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irtad International Traffic Safety Data and Analysis Group

# Traffic fatalities during the COVID-19 pandemic: Key lessons learned


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# Introduction

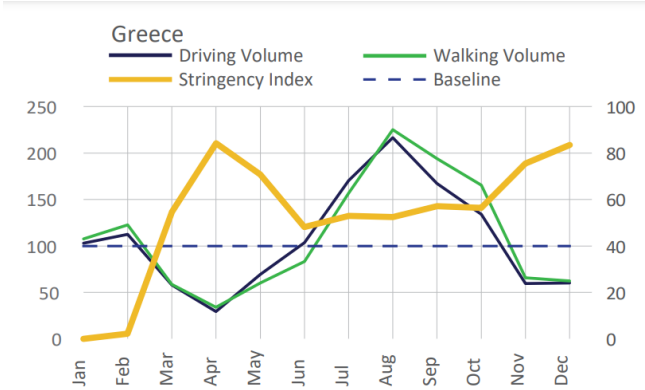
- COVID-19 declared as a pandemic on the beginning of March 2020
- The majority of countries in a "lockdown" restricting everyday life activities to only the most essential
- As a result, road traffic volumes and mobility activities in general have immensely dropped
- This presentation will overview lessons learned from the IRTAD Annual Report and NTUA studies on the impact of COVID on traffic fatalities and contributing factors

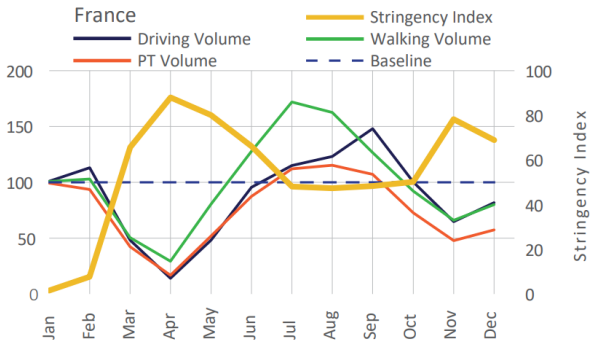
# Mobility and COVID-19 (1/2)

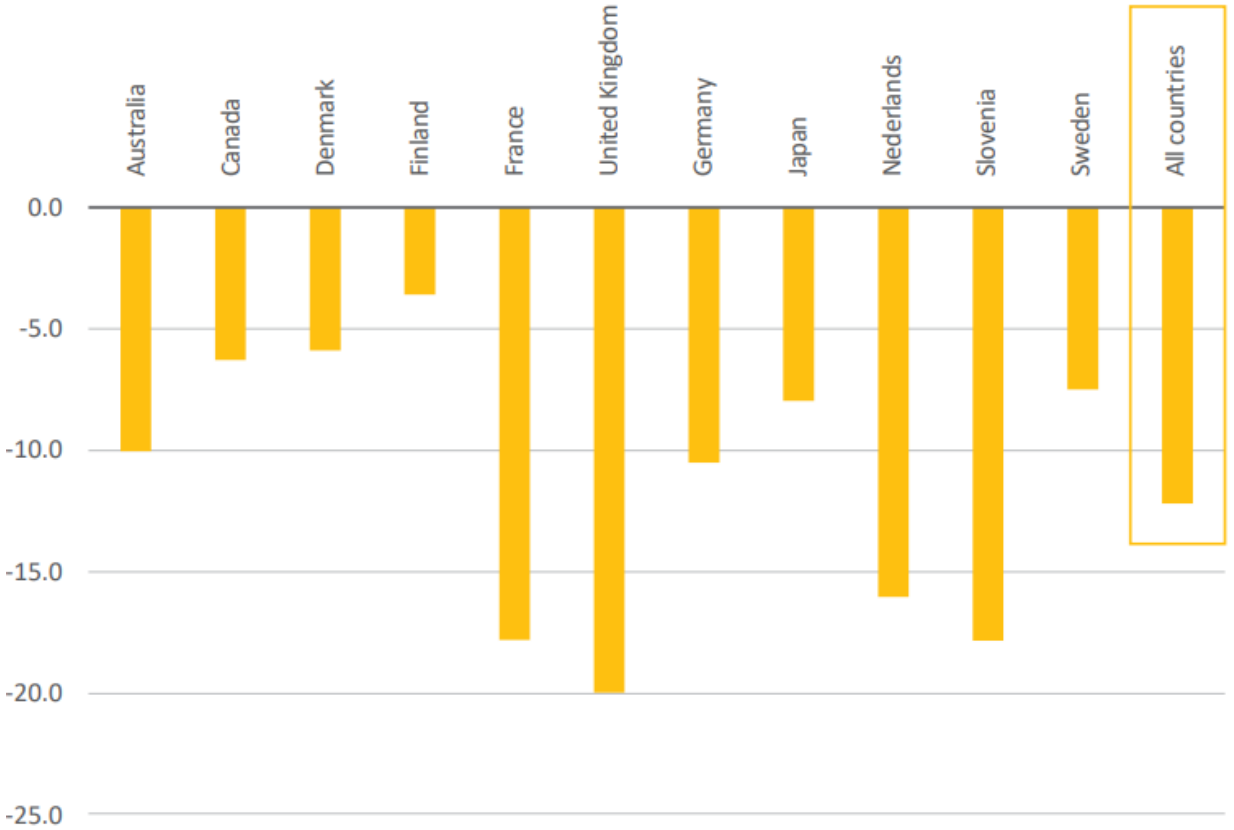
- With stricter measures and lockdowns, driving, walking and public transport drop significantly, especially during the first wave (i.e. Feb-Apr 2020)

- Traffic volume decreased by -12.2% in 2020 (-32% in April and -25% in May)

- A bigger decrease in distance travelled could have been expected




*IRTAD Annual Report 2021*

# Mobility and COVID-19 (2/2)

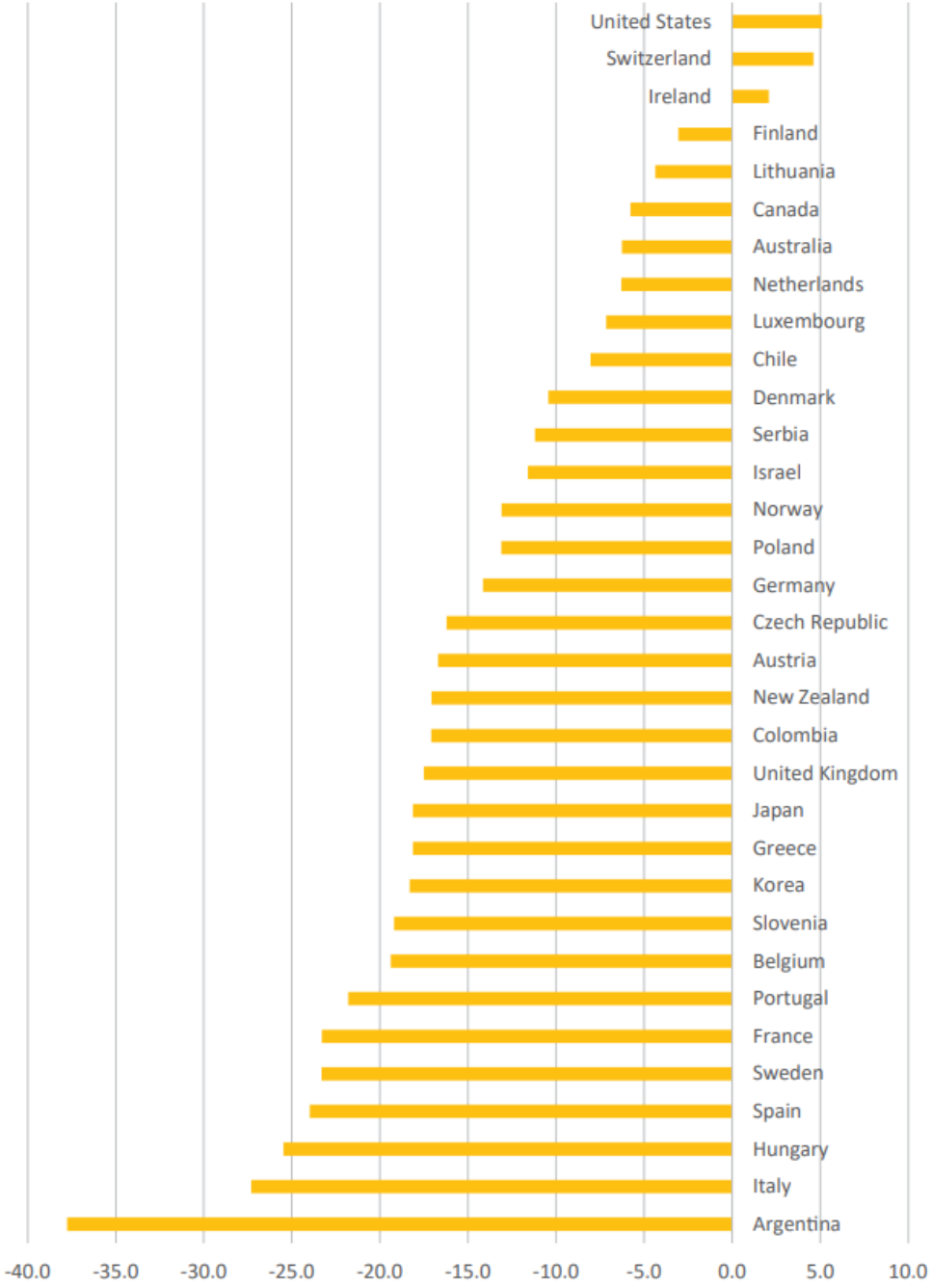
- School closure was the most influential measure
- Lockdown was found to be less significant
- International travel controls was significant for countries with more flexible measures (e.g Slovenia, Latvia, Croatia)

| n | Country | Endogenous variable | Exogenous variable | n | Country | Endogenous variable | Exogenous variable |
|---|---|---|---|---|---|---|---|
| 1 | Austria | Driving | School closing | 21 | Greece | Driving | "Stay at home" orders |
| 2 | Belgium | Driving | School closing | 22 | Ireland | Driving | "Stay at home" orders |
| 3 | Czech Republic | Driving | School closing | 23 | Slovakia | Driving | "Stay at home" orders |
| 4 | Denmark | Driving | School closing | 24 | Estonia | Walking | "Stay at home" orders |
| 5 | France | Driving | School closing | 25 | Czech Republic | Walking | "Stay at home" orders |
| 6 | Hungary | Driving | School closing | 26 | Germany | Walking | "Stay at home" orders |
| 7 | Italy | Driving | School closing | 27 | Greece | Walking | "Stay at home" orders |
| 8 | Netherlands | Driving | School closing | 28 | Italy | Walking | "Stay at home" orders |
| 9 | Poland | Driving | School closing | 29 | Austria | Driving | International travel controls |
| 10 | Portugal | Driving | School closing | 30 | Belgium | Driving | International travel controls |
| 11 | Romania | Driving | School closing | 31 | Hungary | Driving | International travel controls |
| 12 | Spain | Driving | School closing | 32 | Italy | Driving | International travel controls |
| 13 | Austria | Walking | School closing | 33 | Latvia | Driving | International travel controls |
| 14 | Czech Republic | Walking | School closing | 34 | Netherlands | Driving | International travel controls |
| 15 | Denmark | Walking | School closing | 35 | Croatia | Walking | International travel controls |
| 16 | Hungary | Walking | School closing | 36 | Poland | Walking | International travel controls |
| 17 | Italy | Walking | School closing | 37 | Portugal | Walking | International travel controls |
| 18 | Romania | Walking | School closing | 38 | Slovakia | Walking | International travel controls |
| 19 | Spain | Walking | School closing | 39 | Slovenia | Walking | International travel controls |
| 20 | France | Driving | "Stay at home" orders | 40 | Spain | Walking | International travel controls |

*Reference : M Kallidoni, C Katrakazas, G Yannis (2022)*
*European Journal of Transport and Infrastructure Research 22 (2), 161-182*

# Fatalities and COVID-19

- For the 34 IRTAD countries, an average decrease by 8.6%, in 2020, is observed
- If U.S.A. (40% of total road fatalities) are excluded the decrease is 19.2%.
- The strongest decreases were registered in Iceland and in Argentina whereas Ireland, Switzerland and the U.S.A. had the greatest increases.

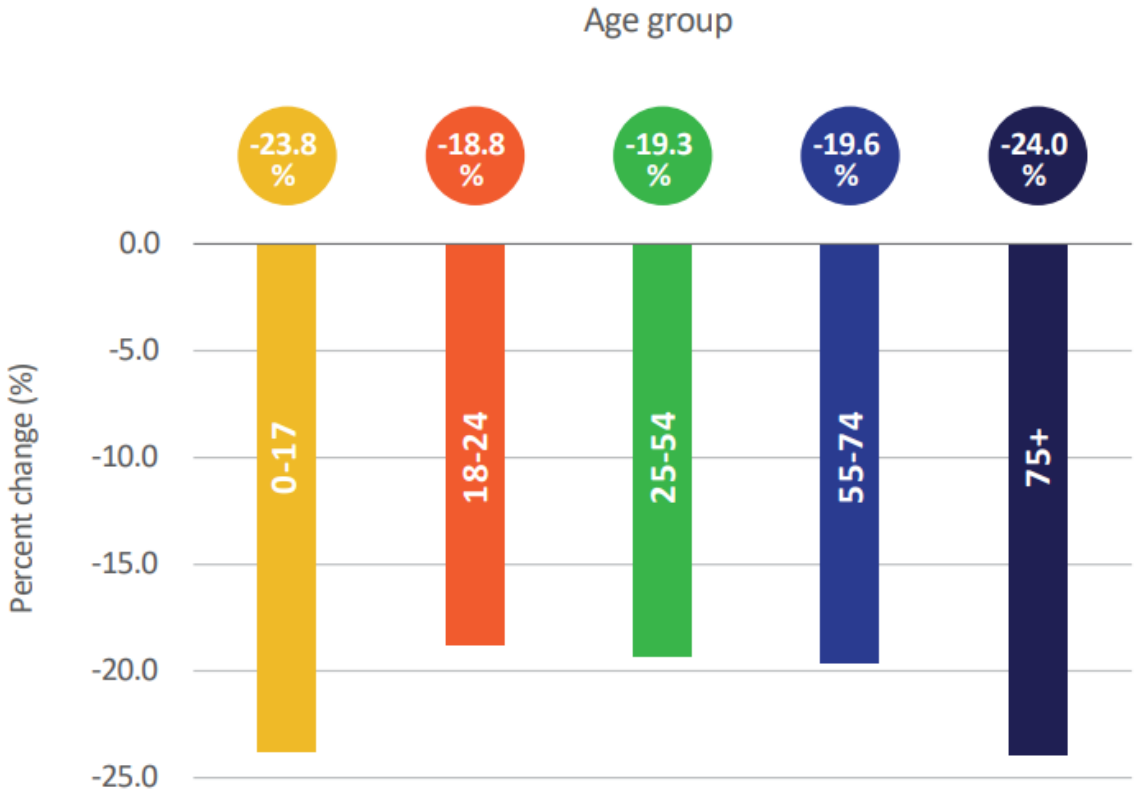



*Reference : IRTAD Annual Report 2021*

# Road fatalities by age group

The highest decrease was observed for elderly people (75+) and young people aged 0-17 years old with a reduction of 24%.

These two age groups were significantly affected by the travel restrictions during the pandemic, due to the closure of schools, and the lockdown measures

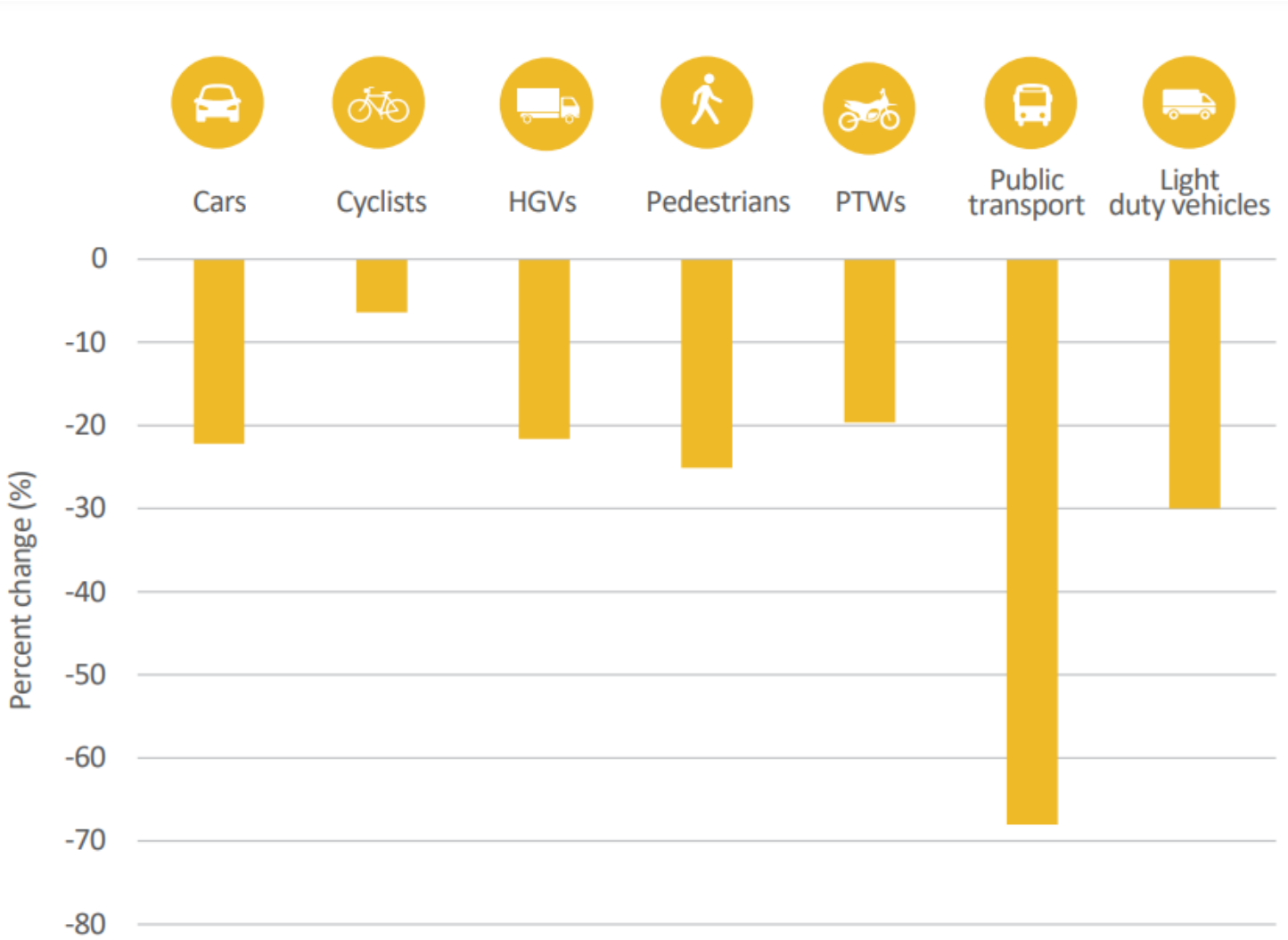



*Reference : IRTAD Annual Report 2021*

# Road fatalities by mode

The largest decrease was observed for public transport fatalities with a drop of 68 % (47 deaths in 2020 compared to 148 on average in 2017-19).

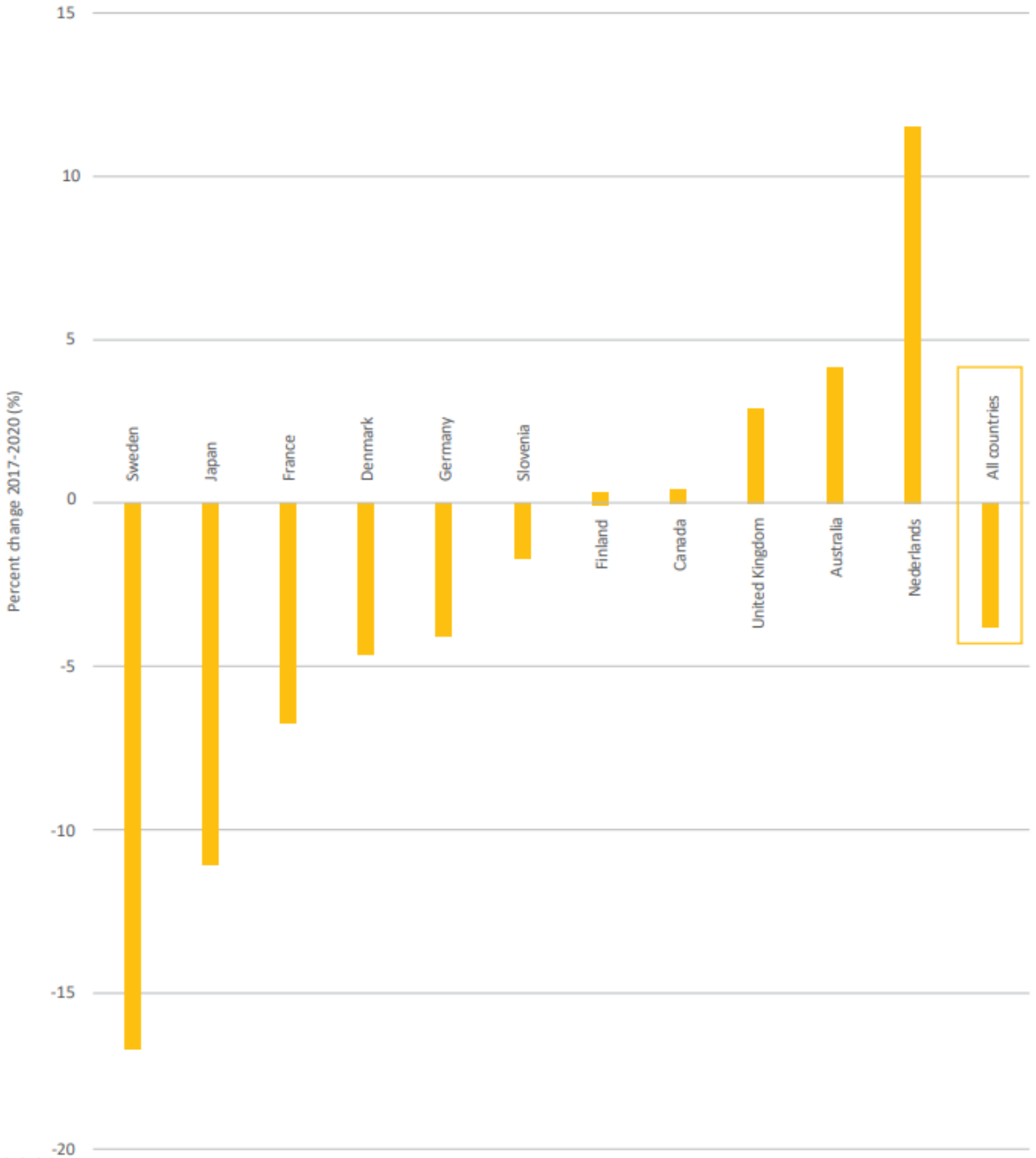
Cyclists are the road users for whom the decrease in road deaths was the less pronounced, with a reduction of 6.4%.




*Reference : IRTAD Annual Report 2021*

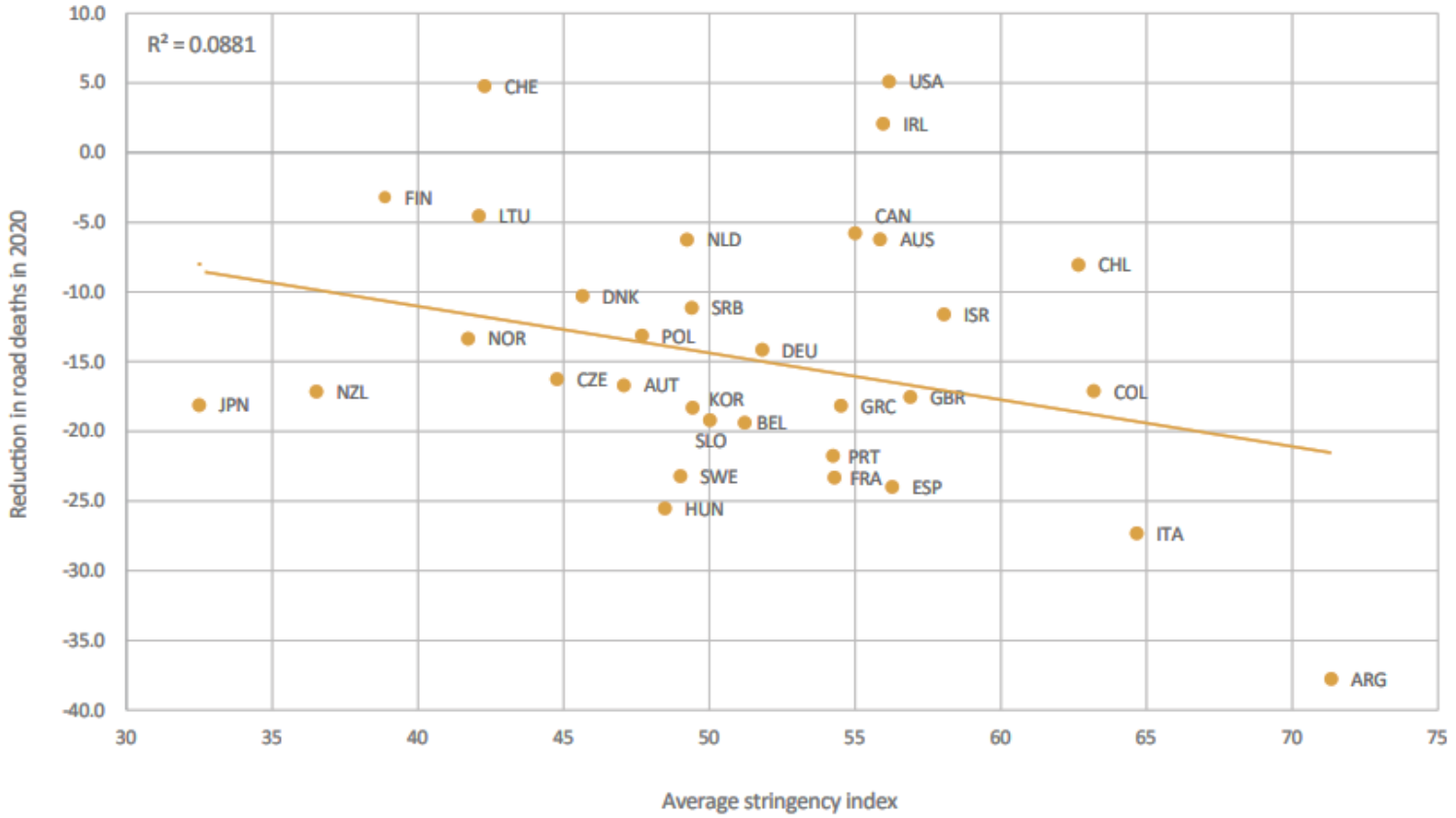
# Impact on road fatality risk

- The risk of being killed on the road slightly decreased in 2020
- The strongest decrease was in Sweden, with around 17% fewer road deaths per billion VKM driven
- The risk increased by 12% in the Netherlands, by 4% in Australia and by 3% in Great Britain.
- It remains relatively stable in Canada and Finland.




*Reference : IRTAD Annual Report 2021*

# Relationship between fatalities and stringency



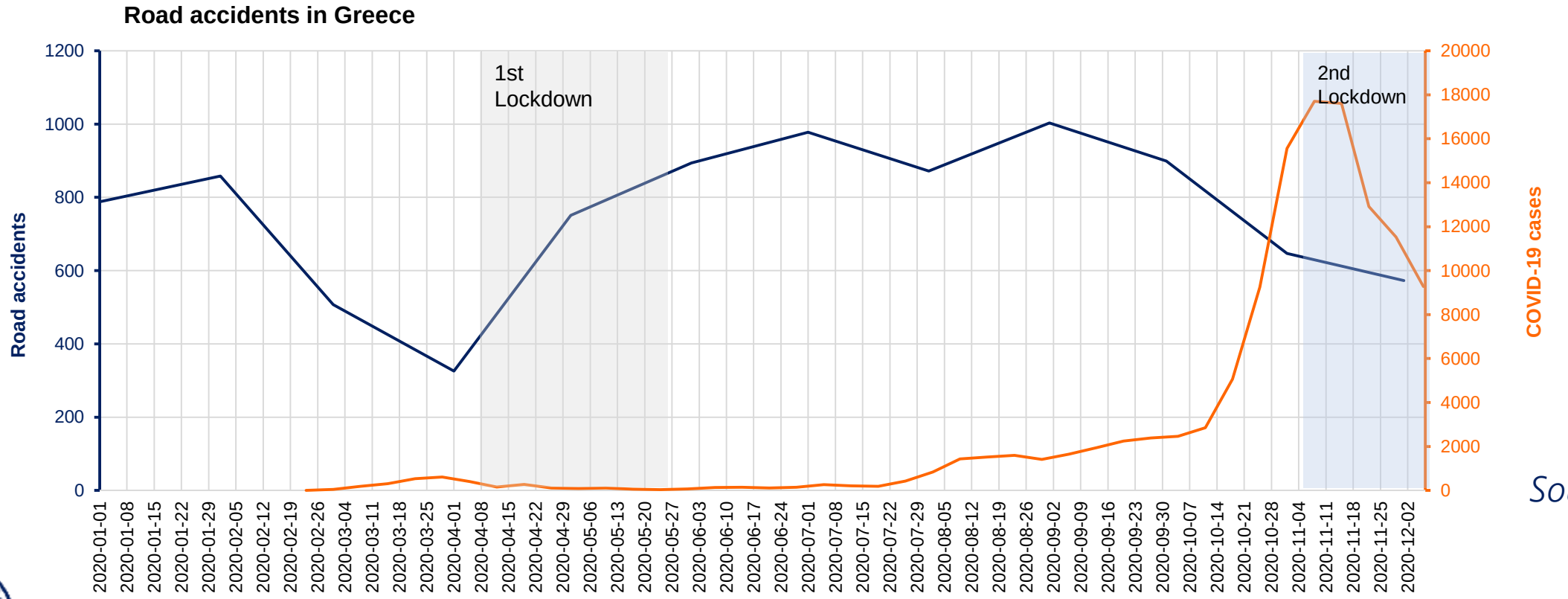

Not a strong correlation between the stringency index and the reduction in fatalities

Stringency is not the only explanation for reductions in road deaths

*Reference : IRTAD Annual Report 2021*

# The case of Greece

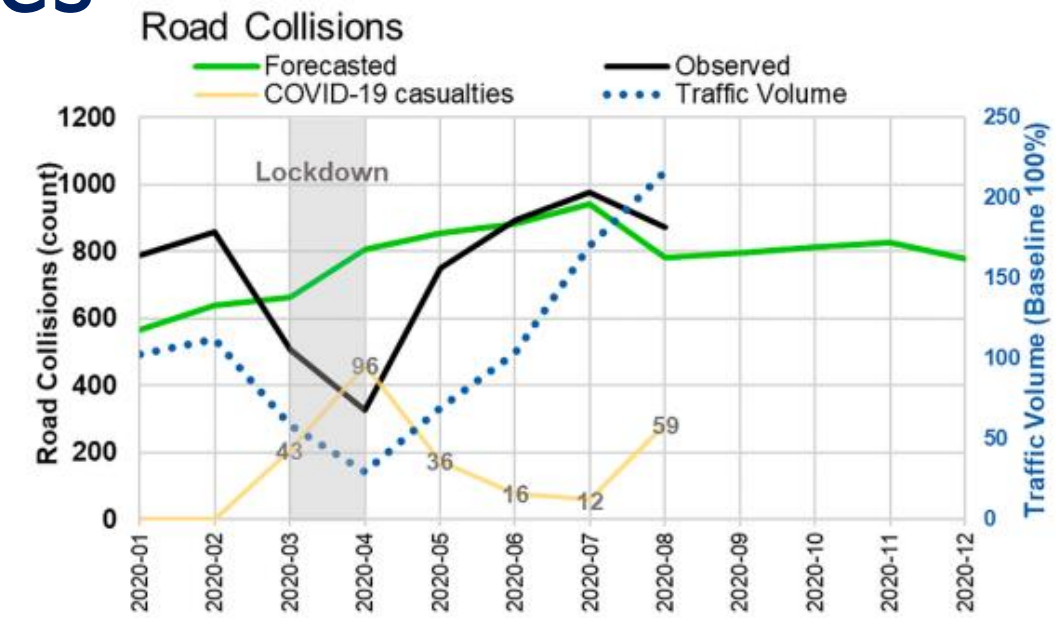
- A significant annual reduction (16%) was recorded in traffic fatalities in 2020 compared to 2019, mostly due to the pandemic
- During the 1st lockdown period, an overall 50% reduction in road traffic crashes was observed compared to the period before the appearance of COVID-19 pandemic
- During the 2nd lockdown period, a 26% decrease in the total number of road traffic crashes was identified

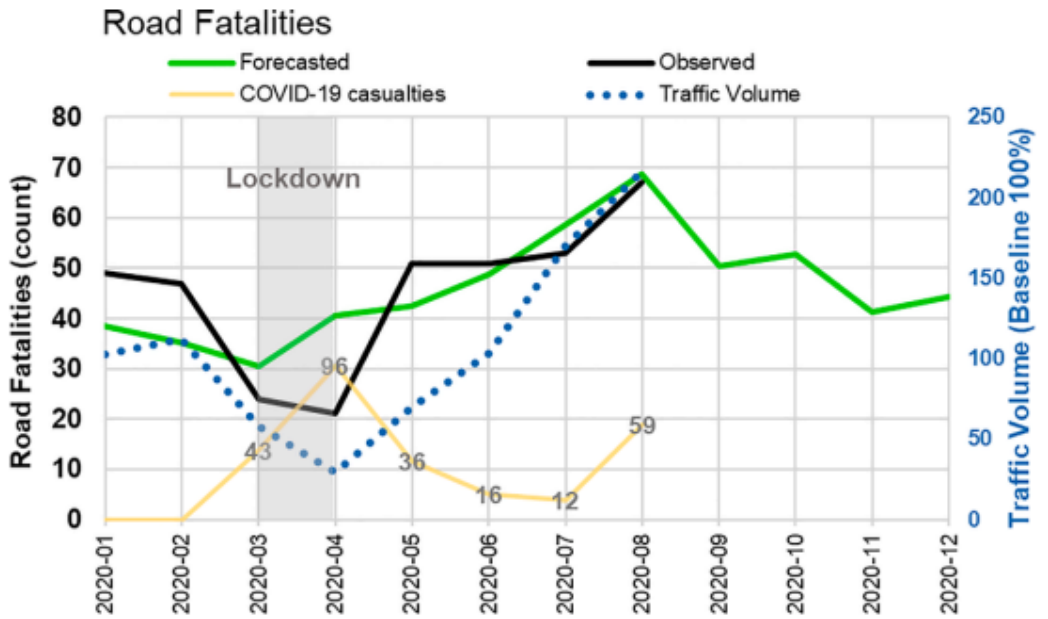



*Source: ELSTAT*

# Predicted vs Observed fatalities

- Road collisions and fatalities were found to be lower than the forecasted values, as the traffic volume was reduced at the same period
- Bringing traffic volume into account, however, it can be concluded that road safety performance was worsened
- The rate of fatalities per collision was increased in lockdown months (i.e., March and April 2020)
- Empty roads led drivers to be more aggressive and accelerate more, even in terms of sudden events, such as pedestrians crossing an empty road



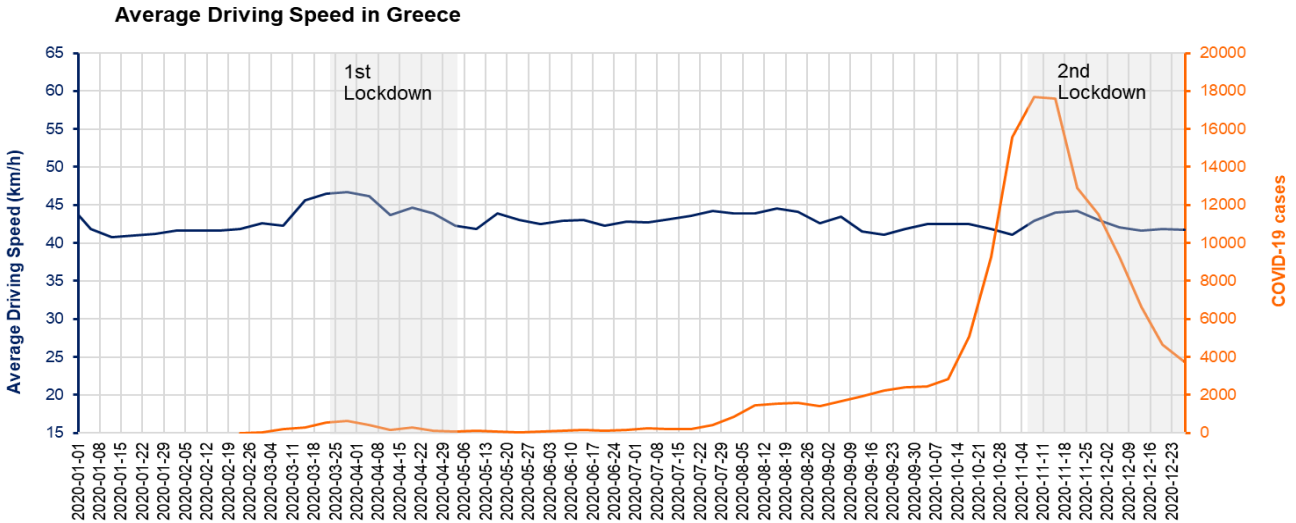

*Reference : M Sekadakis, C Katrakazas, E Michelaraki, F Kehagia, G Yannis Accident Analysis & Prevention 162, 106391*

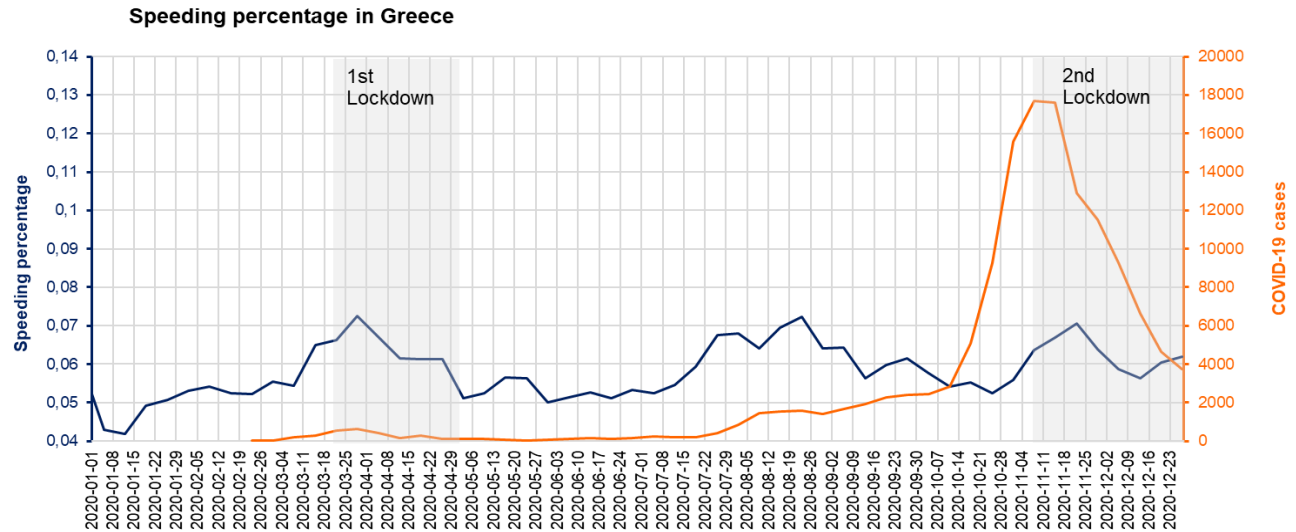
# Driving Behavior – Driving Speed

- In Greece, average driving speed increased by 7% (1st lockdown) and 1% (2nd lockdown) compared to the period before
- The highest values of average driving speed were identified during August 2020

- In Greece, a remarkable 22% (1st lockdown) and 20% (2nd lockdown) spike on speeding percentage was observed compared to the pre-pandemic period

- After the end of the lockdown periods, a significant drop in speeding percentage was identified



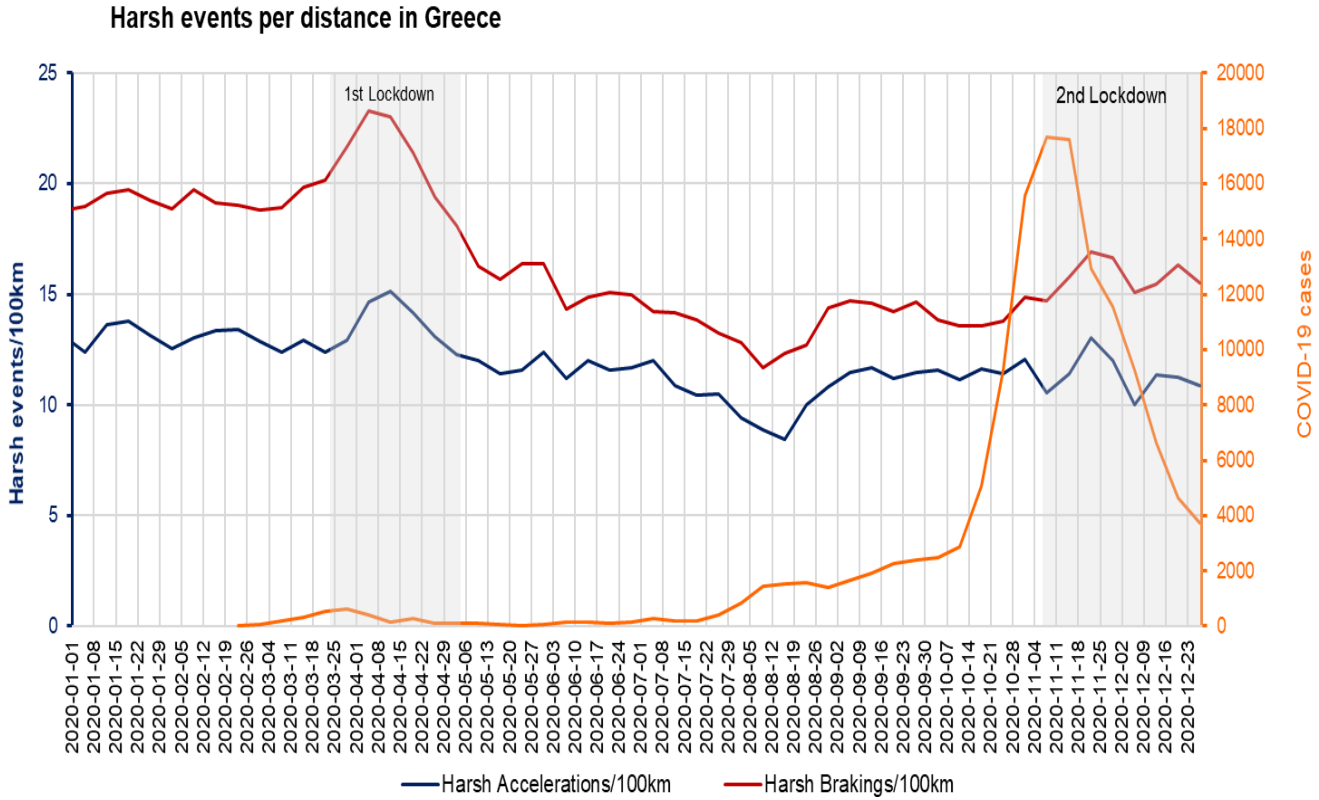




*Reference :Michelaraki E., Sekadakis M., Katrakazas C., Ziakopoulos A., Yannis G.2021. 10th International Congress on Transportation Research, Future Mobility and Resilient Transport: Transition to Innovation. ICTR 2021. September 1-3*

# Driving Behavior – Harsh Events

- In Greece, harsh accelerations/100km and harsh brakings/100km increased by 5% and 11% during the 1st lockdown compared to the period before. Interestingly, during the 2nd lockdown, harsh events reduced by 13% and 17%

- After the restrictions, fewer harsh accelerations and brakings per distance were identified




*Reference :Michelaraki E., Sekadakis M., Katrakazas C., Ziakopoulos A., Yannis G.2021. 10th International Congress on Transportation Research, Future Mobility and Resilient Transport: Transition to Innovation. ICTR 2021. September 1-3*

# Conclusions

- 2020 is an exceptional year. The average annual reduction in the number of road deaths for the period 2010-19 was of 2%, while it was of 19.2% in 2020.
- There was a reduction in the number of fatalities in 2020 for all transport modes, and especially for public transport and light duty vehicles.
- Despite the remarkable decrease in 2020, a 50% reduction in road deaths, as was included in the Decade of Action (worldwide) and in the European Union has not been achieved.
- Increased average speed and more frequent harsh events per distance were demonstrated. As traffic levels reduced and police time was spent on other duties, speeding went up

# Key Lessons

- The COVID-19 pandemic has shown how quickly global mobility and safety conditions can change
- On a positive note, as cities put in place new cycling infrastructure, cycling use numbers increased
- After the pandemic, we need to build a safer and more equal system for all road users – giving back separated space for healthier and sustainable active travelling
- The impetus that COVID-19 is placing on installations of temporary or permanent infrastructure to facilitate more pedestrians and cyclists in several is a positive result of this crisis and should be further explored

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