

Characteristics and causes of power two wheeler accidents in Europe

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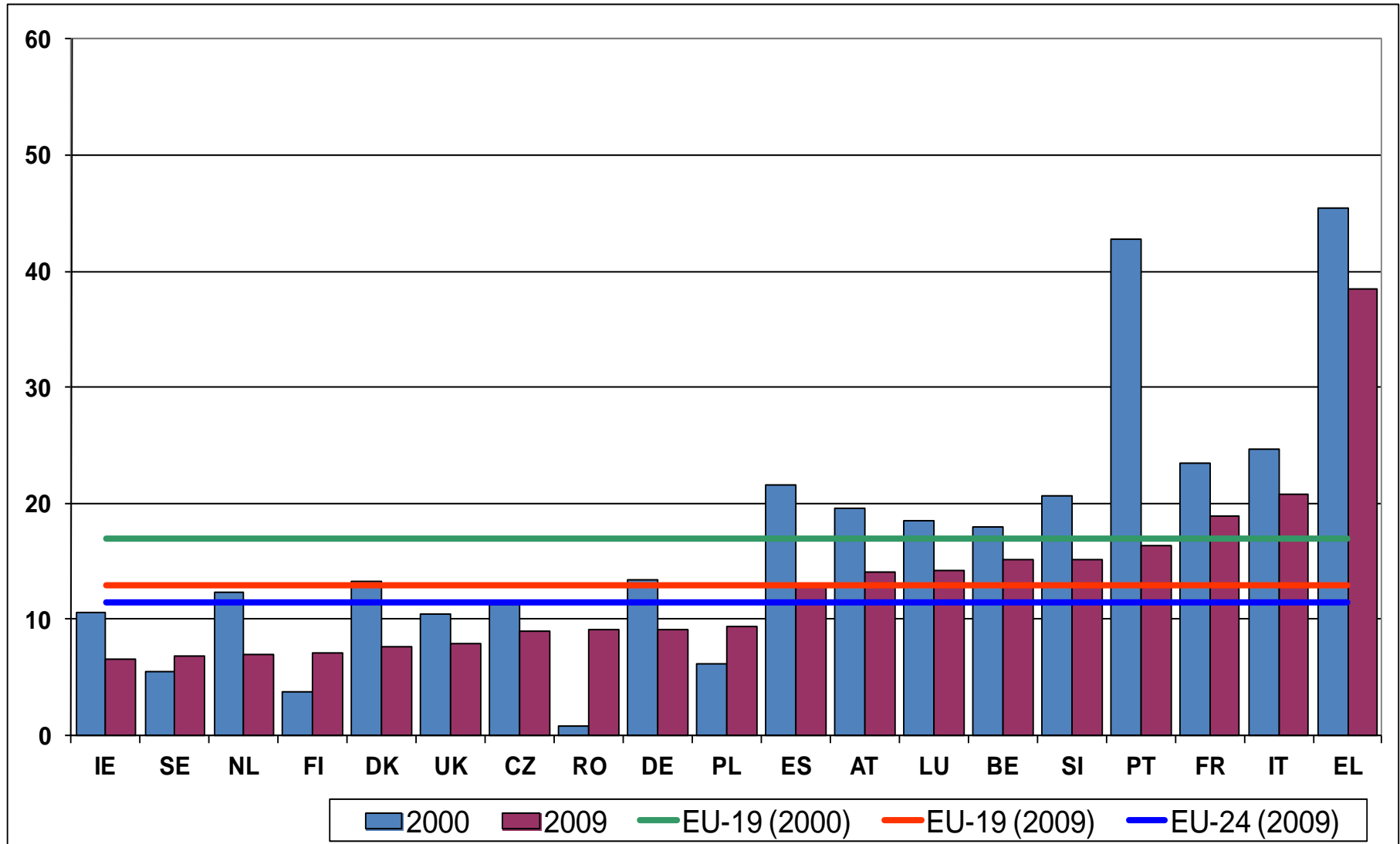


Background

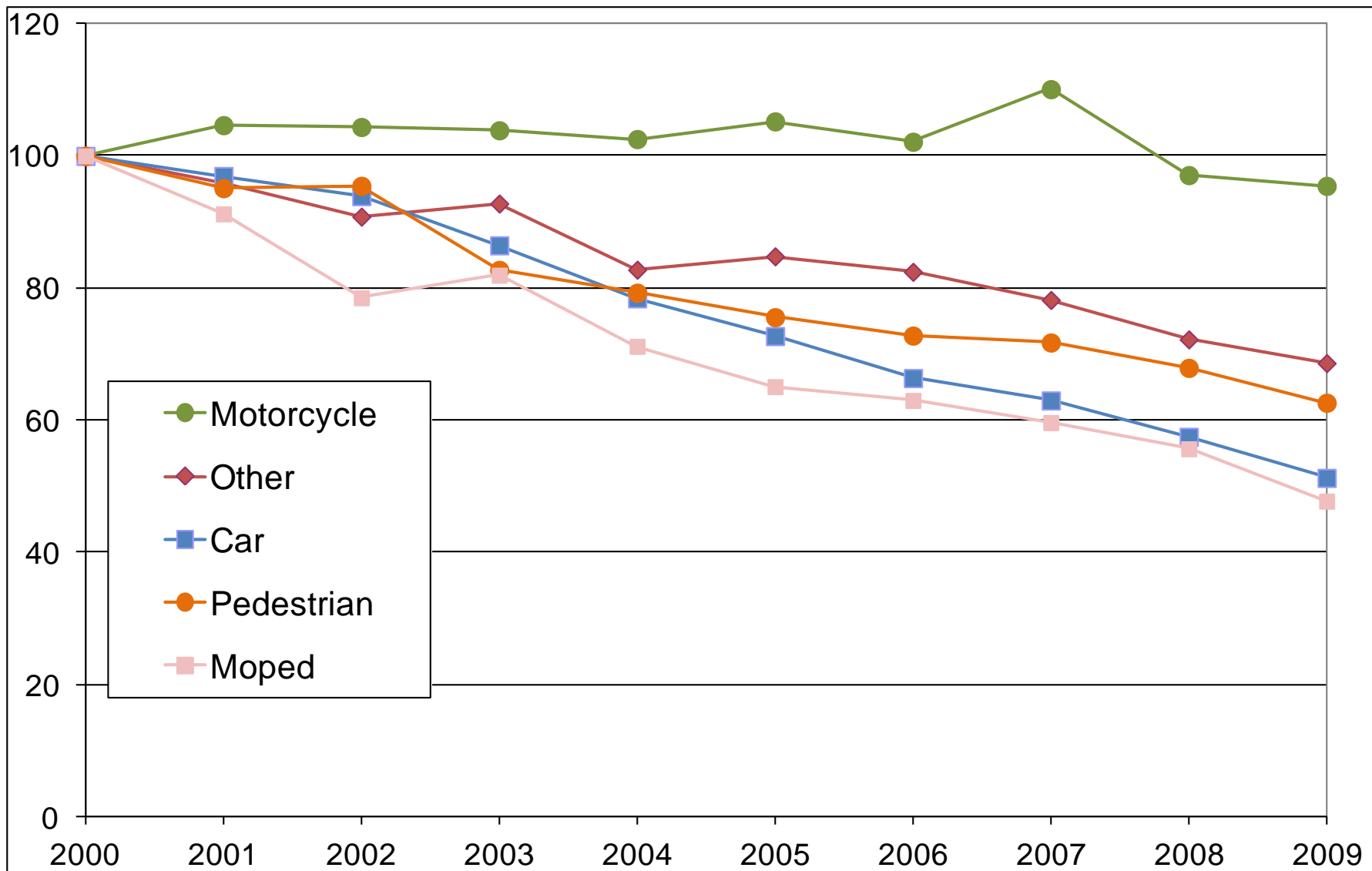
- More than 62.000 persons were killed in traffic accidents involving Powered Two Wheelers (PTWs), in the 27 European Union countries between 2001 and 2009.
- In these 27 countries there were -18% fewer PTW traffic accident fatalities in 2009 than in 2001 in comparison to -36% fewer fatalities in total (ETSC, 2011).
- PTW fatalities accounted for 16% of the total number of road accident fatalities in 2009 in the EU-24 countries.
- Age, gender and experience are among the parameters that considerably affect riders' behavior.
- Road infrastructure is also an important factor related to PTW accidents.

- Data used in this research were extracted from:
 - the [CARE](#) database of the European Commission with disaggregate data on road fatalities,
 - in depth road accident investigation surveys carried out within the [SafetyNet](#) EU-co-funded research project (2004-2008)
- Processing of these data took place within the [Dacota](#) EU co-funded research project (2010-2012)
- These results are regularly updated at the respective [Basic Fact Sheets](#) and published at the European Road Safety Observatory of the European Commission (www.erso.eu).

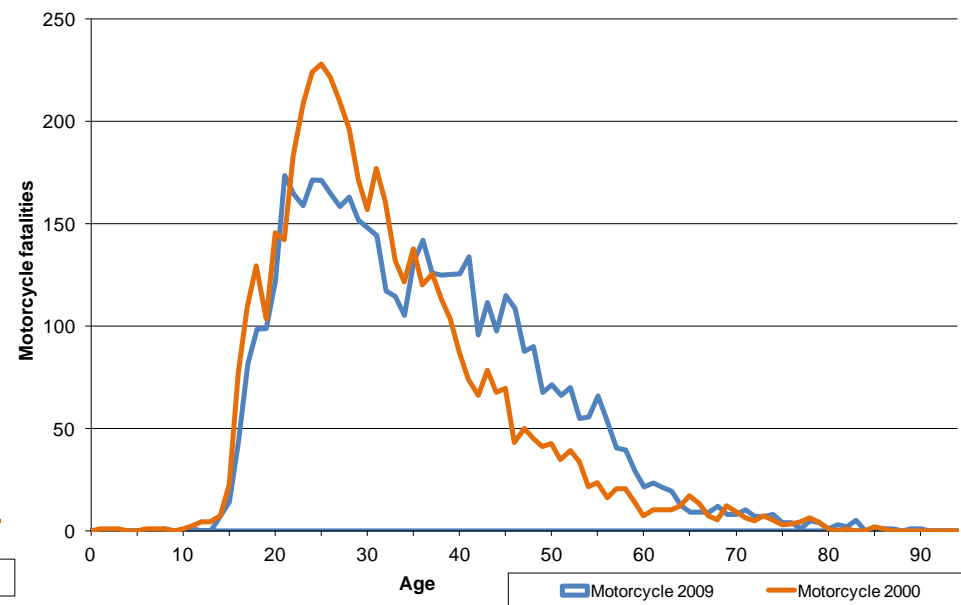
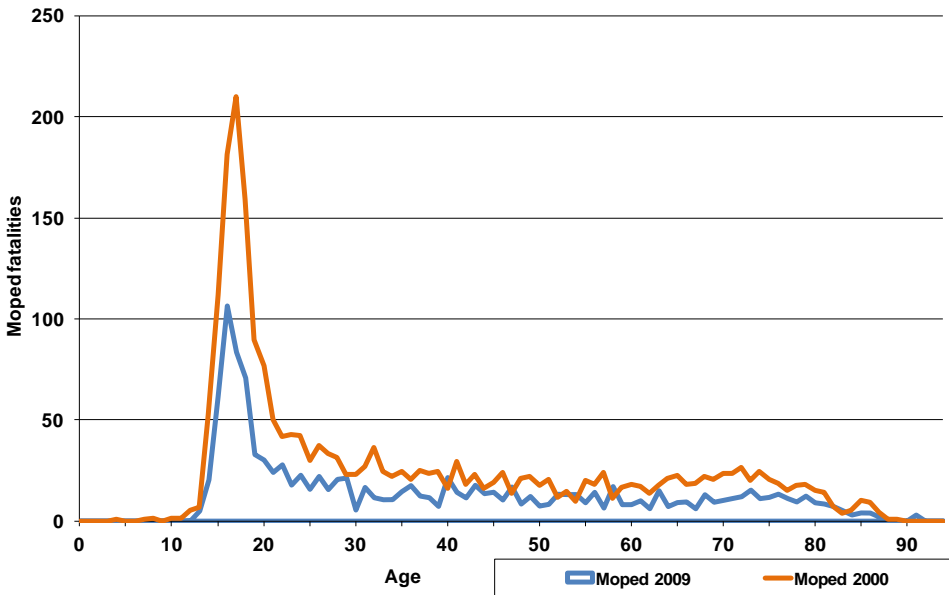
Motorcycle and moped rider fatalities per million inhabitants (2000 vs. 2009)



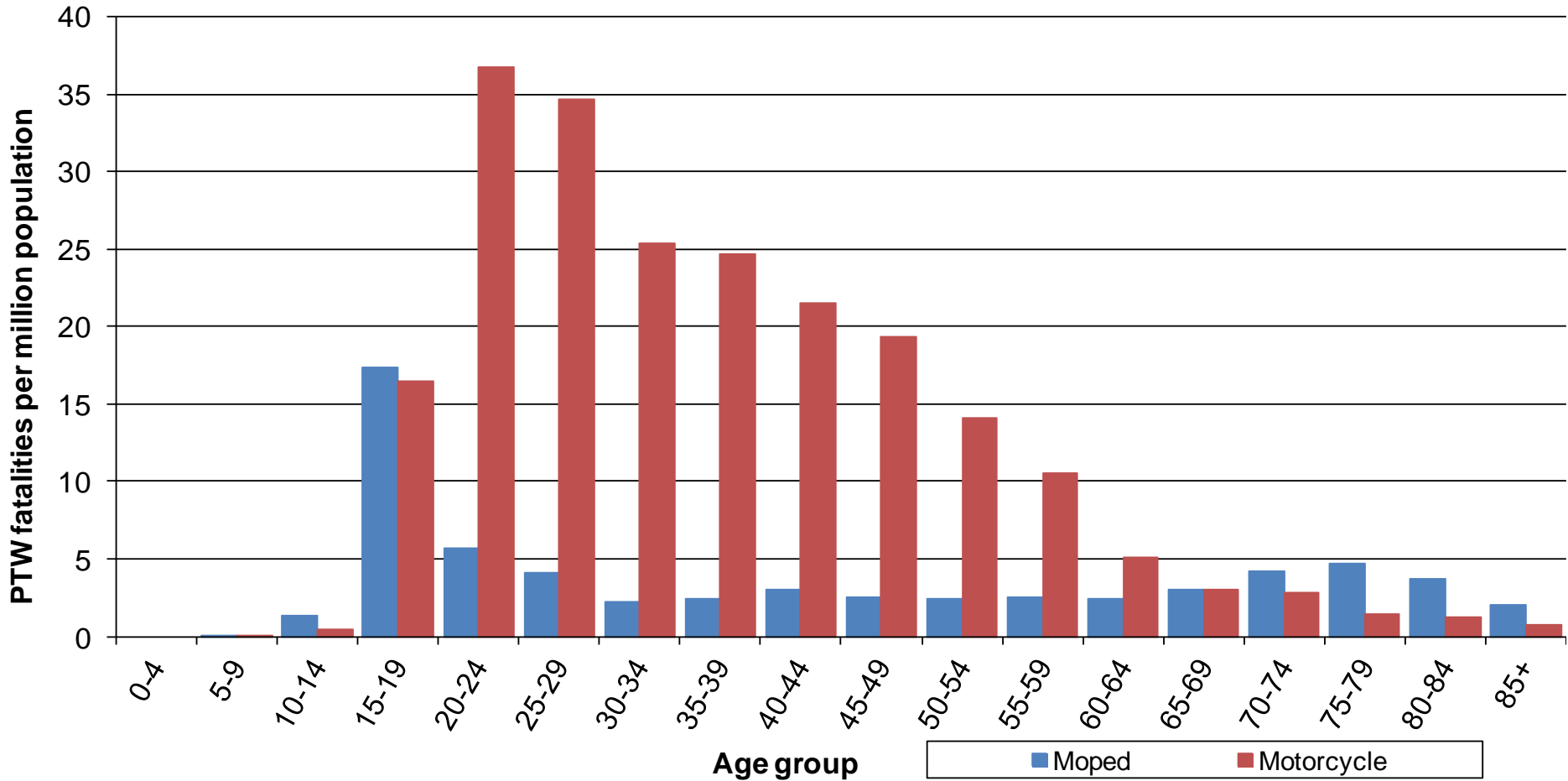
Index (2000=100) of motorcycle and moped fatalities compared with other modes EU-19, 2000-2009



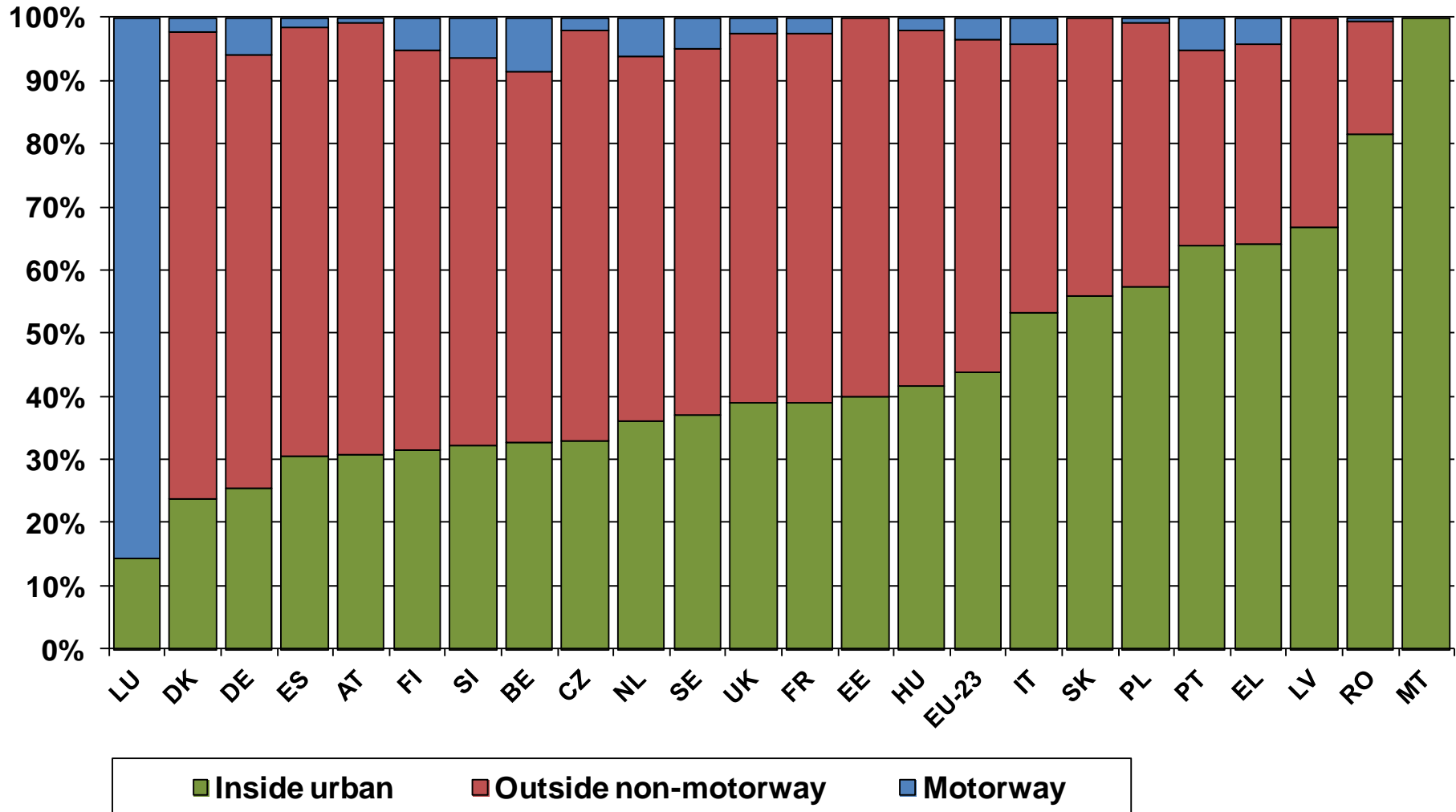
Moped (left) and motorcycle (right) fatalities by age in 2000 and 2009 (for EU-19)



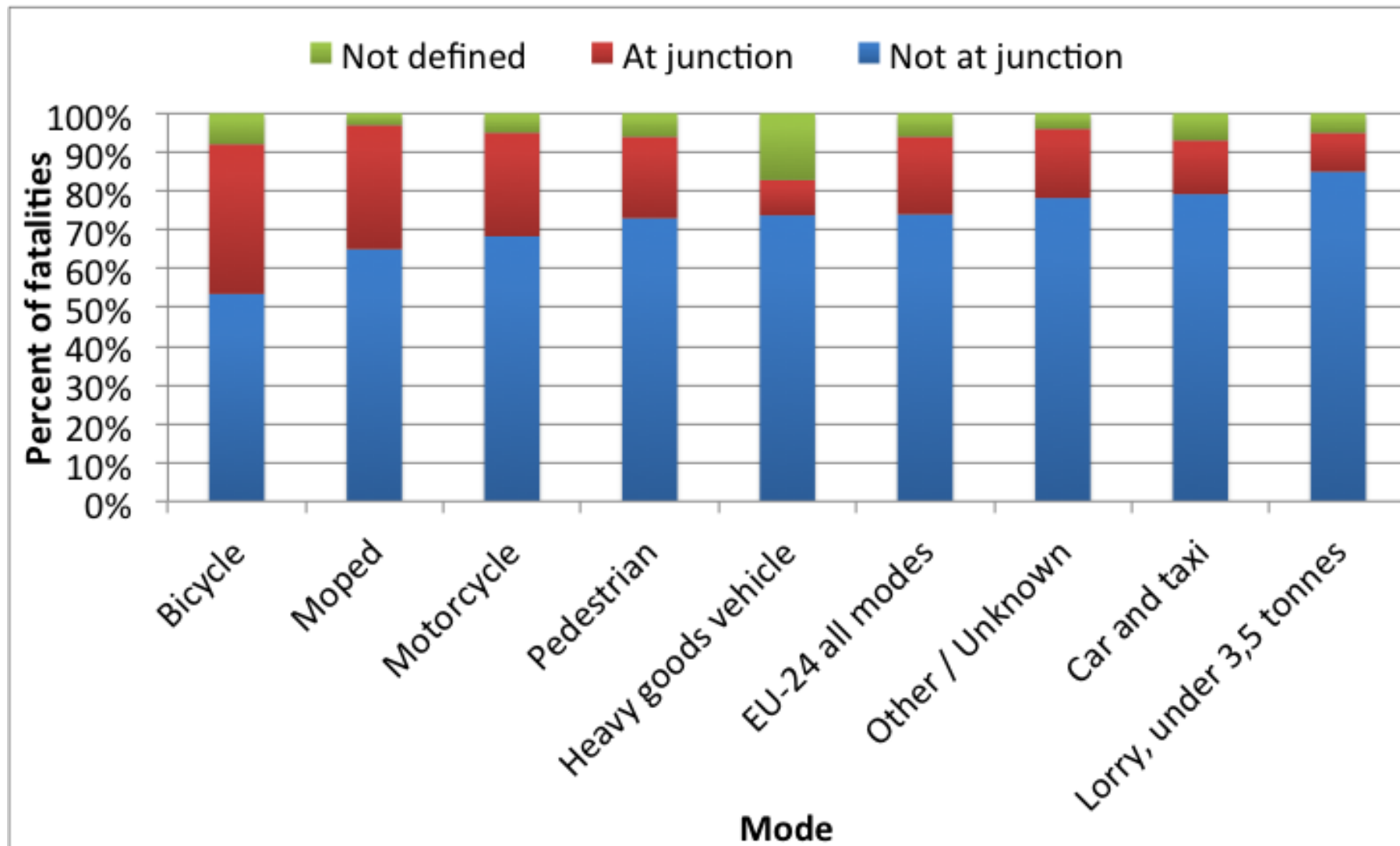
Motorcycle and moped fatalities per million inhabitants by age group - EU-24, 2009



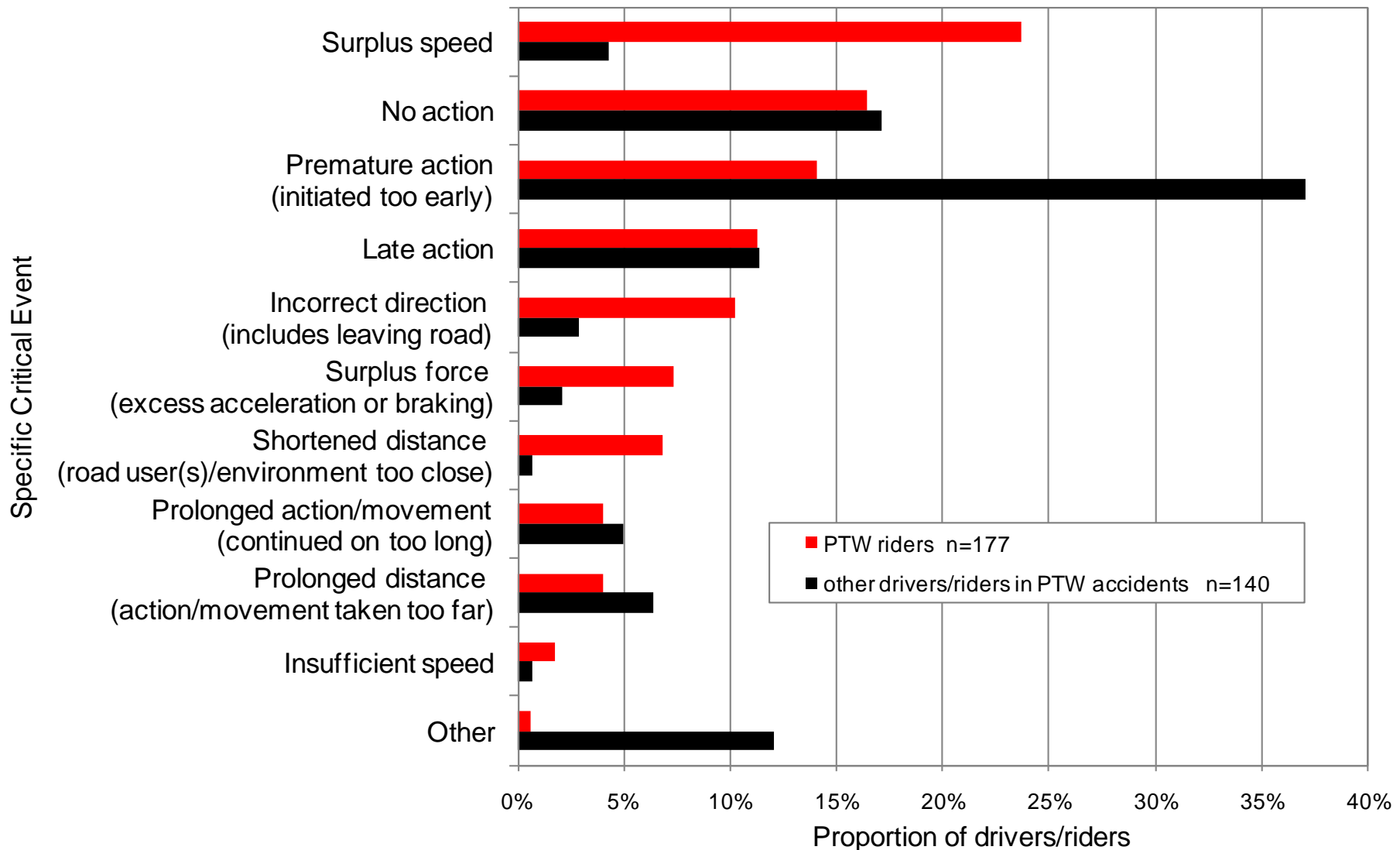
Distribution of PTW fatalities by area and road type, 2009



Fatalities by junction type and mode of transport - EU-23, 2009



Distribution of specific critical events - PTW riders and other drivers/riders in PTW accidents



Ten most frequent links between causes - PTW riders

Links between causes	Frequency
Others	63
Observation missed - Faulty diagnosis	5
Insufficient knowledge - Inadequate training	5
Faulty diagnosis - Communication failure	8
Inadequate plan - Psychological stress	8
Observation missed - Inattention	12
Observation missed - Inadequate plan	13
Observation missed - Permanent obstruction to view	16
Observation missed - Temporary obstruction to view	16
Inadequate plan - Insufficient knowledge	24
Faulty diagnosis - Information failure (driver/environment or driver/vehicle)	26

Conclusions (1/2)

- Powered two wheelers are a special group of road users, with increasing numbers and different needs and characteristics than other road users.
- During the decade (2000-2009) motorcycle rider fatalities (in EU-18) decreased by almost 2%, whereas the respective decrease for moped riders was more than 50%.
- Motorcycle is the only mode of transport for which number of fatalities increased over the period studied.
- The most significant reduction in the number of PTW fatalities during the decade (2000-2009) occurred in Portugal.
- In Romania, Latvia, Greece and Portugal far more PTW fatalities occurred inside urban areas than outside.

Conclusions (2/2)

- The findings presented in this paper could be used to shape public policy in a way that improves road safety, especially for the more vulnerable road users.
- Analyses using CARE disaggregate road accident data lead to results which do not always coincide with analyses using aggregate data.
- The use of statistical models is necessary for the identification of the combined correlation of the parameters with an impact on PTW safety.
- Data-collection is an on-going challenge and there are additional data that could help shed light to the problem of PTW road safety.
 - Of particular interest are exposure data (veh-kms, person-kms, vehicle fleet, etc.)
 - The macroscopic analysis presented in this paper could in the future be combined with in-depth analysis of intersection accident data

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