OTHER ROAD USERS (ORU)

Gian Marco Sardi, SIPSiVi, IT
Richard Freeman, University of London, UK

8 November 2012
ECTRI - Brussels

Inclusion Criteria

CAR DRVERS (CD) (ORU)

License holders & driven during last 12 months

MOTORCYCLISTS (MC)

License holders (PTW > 50 cc) & driven a PTW > 50 cc during the last 12 months.

OTHER ROAD USERS

People who use mainly other means of transport than cars and motorcycles in the last 12 months.

OTHER ROAD USERS SECTION

PEDESTRIAN

Eleonora Papadimitriou
(NTUA , Greece)
Athanasios Theofilatos
(NTUA, Greece)
George Yannis
(NTUA, Greece)
Gerald Furian
(KfV, Austria)
Christian Brandstaetter
(KfV, Austria)
Virpi Britschgi
(VTT, Finland)
Emil Drapela
(CDV, Czech Republic)
Richard Freeman
(UoL, UK)

CYCLISTS

Silverans Peter
(BIVV, Belgium)

Zavrides Neophytos
(ETEK, Cyprus)

MOTIVATION & TRAVELLING STYLE

Gerald Furian
(KfV, Austria)

Christian Brandstätter
(KfV, Austria)

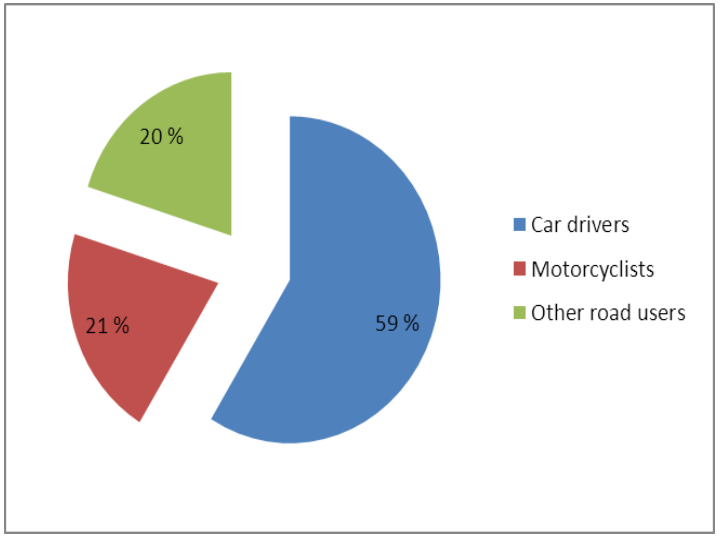
Virpi Britschgi
(VTT, Finland)

Emil Drapela
(CDV, Czech Republic)

Description of the sample

- N = 21 280, Other road users = 4 290

- Respondents: people who reported that they used mainly other means of transport than cars and motorcycles in the last 12 months:



- Walking	96 %
- Cycling	43 %
- Public transport	67 %
- Car passenger	59 %
- Moped (≤ 50 cc)	16 %

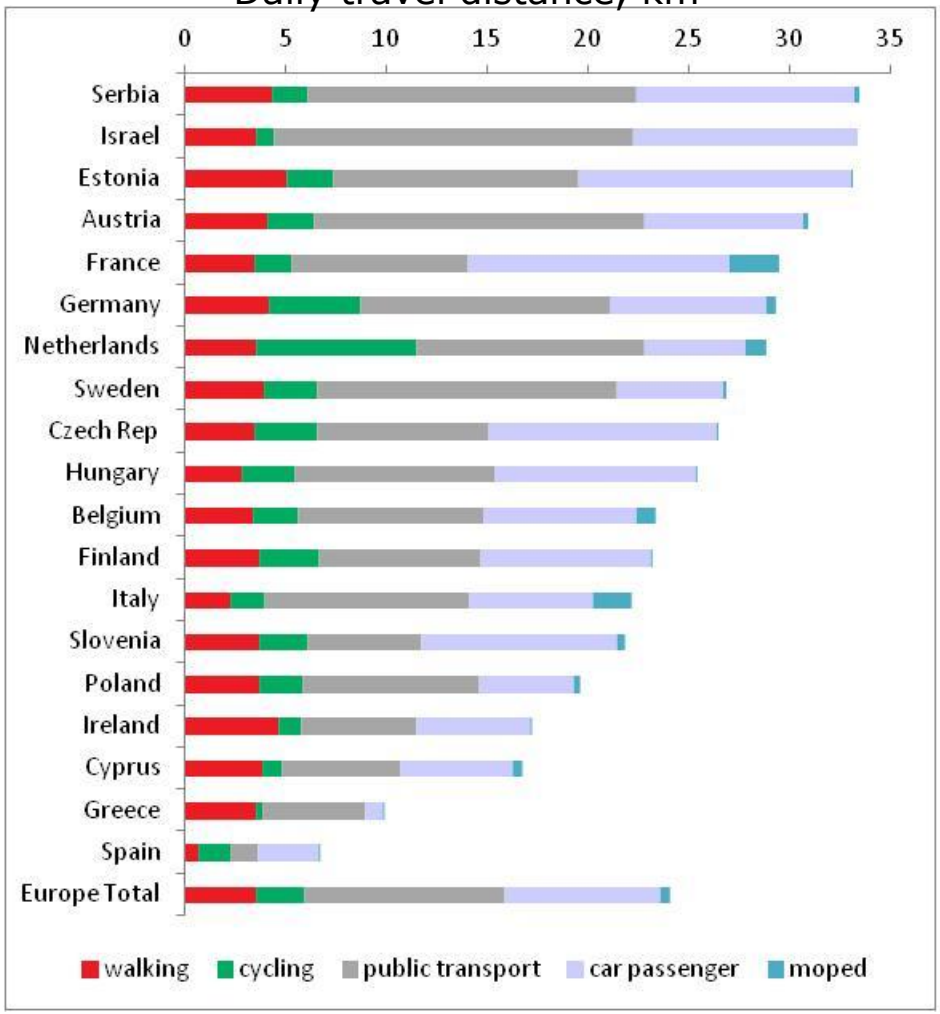
OTHER ROAD USERS (ORU): MOTIVATION AND TRAVELLING STYLE

OTHER ROAD USERS (ORU)

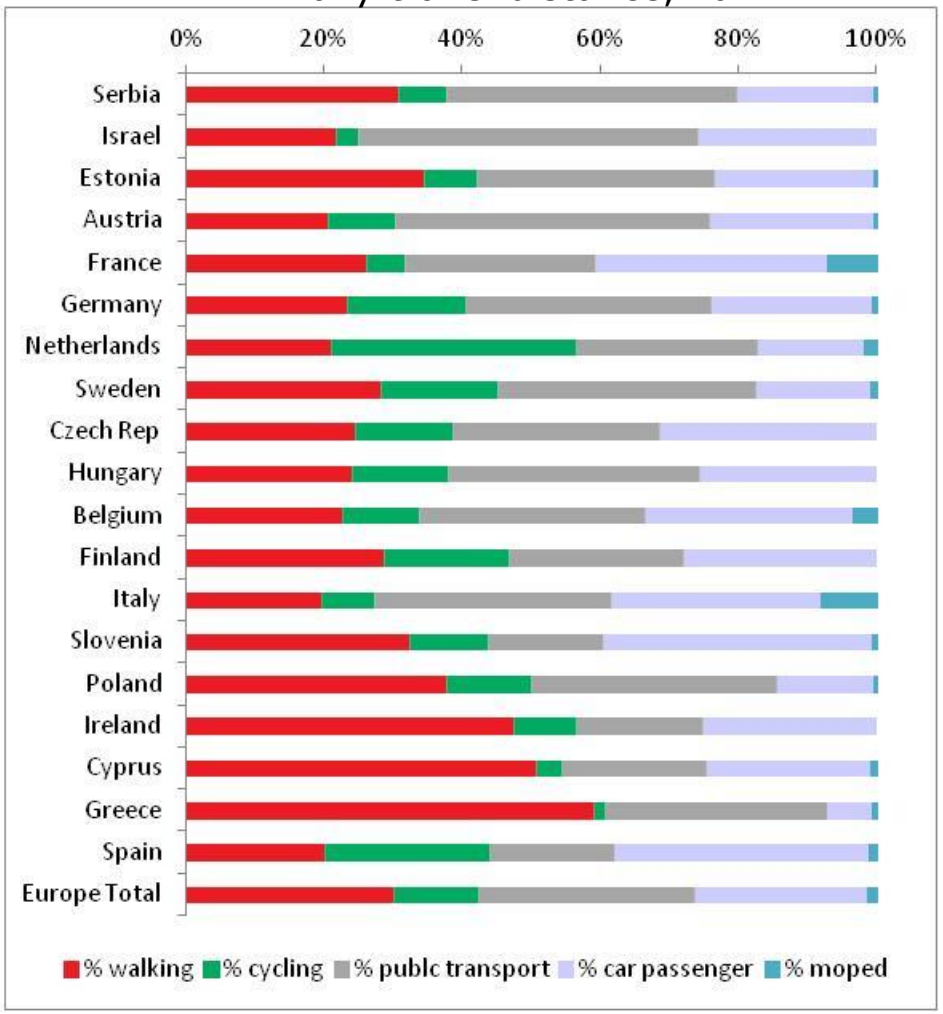
- Motivations for not using a car or a motorcycle
- Use of transport means
- Travelling Style
  - Pedestrians / Cyclists / Public Transport Users
- Road users interaction and travelling style

ORU modal split: Big differences throughout Europe

Daily travel distance, km



Daily travel distance, %



Motivations for walking, cycling and using public transport

- The most often mentioned reason for walking, cycling or using public transport was ***"there is no necessity to use motorized vehicles".***
- ***"Need for more physical exercise"*** and ***"financial reasons"*** were also quite typical motivations for not using car or motorcycle.
- Other reasons:
  - Health
  - Environment
  - Fear of driving
  - Driving licence withdrawal

Differences in motivations

- **Gender**
  - Men tended to choose financial reasons more often than women, whereas women were more often motivated by environmental reasons or fear of driving.
- **Age**
  - The younger the respondents, the more often they were motivated by financial and environmental reasons.
  - The older respondents were more often motivated by health and physical exercise.
- **Urban and rural areas**
  - The financial factor was mentioned mainly in big cities, and also environmental issues were considered more important in larger cities than in rural environment.

Clustering of other road users

- Variables:
  - ***Total daily travel distance*** (all means of transport)
  - ***Percentages of distance*** in km (all means of transport)
  - ***Travel behaviour***

- Analysis was performed on the European level and not separately for the individual countries.

- The overall approach for the analysis was to obtain ***other road user types*** that can be found in each country.

Other road user types

- Type 1: the ‘public transport user’
- Type 2: the ‘pedestrian’
- Type 3: the ‘cyclist’
- Type 4: the ‘pedestrian + public transport user’
- Type 5: the ‘active traveller’

Five main types of ORUs

Type 1 ("Public Transportation User"): 33%

- above average daily travel distance (mean: 25.4km)
- strong usage of public means of transport (72% nearly daily usage)
  - **+** Austria, Italy, Serbia, Greece & France
  - **-** Israel, Cyprus, Ireland

Type 2 ("Pedestrian"): 23%:

- low daily travel distance (mean: 11,72km)
- car passenger for 33% of the daily distance
- high percentage of the daily distance is done by walking (53%)
  - **+** Greece, Cyprus, Slovenia, Spain
  - **-** Israel, Netherlands, Belgium

Type 3 ("Cyclist"): 22%

- below average daily total travel distance (mean: 17.8km)
- high cycling frequency (58% nearly daily), high % daily by bike (41%)
  - **+** Netherlands, Germany, Finland, Hungary, Sweden
  - **-** Greece , Israel, Serbia

Five main types of ORUs

Type 4 ("Pedestrian/Public Transport User "): 15%

- high frequency of using public means of transport (49% nearly daily)
- above average daily distance by public transport (mean: 44.47km)
- above average percentage of daily walking kilometres (36%)

  + Israel, Belgium, Ireland

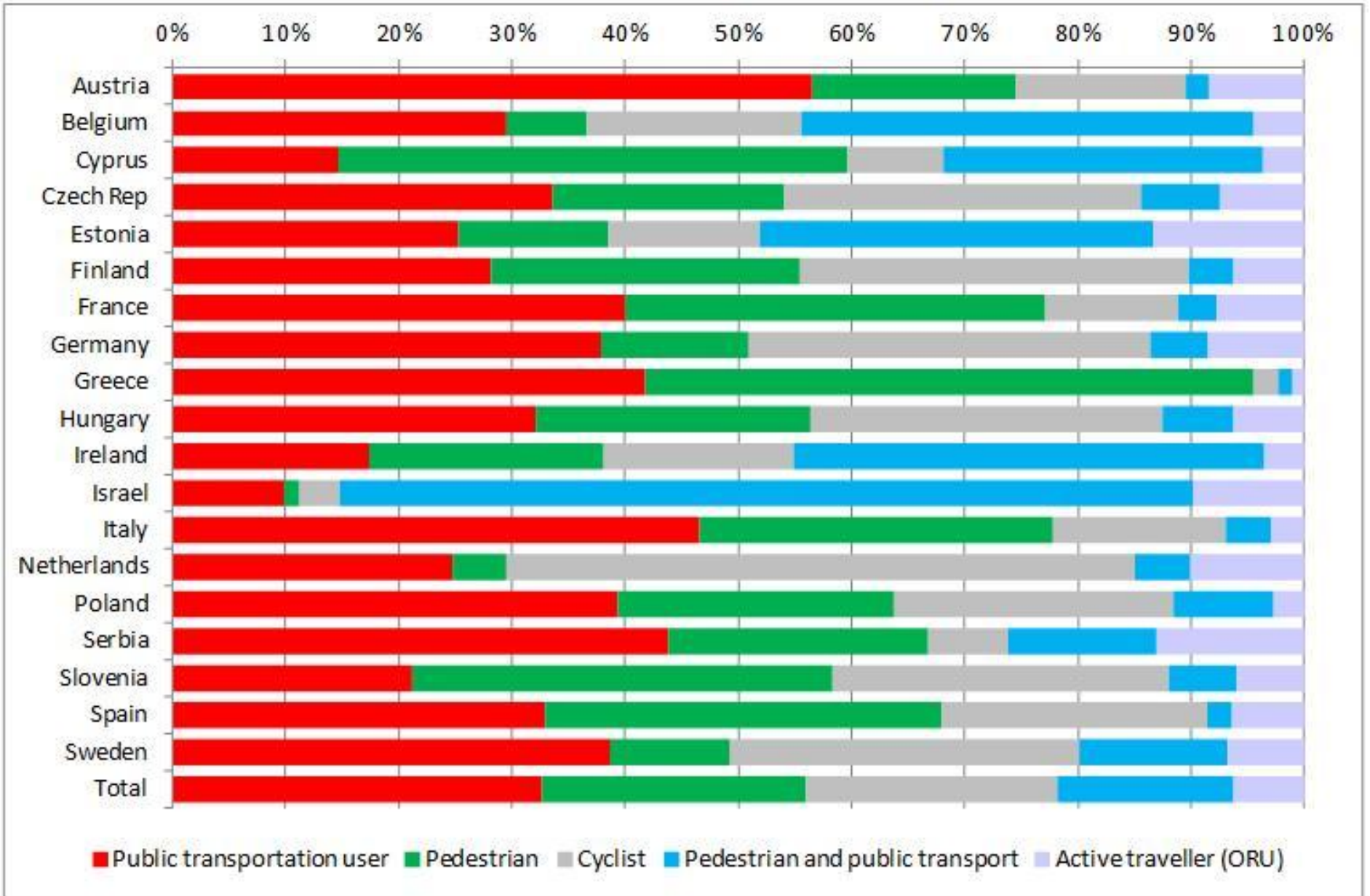
Type 5 ("Active Traveller/Commuters"): 6%

- very high total daily travel distance covered by other means of transport than car and motorcycle (mean: 104.5km)
- high frequency of using public means of transport (49% nearly daily)
- high percentage of daily kilometres as car passenger (35%)

  + Estonia, Serbia, Netherlands

  - Greece, Poland, Italy

ORU types per country



Motivation travelling style Conclusions (1)

- The younger the respondents, the more often they reported financial reasons as motivation for walking, cycling or using public transport.
- The young respondents seemed to be more concerned about environmental issues and having environmental reasons as a motivation. However, in some countries the older age groups were also highly concerned about the environmental motivations (e.g. Finland)
- 'Health', 'fear of driving' and 'need more physical exercise' were more often mentioned by older groups.
- 'Financial reasons' were slightly more important for men than for women, and 'environmental reasons', 'fear of driving' and 'need more exercise' were more important for women.

Motivation travelling style Conclusions (2)

- The financial reasons as motivation were mentioned mainly by people living in big cities.
- Environmental issues were considered more important in larger cities than in other cities or rural areas.
- The loss of driving license was a significantly stronger motivation for people who had been involved in an accident. Significant differences were also found for health and environmental reasons; these were more important for people with experience of a road accident.
- Road users use a variety of modes - sometimes even in one journey - so policy should support multiple modes.
- There are a variety of factors that can increase the number of other road users so policy makers need to identify most probable causes to explain changes in behaviour.

Other Road Users: Pedestrians

Background & Objectives

- Pedestrians are the most vulnerable users of transport networks
  - Different speed & mass, lack of protection
  - particular characteristics and behaviour, interaction with motorized traffic
- Existing studies on pedestrian attitudes, perceptions and behaviour
  - mostly focus on particular aspects and on particular populations
  - the samples examined are small
  - no results comparing different countries
- The objective of this research is the analysis of pedestrians' attitudes and behaviour in Europe, on the basis of selected pedestrians' responses to the SARTRE 4 questionnaire

Definitions & data

- In each country, a minimum of 200 ORU were interviewed, based on simple random sampling at national level.

- Pedestrians were selected as those respondents:
  - who reported that their most frequent transport mode in the last 12 months was neither passenger car nor motorcycle
  - and who reported non-zero daily walking distance travelled

Methods

1. Descriptive analysis:
   - frequencies, percentages and country comparisons on pedestrians' road safety attitudes and behaviour *(NTUA)*
   - analyses per age, gender, town size and area type *(CDV, VTT)*

2. In-depth statistical analysis and modeling:
   - Pedestrians' travel habits (cluster analysis) *(KFV)*
   - Components of pedestrians' road safety attitudes and behaviour (Principal Component Analysis) *(NTUA)*
   - Pedestrians' attitudes and behaviour (cluster analysis) *(NTUA)*

Descriptive analysis
General questions

- Pedestrians seem to be very concerned about several socioeconomic issues (pollution, unemployment, health care).
- Only in a few countries pedestrians are worried about congestion. The responses are clearly affected by the degree to which these issues are present in the different countries.
- Pedestrians find that roads have become safer in northern and western European countries, while the opposite is the case for southern and central European countries.

Descriptive analysis
Attitudes towards measures & penalties

- "Very" or "fairly" in favor of using speed limit devices cars (78%), black boxes (80%), fatigue detection devices (84%), and alcolocks in cars (87%).
- "Very" or "fairly" in favor of using cameras for red light surveillance (83%), surveillance of speeding (83%).
- "Strongly agree" or "agree" with more severe penalties for speeding offences (~70%), for drink-driving offences (~90%), for not wearing helmets on motorcycles (~90%) and for using handheld phones while driving (76%).
- The percentage of pedestrians who strongly support more '30 km/h' zones is much lower (37%) compared to the other measures

Descriptive analysis
Walking behaviour and interaction with motorists

- Greece, Cyprus, Sweden and Belgium present increased share of “more than often” crossing outside pedestrian crossings.
- The highest rates of red light violations can be found in Poland (88%), Slovenia (87%), Hungary (85%) and the Czech Republic (77%).
- Pedestrians are quite annoyed with car drivers, less annoyed with motorcyclists and even less annoyed with bicyclists.

Descriptive analysis
Satisfaction with the walking environment

- The highest share of pedestrians “not at all” satisfied with street lighting can be found in Greece (79%) and Cyprus (55%) - overall mean is 37%.

- The majority of pedestrians are “very” or “fairly” satisfied with the number of crossing points - highest in France, Finland (76%) and Netherlands (74%).

- The highest share of pedestrians “not much” or “not at all” satisfied with the number of crossing points is in Greece (79%) and Cyprus (78%).

Descriptive analysis
Area type and town size effects

- Unsafe behaviours are more frequent in urban areas, especially in increased town size, than in rural areas.
- Avoidance of certain streets or intersections is more widespread in rural areas.
- The satisfaction of pedestrians with the road infrastructure increases with town size
  - possibly due to better pedestrian facilities in bigger cities.
- Annoyance with motorcyclists appears to increase with town size
  - possibly due to increased mobility of motorcycles in big cities.

Descriptive analysis
Age and gender effects

- Men cross streets on red light or wrong places more often than women.
- Women and the elderly avoid dangerous streets or intersections more often than men.
- The youngest and oldest age groups are more often satisfied with the road infrastructure. On the contrary, older people were found to be less satisfied with the speed and volume of traffic.

In-depth analysis
Components of pedestrian attitudes and behaviour

- The 33 variables of the study can be optimally clustered together in 8 Components.
- Those Components can be broadly classified into two sub-groups, one group associated with attitudes and one with behaviour.
  - Component 1: Satisfaction with the pedestrian environment
  - Component 2: Attitude towards penalties
  - Component 3: Attitude towards electronic in-vehicle devices
  - Component 4: Attitude towards speed limitations and surveillance
  - Component 5: Pedestrian behaviour and distraction
  - Component 6: Attitude towards pedestrian safety measures
  - Component 7: Annoyance with other road users
  - Component 8: Changing behaviour

In-depth analysis
Pedestrians' profiles (attitudes and behaviour)

CLUSTER 1: **"Positive attitudes, positive behaviour"**

- Satisfied with road environment
- Agree with and penalties
- Agree with devices
- Agree with speed limitations and surveillance
- Accept pedestrian measures

CLUSTER 2: **"Negative attitudes, negative behaviour"**

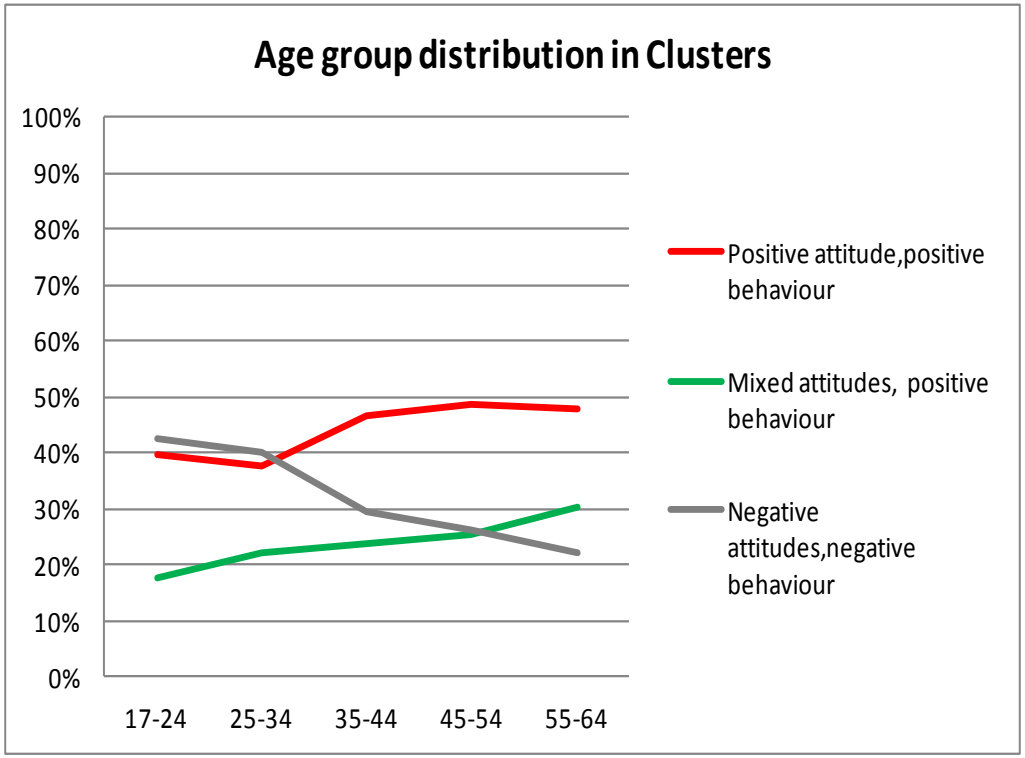
- Not satisfied with road environment
- Disagree with measures and penalties
- Disagree with devices
- Disagree with speed limitations and surveillance
- High risk-taking and distraction
- High changing behaviour

CLUSTER 3: **"Mixed attitudes, positive behaviour"**

- Agree with penalties
- Low risk-taking and distraction
- Disagree with pedestrian measures
- Not annoyed by other road users
- Not changing behaviour

In-depth analysis
Pedestrians' profiles per gender and age group

- Female pedestrians have slightly more "positive attitudes and positive behaviour" than males.
- Overall most pedestrians have "positive attitudes and positive behaviour" and few pedestrians have "negative attitudes and negative behaviour"
- This trend is reversed for pedestrians younger than 34 years old, who have "negative attitudes and behaviour".



In-depth analysis
Pedestrians' profiles per country

- The percentage "positive attitudes and positive behaviour" is higher than 40% in almost all the countries

- The highest percentages of "negative attitudes and negative behaviour" can be found in Italy, Cyprus, Sweden and Greece.

- The most dispersed cluster is "mixed attitudes, positive behaviour", which has some notably low percentages (Greece, Cyprus, Estonia), as well as some high percentages (Hungary, Finland, Spain)

Conclusions (1)

- Pedestrians support safety measures for speeding, drink-driving and fatigue, especially for recidivist drivers.
- They seem to support somewhat less the establishment of more '30km/h' zones.
- An important share of pedestrians often cross roads despite a red light display.
- Crossing at non-designated locations is a very widespread behaviour.

- Overall responses are clearly affected by the situation in each country (e.g. pedestrian mobility, infrastructure, road safety level etc.)
- A regional pattern is also identified: Northern & Western countries, Eastern countries, Southern countries.

Conclusions (2)

- Aside from walking, pedestrians travel frequently as car passengers and as public transport passengers, and less as motorcycle passengers.
- Almost 70% of pedestrians have neutral to positive behaviour and attitudes while a non negligible 30% are expressing negative attitudes towards measures and interventions as well as towards existing pedestrian environment and safety
- In very few countries is one of the three types of pedestrians dominant; in most countries, a non-negligible proportion of 'negative' pedestrians is observed.

Other Road Users: Cyclists

Sample characteristics

Other road users:

most frequent mode of transport = *neither* driving a car
nor driving a motorcycle > 50cc

Cycling other road users:

kilometers/day do you ***travel by bicycle*** on average: > 0 km / day

Not representative for all "cyclists" in each country:

attitudes towards cycling by respondents that most frequently travel by car or motorcycle but that do cycle ***from time to time are not*** taken into account

(Extremely) ***small*** sample sizes for some countries:

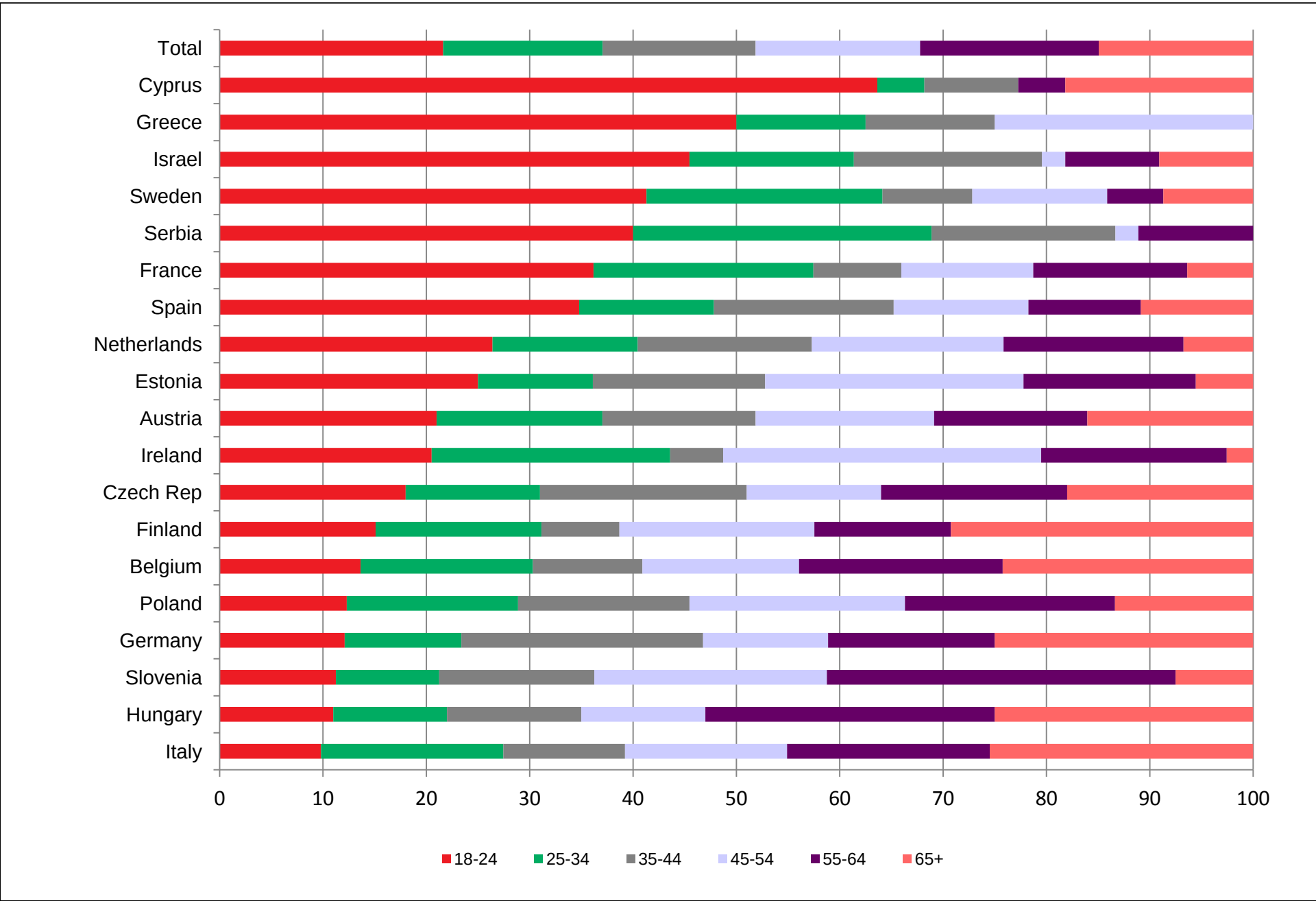
N = ± 200 other road users for most countries

Minimum in Greece: 4% cycling other road users = 8 cyclists

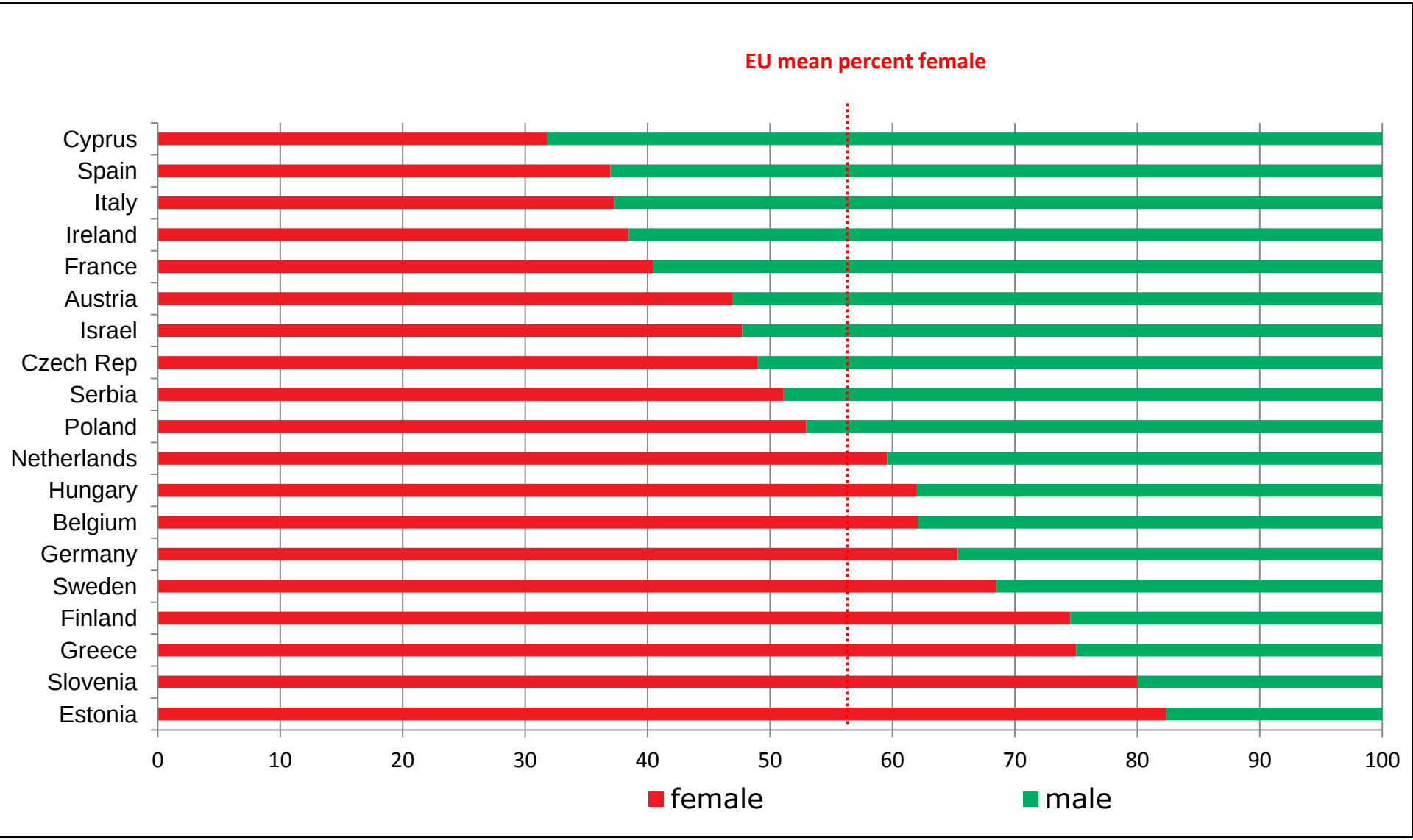
Maximum Netherlands: 85% cycling other road users (178/210)

Total sample size for EU: ***1452*** cycling other road users

Description of the cyclist sample: age

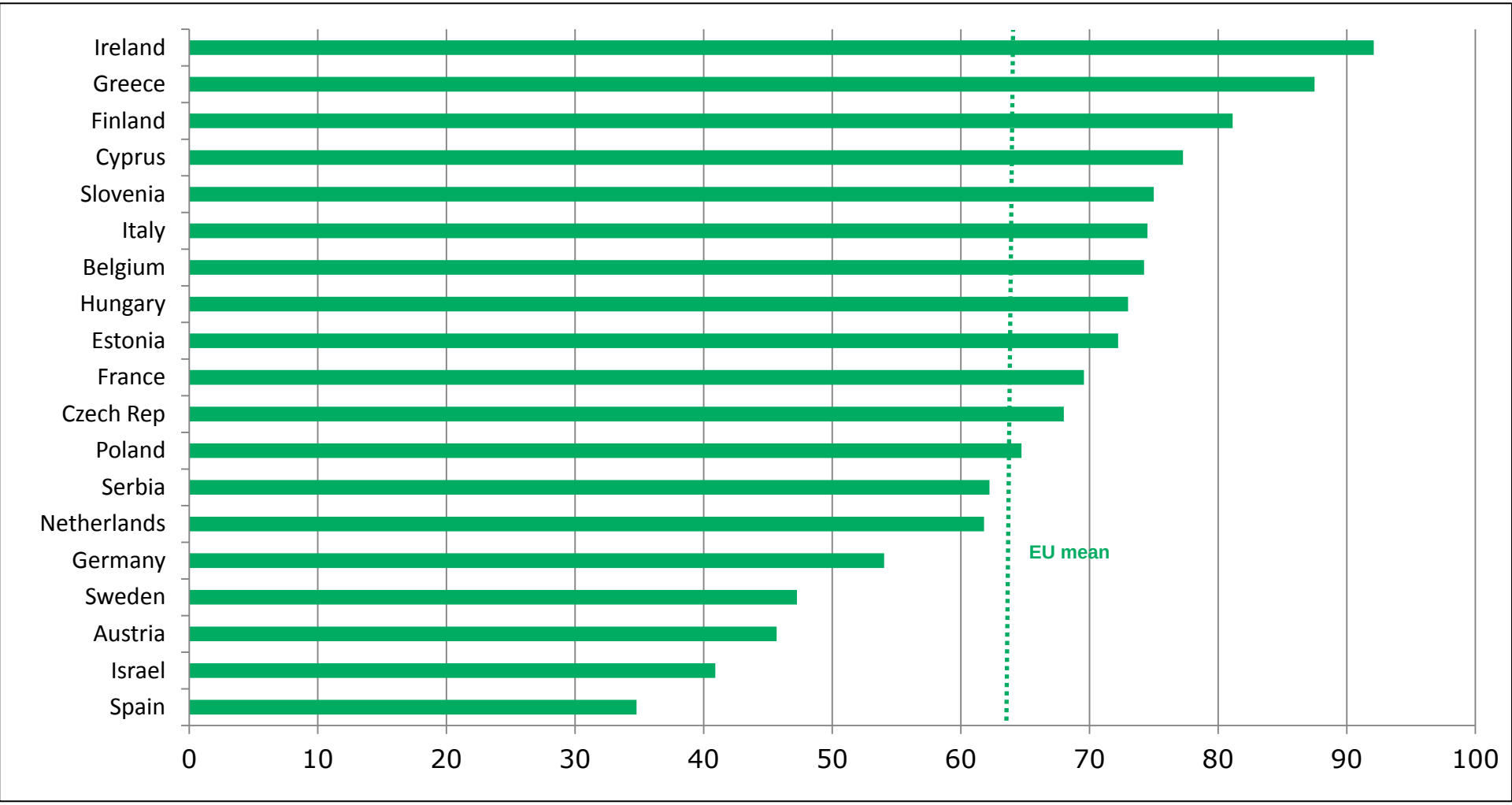


Description of the cyclist sample: gender

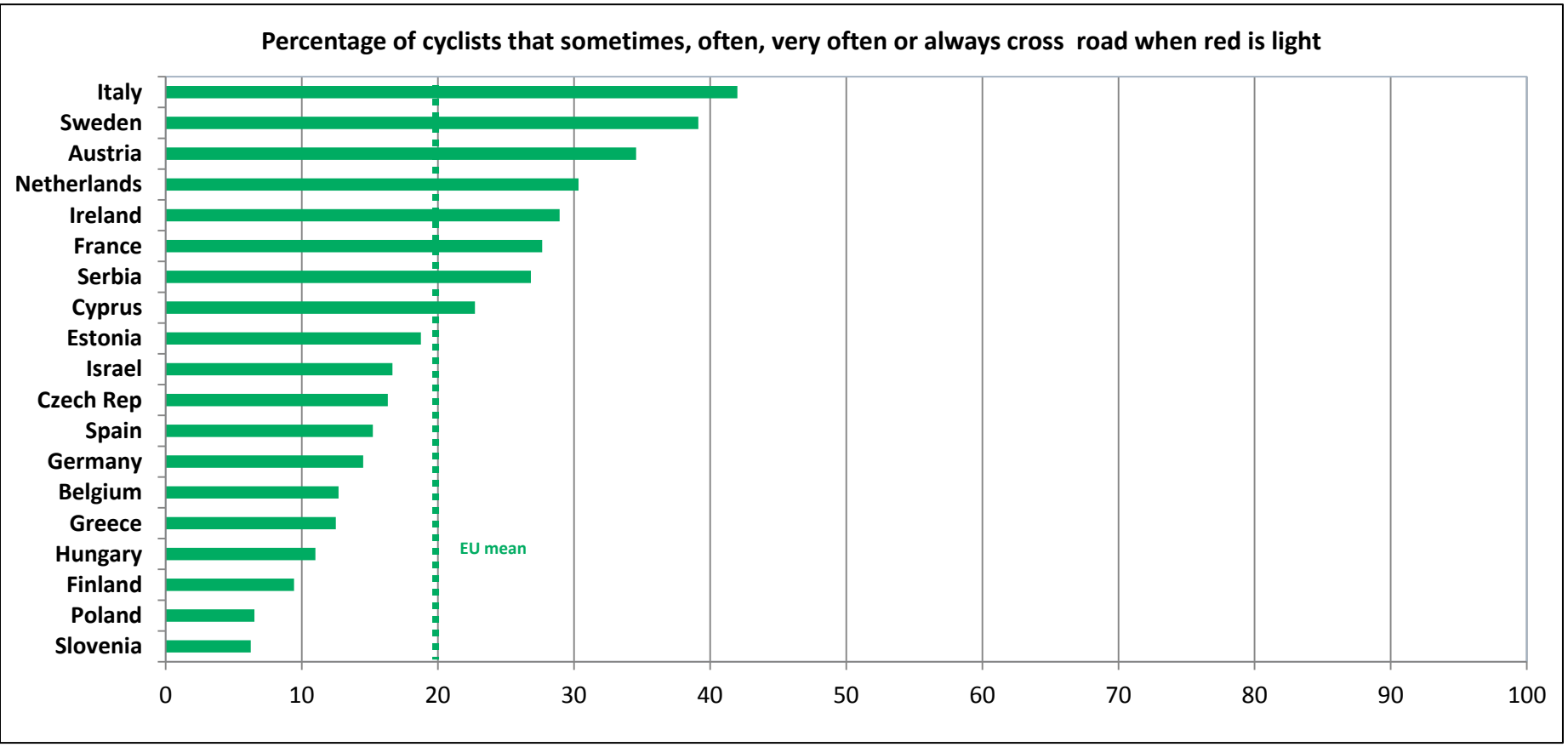


Cyclists' risk perception of cycling:

Percentage that considers cycling very or fairly dangerous

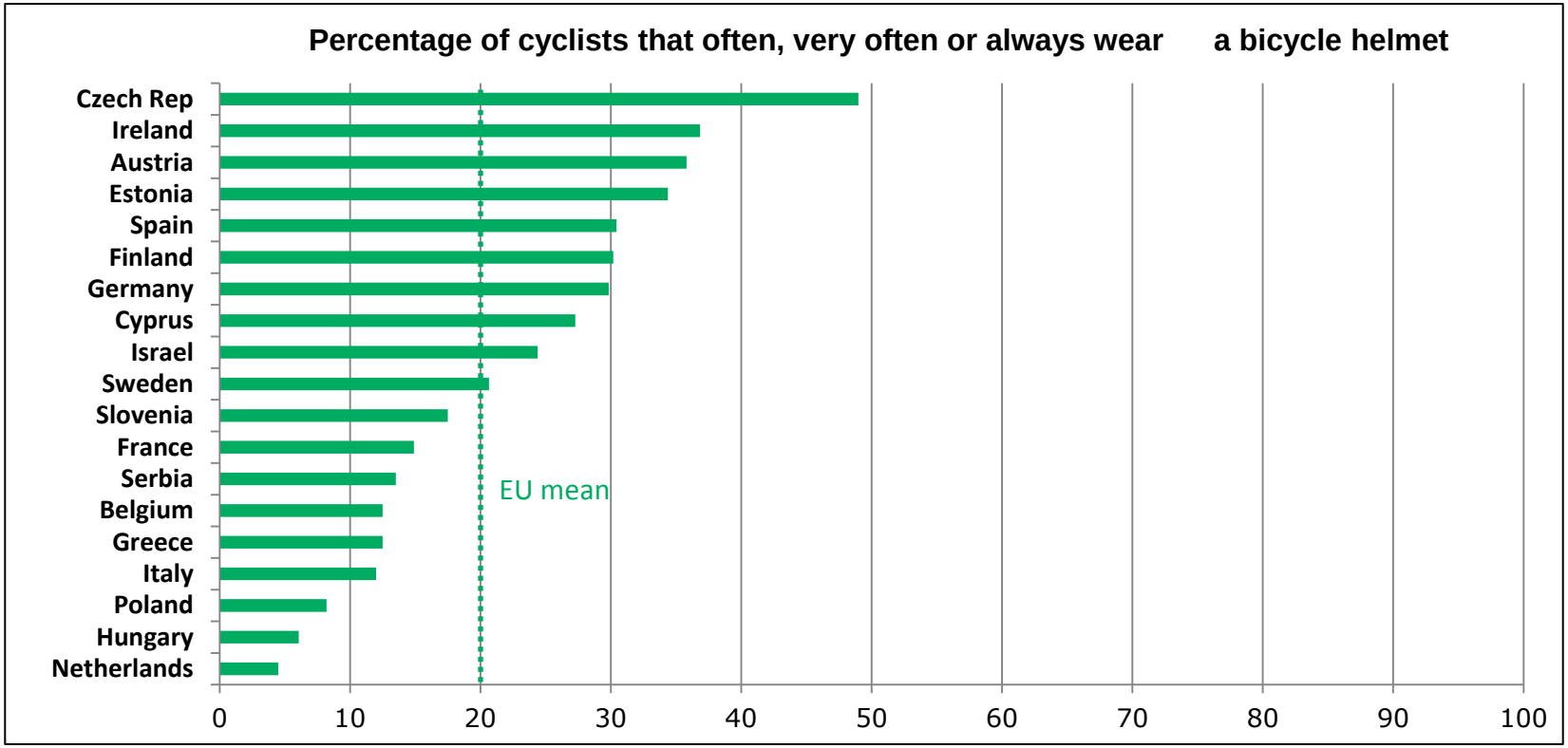


Self-reported behaviour: Example of a question regarding typical cyclist behaviour



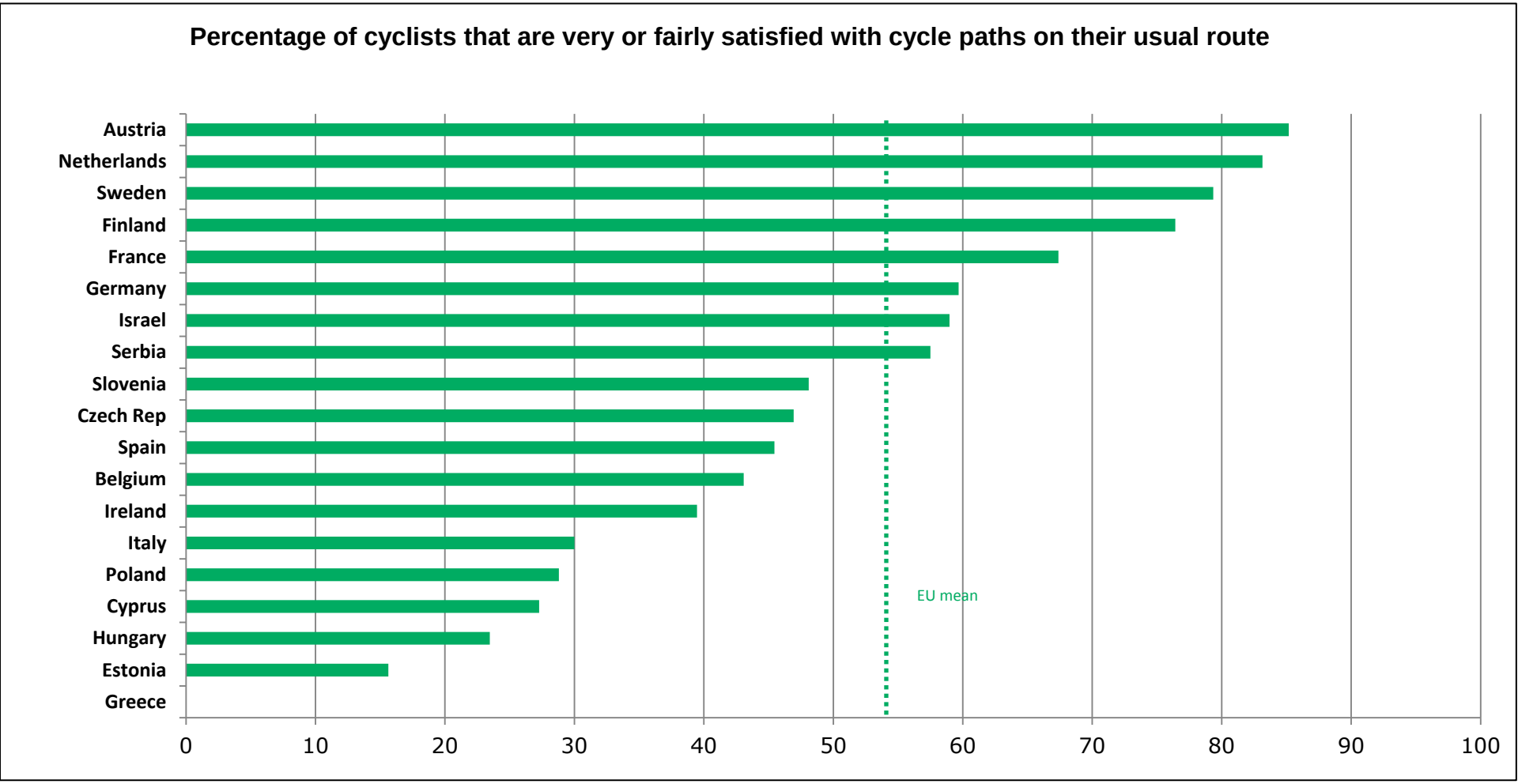
- Top three: Italy, Sweden, Austria, Bottom three: Slovenia, Poland, Finland
- Unrelated to popularity of cycling and no hypotheses on underlying factors or causes for this ranking
- Other behaviours: avoid dangerous locations, cycle on pavement, cycle on wrong side, call while cycling etc…

Self-reported behaviour: Example of a question regarding use of safety equipment



- EU mean = 20% often or more => not very commonly used
- Not clearly (inversely) related to traffic volumes
  - Netherlands: high volumes, low(est) use
  - Czech republic: high volumes, high(est) use
  - Ireland: low volumes, high use
  - Greece: low volumes, low use
- Other issues: reflective clothing, use of headlamp

Cyclists' satisfaction: cycle paths by country



- Great international variation (0% to 83%)
- General impression: seems to correlate highly with volume of traffic

Conclusions: Cycling

Huge international variations in bicycle use

- Top three: Netherlands, Germany, Czech Republic
- Bottom three: Greece, Israel, Cyprus

- Huge variation in cycling other road users
  - Distribution by age (28%<34 year old in Italy, 63% in Cyprus)
  - Distribution by gender (82% female in Estonia, 32% in Cyprus)

Cyclists' risk perception and satisfaction with safety

- Perceived risk independent of cycling traffic volume
- Perceived risk only weakly correlated with satisfaction with safety
- Satisfaction with safety correlates with weakly with traffic volume
- Satisfaction strongly correlated with satisfaction with cycle lanes
  $\Rightarrow$ Satisfaction with cycle lanes reflects cycling safety culture

Self-reported behaviour and use of safety equipment

- 88% always respects red light
- Only 18% often wears helmet
- 88% thinks drinking increases risk, but 25% still thinks this is feasible
- Risk perception of drink driving independent of behaviour

7% involved in accident (3 years) – ("reported") risk unrelated to traffic volume

Thank you for your attention!