The use of ESRA data in the European Road Safety Observatory

George Yannis
NTUA Professor

Together with:
Katerina Folla, Research Associate

Department of Transportation Planning and Engineering
National Technical University of Athens

ESRA 10 Years Event

ESRA: 10 years of global road safety insights and impact

Brussels, 24 June 2025

Outline

1. The European Road Safety Observatory (ERSO)

2. ESRA data in ERSO Reports
   - Country Profiles
   - Thematic Reports
   - Safety Performance Indicators

3. KPIs and ESRA data

4. Conclusions

The European Road Safety Observatory

- Established since 2004, containing a wealth of road safety reliable and comparable data and extensive analyses on road safety risk factors and related practices and policies
- An evidence base, essential to:
  - measure progress towards reducing road casualties,
  - identify and quantify road safety problems,
  - assist the assessment of measures effectiveness,
  - facilitate the exchange of experience
- ERSO draws heavily on CARE database which includes a high level of disaggregation of data on all road crashes in EU and EFTA countries since the early 1990s
- Currently with the support of NTUA, SWOV and KFV

ESRA data in ERSO reports

- Country Profiles
- Thematic Reports
- Safety Performance Indicators (SPI) Reports

Country Profiles 2023 (1/3)

- Aim: Develop an enhanced version of the Country Profiles to present the actual road safety situation of a country
- 30 CP: 27 EU MS + IS, NO, CH
- Published CPs are available on ERSO website
- Structure of the CP:
  - Highlights
  - Road Safety Outcomes
  - Safety Performance Indicators
  - Road Safety Policy & Measures
  - Structure and Culture

Country Profiles 2023 (2/3)

- Safety Performance Indicator on drink-driving comes from ESRA3

	Finland	EU
Speeding[c] % of passenger cars travelling within speed limits[1]		
Motorways	45.0	-
Rural Roads	43.0	-
Urban Roads	42.0	-
Seat belt & CRS use rates (%)[1,2]		
Front	96.0	93.3
Rear	89.0	75.5
Child restraint systems	/	67.0
Helmet use rates (%)[1]		
PTW driver	/	97.0
PTW passenger	/	94.4
Cyclist	/	37.8
DUI of Alcohol[3] (self-reported)		
% car drivers have driven at least once in the last 30 days over the legal limit	6.1	11.8
Driver Distraction[1]		
% of drivers not using hand-held mobile device/phone while driving	98.3	94.8

Sources: [1]Baseline project, [2]ETSC (2022), [3]ESRA3 project (2024), national sources

Country Profiles 2023 (3/3)

- Self-declared behaviour and attidudes from ESRA3 is included in the "Structure and Culture" section of each Country Profile

	Belgium	EU Average	Ranking among EU countries
Risk Taking % at least once in the past 30 days			
- drive after drinking alcohol	24.0	17.0	16/18
- drive faster than the speed limit inside urban areas	55.7	55.7	9/18
- transport children under 150cm without using CRS	19.2	17.2	12/18
Enforcement Perception % of likely of being checked for			
- drink-driving	18.5	16.8	6/18
- respecting speed limits	43.3	34.4	4/18
- using of hand-held mobile phone while driving	18.0	15.0	6/18
Support for policy measures % of support to a legal obligation to			
- zero tolerance for all novice drivers	75.7	76.6	13/18
- limiting the speed limit to 30km/h in all built-up areas (except on main thoroughfares)	37.1	38.3	9/18
- requiring all cyclists to wear a helmet	55.0	60.1	12/18

Thematic Reports (1/2)

- Aim: Update and enhance current Thematic Reports and draft several new ones

- An overview of the most important research questions and results on the topic in question are provided

- 14 TRs are available on the ERSO website:

1. Alcohol and drugs
2. Traffic law enforcement
3. Seniors
4. Novice drivers
5. Cyclists
6. Pedestrians
7. Distraction
8. Main factors causing fatal crashes
9. Road safety protective equipment
10. Powered two wheelers
11. Personal mobility devices
12. Children
13. Professional drivers
14. Traffic safety culture

Thematic Reports (2/2)

- Input from ESRA has been used in 10 Thematic Reports published within ERSOnext project between 2023-2025

Report Title	Year	Notes on ESRA Reference
Traffic Safety Culture	2025	Builds upon ESRA survey and dashboard to develop framework on safety culture.
Cyclists	2024	ESRA used for statistics on self-declared behaviour of cyclists
Distraction	2024	ESRA used for statistics on device use while driving and drivers' perceptions
Main factors causing fatal crashes	2024	ESRA used for statistics on driving under the influence, speeding, use of seat-belts & CRS, distraction
Novice drivers	2024	ESRA references on driving under the influence among young drivers
Pedestrians	2024	Reference on safety attitudes of pedestrians based on the ESRA survey
Powered Two-Wheelers	2024	ESRA used for statistics on exposure of PTWs
Road safety protective equipment	2024	ESRA used for statistics on use of helmets, seatbelts, child restraints.
Traffic law enforcement	2024	ESRA used for statistics on experiences and perceptions regarding enforcement
Alcohol and drugs	2023	ESRA used for statistics on impaired driving

Safety Performance Indicators (1/2)

- Aim: Analyze road safety performance in EU MS, providing insights in road safety differences between countries
- Based on data from Baseline and/or ESRA 2 projects
- 6 SPI reports are available on ERSO website:
  1. Alcohol & drugs (2023)
  2. Distraction (2023)
  3. Fatigue (2023)
  4. Subjective safety (2024)
  5. Public support for road safety policies (2024)
  6. Protective equipment (2024)
- SPI reports will be updated with Trendline and ESRA 3 data and will be published in December 2025

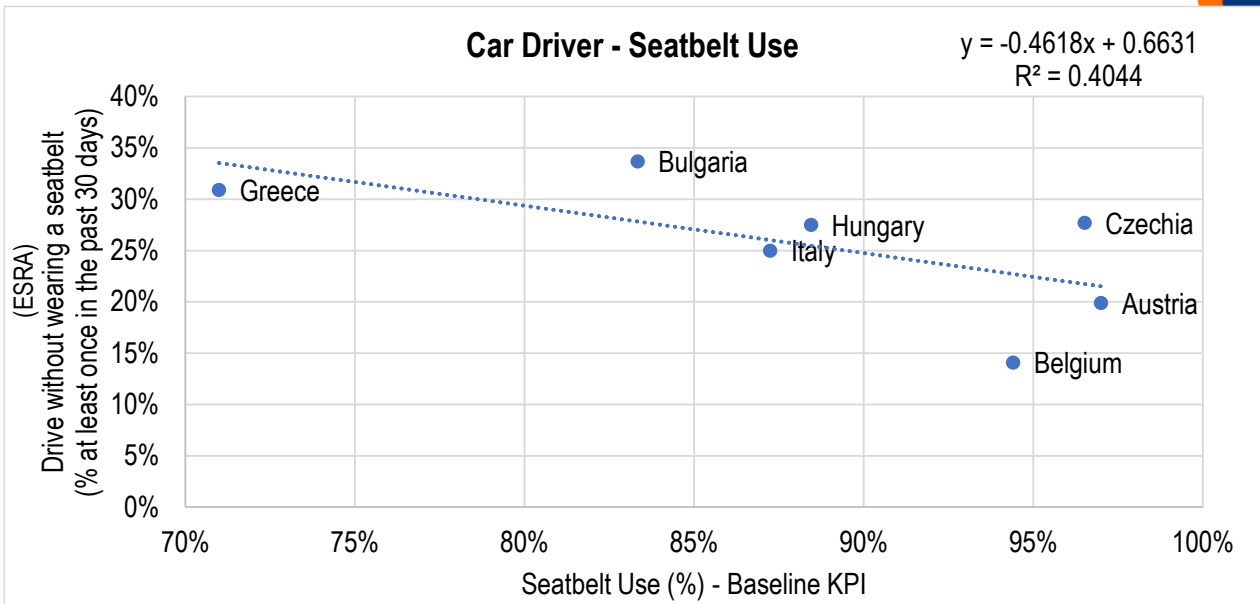
Safety Performance Indicators (2/2)

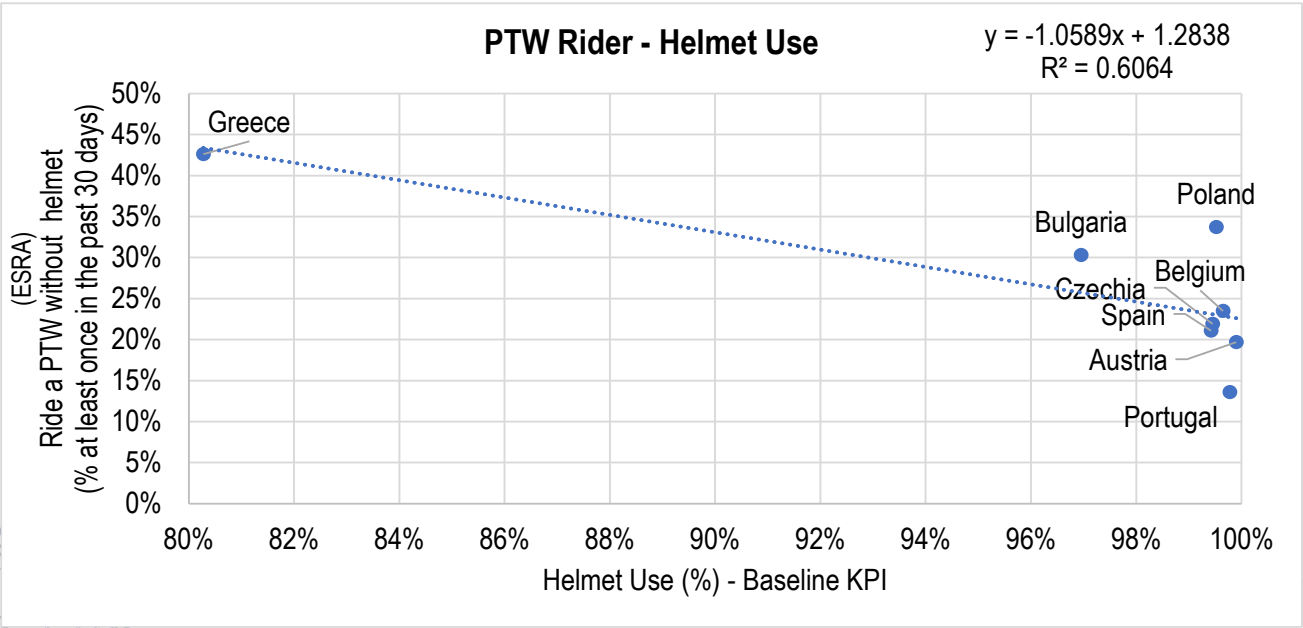
- Input from ESRA2 has been used in 6 SPI Reports published within ERSOnext project between 2023-2024

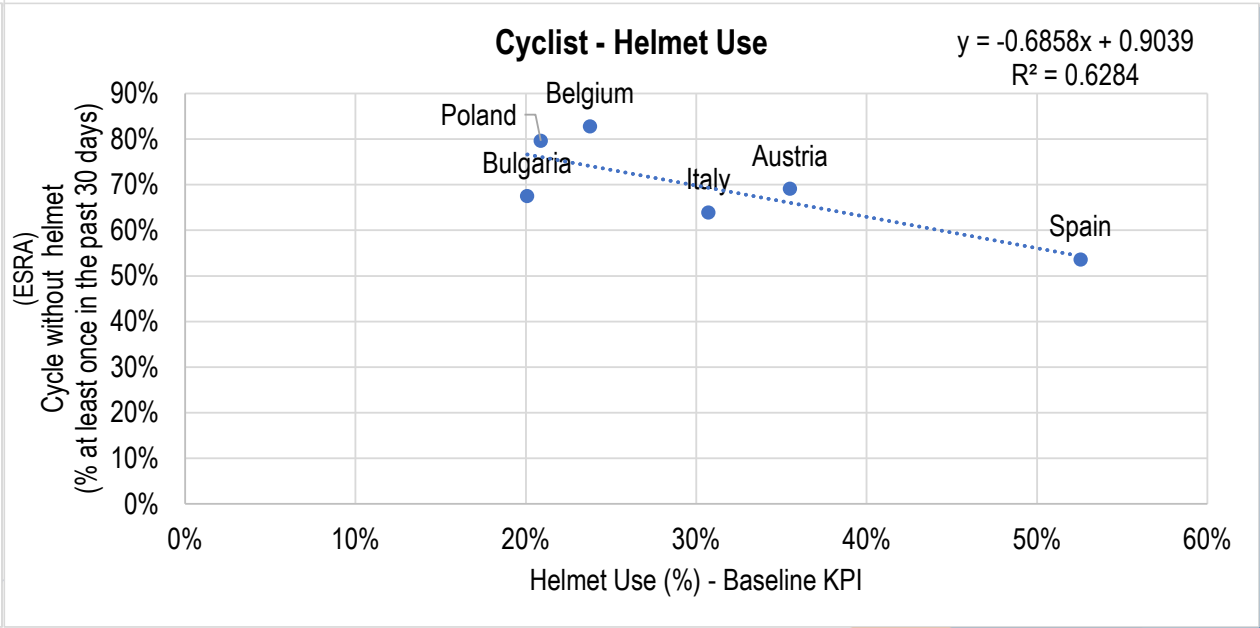
Report Title	Year	Notes on ESRA Reference
Alcohol and Drugs	2023	ESRA used for statistics on driving under the influence of alcohol and drugs
Distraction	2023	ESRA used for statistics on device use while driving
Fatigue	2023	ESRA used for statistics on fatigued driving
Subjective Safety	2024	ESRA used for statistics on subjective experience of feeling safe or unsafe in road traffic
Public support for road safety policies	2024	ESRA used for statistics on the public support of specific road safety policy measures
Protective equipment	2024	ESRA used for statistics on the use of protective equipment (helmet, seat-belts, CRS)

KPIs and ESRA data (1/2)

- An analysis performed by NTUA within Trendline project
- ESRA2 data and Baseline KPIs
  - Self-reported behaviour on seat-belt use and helmet use (PTW and cycles)
- Observed and self-reported behaviour are consistent

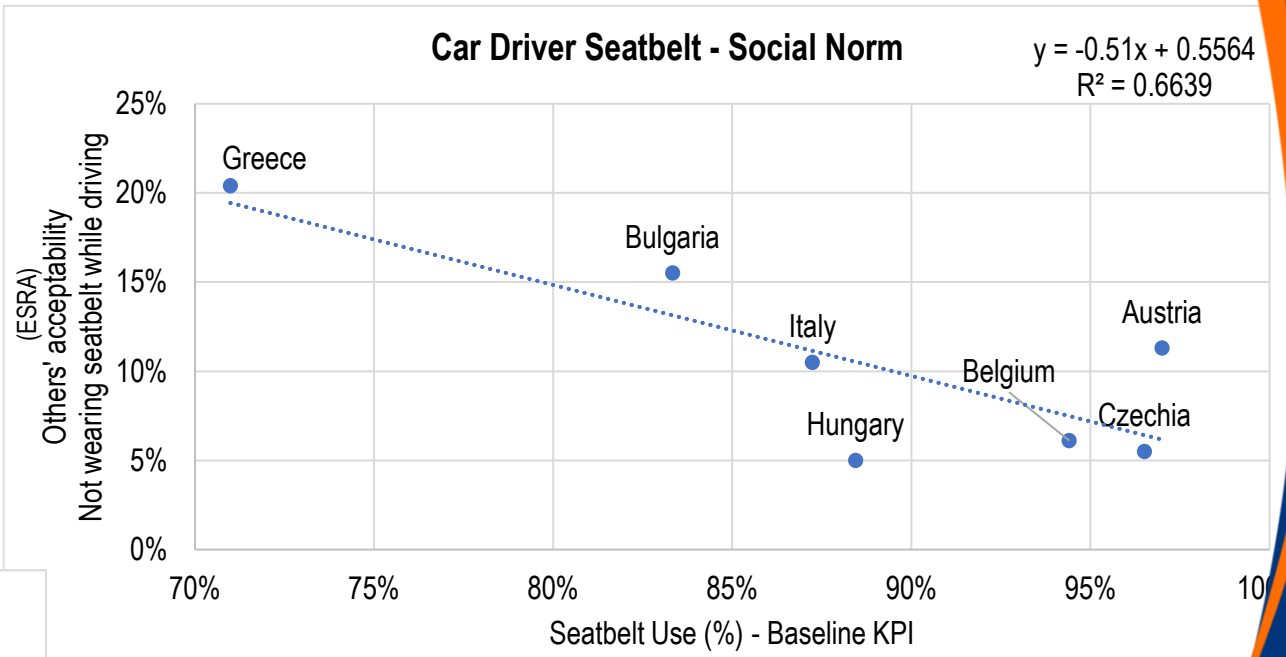


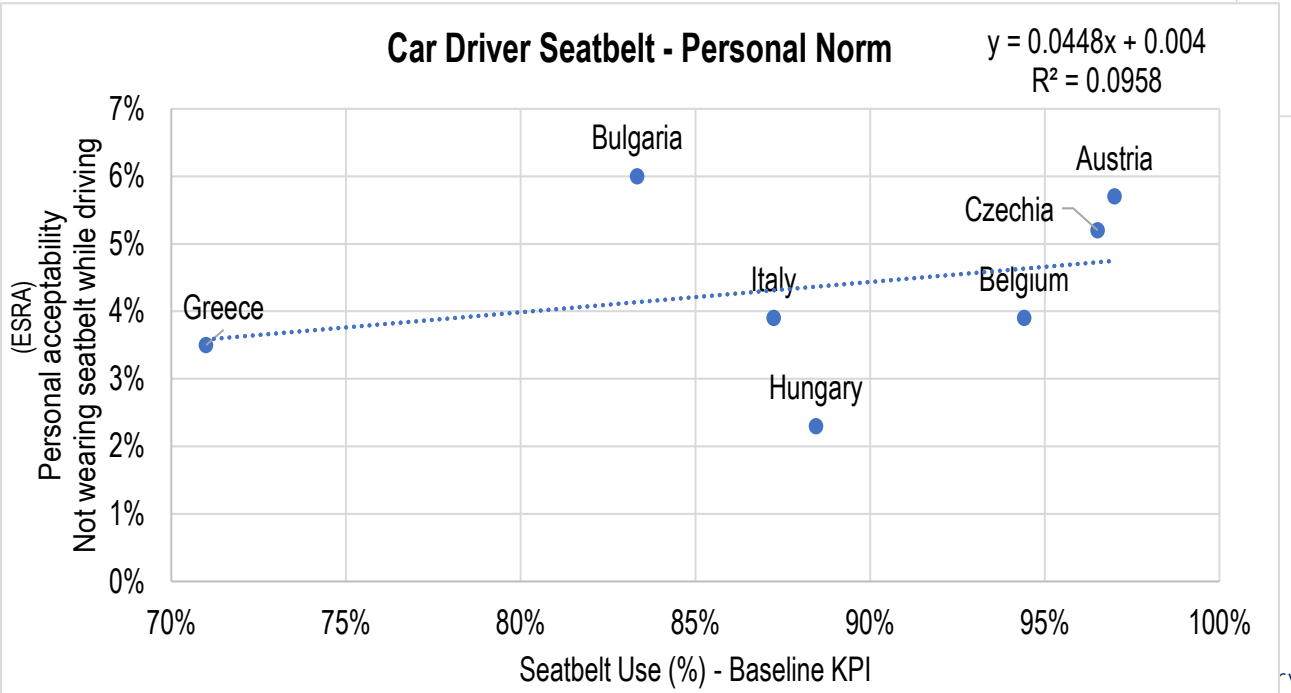




KPIs and ESRA data (2/2)

- ESRA2 data and Baseline KPIs were used
  - Attitudes on seat-belt use (Social and Personal Norm)





- As observed seatbelt use increases, the social acceptability of not wearing one declines significantly
- Personal acceptability of not wearing a seatbelt is largely independent of observed seatbelt use

Conclusions (1/2)

- ESRA reports have been a valuable source of data and knowledge globally, over the last years
- A reliable source of comparable statistics among European countries, which have been used in various Reports of the European Road Safety Observatory
- Statistics on self-reported behaviour and road user perceptions have been proved very useful in the description of key safety issues in ERSO reports

Conclusions (2/2)

- Combination of ESRA results and observed KPIs (from Baseline and Trendline) is the new challenge for ERSO to better understand the behavioural patterns leading to road crashes

- Systematic collection of both KPIs and ESRA indicators in the future will contribute to a better evaluation of the road safety performance and progress made over time

- The correlation of the ESRA and observed safety performance indicators, combined with road crashes, is expected to lead to useful conclusions about the real causes of road crashes

The use of ESRA data in the European Road Safety Observatory

George Yannis
NTUA Professor

Together with:
Katerina Folla, Research Associate

Department of Transportation Planning and Engineering
National Technical University of Athens

ESRA 10 Years Event

ESRA: 10 years of global road safety insights and impact

Brussels, 24 June 2025