

Road safety in Greece



George Yannis, Eleonora Papadimitriou

National Technical University of Athens, Greece

Background and objectives

- Greece is **one of the poorest performing countries in Europe** as regards road safety
- This research aims to analyse the road safety situation and development over time in Greece, in order to identify possible causes and particularities.
- For that purpose, the SUNflower footprint methodology is used, in which Greek road safety level is analysed hierarchically in relation to all components of the road safety system.

The SUNflower pyramid

- Level 1: Structural and cultural characteristics (i.e. policy input)
- Level 2: Programmes and measures (i.e. policy output, common practice)
- Level 3: Safety Performance Indicators (i.e. intermediate level) - the operational level of road safety in the country (speeding, drinking and driving, road network, vehicle fleet etc.)
- Level 4: Final outcomes expressed in terms of road casualties (risk indicators)
- Level 5: total social costs of road crashes



Methodology and data

- The SUNflower pyramid provides a framework for the analysis of Greek performance, allowing not only to examine all aspects of the road safety problem, but also to link these aspects in the identification of road safety causes and effects.
- Data from the Hellenic Statistical Authority and other national data sources, as well as from various international data files (CARE, ERSO, Eurostat, IRTAD, etc.) and research projects (e.g. SARTRE).
- Processing and analysis of these data took place within the [Dacota](#) EU co-funded research project (2010-2012).
- These results will be soon available at the European Road Safety Observatory of the European Commission (www.erso.eu).

Structure and Culture

Basic characteristics

- Greece had **11.3 million inhabitants** in 2010.
- With a total area of **131.990 km²**, the terrain of the mainland of Greece is mostly mountainous while its seas are sprinkled with more than 2000 islands and climate and weather conditions are favourable.
- The road network is consisted of **117.000 km roads length** (2008), and the vehicle fleet in 2009 was 7.9 million vehicles.
- In 2004, **65.8 billion vehicle km** travelled by passenger cars, 1.2 billion vehicle km travelled by mopeds and 3.3 billion vehicle km travelled by motorcycles.
- In 2009, population density was 85.3 inhabitants/km² and the level of motorization was **0.702 vehicles per inhabitant**.

Structure and Culture

Structure of Road Safety management

- The coordination of all the Ministries involved in road safety (RS) management, is ensured since 2001 by the **Inter-Ministerial Committee** on road safety chaired by the Minister of Citizen Protection. However, its role remains currently limited.
- **Ministries** with responsibilities as regards road safety are the Ministry of Infrastructure, Transport & Networks, of Interiors, but also of Health, of Education, Life-Long Learning & Religion and of the Economy.
- A number of **non-governmental organizations** are often involved in road safety activities, including the Technical Chamber of Greece, the Hellenic Institute of Transportation Engineers, the Automobile and Touring Club of Greece etc., as well as Universities and Research Institutes.

Structure and Culture

Attitudes towards risk taking

- In Greece most drivers seem to perceive the risk of accident involvement as being extremely low, while at the same time they over-estimate their driving skills.
- the proportion of drivers who adopt aggressive and risk-taking behaviour has increased between 1996 and 2003.
- the proportions of drivers that reported exceeding the speed limits and driving under the influence of alcohol are significantly reduced.

	1996	2003
Self-reported driving behaviour		
	% of drivers	
Inappropriate overtaking	9%	15%
Drinking and driving	13%	6%
Exceeding speed limits in interurban areas	28%	23%
Exceeding speed limits in urban areas	7%	6%
Supporting higher penalties		
	% of drivers	
Supporting higher BAC limits	2%	13%
Perceived risk of apprehension		
	% of drivers	
Expected probability of speeding control	13%	20%
Expected probability of alcohol control	5%	15%

Programmes and measures

National strategic plans and targets

- **The 1st national road safety plan (2001-2005)** and its implementation contributed to a significant decrease in the number of road accidents and related casualties in Greece
- **The 2nd national road safety strategic plan (2006-2010)** proposed to achieve the European target of a 50% reduction in fatalities by 2010 (in relation to 2000). 50 priority measures were proposed and some of them were implemented (enforcement, maintenance on the interurban road network, motorway development, stricter Road Code, targeted campaigns)
- **The 3rd national road safety strategic plan** for the period 2011-2020 has been recently adopted. The European target of a 50% reduction in road fatalities by 2020 (in relation to the 2011 figures) is adopted, and intermediate targets are also considered.

All three road safety strategic plans were prepared by NTUA.

Programmes and measures

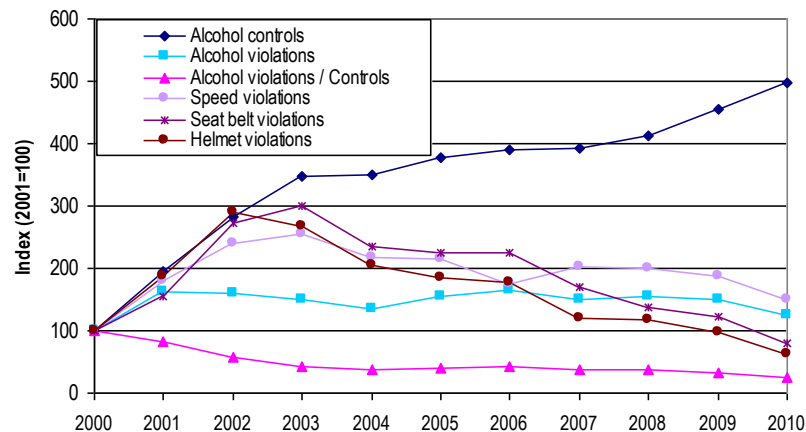
Road infrastructure & traffic laws

- **Speed limit** for passenger cars is 130 km/h for motorways, 90-110 Km/h for interurban and rural roads and 50 km/h for urban roads. Speed limits for trucks, buses and motorbikes are generally lower.
- For the **geometric characteristics** and the construction process of the road network a series of national guidelines were adopted on 2001.
- A large programme of **motorway development** is under way, totalling 2,500 kms of motorways (total motorway length on 2008 was 948 kms).
- **Seat belt** use is compulsory in front and in rear seats, and so is helmet use.
- The allowed **BAC level**, only for novice drivers (<2 years experience) the limit is 0.2 gr/lt. For all others the limit is 0.5 gr/lt - 0.2 gr/lt. Drugs limits have not yet been defined.
- Hand-held **mobile phone use** while driving is prohibited since 1999.
- Periodical **technical inspections** are compulsory for all vehicles (except mopeds and motorcycles)
- Periodic **medical examinations** are compulsory for driving license renewal every 3 years for all drivers older than 65 years old (every 5 years for lorry >3.5 tn, bus and coach drivers older than 65 years old).

Programmes and measures

Education & Enforcement

- The intensity of **enforcement** of speeding and drinking-and-driving increased considerably during the last decade (controls increased by more than 400%).
- For the first time on year 2003, an increase in the number of controls resulted in a decrease in the number of violations recorded.



- Traffic and road safety **education** is not taught as a compulsory and independent course of high-school education, but is included as part of Civil and Social Education courses.
- There are some road safety awareness **campaigns** at national and/or local level occasionally implemented

Road Safety Performance Indicators

Alcohol & drugs, Vehicles

- The percentage of fatalities resulting from accidents involving at least one driver impaired by **alcohol** for year 2008 was 7.5%.
- However, more than 50% of drivers' alcohol test results are unknown.

- The total number of registered **vehicles** for year 2009 was 7,910,595, a figure that is likely to include scrapped vehicles not removed from the national register.
- 65% of all vehicles are passenger cars, 18% are motorcycles, 16.5% are trucks and less than 1% are buses or coaches.
- In 12 years (1998 - 2009) the total number of registered vehicles in Greece has doubled.
- More than 1,000,000 mopeds are separately registered.
- Around 40% of both passenger cars and motorcycles registered in Greece for year 2009 are older than 10 years.

Road Safety Performance Indicators

Protective systems

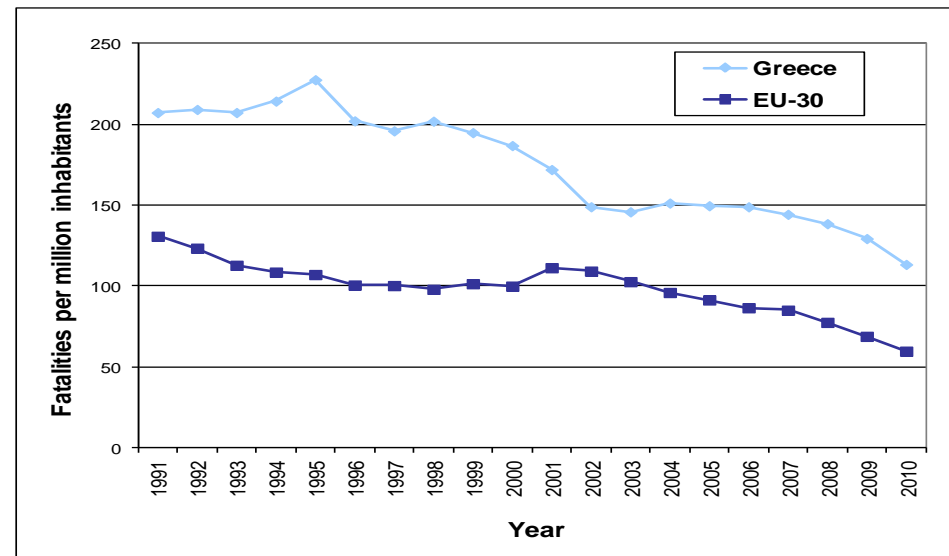
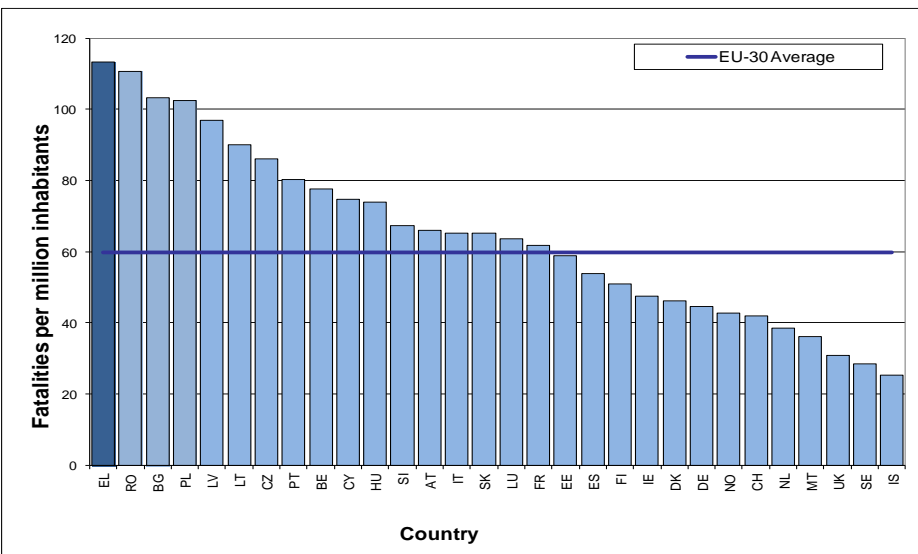
- The overall rate of seat belt use for year 2009 is 77% for drivers, 74% for other front passengers and 23% for rear seats passengers.
- The percentage of use of seat belt by the driver is 72% in urban areas 78% in rural roads and 95% in motorways.
- Overall helmet wearing rates for year 2009 are 75% for motorcycles/mopeds drivers and 46% for passengers.
- Helmet wearing rates by the driver are 73% in urban areas, 85% in rural areas and 98% on motorways.

		Seat belt use	Helmet use
Urban area	Driver	72%	73%
	Front passenger	68%	-
	Rear passenger	19%	41%
Outside urban area	Driver	88%	96%
	Front passenger	85%	-
	Rear passenger	28%	91%
Total	Driver	77%	75%
	Front passenger	74%	-
	Rear passenger	23%	46%

Road Safety Outcomes

Trends and Basic Figures

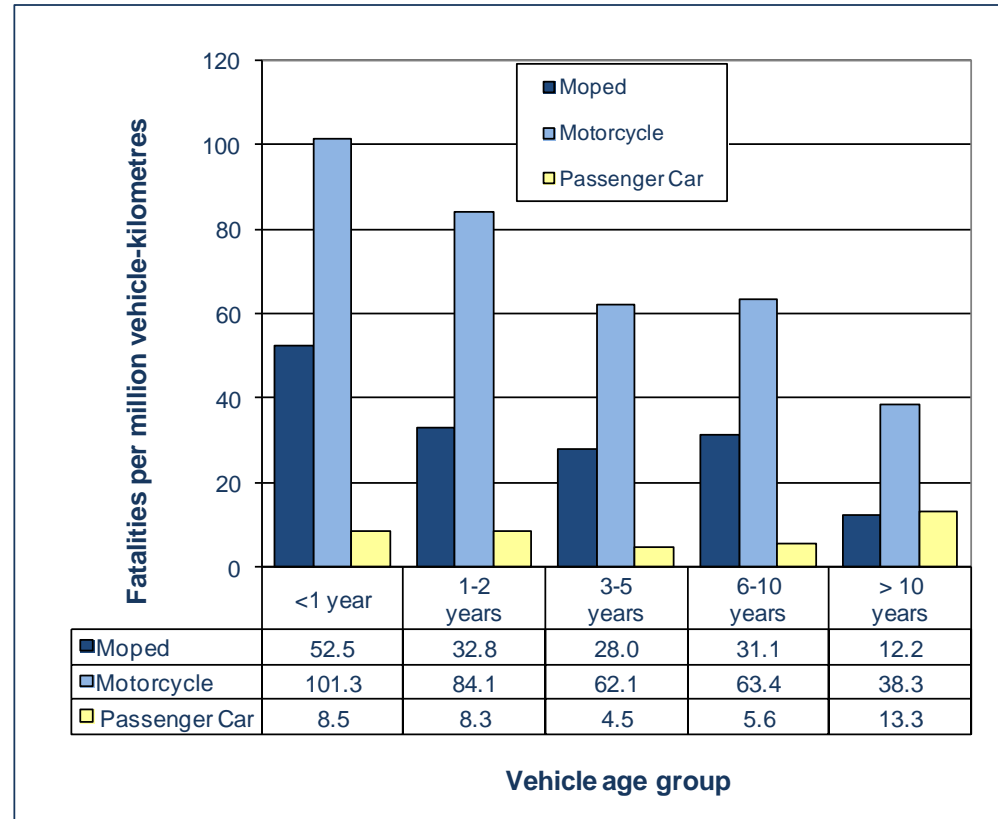
- Despite the important decrease observed in the last decade, Greece is by far the worst performing country among the EU Member States, with the highest fatality rate.
- The number of fatalities (1.456 for 2009 and 1.281 for 2010) have decreased over time. The decrease has been **37%** compared to century start.



Road Safety Outcomes

Vehicle type and vehicle age

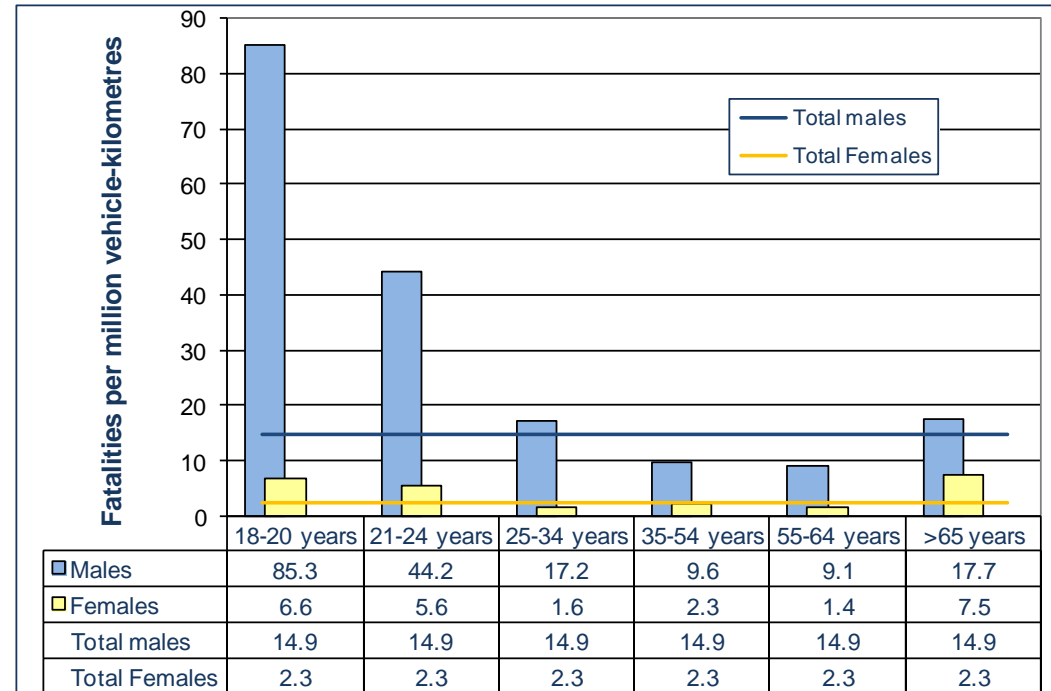
- The share of motorcyclists' fatalities on 2010 (28%) is significantly increased compared to the EU average (13%)
- Mopeds and motorcycles present from 5 to 10 times higher risk than passenger cars.
- Fatality risk of moped and motorcycle riders decreases with vehicle age
- Fatality risk of passenger cars decreases with age, and further increases for vehicles >10 years old.



Road Safety Outcomes

Person class, age and gender

- Drivers account for around 66%, passengers account for around 20% and pedestrians account for around 14% of fatalities
- Male drivers present from 2 to 12 times higher fatality risk than female drivers.
- The young (<35 years old) and the elderly (>65 years old) drivers are also at increased fatality risk for both genders.
- Young males present by far the highest fatality risk compared to older ones.



Road Safety Outcomes

Injury under-reporting

- A recent study linking Police and Hospital data for the Greek island of Corfu for the period 1996-2003:
 - Police data capture 97% of fatalities
 - Hospital data captured 95% of non fatal injuries, whereas police only captured 16%.
- European pilot study for the development of under-reporting coefficients:
 - In Greece there are actually 5 serious casualties for each serious casualty reported by the Police
 - slight injuries are more under-reported than serious ones for all road user types.
 - the Police misclassify an important number of serious injuries as slight

Social Costs

- The social cost of road accidents in Greece for year 2008 is estimated more than 4 billion Euros.
- The cost of a fatal accident is around 1.9 million Euros in 2008 prices, whereas the average cost of an accident in Greece is around 0.180 million Euros

Euros 2008	Cost of Accidents with		
	Killed	Seriously Injured	Slightly Injured
Material Damage cost (per unit)	42,203	26,662	20,397
Generalised cost (per unit)	649,076	35,070	10,210
Human cost (per unit - VoSL)	1,191,699	154,921	11,917
Total cost	1,882,978	216,652	42,524
Proportion of casualties	6.5%	11.5%	82.0%
Average accident cost	181,749		

- Generalised costs include Police, Fire Brigade, Emergency Services, First Aid and Transportation, hospital and rehabilitation, insurance companies, courts and loss of productive capacity.
- Human costs (VoSL: value of statistical life) for fatalities are estimated by means of a willingness-to-pay survey
- The related values for serious and slight injuries are taken as proportions of the VoSL (13% and 1% respectively, according to recommendations from the literature)

Synthesis (1)

- Greece is the worst performing country in the EU in road safety. The yearly social costs of road accidents are estimated to 4 billion Euros.
- A considerable proportion of total fatalities occurs inside urban areas, in motorcycle accidents and in single vehicle accidents.
- Young drivers and two-wheeler riders are particular high-risk groups.
- Greece has increased traffic of motorcycles and unorganised traffic of pedestrians, together with inappropriate behaviour of Greek drivers.

- Nevertheless, fatalities have decreased over time (by 38% compared to the century start), due to a significant increase of road safety enforcement, a new and stricter Road Code, as well as a large programme of motorway development during the last decade.
- From year 2008 onwards, the recession may have also contributed to the decrease of fatalities, through a decrease in traffic and possibly in the mobility of some vulnerable groups (e.g. young people, elderly), but also through an overall change of traffic behaviour (e.g. less aggressive and more economical and environment-friendly driving).

Synthesis (2)

- The improvement of road safety in Greece during the period 2000-2010 may be attributed to a combination of the authorities' efforts and the continuous improvement of the road safety culture in Greece.
- On early 2010, an Inter-Ministry Committee on Road Safety was established and the respective working forces are gradually put in place in order to develop, implement and follow up the national road safety programme and all related measures.
- The 3rd National Road Safety Strategic Plan 2011 - 2020, prepared by the National Technical University of Athens, has just been accepted.
- The (until recently) lack of a central authority in charge of road safety, together with some overlap and ambiguity in the responsibilities of several authorities involved, resulted in limited efficiency of the implementation of road safety programmes and measures foreseen at the national strategic plans of the last decade
- Dealing with these institutional and administrative weaknesses may be a key factor for the improvement of road safety in Greece.

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