International Transport Forum

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Greece recorded 694 road fatalities in 2019, a 0.9% decrease on 2018, continuing its decrease in road deaths in this decade and reaching its lowest level. The economic crisis during recent years is the primary reason for the sharp decline in the number of road casualties. One factor has been distances travelled have gone down as people have been using motor vehicles more conservatively and economically. The Covid-19 pandemic had a significant impact on traffic in Greece in the first half of 2020, with a significant reduction in road deaths following the introduction of lockdowns measures. .

Impact of Covid-19

In response to the Covid-19 pandemic, Greece introduced lockdown measures on 23 March 2020, which affected the movement of people and goods on the road and in turn the exposure to road crashes. Lockdown was gradually lifted after the end of April.

The number of road deaths decreased by 59% in April 2020, compared with the average for 2017-19.

Table 1. Road fatalities by month

	Average 2017-19	2020	% change
January	45	49	8.9
February	43	47	9.3
March	53	24	-54.7
April	52	21	-59.6
May	56	51	-8.9
June	60	51	-15
July	71	53	-25.4
August	75	67	-10.7
September	70	71	1.4

Data from Apple's Mobility Trends Report reveal the volume of people driving decreased by 71% year-on-year in April 2020, and the volume of people walking decreased by 66% over the same period. While traffic volumes reduced, the number of vehicles travelling above the speed limit seems to have increased. More specifically, data of a representative subset of trips collected through a smartphone application by OSeven telematics (www.oseven.io) show a 2% spike in average speeding (drivers above the speed limit) in March compared to a normal period in February and a 7% increase in April (Katrakazas et al., 2020).

Trends

Country Profile

Population in 2019: 10.7 million

GDP per capita in 2019: 19 567 USD

Cost of road crashes: 1.5% of GDP (2017)

Registered motor vehicles in 2019: 8.4 million (cars 64%; goods vehicles 17%; motorcycles 19%)

Speed limits: 50 km/h on urban roads; 90 km/h on rural roads; 130 km/h on motorways

Limits on Blood Alcohol Content: 0.5 g/l for general drivers; 0.2 g/l for professional drivers and novice drivers

Greece registered an overall **decrease in the number of road deaths in 2019**. According to the latest preliminary data, 694 persons lost their lives in traffic crashes in Greece in 2019. This represents a 0.9% decline on 2018 and the lowest figure on record. In 2018, 700 road deaths were reported, a 4.2% decline on 2017.

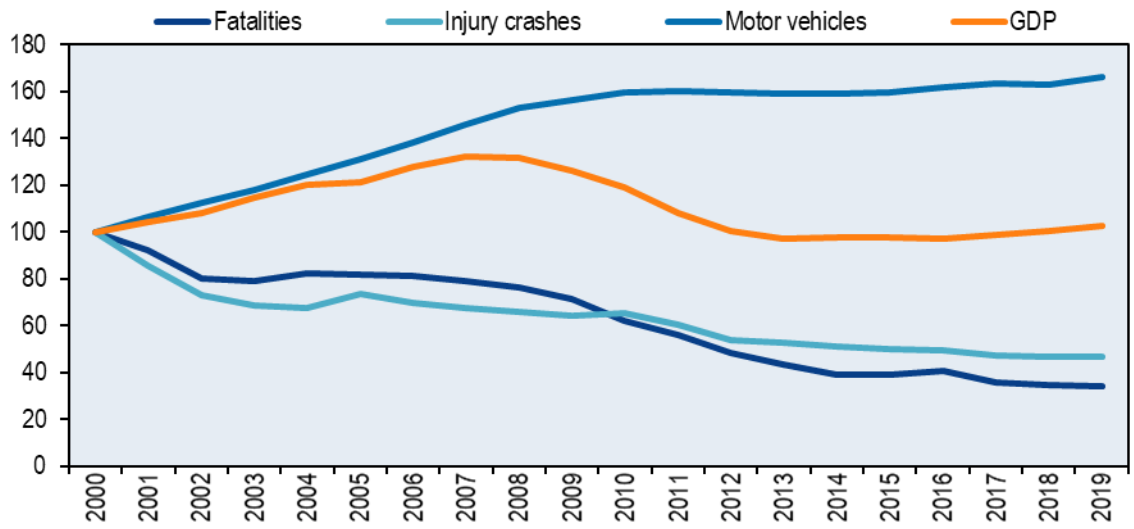
The **longer-term trend for road deaths** in Greece has shown significant progress. Between 2000 and 2019, the number of annual road fatalities fell by 66%. This progress accelerated, in particular, during the second decade of the century: between 2010 and 2019 the number of annual road fatalities fell by 45%.

The number of **traffic deaths per 100 000 inhabitants** in Greece has fallen by 65% between 2000 and 2019. In 2019, 6.5 traffic deaths per 100 000 inhabitants were recorded compared to 18.7 in 2000. By way of comparison, the average in the European Union (EU) was 5.1 deaths per 100 000 inhabitants in 2019.

Greece recorded 0.8 **road fatalities per 10 000 registered vehicles** in 2019. This represents a decrease of 79% compared to the year 2000, when the rate of deaths to registered vehicles stood at 4.0.

Figure 1. Road safety, vehicle stock and GDP trends

Index 2000 = 100



Note: Registered vehicles do not include mopeds.

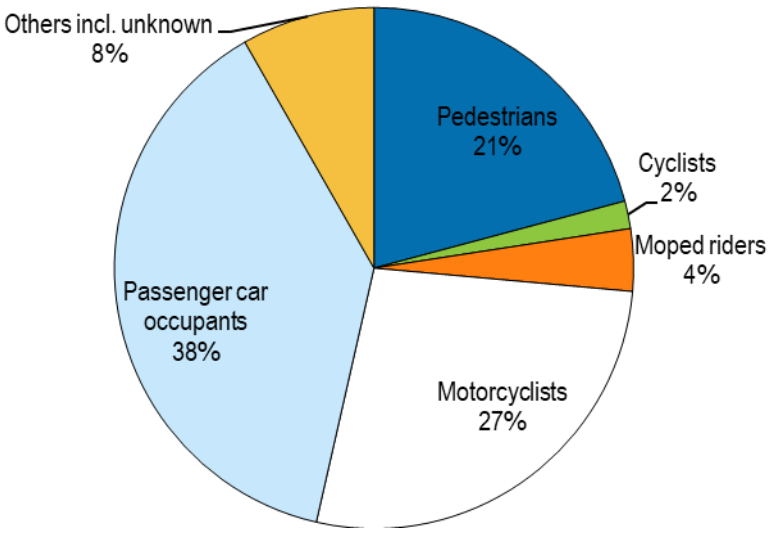
Data for **fatalities by road user groups** shows that passenger car occupants continue to be the group most affected by road crashes. Motorcyclist fatalities also comprise a sizeable share of total road fatalities in Greece. In 2018, car occupants accounted for the largest share of road deaths with 38% of the total. They were followed by motorcyclists (27%), pedestrians (21%) and moped riders (4%).

Compared to 2017, all road user groups saw their number of road fatalities reduced, with the exception of pedestrians and cyclists. In 2018, moped riders saw the largest decrease, with five fewer road fatalities in 2018 than the year prior (-15.6%). They were followed by motorcyclists, with 26 fewer (-12%) and passenger car occupants, with 19 fewer (-6.6%). On the other hand, pedestrians suffered 28 additional road deaths (+23.7%) year-on-year in 2018, and cyclists had one more road death (+9%) over same period.

The long-term trend shows traffic in Greece has become safer for all road user groups. The strongest declines were registered among car occupants and moped riders, who both experienced annual road fatality reductions of 70% between 2000 and 2018.

The user group that has benefitted least from road safety improvements since 2000 is cyclists, who saw the number of annual crash deaths fall by 46% from 22 to 12.

Figure 2. Road fatalities by road user group in percentage of total, 2018



Road deaths by age group in 2018 showed some changes compared to 2017. The number of road deaths increased for the elderly above 75 (+30%). Conversely, people under 64 saw their number of road fatalities reduced by 17.5% on average compared to the previous year. The 15-17 and 18-20 age groups registered the largest improvement, with 29.4% fewer road deaths in 2018 compared to 2017.

Looking at the longer-term trend, since 2000 the number of road deaths has decreased for all groups. The strongest fatality reductions over this period occurred among young people; every age category up to 25 years old saw fatalities fall by 75% or greater between 2000 and 2018. The oldest age range – those above 75 – benefitted the least from road safety

improvements during this time, as road fatalities for this age group decreased by only 24%.

Despite recent improvements, young people continue to be at high risk in traffic, with a mortality rate well above the average. Road users between 18-20 had traffic fatality rates of 8.2 per 100 000 persons in 2018, while those from 21-24 had a rate of 11.6. This is compared to a national average of 6.5 per 100 000 inhabitants. However, elderly people have now become the age group the most at risk in road traffic. Road users above 75 years of age registered a mortality rate of 12.0 fatalities per 100 000 persons in 2018.

Figure 3. Road fatality rates by age group, 2010-18
Deaths per 100 000 inhabitants in a given age group

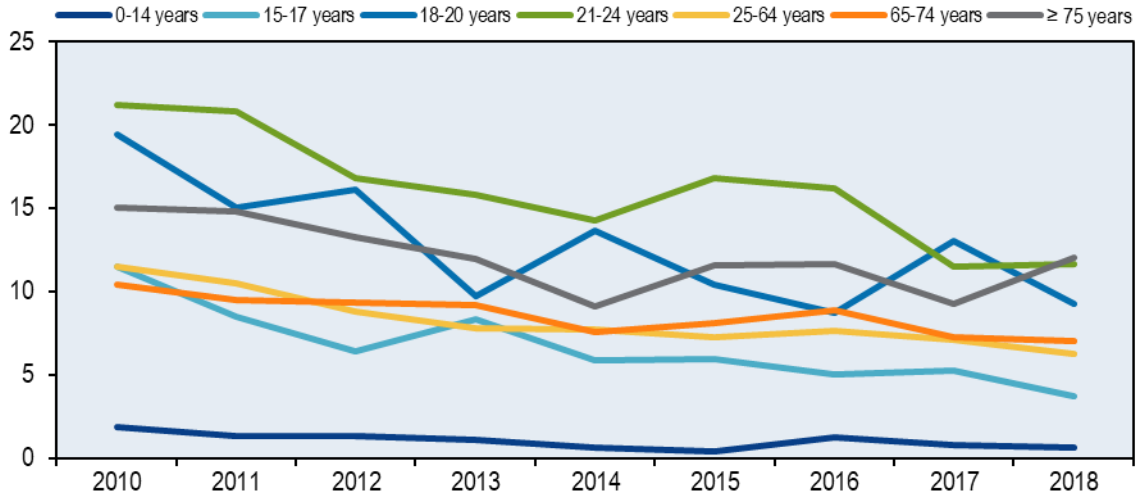
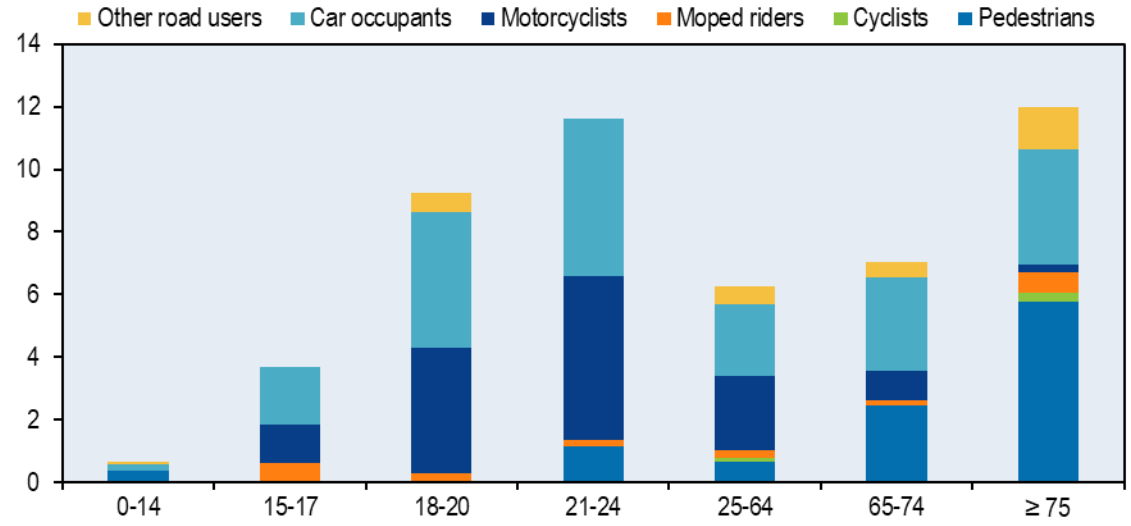


Figure 4. Road fatality rate by age and road user group, 2018
Fatalities per 100 000 inhabitants



Analysis of **fatalities by road type** shows that Greek urban road networks were the deadliest in 2018. In 2018, 52% of deaths occurred on urban roads, 39% on rural roads and 9% on motorways. In the period 2000-10, rural roads consistently claimed more victims than did roads in urban areas. Since 2010, however, this repartition has flipped. In the years since, roads in urban areas have generally been the setting for more road fatalities than rural roads.

In 2018, in comparison to 2017, the number of road deaths increased by 7.9% on urban roads, while road deaths decreased by 19.3% on rural roads. Motorways saw seven additional road fatalities compared to 2017 for a year-on-year increase of 20%.

Since 2000, fatalities in urban areas have decreased by 47%, on rural roads by 79% and remained equal on motorways. Since 2010, road fatalities in rural areas decreased by 53% and 38% in urban areas, indicating that rural roads saw stronger road safety improvements in the first decade of the century.

Figure 5. Road fatalities by road type

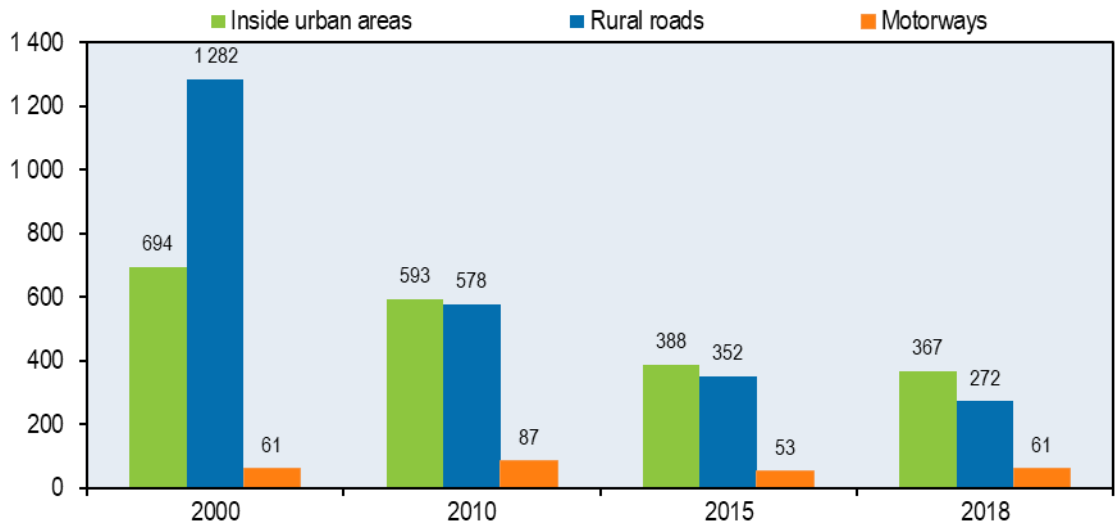
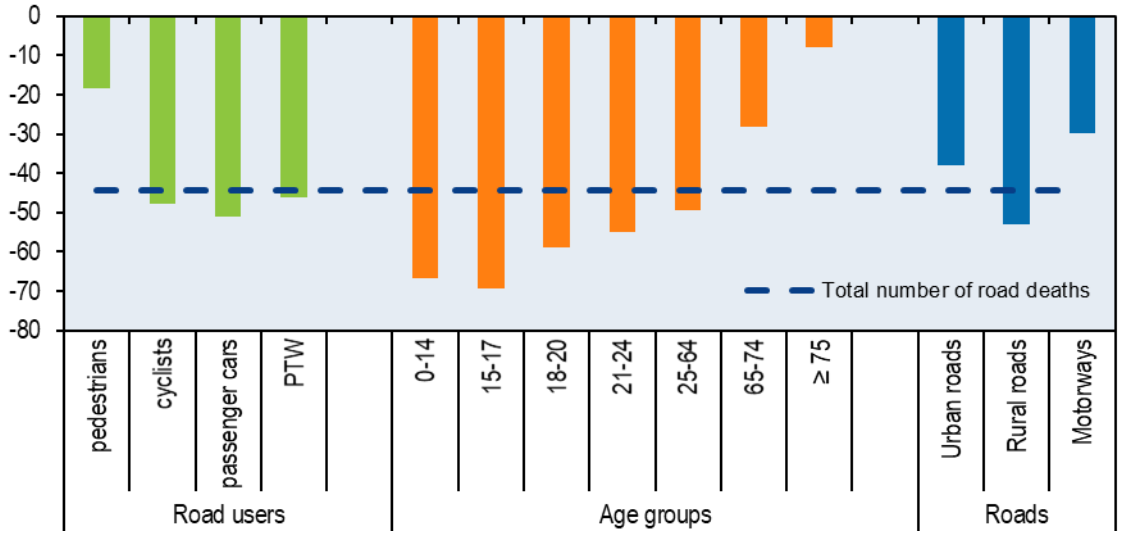


Figure 6. Evolution of road deaths by user category, age group and road type, 2010-18



Fatality data are essential to understanding road safety issues but hardly sufficient. Information on **serious injuries from crashes** is also critically important. Yet, injury data are much more difficult to obtain, validate and – where available – compare. In 2018, Greece recorded 12 471 traffic-related injuries. Since 2010, injuries have fallen by 31% and serious injuries have fallen by 57.5%, a development consistent with the reduction in road fatalities during this time.

Economic costs of road crashes

Traffic crashes represent a significant cost for society, estimated in 2017 at around EUR 2.7 billion, representing almost 1.5% of Greece's GDP (Kourtis et al., 2018). This calculation uses a combination of the lost-production methodology and the willingness-to-pay methodology.

The cost is almost tripled if the real numbers of injuries and crashes resulting only in material damage are taken into account.

Table 1. Costs of road crashes, 2017

	Unit cost (EUR)	Total (EUR)
Fatalities	2 148 034	1.57 billion
Serious injuries	273 574	0.19 billion
Slight injuries	51 373	0.65 billion
Property damages costs	3 582	0.24 billion
Total		**2.7 billion**
Total as % of GDP (at constant prices)		**1.5%**

Behaviour

Speeding is perhaps the most critical factor for road crashes in Greece. In 2018, based on police reports, it was estimated that about 18% of fatalities were directly related to excessive or inappropriate speeds. However, the actual percentage of fatalities due to speeding could be higher. Speeding enforcement varied during the last decade, with a direct impact on the progress of road safety trends. The recent, important decline in road fatalities and speeding may be a result of the economic crisis, which served to encourage more ecological driving. Higher fuel prices due to the crisis had a direct impact on average speed reduction and, consequently, traffic safety improvement.

The table below summarises the main speed limits in Greece.

Table 2. Passenger car speed limits by road type, 2020

	General speed limit	Comments
Urban roads	50 km/h	
Rural roads	90 km/h	
Motorways	130 km/h	Variable speed limits are implemented when variable message signs are available

Driving under the influence of alcohol is another major cause of road crashes in Greece, as in most IRTAD countries. In 2018, it was estimated that almost 23% of road fatalities were attributed to drink driving. Compared to 2000, the percentage of fatalities related to drink driving in 2018 has decreased by 43%.

According to the Greek Highway Code, the maximum permissible blood alcohol content (BAC) is 0.5 g/l when measured by blood sample and 0.25 mg/l when measured by breath testing. Since 2007, a lower limit (0.2 g/l) has applied to professional drivers (heavy goods vehicles, school buses and coaches), novice drivers (holding the driving licence for less than two years), motorcycles and moped riders.

Driving under the **influence of drugs** is prohibited under Greece's Road Code. Despite this, no data are available for drug-related crashes.

An increasing problem for traffic safety in Greece is accidents cause by driver **distraction**, for instance, through the use of mobile phones while driving or crossing a street. In Greece, the use of a handheld phone while driving is forbidden, although driving while using a hands-free device is allowed.

Wearing a seat belt has been compulsory in Greece since 1979 in front seats and from 1993 for rear seats. Children under the age of 12 must be seated in a rear seat and be adequately restrained, taking into account their height and weight. There has been no recent seat belt user survey. According to 2009 data, the seat belt use rate was 77% for drivers, 74% for a front seat passengers and 23% in rear seats. These surveys are the most recent available.

In Greece, helmets have been compulsory for users of all powered-two wheelers since 1977. The helmet-wearing rate is 75% for drivers and 46% for passengers, suggesting that much progress stands to be made in this area.

Road safety management and strategies

There are several **factors of influence on Greece's road safety performance** as captured by the above indicators. The number of fatalities peaked in 1995, with 2 411 road deaths and achieved a record-low in 2019 with 694 deaths. During the last decade, significant improvement was observed in road fatalities among young people, extra-urban areas and crashes involving heavy goods vehicles. There was less improvement for elderly road users, motorcyclists, foreign drivers and female drivers.

In the period 2010-19, the number of annual fatalities decreased by 45%. This relatively strong performance is in large part associated with the economic recession, which markedly impacted traffic and travel patterns, in particular among the young population. During the last five years, Greek drivers have improved their driving behaviour, becoming less aggressive and reducing excessive speed as a consequence of personal budget limitations imposed by the economic crisis. This has resulted in significant safety improvements. Improved driving behaviour is expected to persist through the economic recovery despite a subsequent potential increase in traffic volumes. Additionally, this significant decrease could also be attributed to the significant upgrade of the main road network, with more than 500 km of new or upgraded motorways having replaced since 2016 national roads with high road fatalities rates.

Road safety improvements are also related to the introduction of the new highway code in 2018. Public campaigns, enforcement and training have also contributed to an attitude shift in favour of increased road safety.

The co-ordination of all ministries involved in road safety management is conducted by the **Inter-Ministry Committee on Road Safety**, chaired by the Minister of Citizen Protection. However, the minister's role remains limited as the corresponding co-ordination secretariat has never been fully operational. Some stakeholder consultation takes place at the National Road Safety Council. Regional and local authorities implement city mobility and road safety plans, mainly on road infrastructure and vehicle control, but often on campaigns as well. However, there is no process to integrate national and regional activities nor is there reporting from the regional to the national level.

Despite the three strategic plans adopted during the last decade, mobilisation of the authorities and society remains limited and road safety is still not a recognised policy area in practice. Furthermore, there is no identifiable budget for road safety.

The scientific community (National Technical University of Athens [NTUA], the Centre for Research and Technology Hellas [CERTH/HIT] and the Association of Greek Transportation Engineers) also intervenes systematically to influence public opinion for safer behaviour, safer infrastructure and mobility and safer vehicles. However, although road safety

problems and solutions are well researched in Greece, implementation of measures is limited. Moreover, there is no official monitoring of road safety actions, no benchmarking and little evaluation of road safety interventions that are implemented.

The third National Road Safety Strategic Plan for the period 2011-20, developed by NTUA, was approved by the Ministry of Infrastructure, Transport and Networks in September 2011. The aim of this strategic plan is the development of a strong road safety culture. The strategic plan is composed of six pillars: road safety education, road safety enforcement, safe road users, safe road infrastructure, safe vehicles and post-crash management.

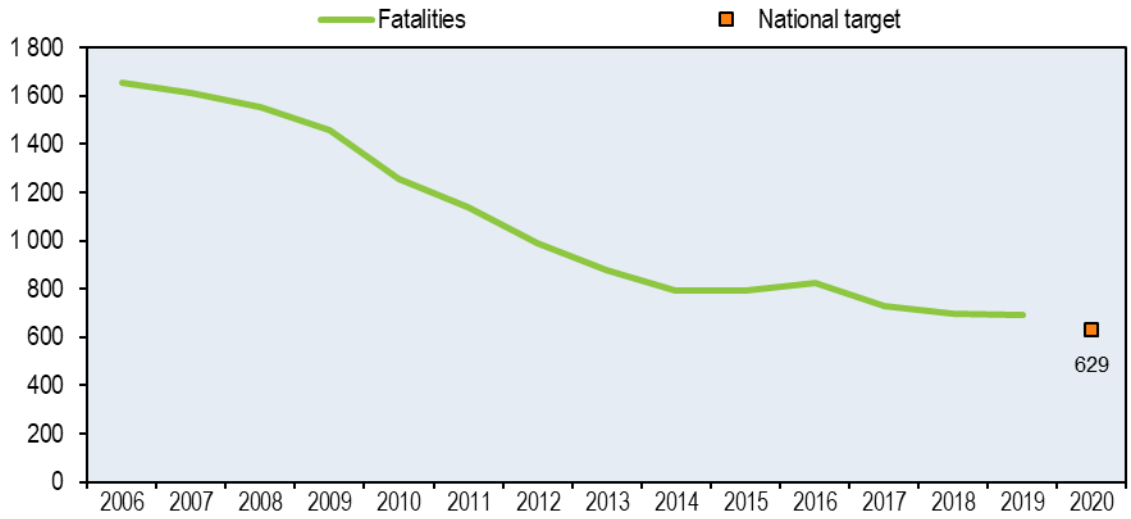
The strategic plan adopts the European target of reducing the number of road fatalities by 50% between 2010 and 2020. Intermediate targets include a reduction of 80 road fatalities per year between 2010 and 2015, which has been achieved partly due to the economic crisis, and a reduction of 50 road fatalities per year between 2016 and 2020.

Specific actions by the central and regional governments have been identified as necessary to reach the target. A prerequisite is a strong political will and support at the highest political level. The Inter-Ministry Committee, re-established twice (in 2010 and in 2014 under the chairmanship of the prime minister), is expected to play a critical role.

Even though the strategy has clearly defined the targets, the programmes and the implementation framework, some important barriers remain such as the lack of systematic implementation of the measures and a lack of co-ordination and monitoring. The co-ordination instruments to support the Inter-Ministry Committee were never fully operational and the necessary resources were never allocated to the related road safety actions.

With 694 road deaths in 2019, Greece's target of fewer than 629 road deaths by 2020 appears to be within reach.

Figure 7. Trends in road fatalities towards national target



The new national road safety strategy for the period 2020-30 is under preparation.

Measures

The unprecedented economic crisis over the last eight years has resulted in a limited budget for road safety initiatives in Greece.

Some road safety measures are being implemented, focusing on road safety police enforcement (for speeding, drink driving and use of seat belts and helmets). There are also others that focus on road safety education and information campaigns, conducted mainly by private companies such as motorway concessionaires and NGOs. Greek universities and research institutes carry out many road safety research projects, thus supporting road safety actions in Greece.

Road safety management: New legislation concerning road safety audits has been introduced, which in the future might result in more systematic audits of the road network.

Following a new law, the Inter-Ministry Committee on Road Safety was re-established a first time in 2010 and a second time in 2014, this time under the chairmanship of the prime minister. However, this inter-ministry committee met in 2018 for the first time since 2014.

Road safety management is the responsibility of both national and regional authorities. During the last decade, more and more regional and local authorities have established and implemented regional road safety plans, sometimes within their urban mobility plans, which are starting to bring results.

Road users: The Highway Code was updated and has been in force since March 2018, without any speed limit changes. However, a new fines scheme for traffic infringements has been introduced based on driver income. Offenders that commit a high-risk infringement three times in the last five years stand to lose their licence for life.

The amendment of the penal code in 2019 led also to radical changes in the road code. Especially in the case of driving under the influence of alcohol or drugs, the law is stricter and the penalty may be even life imprisonment if human lives are lost.

National, regional and local authorities regularly conduct campaigns and training on user behaviours such as speeding, impaired driving, seat belt and helmet misuse, etc. However, the impact of these efforts on traffic safety is unknown as no monitoring programme exists.

Several NGOs (Road Safety Institute Panos Mylonas, EFTHYTA-Rhodes, etc.) and motorways concessions continue various programmes of road safety campaigns and training.

Infrastructure: Due to the difficult economic conditions, the budget for road maintenance and safety intervention has been significantly reduced. Nevertheless, the Ministry of Infrastructure did put a lot of effort in improving the main road network of Greece (kilometres of operational motorways increased from 750 in 2007 to 2 200 by the end of

2018). More than 500 km of new or upgraded motorways were opened in the first semester of 2017, replacing national roads that have a high rate of road deaths. Traffic from unsafe interurban roads has been shifted to new motorways, the safest roads by design.

In 2020, a large project started for safety infrastructure improvements of the interurban road network (excluding motorways). This project, funded to the tune of EUR 470 million by the European Investment Bank (EIB), is expected to bring significant safety results.

In 2017, the detailed specifications for cycling infrastructure were officially adopted, and in 2018 (Law 4530/2018) several provisions for cycle traffic were also officially adopted. Several cities are implementing calm driving schemes and 30km/h speed limit zones in central areas, including Athens' emblematic project on pedestrianisation of several central main road axes (Athens Great Walk). These initiatives are expected to boost the safety of vulnerable road users.

Road Infrastructure Safety Management has been in place since 2012, and the first certified road safety auditors were named in 2018.

Vehicles: All EU regulations on vehicles are properly transposed into Greek legislation, resulting in higher safety standards for all new vehicles entering into circulation in Greece. Improved passive and active safety is one of the reasons for the significant reduction of persons killed and seriously injured in traffic crashes. It should be noted, however, that the vehicle fleet is renewed very slowly.

Definitions, methodology, data collection

An injury crash is any crash involving at least one road motor vehicle in motion on a public road or square to which the public has access (excluding yards, industrial sites or vehicle depots for public transport), resulting in at least one injured or killed person. Property damage only crashes are not included.

A road fatality is defined as any person killed immediately or dying within 30 days as a result of an injury crash. This national definition has applied since 1996. For the years prior to 1996 a conversion factor is applied to the fatality data in the International Road Traffic and Accident Database.

Finally, a seriously injured person is any person who has sustained an injury as result of an injury crash, such as brain damage, mutilation or other injuries that may result in a loss of consciousness or which are life-threatening. Hospital data have not been exploited yet, and the identification of serious road injuries according to the Maximum Abbreviated Injury Scale (MAIS) definition is not possible.

From the early 1960s, the Hellenic Statistical Authority (EL.STAT) has maintained Greece's official road crash database. This contains disaggregated road crash data and detailed information concerning drivers, road crash casualties and the vehicles involved. Data is coded on the basis of the Road Accident Data Collection Form, which is filled in by traffic police for every road crash with casualties.

Traffic police respond to all crashes with casualties. Officers are responsible for filling in the Road Accident Data Collection Form and for finalising information concerning casualties within 30 days of the crash. Data are forwarded to EL.STAT and are also stored in the traffic police database. The EL.STAT database includes reliable and detailed information on road crashes, persons and vehicles, as well as additional elements such as causes and conditions of the vehicles.

The Ministry of Infrastructure, Transport and Networks is responsible for vehicle registration and driving licences. It maintains databases of registered vehicles and licensed drivers. The registered vehicles database includes disaggregated information on vehicle characteristics such as vehicle type and use, year of first registration, length, weight, engine size, fuel type, manufacturer, etc. This database does not include mopeds (data for the number of mopeds in operation come from the traffic police, who are responsible for moped registration and moped driving licences). Scrapped vehicles are systematically removed from the database. The driving licence database includes disaggregated information on driver characteristics, such as licence type and year, the related vehicle type, licence renewal or modification, age, gender, etc. However, deceased drivers are not systematically removed from the database.

Data on the severity of injuries are not systematically collected by hospitals; only road fatalities are properly reported. Consequently, it is not currently possible to have data on serious injuries based on the Maximum Abbreviated Injury Scale (MAIS).

Resources

Recent research

Road safety research is constantly progressing in Greece, with several interesting results published in Greece and worldwide. Several of these research results are available at: http://www.nrso.ntua.gr/.

Websites

Hellenic Statistical Authority: http://www.statistics.gr/.

Ministry of Infrastructure, Transport and Networks: http://www.yme.gr.

Road Safety Observatory of the National Technical University of Athens: https://www.nrso.ntua.gr/.

The Centre for Research and Technology Hellas: https://www.certh.gr/.

Road Safety Institute Panos Mylonas: https://www.ioas.gr/.

EFTHITA-Rhodes: http://efthita-rodos.blogspot.com/.

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Katrakazas C., Michelaraki E., Sekadakis M. and G. Yannis (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.

Kourtis, M., Ziakopoulos, A. and G. Yannis (2018), *Modelling the economic impact of road accidents in Greece*, Diploma Thesis, NTUA, School of Civil Engineering, Athens.

Road safety and traffic data

						2018 % change over			
	1990	2000	2010	2017	2018	*2017*	*2010*	*2000*	*1990*
Reported safety data									
Fatalities	2 050	2 037	1 258	731	700	-4.2%	-44.4%	-65.6%	-65.9%
Injury crashes	19 609	23 001	15 032	10 848	10 737	-1.0%	-28.6%	-53.3%	-45.2%
Deaths per 100,000 population	20.3	18.7	11.2	6.8	6.5	-4.0%	-42.1%	-65.1%	-67.8%
Deaths per 10,000 registered vehicles	7.4	4.0	1.6	0.9	0.8	-3.9%	-45.5%	-78.9%	-88.5%
Fatalities by road user									
Pedestrians	524	375	179	118	146	23.7%	-18.4%	-61.1%	-72.1%
Cyclists	26	22	23	11	12	9.1%	-47.8%	-45.5%	-53.8%
Moped riders	192	90	36	32	27	-15.6%	-25.0%	-70.0%	-85.9%
Motorcyclists	274	412	367	216	190	-12.0%	-48.2%	-53.9%	-30.7%
Passenger car occupants	712	891	546	286	267	-6.6%	-51.1%	-70.0%	-62.5%
Other road users	322	247	107	68	58	-14.7%	-45.8%	-76.5%	-82.0%
Fatalities by age group									
0-14 years	96	40	30	12	10	-16.7%	-66.7%	-75.0%	-89.6%
15-17 years	76	60	39	17	12	-29.4%	-69.2%	-80.0%	-84.2%
18-20 years	183	156	73	42	30	-28.6%	-58.9%	-80.8%	-83.6%
21-24 years	249	219	113	51	51	0.0%	-54.9%	-76.7%	-79.5%
25-64 years	1 051	1 107	711	414	360	-13.0%	-49.4%	-67.5%	-65.7%
65-74 years	..	241	113	82	81	-1.2%	-28.3%	-66.4%	..
≥ 75 years	..	187	155	110	143	30.0%	-7.7%	-23.5%	..
Fatalities by road type									
Urban roads	..	694	593	340	367	7.9%	-38.1%	-47.1%	..
Rural roads	..	1 282	578	337	272	-19.3%	-52.9%	-78.8%	..
Motorw ays	..	61	87	54	61	13.0%	-29.9%	0.0%	..
Traffic data									
Registered vehicles (thousands)	2 780	5 061	8 062	8 263	8 237	-0.3%	2.2%	62.8%	196.3%
Registered vehicles per 1,000 population	274.7	464.2	720.9	767.4	766.9	-0.1%	6.4%	65.2%	179.2%

Note: Registered vehicles do not include mopeds.