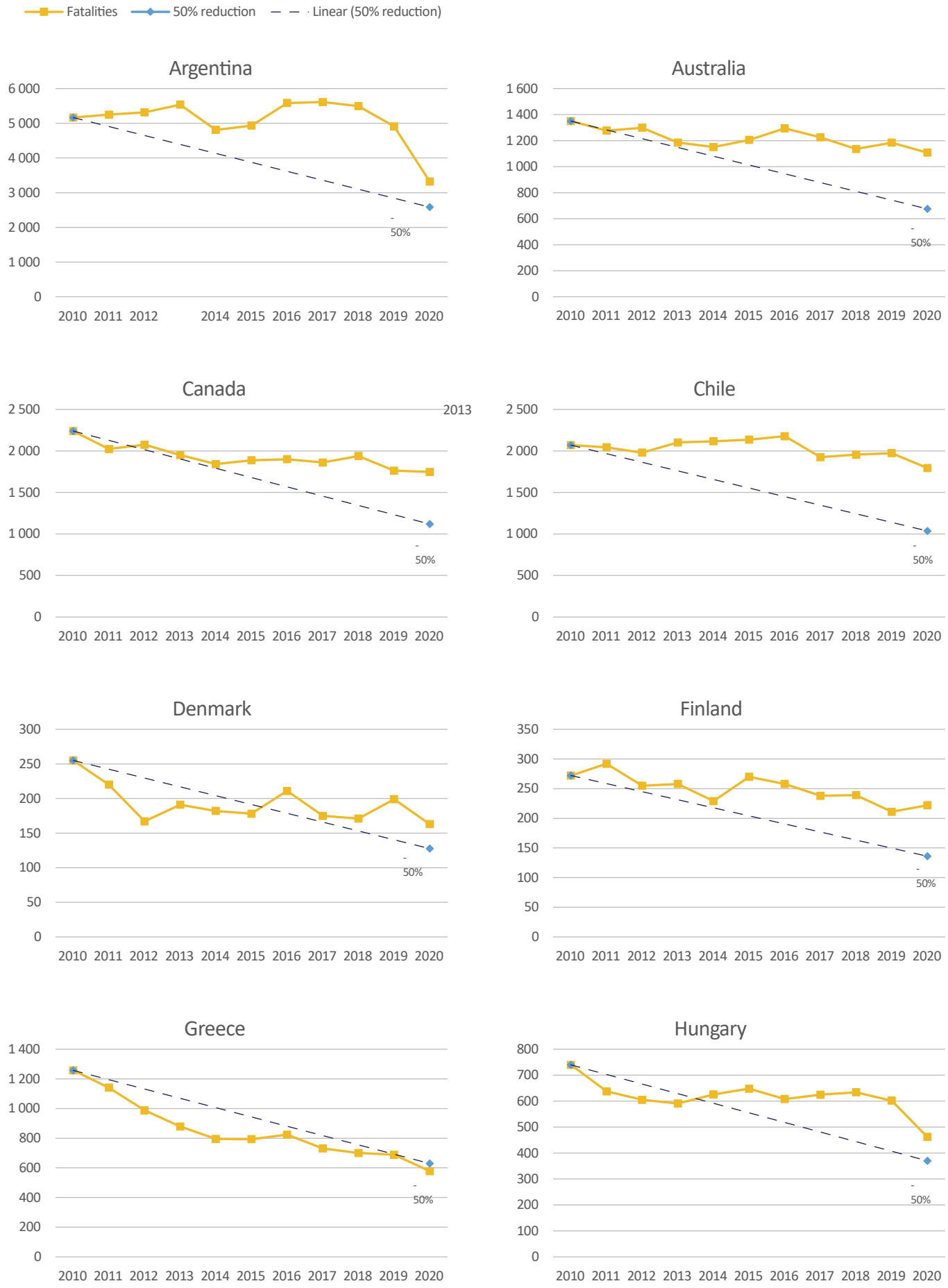


Figure 11. Country trends for road deaths, 2010-20



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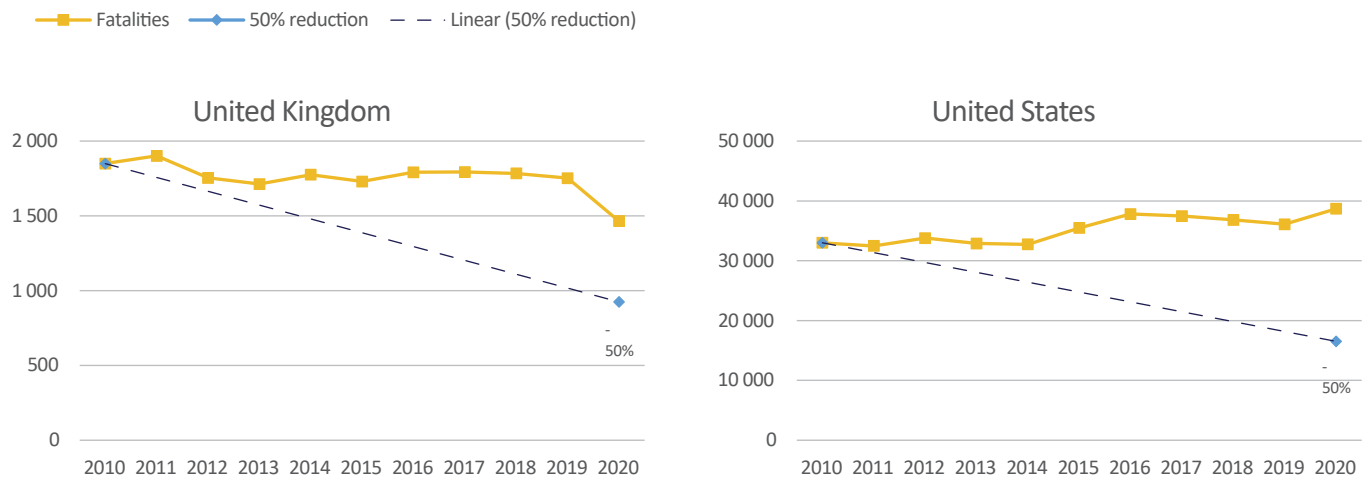
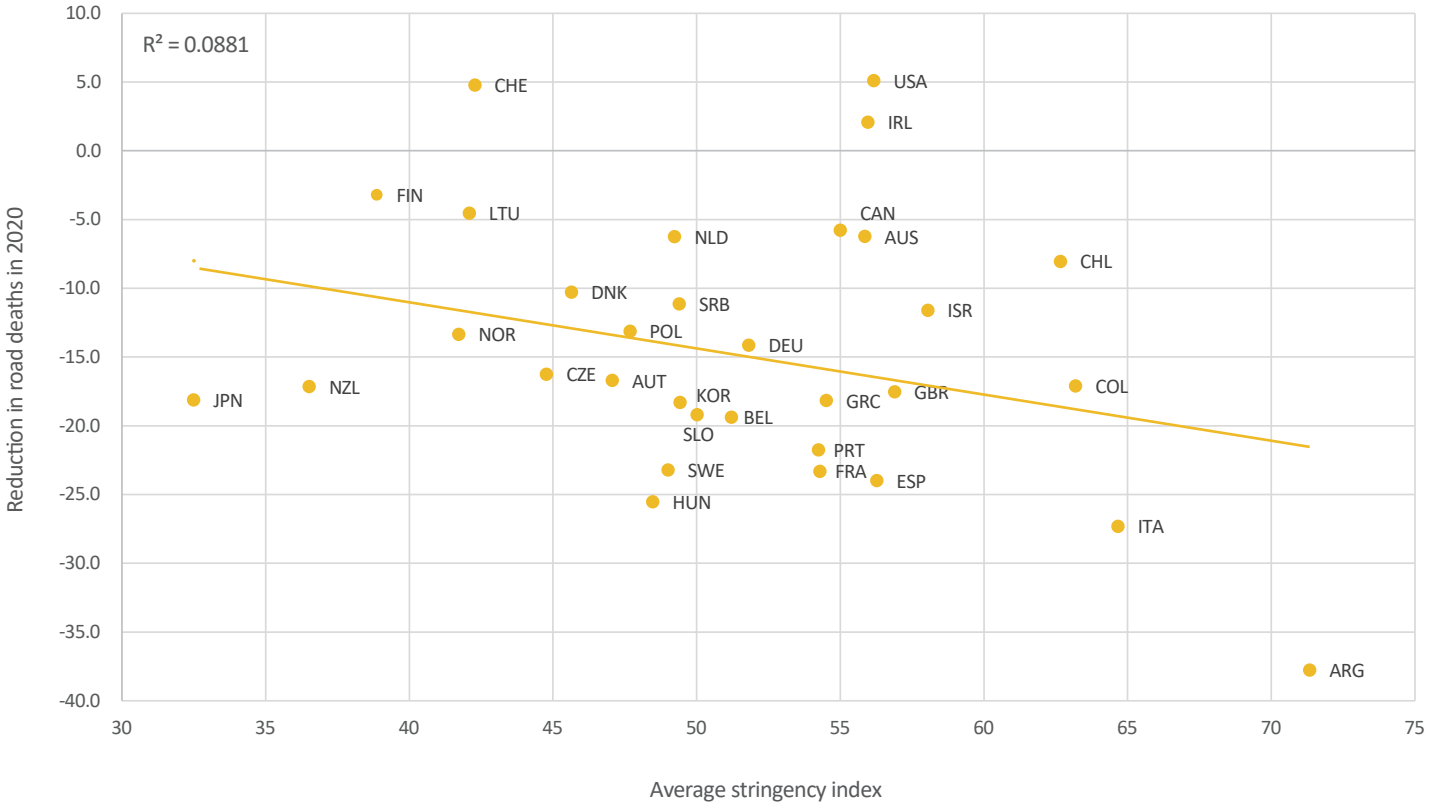


Figure 11. Country trends for road deaths, 2010-20

DID GOVERNMENT MOBILITY RESTRICTIONS RESULT IN FEWER ROAD DEATHS?

This section investigates if and how governmental responses to the Covid-19 pandemic have reduced road deaths. Figure 12 presents the change in the fatality numbers for 32 IRTAD countries in 2020 in comparison with the strictness of their government's policies to curb the spread of Covid-19. No strong correlation can be found between the two. This suggests that the stringency of governmental measures is not the only explanation for the lower number of road deaths in 2020. However, a stronger correlation is generally found for countries with a score above 50 on the Oxford Stringency Index.

Figure 12. Correlation between the number of road deaths and the strictness of anti-Covid measures

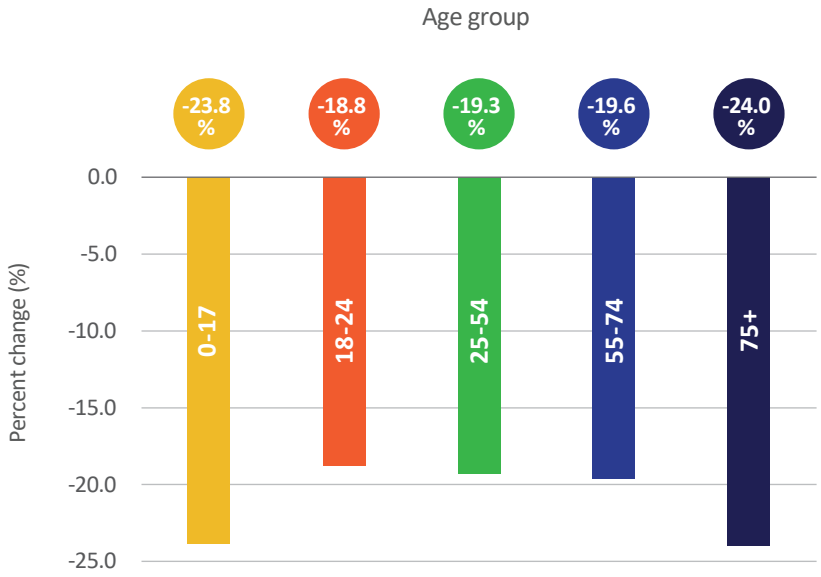


THE IMPACT OF COVID-19 ON ROAD DEATHS BY AGE GROUP

The number of road deaths decreased by -20.2% on average in 2020 compared to the 2017-19 average across 19 countries. The biggest drop occurred among elderly people (aged 75+) and young people aged 0-17 years. These two groups saw traffic deaths reduced by almost a quarter (-24%). Both groups were particularly affected by the travel restrictions during the pandemic: the younger group due to the closure of schools; the senior population because social distancing was more important for them, as they were considered to be significantly more at risk from Covid-19 than younger citizens. Figure 13 illustrates the change in the number of road deaths by age group between 2020 and the baseline for the aggregated figures from Argentina, Australia, Belgium, Switzerland, Chile, Denmark, Finland, France, Germany, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Poland, Slovenia and Sweden.

Figure 13. Evolution of roads deaths during the pandemic by age group

(Aggregated 2020 fatalities for 19 countries, % change on 2017-19 average)



Note: Data for Argentina, Australia, Belgium, Switzerland, Chile, Denmark, Finland, France, Germany, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Poland, Slovenia and Sweden.

THE IMPACT OF COVID-19 ON ROAD DEATHS BY TRANSPORT MODE

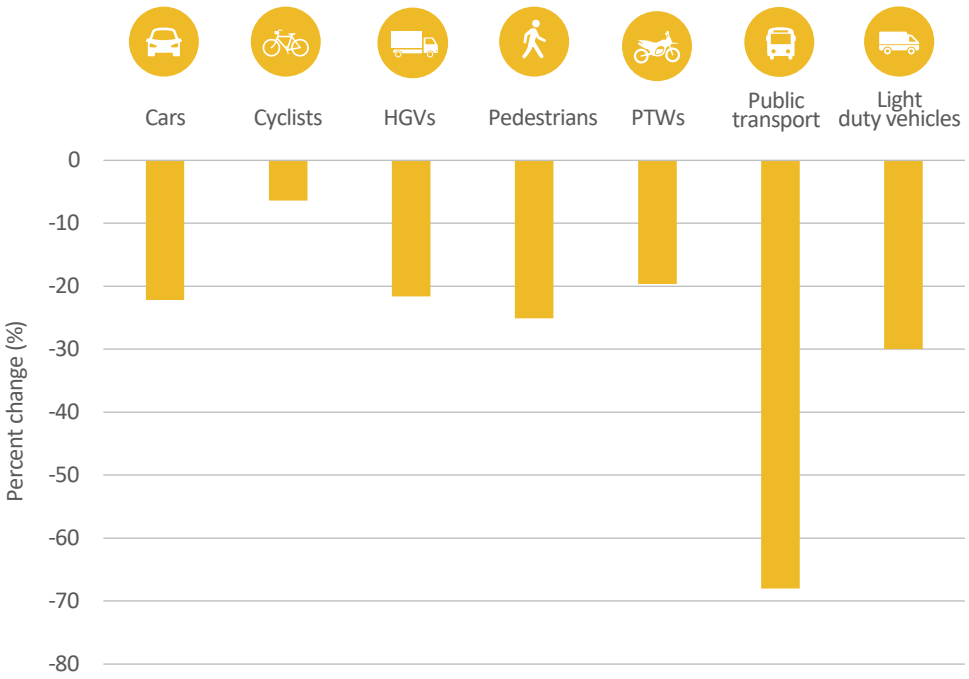
By transport mode, the number of road deaths decreased by -21.3% in 2020 compared to the 2017-19 average across a group of 20 countries. The largest decrease was observed for fatalities among public transport users, with a drop of -68%: there were only 47 deaths in 2020, compared with 148 on average in 2017-19.

Users of light-duty goods vehicles registered the second-largest decrease, with -30% fewer fatalities. The reduction in the number of road deaths among pedestrians, car occupants, heavy vehicle goods occupants and motorcyclists was around -20% (see Figure 14). Cyclists are the group with the smallest drop in deadly crashes in 2020, with a reduction of -6.4%. The substantial increase in the number of cyclists during the pandemic is behind this. Many citizens switched from public transport to bicycles to avoid the risk of infection associated with closed spaces in buses, trams, and trains. Thus in some countries, the exposure of cyclists to crash risks significantly increased during this period.

Figure 14 illustrates the changes in the number of road deaths by transport mode for Argentina, Australia, Belgium, Switzerland, Chile, Denmark, Finland, France, Germany, Great Britain, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Poland, Slovenia, and Sweden.

Figure 14. Evolution of roads deaths during the pandemic by transport mode

(Aggregated 2020 fatalities for 20 countries, % change on 2017-19 average)



Note: Data for Argentina, Australia, Belgium, Switzerland, Chile, Denmark, Finland, France, Germany, Great Britain, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Poland, Slovenia, and Sweden.

THE IMPACT OF COVID-19 ON ROAD DEATHS BY ROAD TYPE

The number of road deaths decreased sharply on all types of roads in 2020, compared to the average for 2017-19 (Figure 15). The 15 countries that provided data by road type recorded -20% fewer fatalities on motorways, -15% less on rural roads, and a drop of -10% on urban roads. This compares with a decline in all road deaths of -13.5% across Belgium, Switzerland, Denmark, Finland, France, Germany, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, Poland, Slovenia and Sweden. However, in Switzerland and Finland, road deaths on urban roads increased in 2020. More data is needed to understand this phenomenon.

Monthly data also show a significant reduction of motorway fatalities during the second wave of the pandemic (Figure 16). The reason are bans on leisure transport and intercity movements before and during the autumn holiday period to prevent the further spread of the virus.

Figure 15. Overall evolution of road deaths during the pandemic by road type

(2020 fatalities per country, % change on 2017-19 average)

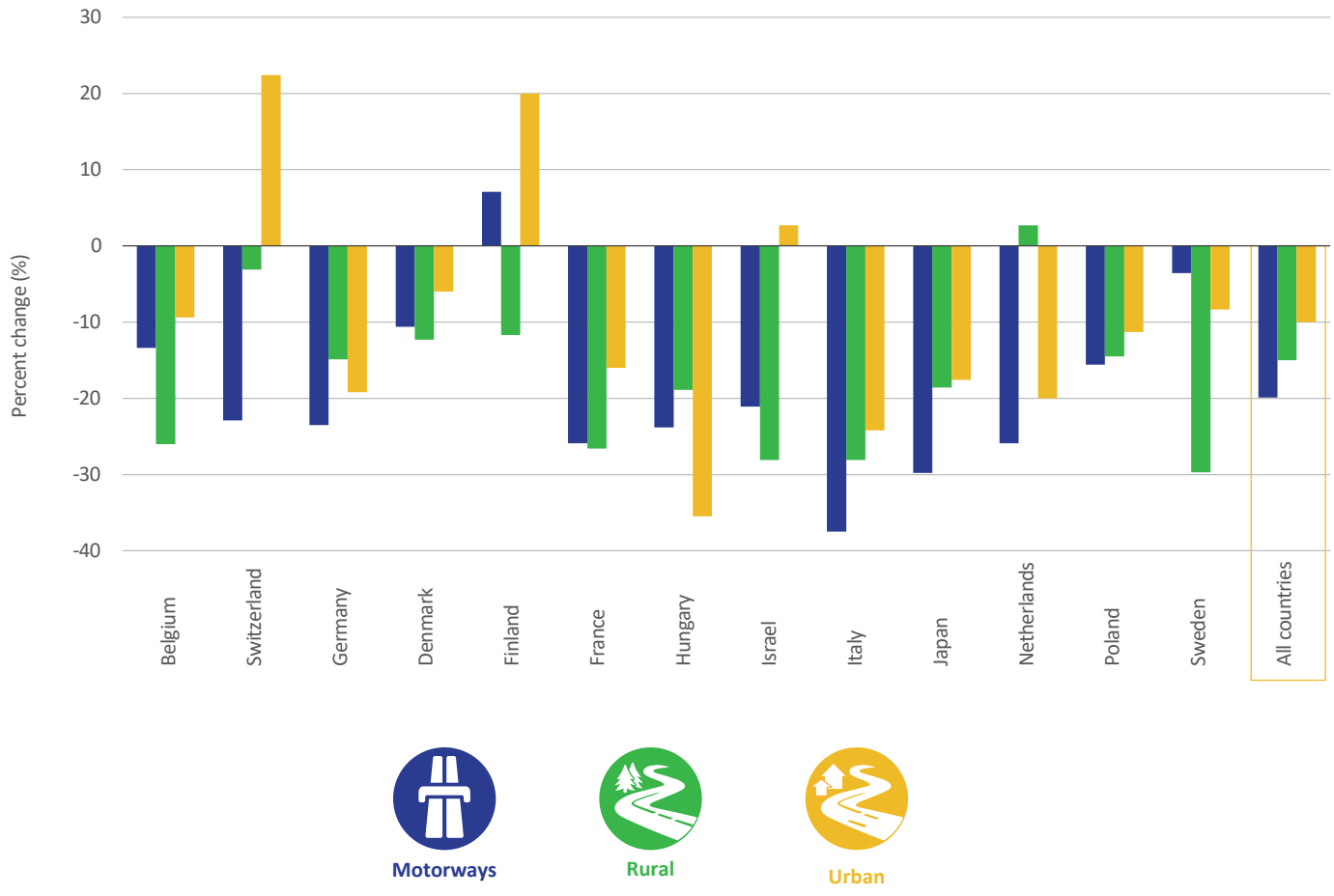
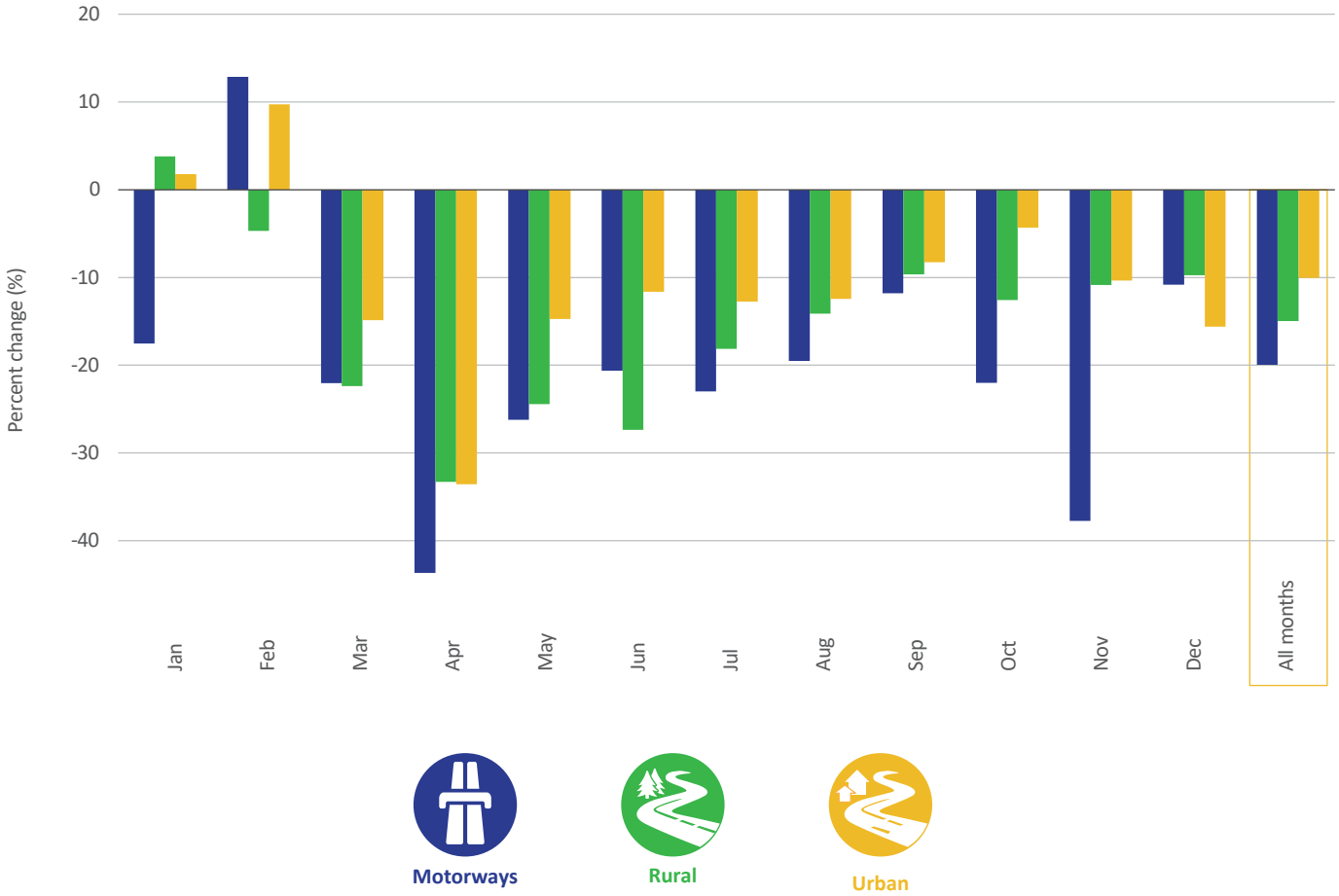


Figure 16. Monthly evolution of road deaths during the pandemic by road type

(Aggregated monthly fatalities in 2020 for 15 countries, % change on 2017-19 average)



Note: Data for Belgium, Switzerland, Denmark, Finland, France, Germany, Hungary, Israel, Italy, Japan, Luxembourg, Netherlands, Poland, Slovenia and Sweden.

THE IMPACT OF COVID-19 ON ROAD FATALITY RISK

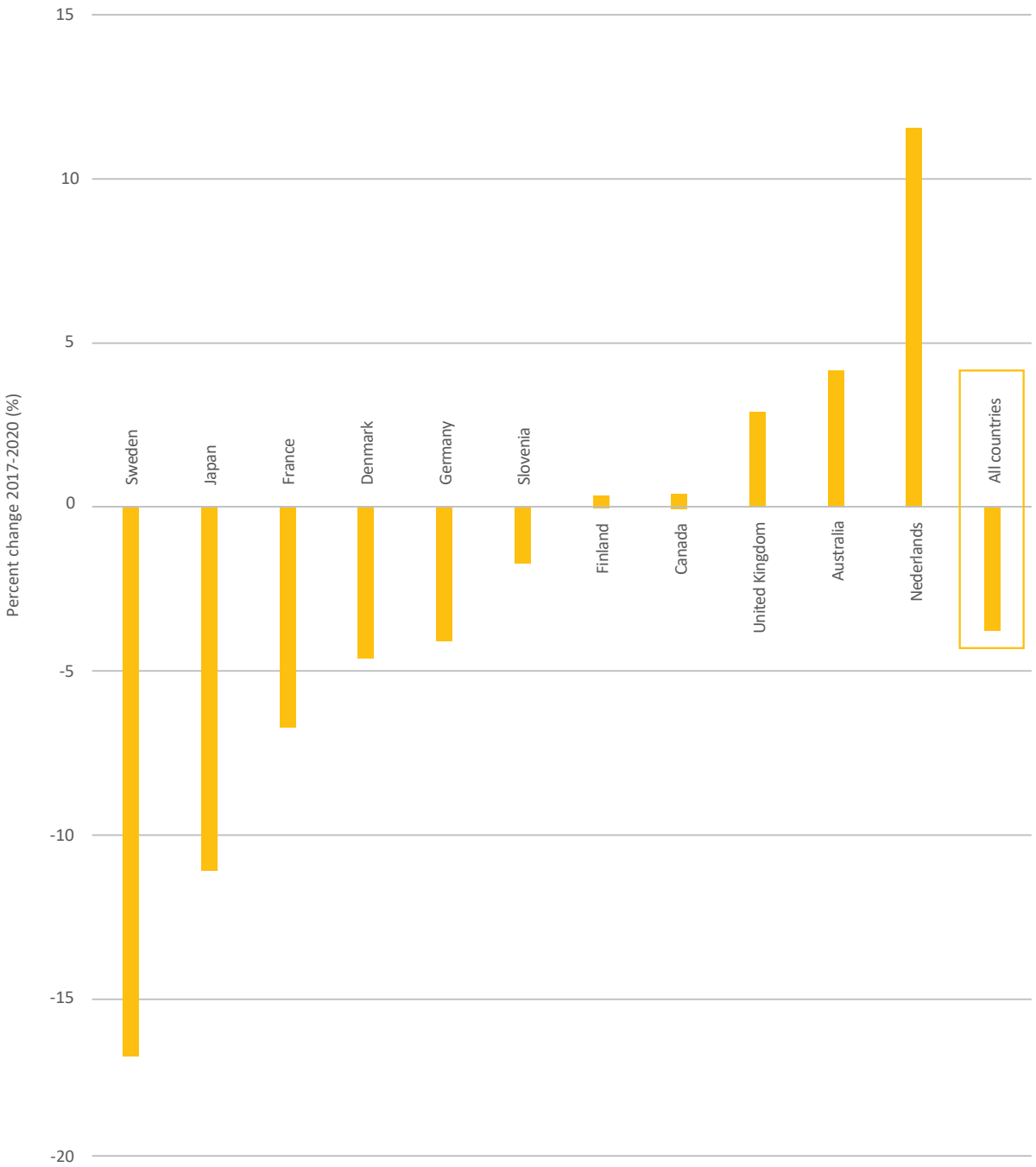
Road deaths per vehicle-kilometres travelled is an indicator of the risk of dying in a traffic crash. This section examines how road fatality risk developed in 2020 during the Covid-19 pandemic for the 11 countries with available data: Australia, Canada, Denmark, Finland, France, Germany, Great Britain, Japan, Netherlands, Slovenia and Sweden.

In these countries, the average risk of being killed in traffic decreased slightly in 2020 (Figure 17). However, there are great differences between individual countries. In six of them, road fatality risk decreased. Sweden exhibited the most substantial reduction with around -17% fewer road deaths per billion vehicle-kilometres driven. The risk decreased by -13% in Slovenia, -11% in Japan, -7% in France, -5% in Denmark and -4% in Germany.

In contrast, the risk of being killed in a road crash increased by 12% in the Netherlands, 4% in Australia and 3% in Great Britain. It remained relatively stable in Canada and Finland. The data suggest that the drop in traffic was not the sole factor responsible for fewer road deaths. Additional data is needed, as is further context from countries to help interpret the data. For example, information on changes in the modal split and on driving behaviour - such as speeding or drink driving - were not available for this report.

Figure 17. How the likelihood to die in a road crash changed during the pandemic

(Road deaths per billion vehicles-kilometres in 2020, % change to 2017-19 average)



DISCUSSION

The Coronavirus pandemic has caused abrupt and unprecedented changes in their everyday lives for citizens worldwide. The restrictions imposed by governments to prevent the spread of Covid-19 completely overturned known mobility patterns. Governments requested that people stay at home and commute only when absolutely necessary. Schools and universities were closed, and general curfews were introduced.

Most governments introduced "stay-at-home" policies that led to emptier streets and shorter trips, both in distance and time (Katrakazas et al., 2020). As a result, empty streets and roads were the "new normal" at the beginning of the outbreak of Covid-19 in early 2020, clearly visible in the data on vehicle-kilometres driven and Apple mobility data for many cities (Vandoros and Papailias, 2021). There were, however, significant differences between countries and between months of the year.

Government intervention was strict at the beginning of the pandemic. Later, it fluctuated according to the number of Covid-19 cases and casualties; this is discernible in the Oxford Stringency Index for the countries studied. Countries that provided monthly data on traffic volumes recorded an average -32% reduction of traffic in April 2020 compared to the 2017-19 average for that month. Traffic volumes fell substantially less in other months. France reported an almost -80% drop in traffic in April 2020, while Japan recorded only a -20% reduction in the same month. For 2020 as a whole, traffic only decreased by -12.2% for the countries reporting data. Such a reduction by one-eighth is a far cry from the perception of empty streets, which most people had at that time.

With citizens at home, schools closed, domestic and international travel heavily restricted, and much economic activity suppressed, expectations abounded for a significant fall in the number of road crashes and related injuries (Vingilis et al., 2020). Early data supported this assumption. The IRTAD Road Safety Annual Report 2020 (ITF, 2020), for example, presented preliminary road death data for the first part of 2020, which suggested a very significant decrease in the number of road deaths could occur in 2020 - some countries had seen a reduction in road deaths by up to -80% in April 2020.

The data analysed for this report found the number of road deaths in 2020 was only -8% lower than the average for 2017-19. Leaving the United States aside to account for the outsize statistical impact of its much larger population, road fatalities in IRTAD countries dropped -19.2% in 2020, which is still modest compared to initial expectations.

To some degree, the variability in government responses to the pandemic, over time and between countries, accounts for the discrepancy between expectations and outcomes. Yet other factors also played a role. A sharp decrease in mobility

was observed for some parts of the population. For example, vulnerable age groups – the elderly and young children – reduced their exposure to risk more than other age groups that were much less affected. Personal factors also changed during the pandemic. More stress and anxiety, more spare time, increased consumption of alcohol and drugs, and potentially greater opportunities for speeding on empty roads (Vingilis et al., 2020) may have impacted behaviours relevant to road safety.

More data and additional research are needed to account for the discrepancy between the expected effect of Covid-19 on the number of road deaths and the seeming reality according to the limited data available. For example, considering that the 0-17 and 75+ age groups stayed at home for a substantial part of the year, why were road death reductions not higher still? With a -24% reduction, these age groups saw only slightly fewer road deaths than the rest of the population when one might have expected a more significant impact in light of the constraints on their mobility.

With regard to fatalities among cyclists, the 2020 figures show that cycling road deaths decreased the least among user types. However, they do not take into account the strong uptake of cycling as fewer people used public transport and many previously car-dominated streets became de facto cycle lanes. The significant increase in cycling suggests that if fatal crashes of cyclists are benchmarked against kilometres cycled, they may have fallen considerably. However, without data on the volume of cycling, firm conclusions are not possible. It would be of interest to study this issue further in light of the "Safety in numbers" hypothesis, which posits that individuals are less likely to be the victim of a mishap or accident if they are part of a large group.

This theory is regularly mentioned in relation to policies to promote cycling.
The data for light-duty goods vehicles, a mode of transport that did see a significant drop in road deaths, also raises some questions. It includes delivery vans, much solicited as internet shopping boomed during the pandemic. Based on this observation, a smaller reduction in road deaths among van occupants could have been expected.

As for the risk to die in a crash with a motorised vehicle, the limited data available suggests that a reduction in the amount of travel does not automatically translate into fewer road deaths or reduced risk. The traffic volume data from the eleven countries that provided them showed increases in the road fatality risk in some countries and decreases in others, even though all reported a reduction in travel volumes.

Overall, the reductions in the number of road deaths in 2020 expected as a result of the mobility restrictions imposed to combat the Covid-19 pandemic did not happen at the anticipated scale. After a short, steep drop early in early 2020, with about one-third fewer crash victims, the number of fatal crashes on the world's roads at the end of 2020 was not even one-tenth below the average of the three pre-pandemic years.

REFERENCES

Apple (2020), *Covid-19 - Mobility Trends Reports*, https://covid19.apple.com/mobility (accessed 11 June 2020).

Bhaduri, E. et al. (2020), "Modelling the effects of Covid-19 on travel mode choice behaviour in India", *Transportation Research Interdisciplinary Perspectives*, Vol. 8, https://doi.org/10.1016/j.trip.2020.100273.

De Vos, J. (2020), "The effect of Covid-19 and subsequent social distancing on travel behavior", *Transportation Research Interdisciplinary Perspectives*, Vol. 5, https://doi.org/10.1016/j.trip.2020.100121.

Department for Transport (2021), *Reported road casualties Great Britain, provisional results: 2020*, Department for Transport, United Kingdom, https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-provisional-results-2020/reported-road-casualties-great-britain-provisional-results-2020 (accessed 5 December 2021).

Doucette, M. et al. (2020), "Initial impact of Covid-19's stay-at-home order on motor vehicle traffic and crash patterns in Connecticut: An interrupted time series analysis" *Injury Prevention,* Vol. 27/1, pp. 3–9, https://doi.org/10.1136/injuryprev-2020-043945.

Gupta, M., N. M. Pawar, and N. R. Velaga (2021), The impact of lockdown and change in mobility patterns on road fatalities during Covid-19 pandemic, *Transportation Letters*, Vol. 13/56, pp. 447460, https://doi.org/10.1080/19427867.2021.1892937.

Hale, T. et al. (2020), "Variation in Government Responses to Covid19", Blavatnik School of Government Working Paper, Version 8.0, Blavatnik School of Government, University of Oxford, https://www.bsg.ox.ac.uk/sites/default/files/2020-10/BSG-WP-2020-032-v8.pdf (accessed on 5 December 2021).

Head, J. R. et al. (2021), "School closures reduced social mixing of children during Covid-19 with implications for transmission risk and school reopening policies", *Journal of the Royal Society Interface*, https://doi.org/10.1098/rsif.2020.0970.

Hong, J., D. McArthur and V. Raturi (2020), "Did Safe Cycling Infrastructure Still Matter During a Covid-19 Lockdown?", *Sustainability*, Vol. 12/20, 8672, https://doi.org/10.3390/su12208672.

Inada, H., L. Ashraf and S. Campbell (2021), "COVID-19 lockdown and fatal motor vehicle collisions due to speed-related traffic violations in Japan: A time-series study", *Injury Prevention*, Vol 27/1, pp. 98-100, http://dx.doi.org/10.1136/injuryprev-2020-043947.

ISTAT-ACI (2021), *Istat-ACI Incidenti Stradali 2020* (*Istat-ACI Road Accidents 2020*), https://www.aci.it/laci/studi-e-ricerche/dati-e-statistiche/incidentalita/la-statistica-istat-aci/2020.html (accessed on 13 October 2021).

ITF (2020), *Road Safety Annual Report 2020*, OECD Publications, Paris, https://doi.org/10.1787/f3e48023-en.

Jenelius, E. and M. Cebecauer (2020), "Impacts of Covid-19 on public transport ridership in Sweden : Analysis of ticket validations, sales and passenger counts" *Transportation Research Interdisciplinary Perspectives,* Vol. 8, 100242, https://doi.org/10.1016/j.trip.2020.100242.

Katrakazas, C. et al. (2020), "A descriptive analysis of the effect of the Covid-19 pandemic

on driving behavior and road safety", *Transportation Research Interdisciplinary Perspectives*, Vol. 7, 100186, https://doi.org/10.1016/j.trip.2020.100186.

Katrakazas, C. et al. (2021), "Identifying the impact of the Covid-19 pandemic on driving behavior using naturalistic driving data and time series forecasting", *Journal of Safety Research*, Vol. 78, pp. 189202. https://doi.org/10.1016/j.jsr.2021.04.007.

Kräutler, C., K. Robatsch and A. Soteropoulos (2021), "Corona, Mobilität und Verkehrssicherheit", *Zeitschrift Für Verkehrsrect (ZVR)*.

Li, Y. et al. (2021), "The impact of policy measures on human mobility, Covid□19 cases, and mortality in the U.S.: A spatiotemporal perspective", *International Journal of Environmental Research and Public Health*, Vol. 18/3, https://doi.org/10.3390/ijerph18030996.

Nikiforiadis, A., G. Ayfantopoulou and A. Stamelou (2020), "Assessing the impact of Covid-19 on bike-sharing usage: The case of Thessaloniki, Greece", *Sustainability*, Vol. 12/19, https://doi.org/10.3390/su12198215.

NHTSA (2021a), "Early Estimate of Motor Vehicle Traffic Fatalities in 2020", *Traffic Safety Facts: Crash Stats*, National Highway Traffic Safety Administration, U.S. Department of Transportation, https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813115.

NHTSA (2021b), "Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (January–June) of 2021", *Traffic Safety Facts: Crash Stats*, National Highway Traffic Safety Administration, U.S. Department of Transportation, https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813199.

ONISR (2021), *2020 Road Safety Annual Report*, Observatoire National Interministériel de la Sécurité Routière (French National Interministerial Road Safety Observatory), https://www.onisr.securite-routiere.gouv.fr/en/road-safety-performance/annual-road-safety-reports/2020-road-safety-annual-report.

Parady, G., A. Taniguchi and K. Takami (2020), "Travel behavior changes during the Covid-19 pandemic in Japan: Analysing the effects of risk perception and social influence on going-out self-restriction", *Transportation Research Interdisciplinary Perspectives*, Vol 7, 100181, https://doi.org/10.1016/j.trip.2020.100181.

Qureshi, A. I. et al. (2020), "Mandated societal lockdown and road traffic accidents", *Accident Analysis and Prevention*, Vol. 146, 105747, https://doi.org/10.1016/j.aap.2020.105747.

Ritchie et al. (2020), "Coronavirus (COVID-19) Cases", *Our World In Data*, https://ourworldindata.org/covid-cases.

Saladié, Ò., E. Bustamante and A. Gutiérrez (2020), "Covid-19 lockdown and reduction of traffic accidents in Tarragona province , Spain", *Transportation Research Interdisciplinary Perspectives*, Vol. 8, 100218, https://doi.org/10.1016/j.trip.2020.100218.

Shamshiripour, A. et al. (2020), "How is Covid-19 reshaping activity-travel behavior? Evidence from a comprehensive survey in Chicago", *Transportation Research Interdisciplinary Perspectives*, Vol. 7, 100216, https://doi.org/10.1016/j.trip.2020.100216.

Tucker, A. and K. L. Marsh (2021) "Speeding through the pandemic: Perceptual and psychological factors associated with speeding during the Covid-19 stay-at-home period", *Accident Analysis and Prevention*, Vol. 159, 106225, https://doi.org/10.1016/j.aap.2021.106225

Vandoros, S. and F. Papailias (2021), "Empty Streets , Speeding and Motor Vehicle Collisions during Covid-19 Lockdowns : Evidence from Northern Ireland" MedRxiv, https://doi.org/10.1101/2021.01.03.21249173.

Vingilis, E. et al. (2020), "Coronavirus disease 2019: What could be the effects on Road safety?", Accident Analysis and Prevention, Vol. 144, 105687, https://doi.org/10.1016/j.aap.2020.105687.

ANNEX ROAD SAFETY DATA FROM IRTAD COUNTRIES FOR 2020

Road fatality data for 2020 compared to the average 2017-19

Country	2020 road deaths	Data status	2017-19 road deaths	% change
Countries with validated data				
Argentina	3 322	*provisional*	5 338	-37.8
Australia	1 108	*provisional*	1 182	-6.3
Austria	344	*final*	413	-16.7
Belgium	499	*final*	619	-19.4
Canada	1 747	*estimate*	1 854	-5.8
Chile	1 794	*final*	1 951	-8.0
Colombia	5 447	*final*	6 570	-17.1
Czech Republic	517	*final*	617	-16.2
Denmark	163	*final*	182	-10.4
Finland	222	*provisional*	229	-3.1
France	2 541	*final*	3 313	-23.3
Germany	2 719	*final*	3 167	-14.1
Greece	578	*provisional*	706	-18.1
Hungary	462	*final*	620	-25.5
Iceland	8	*final*	13	-38.5
Ireland	147	*final*	144	2.1
Israel	305	*final*	345	-11.6
Italy	2 395	*final*	3 295	-27.3
Japan	3 416	*final*	4 172	-18.1
Korea	3 081	*final*	3 772	-18.3
Lithuania	175	*final*	183	-4.4
Luxembourg	26	*final*	28	-7.1
Netherlands *(b)*	610	*final*	651	-6.3
New Zealand	306	*provisional*	369	-17.1
Norway	93	*final*	107	-13.1
Poland	2 491	*final*	2 867	-13.1
Portugal	495	*estimate*	633	-21.8
Serbia	492	*final*	554	-11.2
Slovenia	80	*final*	99	-19.2
Spain	1 366	*estimate*	1 797	-24.0
Sweden	204	*final*	266	-23.3
Switzerland	227	*final*	217	4.6
United Kingdom	1 465	*Great Britain only*	1 776	-17.5
United States	38 680	*estimate*	36 801	5.1
Observers and accession countries *(a)*				
Cambodia				..
Costa Rica				..
Jamaica				..
Mexico	13 398	*final*	15 371	-12.8
Moldova	245	*final*	284	-13.7
Morocco			3 695	..
South Africa				..
Uruguay	391	*final*	473	-17.3

(a) Data as provided by the countries and not validated by IRTAD.

(b) Real data (actual numbers instead of reported numbers reported by the police).

Road fatality trends, 2010-20

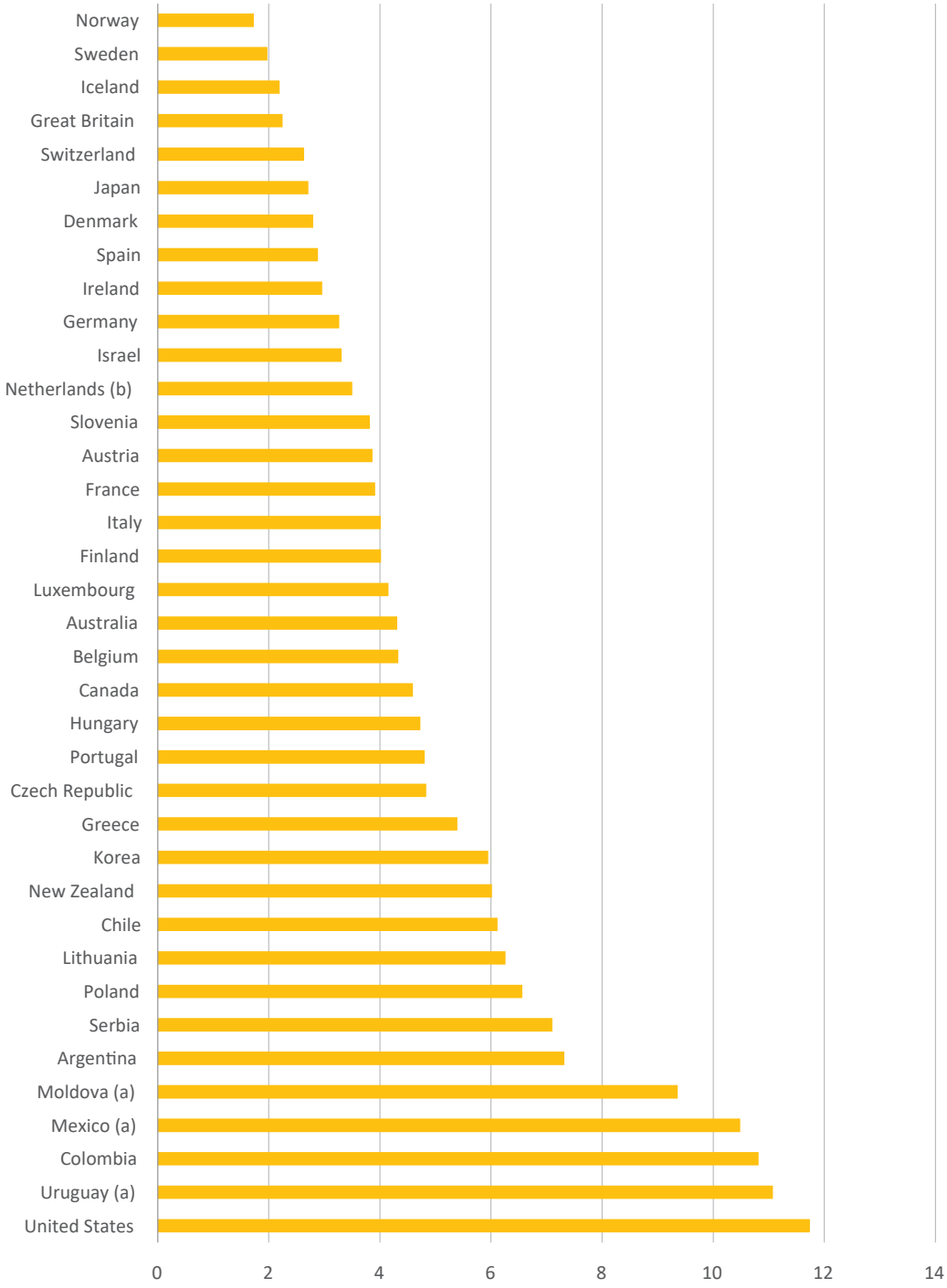
Country	Road fatalities						
	2010	2011	2012	2013	2014	2015	2016
Countries with validated data							
Argentina	5 165	5 247	5 314	5 537	4 809	4 934	5 582
Australia	1 350	1 277	1 299	1 185	1 151	1 205	1 294
Austria	552	523	531	455	430	479	432
Belgium	850	884	827	764	745	762	670
Canada	2 238	2 023	2 075	1 951	1 841	1 887	1 900
Chile	2 070	2 044	1 979	2 103	2 116	2 136	2 178
Colombia	5 418	5 248	5 320	5 757	6 118	6 406	6 936
Czech Republic	802	773	742	654	688	735	611
Denmark	255	220	167	191	182	178	211
Finland	272	292	255	258	229	270	258
France	3 992	3 963	3 653	3 268	3 384	3 461	3 477
Germany	3 648	4 009	3 600	3 339	3 377	3 459	3 206
Greece	1 258	1 141	988	879	795	793	824
Hungary	740	638	605	591	626	648	608
Iceland	8	12	9	15	4	16	18
Ireland	212	186	163	188	192	162	182
Israel	375	382	290	309	319	356	377
Italy	4 114	3 860	3 753	3 401	3 381	3 428	3 283
Japan	5 828	5 535	5 261	5 165	4 838	4 885	4 698
Korea	5 505	5 229	5 392	5 092	4 762	4 621	4 292
Lithuania	299	296	301	258	267	239	188
Luxembourg	32	33	34	45	35	36	32
Netherlands (b)	640	661	650	570	570	621	629
New Zealand	375	284	308	253	293	318	327
Norway	208	168	145	187	147	117	135
Poland	3 908	4 189	3 571	3 357	3 202	2 938	3 026
Portugal	937	891	718	637	638	593	563
Serbia	660	731	688	650	536	599	607
Slovenia	138	141	130	125	108	120	130
Spain	2 478	2 060	1 903	1 680	1 688	1 689	1 810
Sweden	266	319	285	260	270	259	270
Switzerland	327	320	339	269	243	253	216
United Kingdom	1 850	1 901	1 754	1 713	1 775	1 730	1 792
United States	32 999	32 479	33 782	32 893	32 744	35 484	37 806
Observers and accession countries (a)							
Cambodia	1 816	1 905	1 966	1 950	2 226	2 231	1 852
Costa Rica	574	576	655	625	662	..	..
Jamaica	319	308	260	307	331	382	379
Mexico	16 559	16 615	17 102	..	15 853	15 886	16 039
Moldova	452	433	441	326	324	300	311
Morocco	3 778	4 222	4 167	3 832	3 489	3 776	3 785
South Africa	13 967	13 954	12 211	11 844	12 702	12 944	14 071
Uruguay	556	572	510	567	538	506	446

(a) Data as provided by the countries and not validated by IRTAD.

(b) Real data (actual numbers instead of reported numbers by the police).

					2020 % change from		Annual average change
	2017	2018	2019	2020	2019	2010	2020-10
	5 611	5 493	4 911	3 322	**-32.4**	**-35.7**	-4.3
	1 225	1 136	1 184	1 108	**-6.4**	**-17.9**	-2.0
	414	409	416	344	**-17.3**	**-37.7**	-4.6
	609	604	644	499	**-22.5**	**-41.3**	-5.2
	1 861	1 939	1 762	1 747	**-0.9**	**-21.9**	-2.4
	1 925	1 955	1 973	1 794	**-9.1**	**-13.3**	-1.4
	6 505	6 629	6 577	5 447	**-17.2**	**0.5**	0.1
	577	658	617	517	**-16.2**	**-35.5**	-4.3
	175	171	199	163	**-18.1**	**-36.1**	-4.4
	238	239	211	222	**5.2**	**-18.4**	-2.0
	3 448	3 248	3 244	2 541	**-21.7**	**-36.3**	-4.4
	3 180	3 275	3 046	2 719	**-10.7**	**-25.5**	-2.9
	731	700	688	578	**-16.0**	**-54.1**	-7.5
	625	634	602	462	**-23.3**	**-37.6**	-4.6
	16	18	6	8	**33.3**	**0.0**	0.0
	155	137	140	147	**5.0**	**-30.7**	-3.6
	364	316	355	305	**-14.1**	**-18.7**	-2.0
	3 378	3 334	3 173	2 395	**-24.5**	**-41.8**	-5.3
	4 431	4 166	3 920	3 416	**-12.9**	**-41.4**	-5.2
	4 185	3 781	3 349	3 081	**-8.0**	**-44.0**	-5.6
	191	173	186	175	**-5.9**	**-41.5**	-5.2
	25	36	22	26	**18.2**	**-18.8**	-2.1
	613	678	661	610	**-7.7**	**-4.7**	-0.5
	378	378	352	306	**-13.1**	**-18.4**	-2.0
	106	108	108	93	**-13.9**	**-55.3**	-7.7
	2 831	2 862	2 909	2 491	**-14.4**	**-36.3**	-4.4
	602	675	621	495	**-20.3**	**-47.2**	-6.2
	579	548	534	492	**-7.9**	**-25.5**	-2.9
	104	91	102	80	**-21.6**	**-42.0**	-5.3
	1 830	1 806	1 755	1 366	**-22.2**	**-44.9**	-5.8
	252	324	221	204	**-7.7**	**-23.3**	-2.6
	230	233	187	227	**21.4**	**-30.6**	-3.6
	1 793	1 784	1 752	1 465	**-16.4**	**-20.8**	-2.3
	37 473	36 835	36 096	38 680	**7.2**	**17.2**	1.6
	..	1 761	..	..	**..**	**..**	..
	862	784	..	..	**..**	**..**	..
	321	..	..	..	**..**	**..**	..
	16 185	15 866	15 574	13 398	**-14.0**	**-19.1**	-2.1
	302	274	277	245	**-11.6**	**-45.8**	-5.9
	3 726	3 736	3 622	..	**..**	**..**	..
	14 050	12 921	12 503	..	**..**	**..**	..
	470	528	422	391	**-7.3**	**-29.7**	-3.5

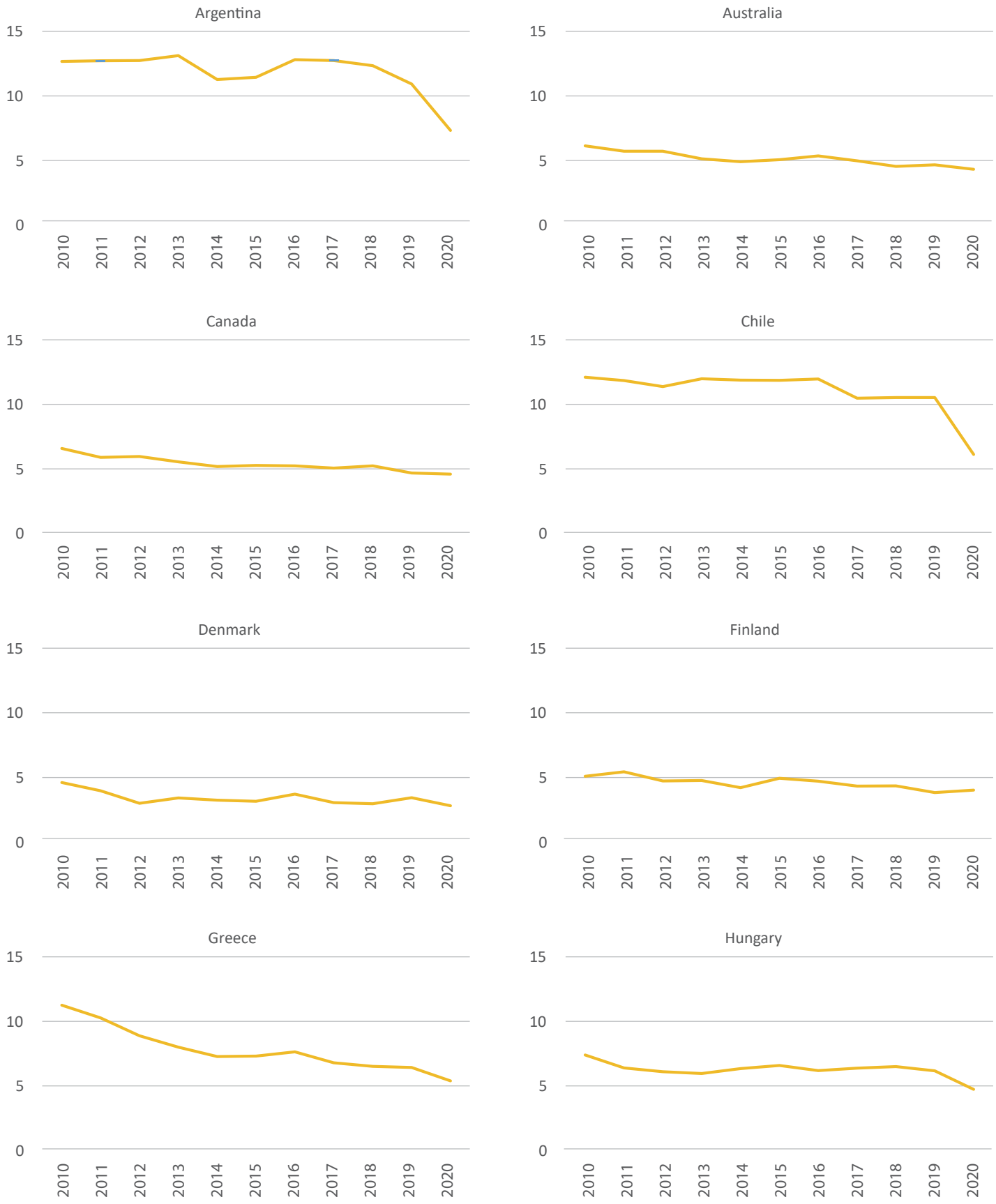
Road fatalities per 100 000 inhabitants, 2020



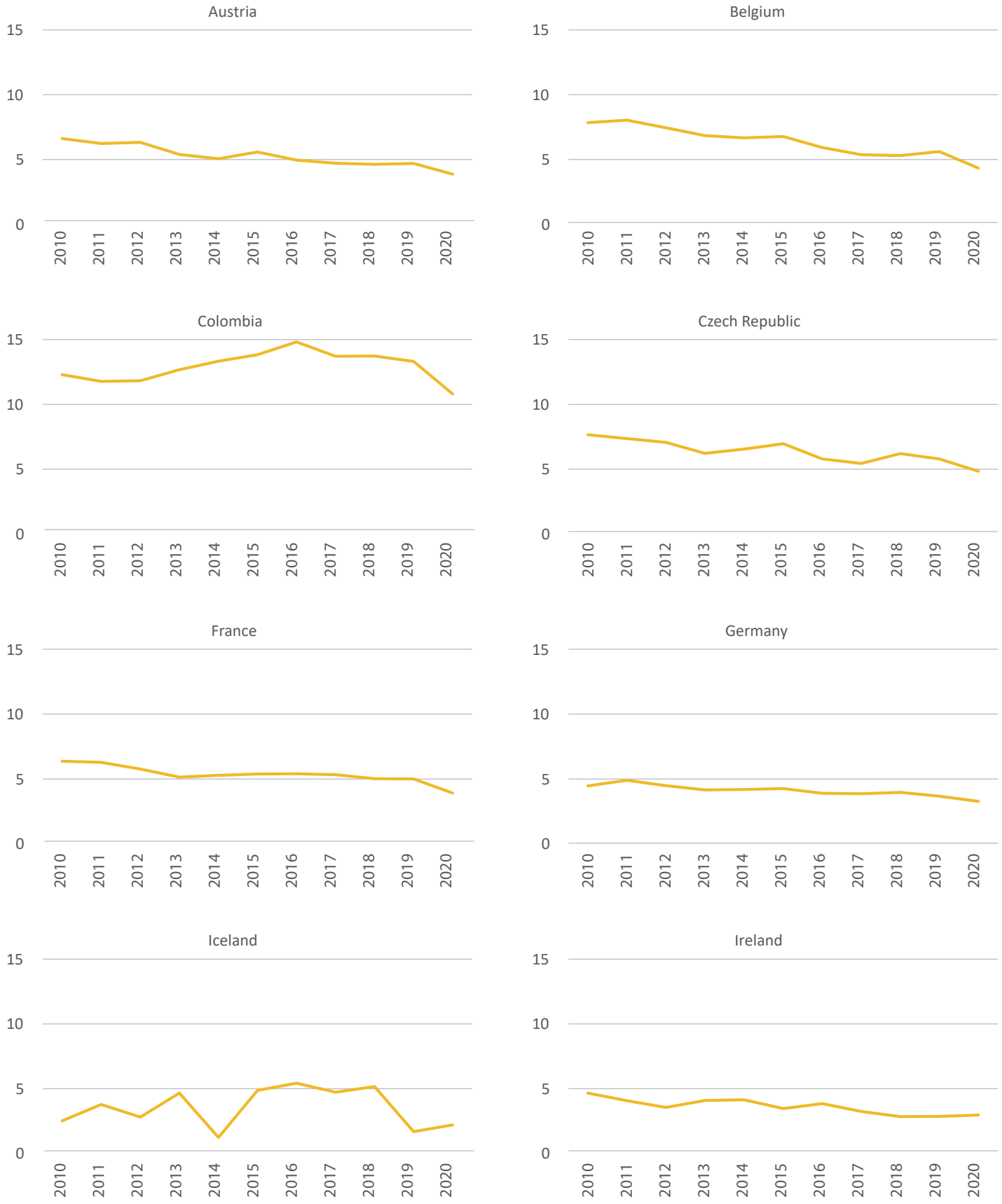
(a) Data as provided by the countries and not validated by IRTAD.

(b) Real data (actual numbers instead of reported numbers by the police).

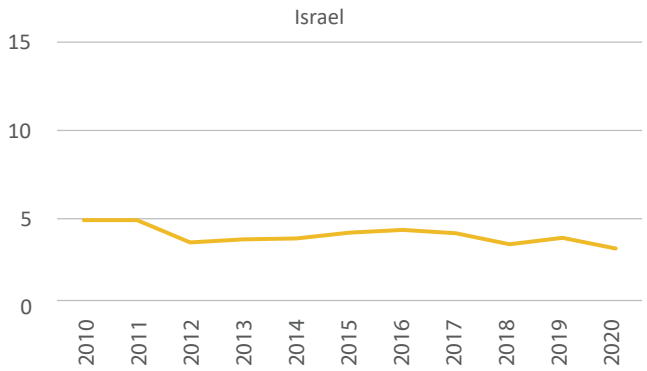
Evolution of road fatalities by 100 000 inhabitants, 2010-20

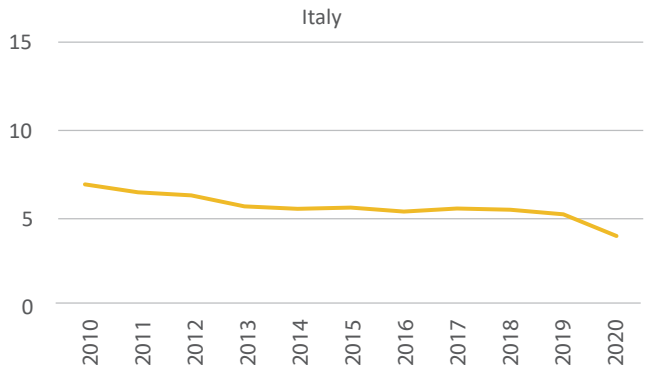


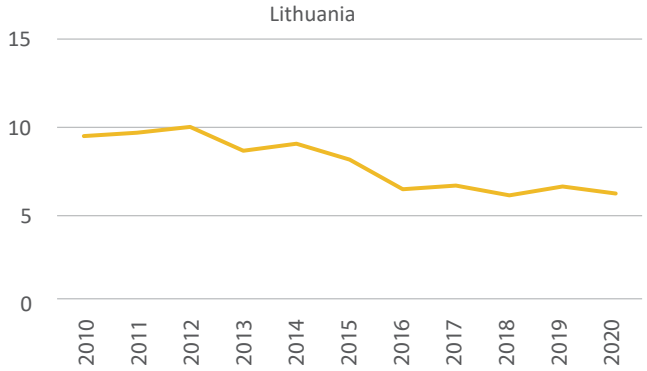
Evolution of road fatalities by 100 000 inhabitants, 2010-20

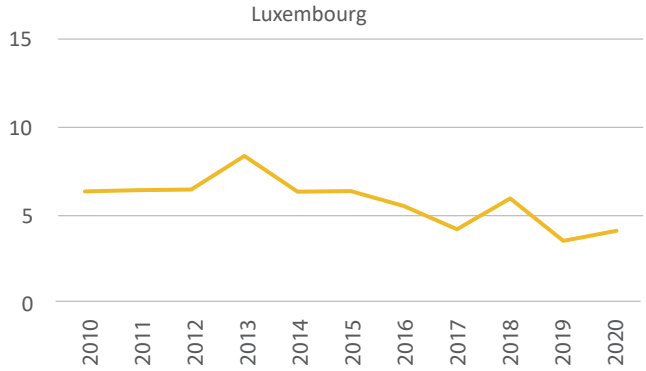


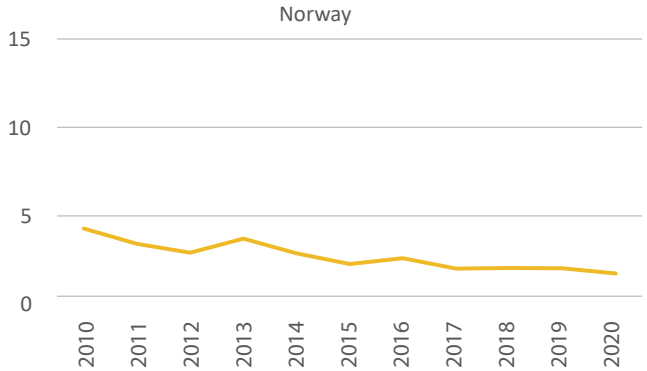
Evolution of road fatalities by 100 000 inhabitants, 2010-20

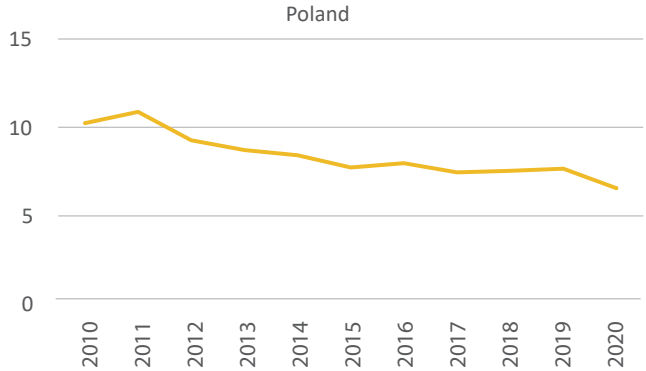


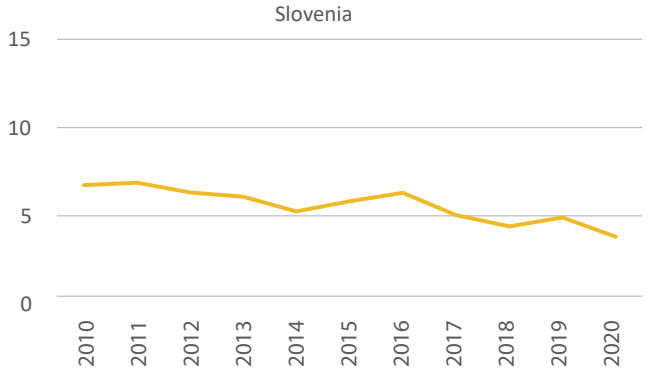


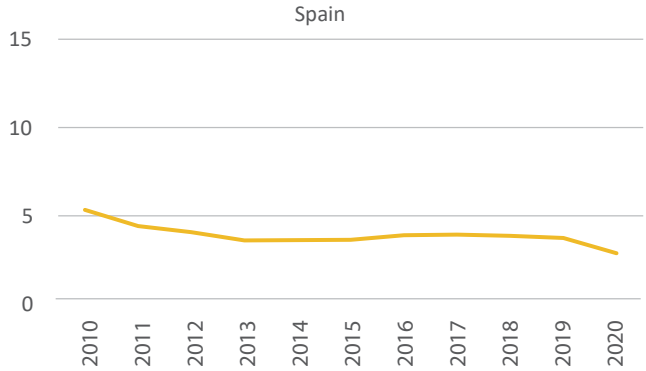




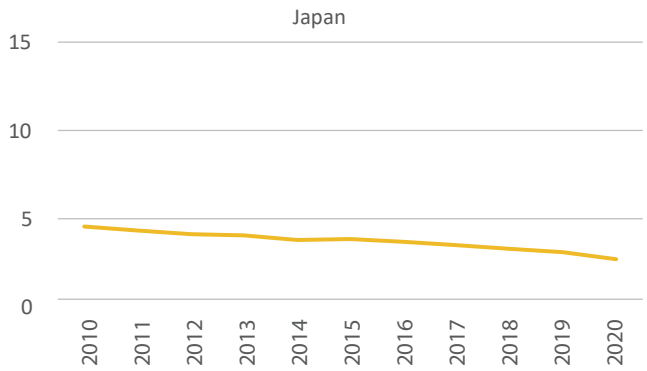


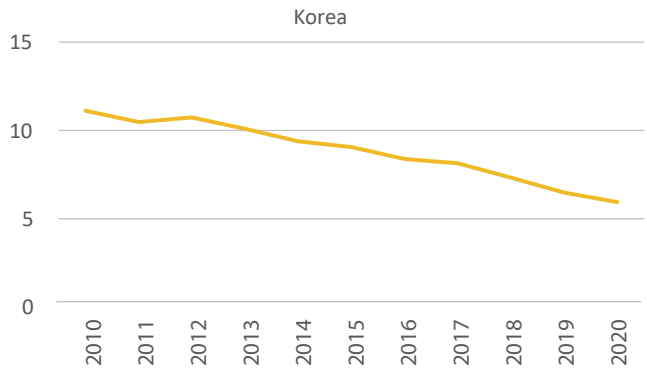






Evolution of road fatalities by 100 000 inhabitants, 2010-20


Japan
15
10
5
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020


Korea
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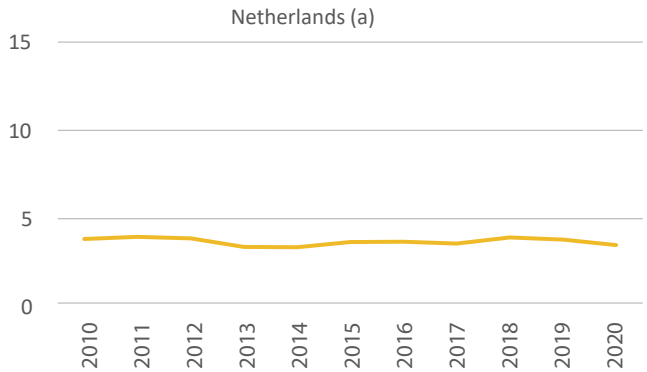
2019
2020


Netherlands (a)
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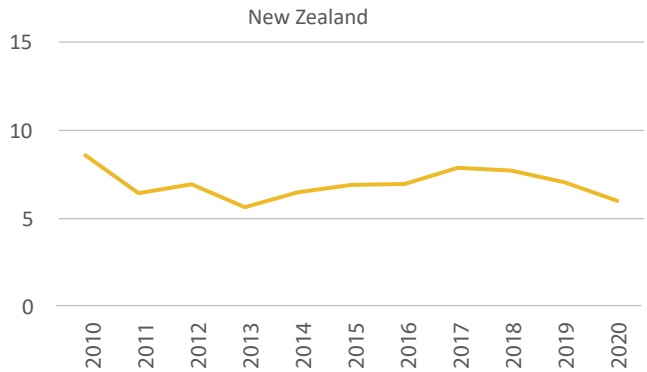
2020


New Zealand
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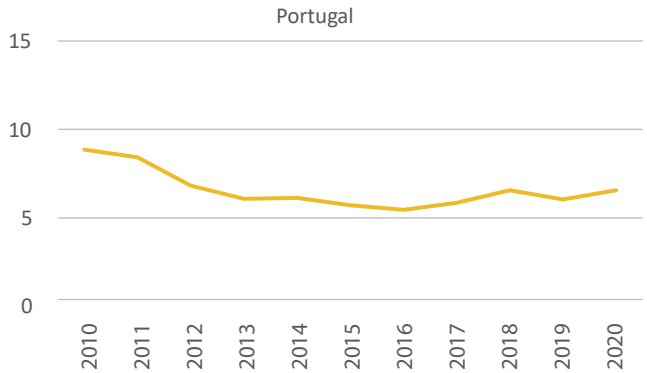
2020


Portugal
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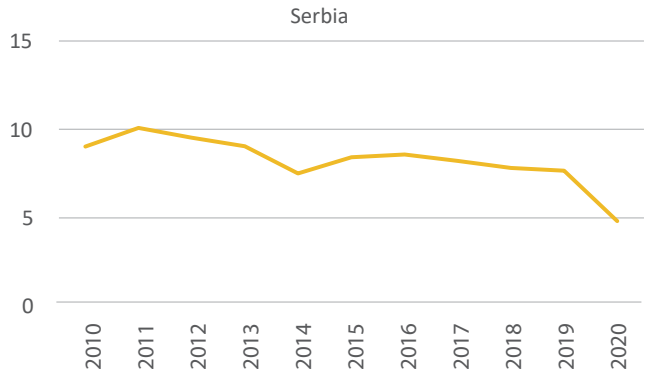
2020


Serbia
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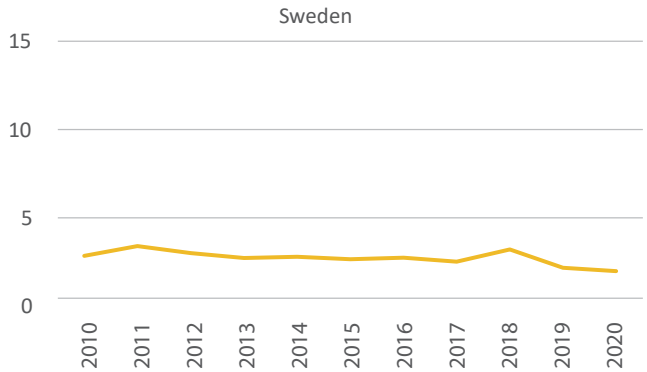
2019
2020


Sweden
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10
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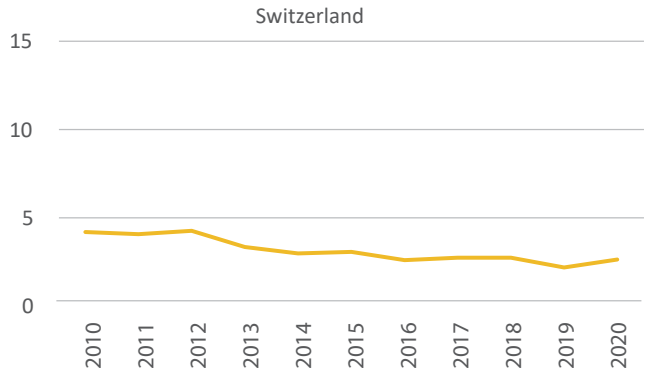
2019
2020


Switzerland
15
10
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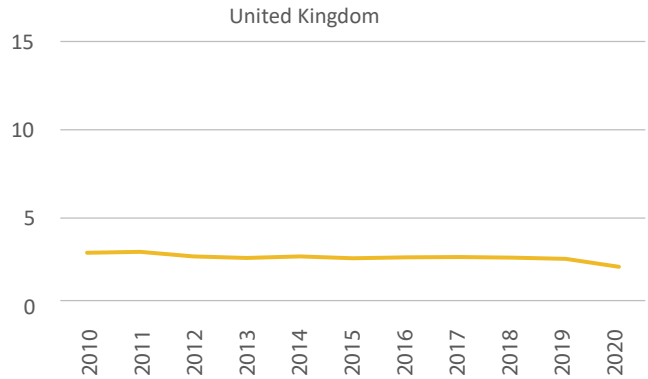
2019
2020


United Kingdom
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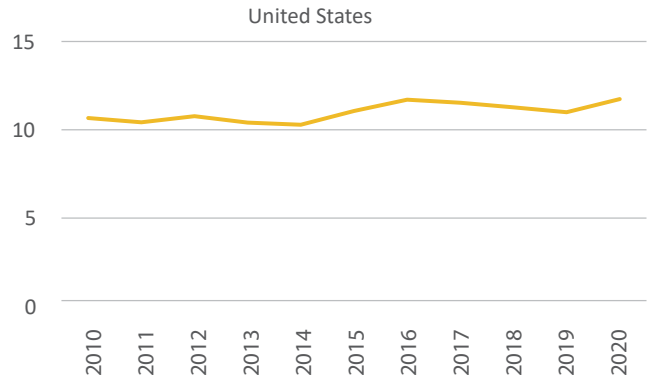
2020


United States
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2011
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2016
2017
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2019
2020

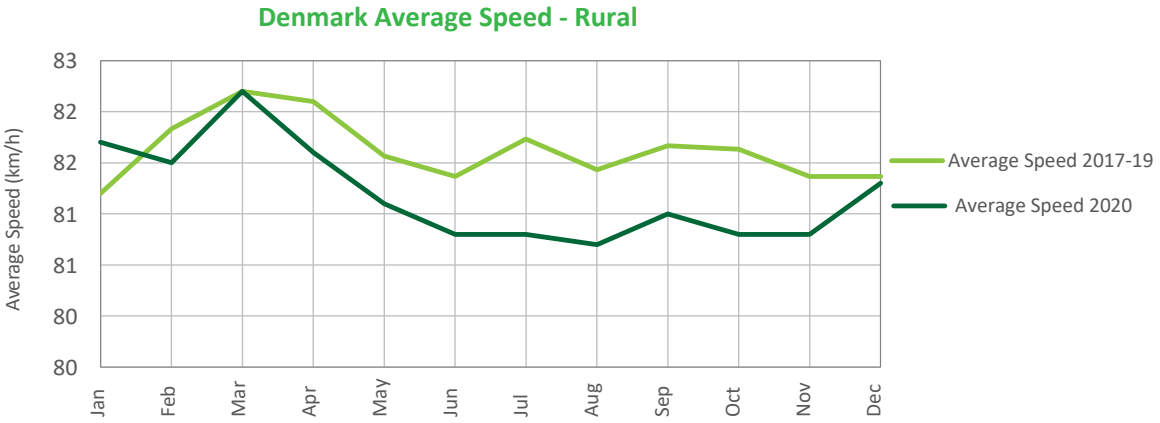
TRENDS FOR AVERAGE VEHICLE SPEEDS

Monthly data on average vehicle speeds for 2020 are available for Denmark, Great Britain and the Netherlands. The following figure illustrates the monthly evolution of average speed on urban roads, rural roads and motorways. It shows that vehicles generally drove faster in 2020 than on average in the three pre-pandemic years 2017-19. The exceptions are rural and urban roads in Denmark and motorways in the Netherlands, where average speeds were lower in 2020.

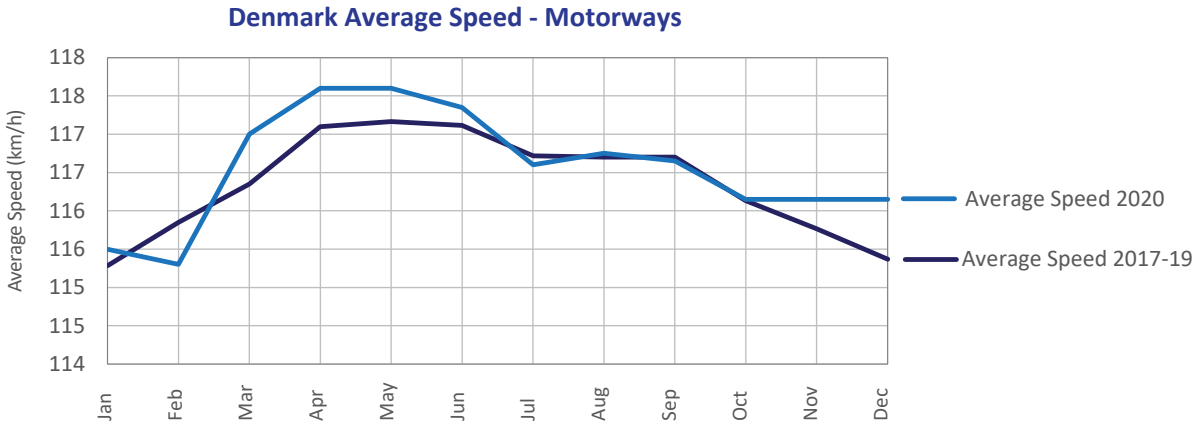
Evolution in average speed by road type

(2020 compared to the 2017-19 average)

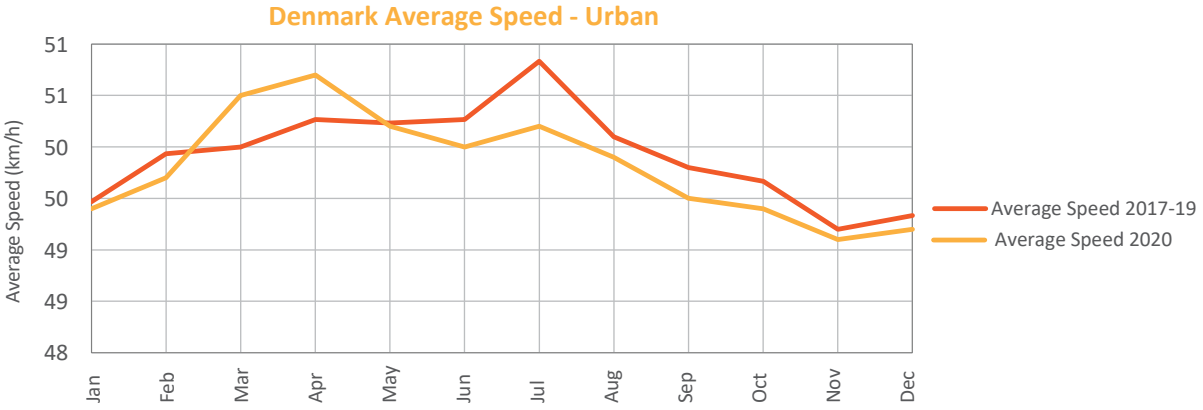
Rural



Motorways



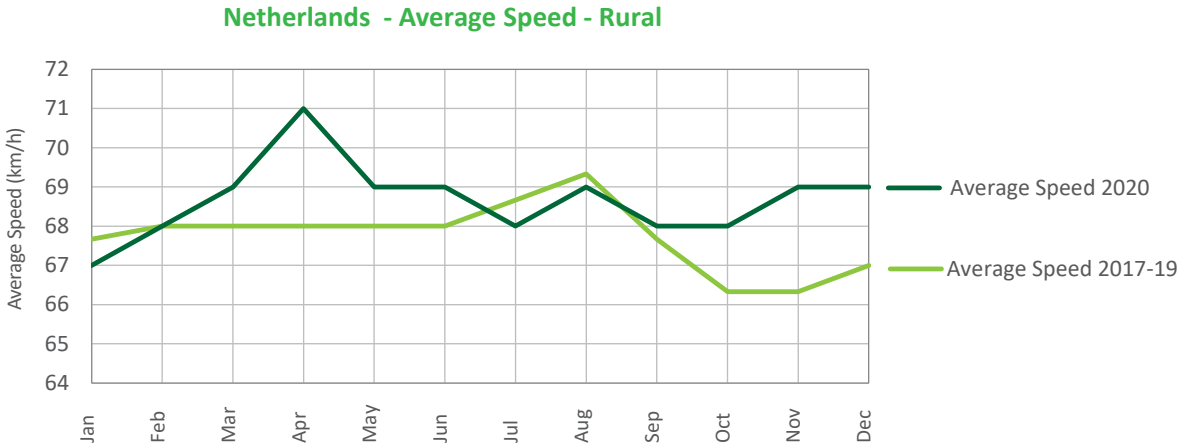
Urban



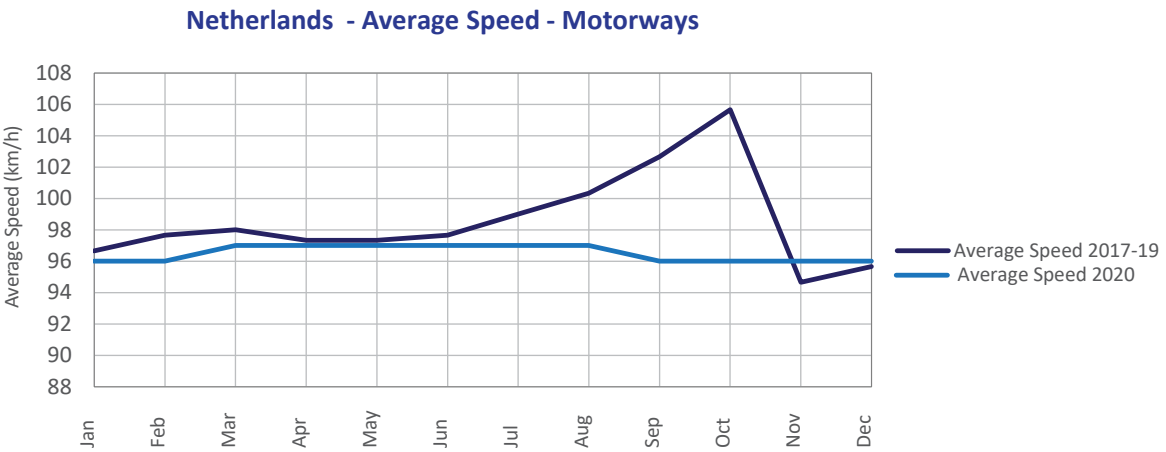
Evolution in average speed by road type

(2020 compared to the 2017-19 average)

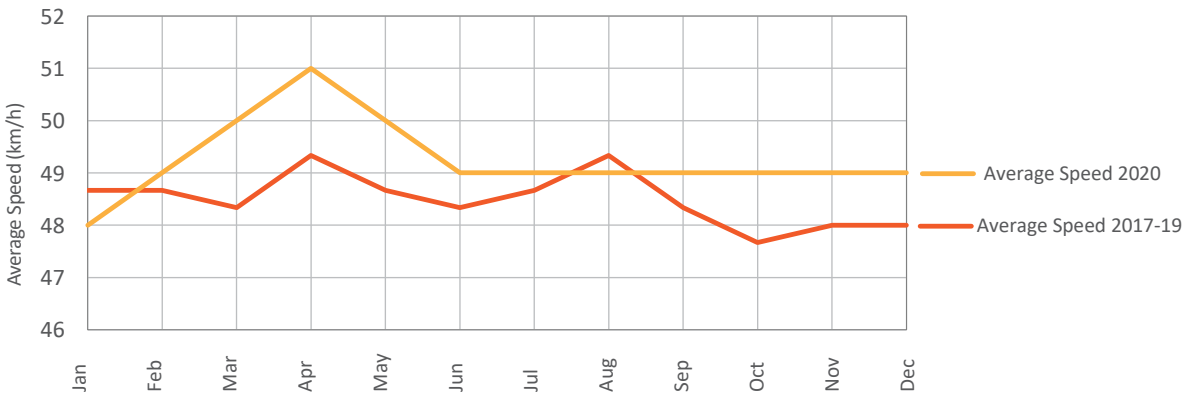
Rural



Motorways



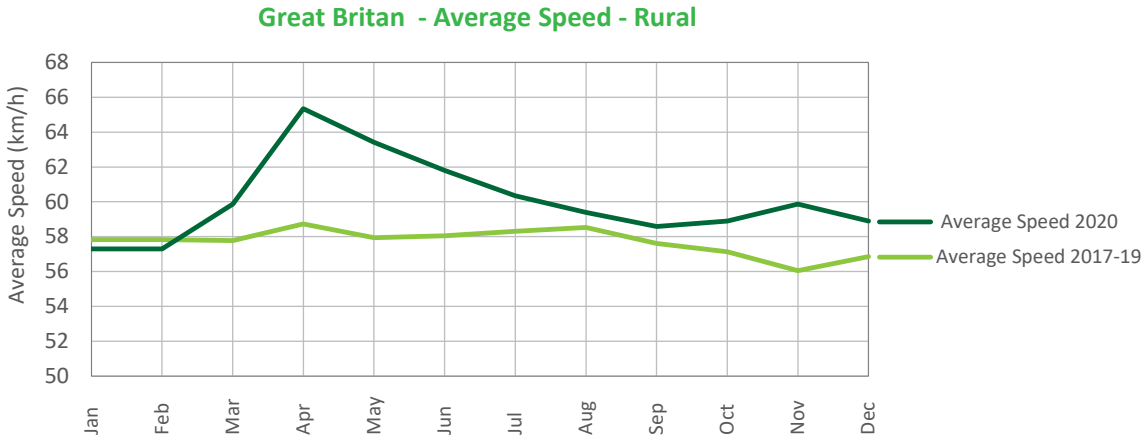
Urban



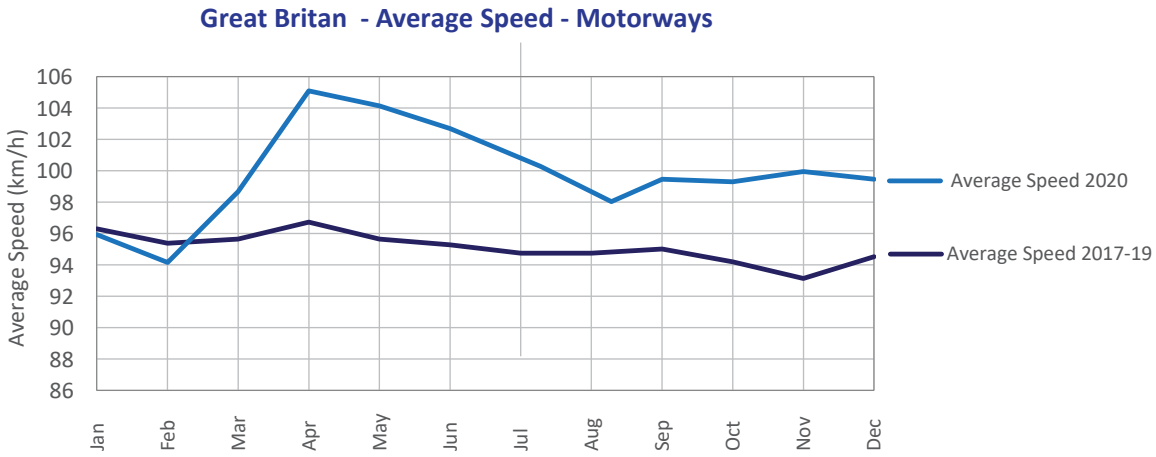
Evolution in average speed by road type

(2020 compared to the 2017-19 average)

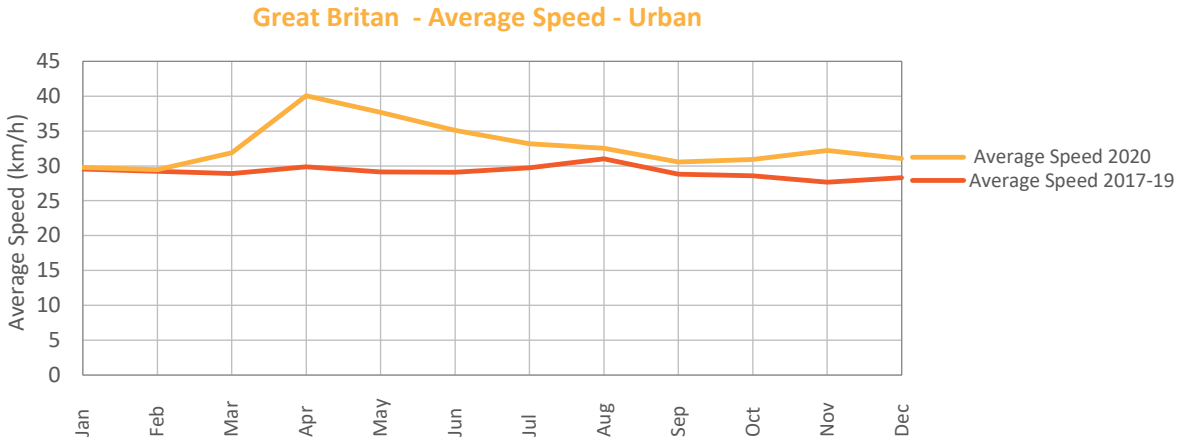
Rural



Motorways



Urban



International Transport Forum

The ITF Road Safety Annual Report 2021 examines the development of road safety in the year 2020 during the Covid-19 pandemic. It assesses how the pandemic has affected mobility patterns and impacted the number of road fatalities. The analysis draws on data on road deaths from 34 member countries of the IRTAD Group. These are complemented by the more detailed crash and mobility data gathered via a survey of 24 countries, mobility data from Apple Inc. and data from the Oxford Covid-19 Governmental Response Tracker.

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International Traffic Safety Data and Analysis Group