



SafetyCube

Analysis of road crash costs in EU countries

TRB Annual meeting 8-12 Jan 2017

Wim Wijnen (SWOV/W2Economics), Ward Vanden Berghe &
Annelies Schoeters (BRSI)



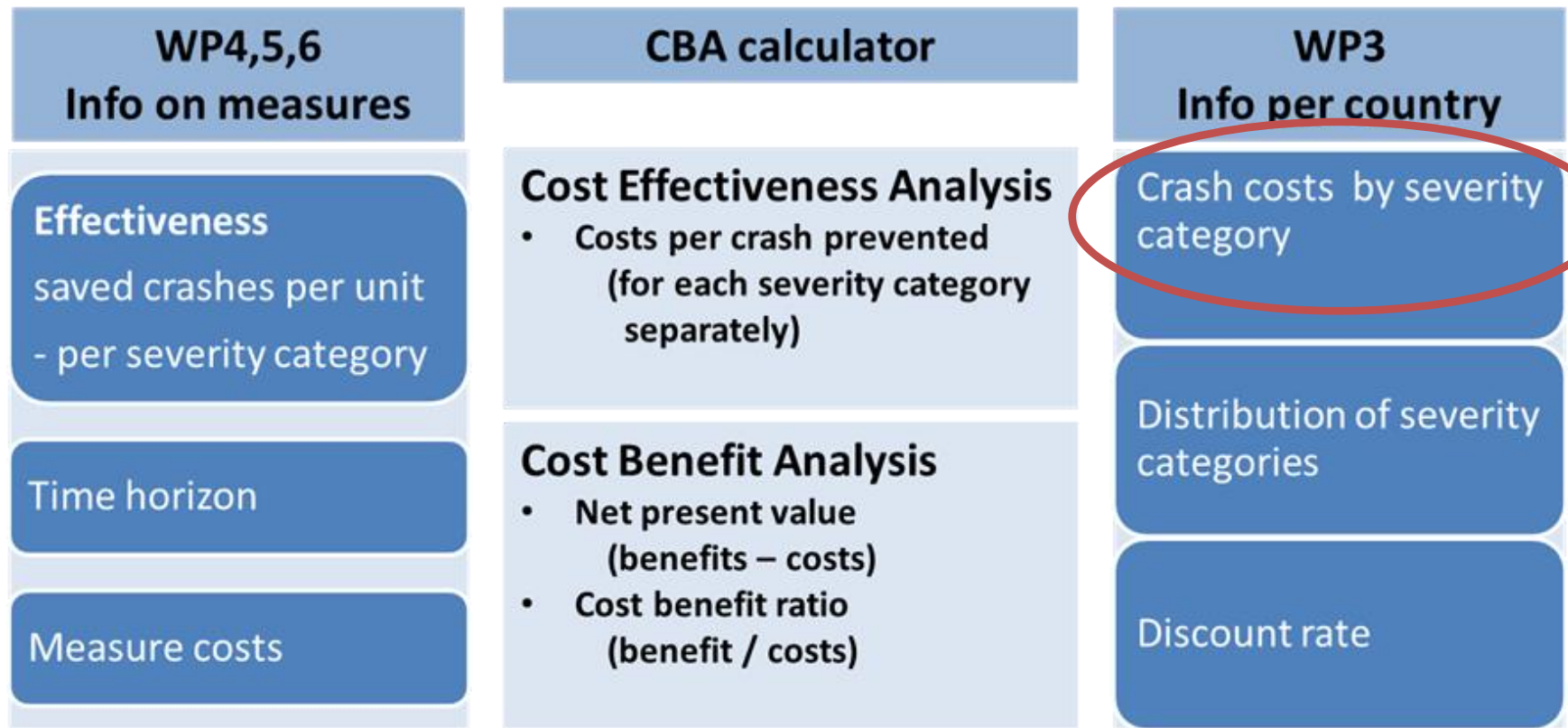
Co-funded by the Horizon 2020
Framework Programme of the European Union

SafetyCube

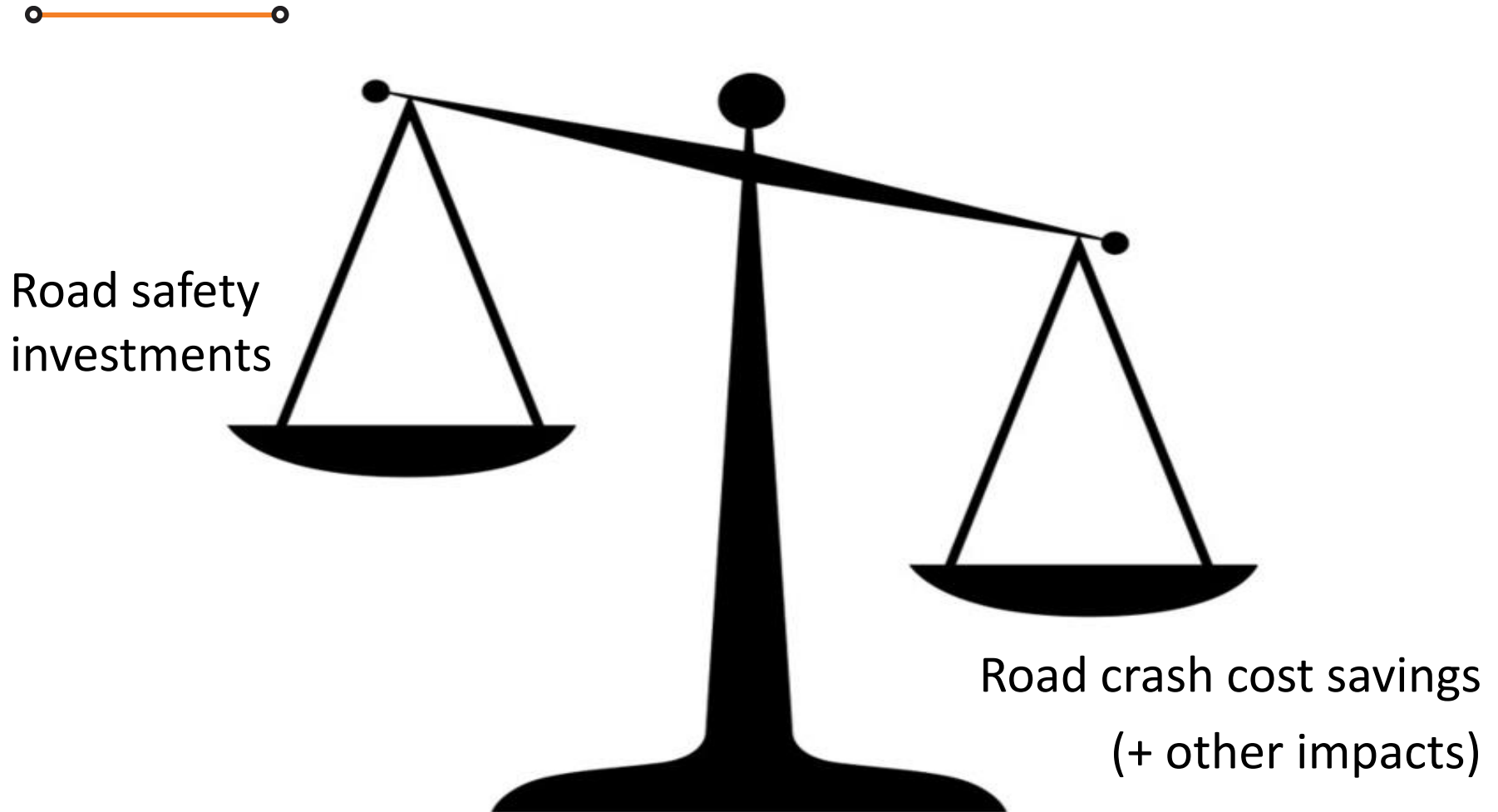


- SafetyCube: Safety CaUsation, Benefits and Efficiency
- A European Commission supported Horizon 2020 project
- Aims at developing an innovative road safety Decision Support System (DSS), helping policy makers to
 - *Assess effectiveness of road safety measures*
 - *Prioritize measures*
 - *Assess cost-effectiveness of measures*
 - *Monitor serious injuries and the associated socio-economic costs*
- Including an Economic Efficiency Assessment (EEA) tool
 - *Cost-benefit analysis*
 - *Cost-effectiveness analysis*

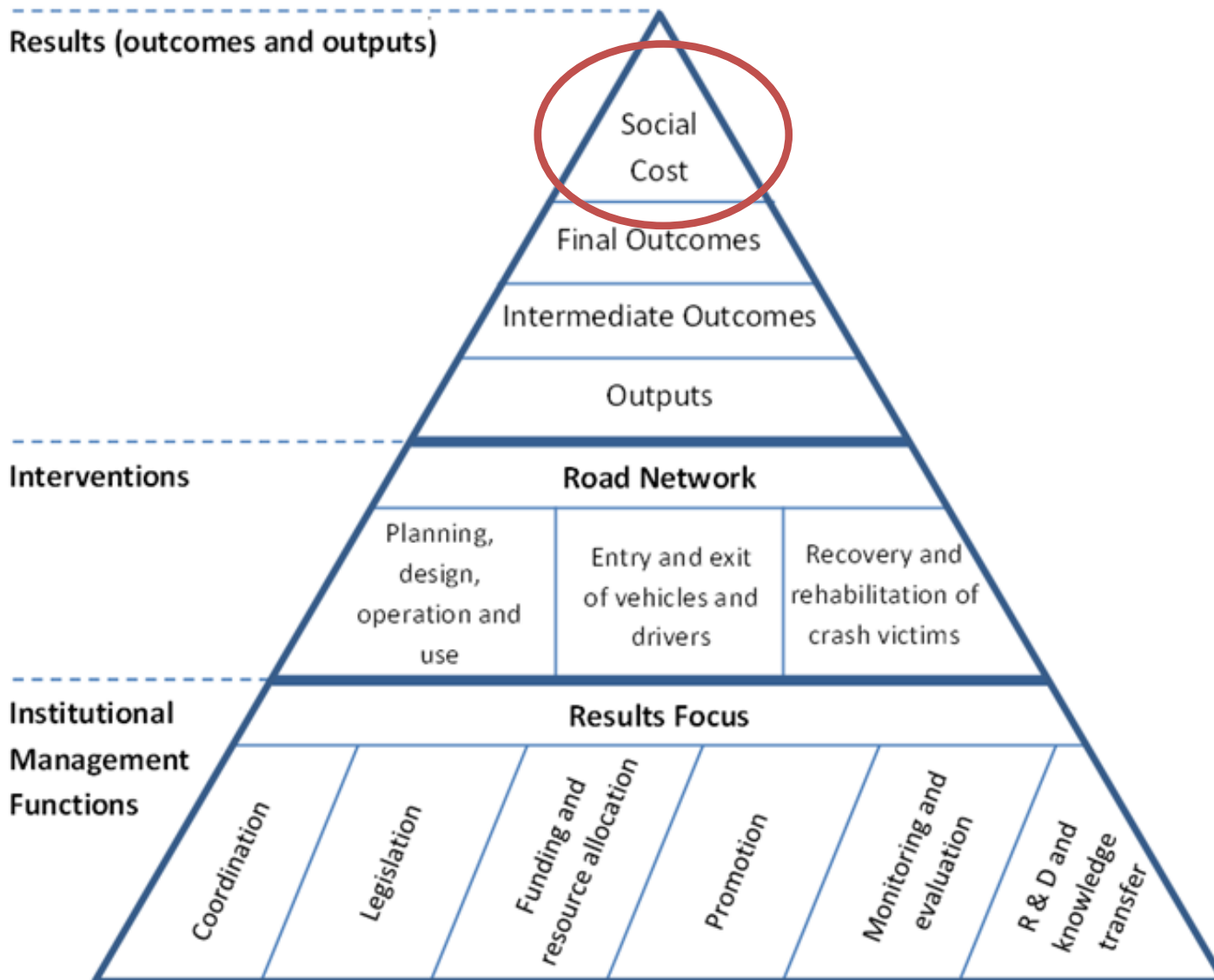
Economic Efficiency Assessment tool



Cost-benefit analysis



Costs as road safety indicator



Analysis of road crash costs



1. Literature review to identify
 - *All relevant cost items*
 - *Methods*
 - *Best practices*
2. Survey among EU countries
3. Descriptive analysis
4. Further statistical analysis
5. Developing standardized EU-values for EEA-tool.

This presentation: descriptive analysis, preliminary results

Data collection in collaboration with H2020 project InDeV

The SafetyCube-InDeV cost team



SafetyCube partners:

- BRSI
- SWOV
- TOI
- IFSTTAR
- KfV



Previous cost reviews



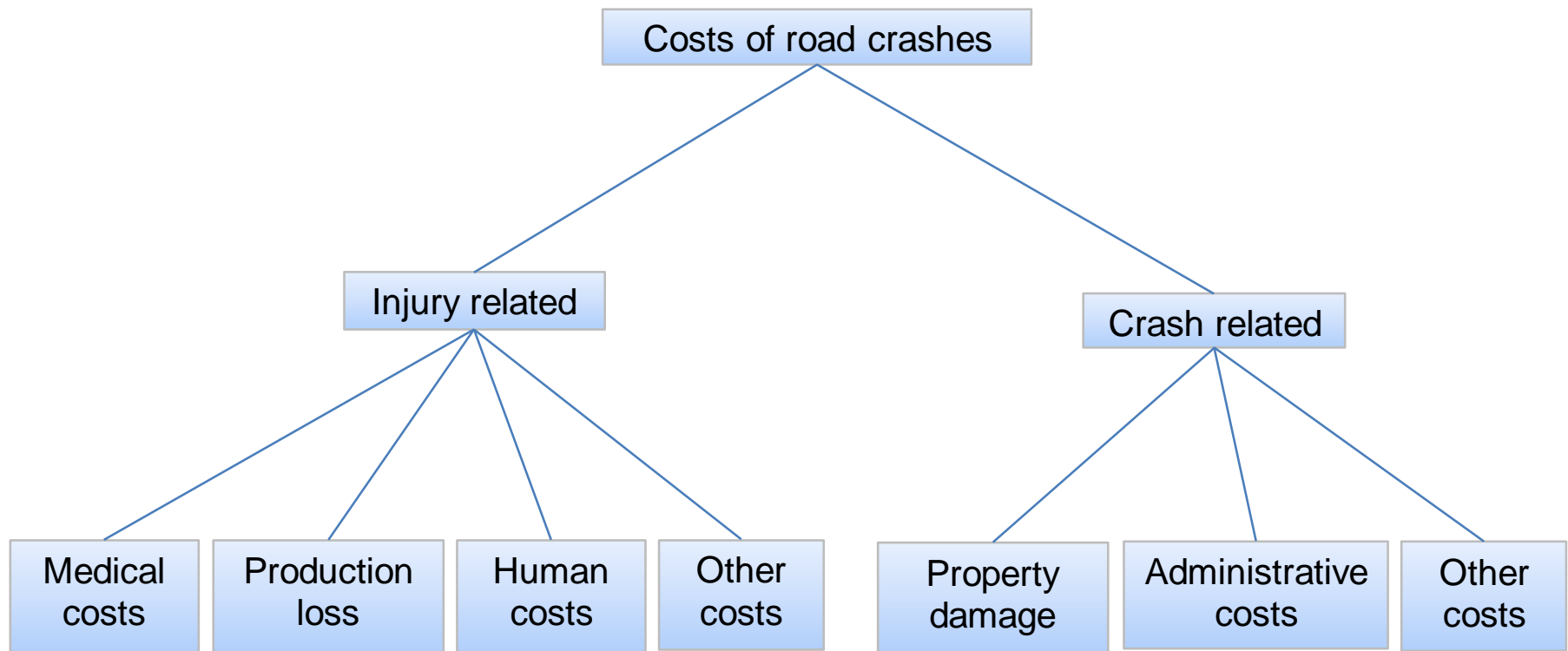
Study	Year	Number of countries	Regions
COST313	1994	14	EU
Elvik	1995	20	EU (13), other (6)
Elvik	2000	12	EU (6), other (6)
Trawen et al.	2002	11	EU (8), US, AU, NZ
Wijnen & Stipdonk	2016	17	Asia (8), EU (6), US, AU, NZ

The survey



- Survey among the 28 EU member states + Iceland, Norway, Serbia and Switzerland
- Questionnaires received from 31 countries
- Issues:
 - *Which cost items included?*
 - *Method(s) per cost item*
 - *Total costs (value, % of GDP)*
 - *Distribution costs among cost items*
 - *Costs per casualty and crash*
 - *Total costs by severity level*
- Official values used by national governments

Cost components



Methods (official figure)

Costs per component

More detailed information

Do you have more detailed information on the crash costs **per cost component** and **per casualty**?
If so, please fill those in here. If you only have data on total costs, please choose the right tick box.

Is the information below given in costs per casualty or in total costs?

☒ Costs per casualty (preferred)

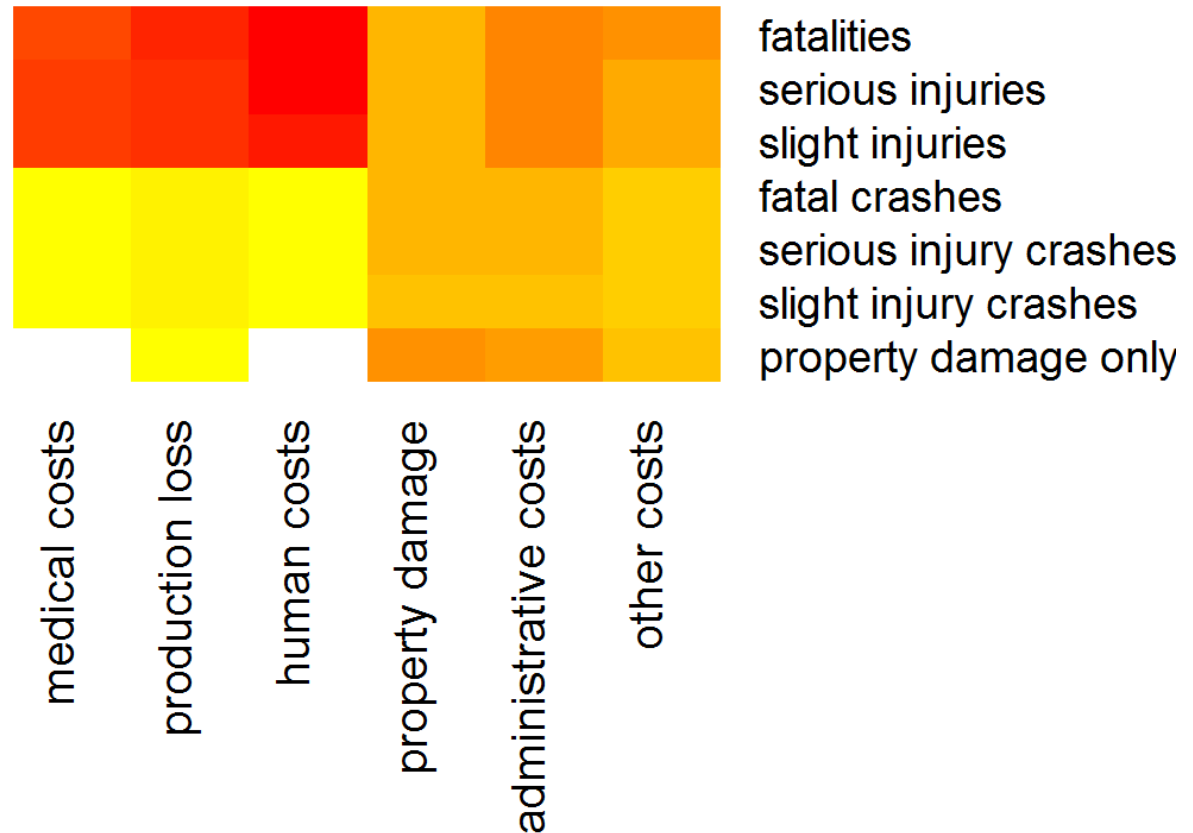
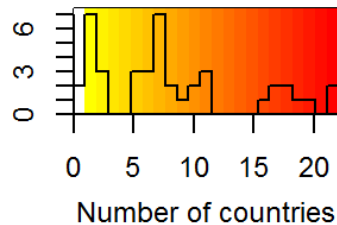
☐ Total costs

Currency in which the official information is provided (EUR/Pound/etc.):

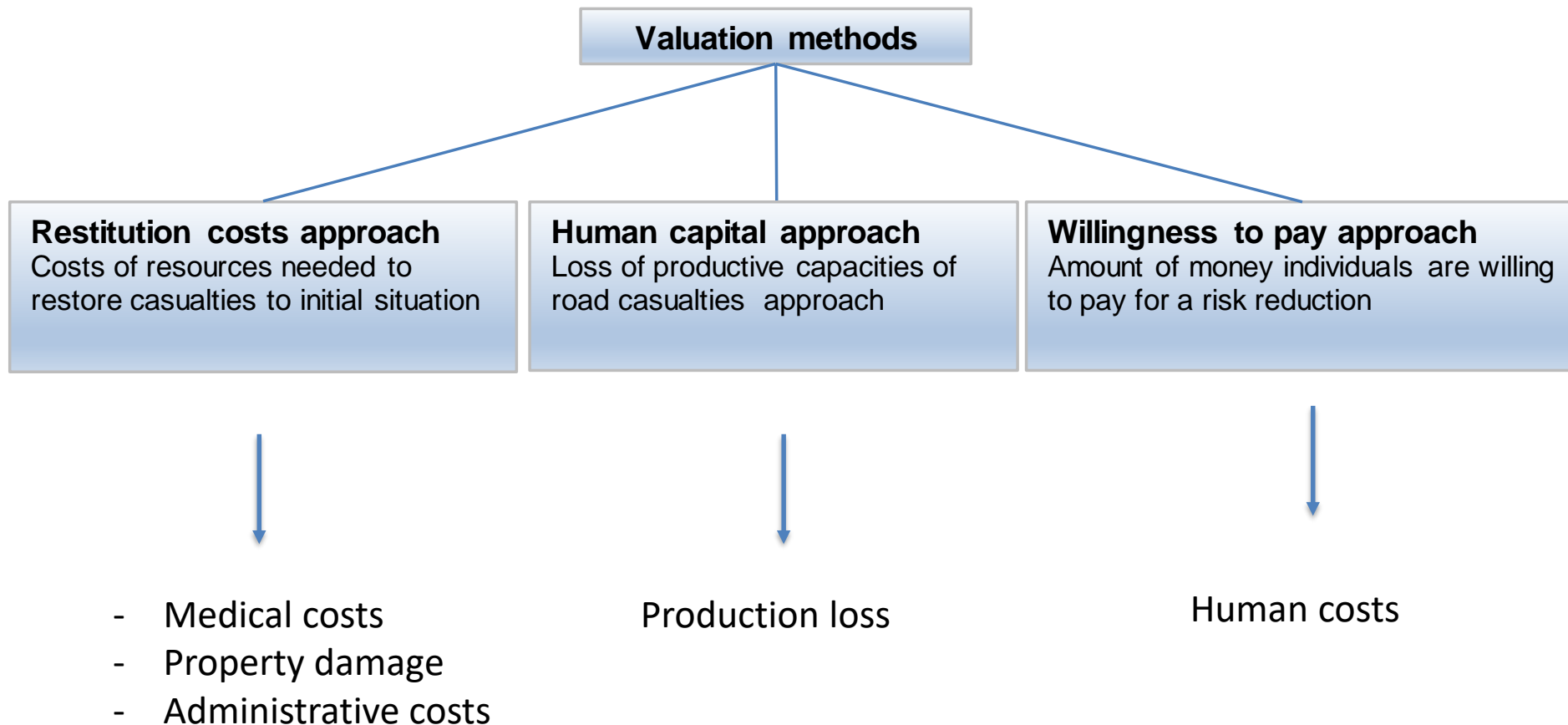
EUR

<u>Official figure</u>	Medical costs	Production loss	Human costs	Property damage	Administrative costs	Other costs
fatalities	9.904	576.679	1.991.083	10.805	17.462	5.566
serious injuries	10.229	20.859	232.957	10.498	5.667	431
slight injuries	1.036	1.122	-	4.323	1.747	405
fatal crashes						
serious injury crashes						
slight injury crashes						
property damage only (PDO) crashes						
Other injuries	222	-	-	3.060	965	623
[other groups] (your definition from tab 'Costs per unit')						
Total crashes						
Further notes:	Costs of house adaptations and visiting people in hospital are included in medical costs					

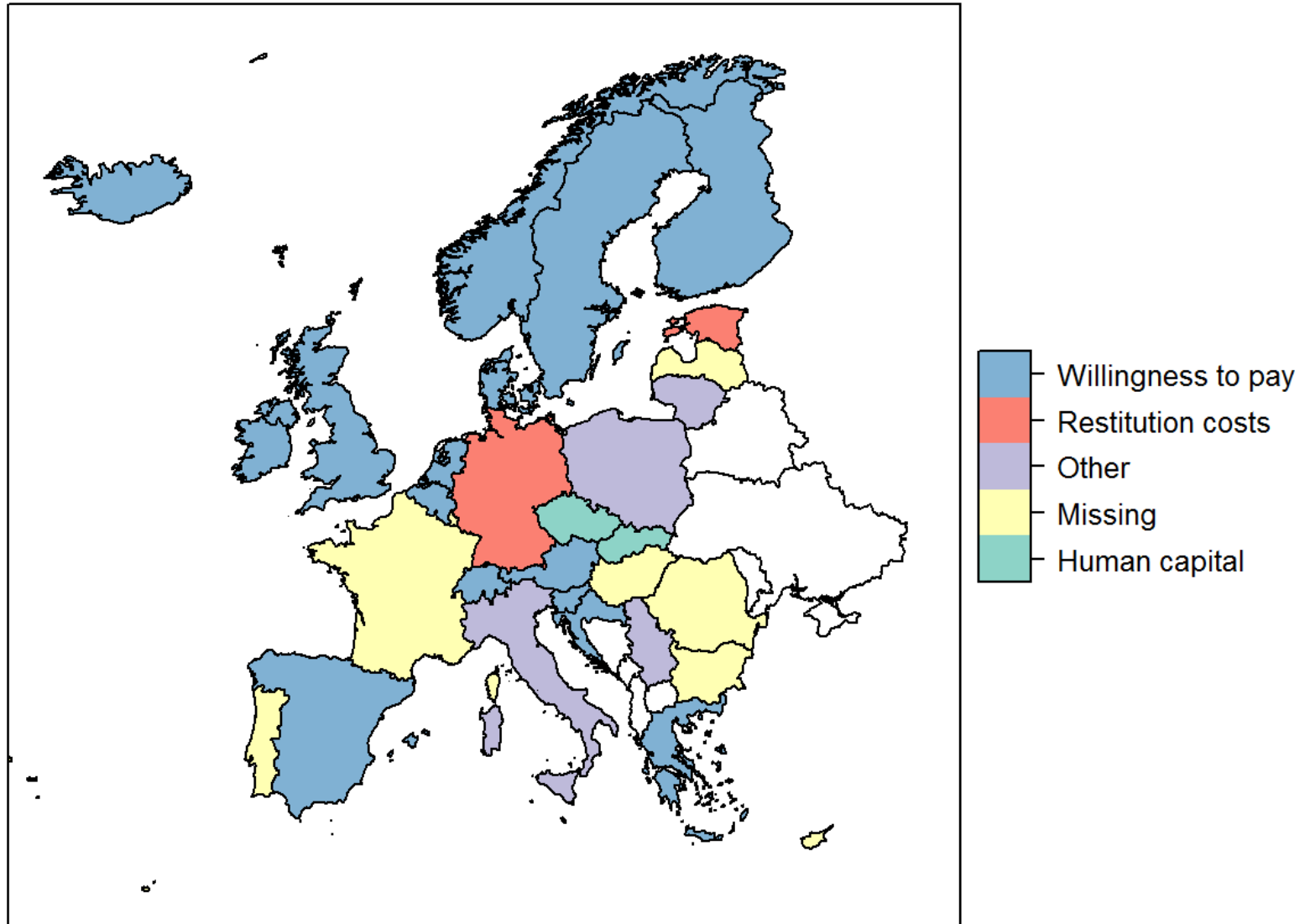
Cost components included



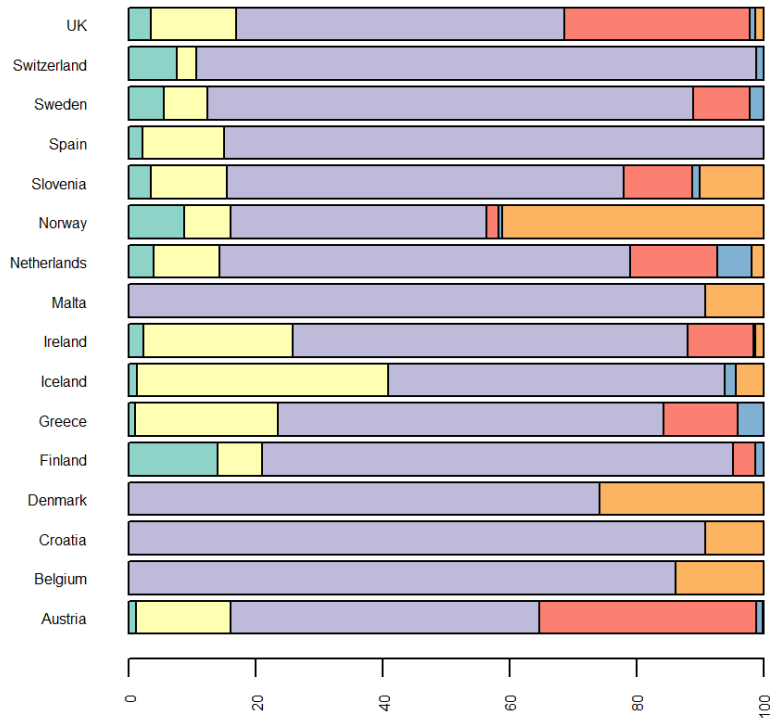
Methods



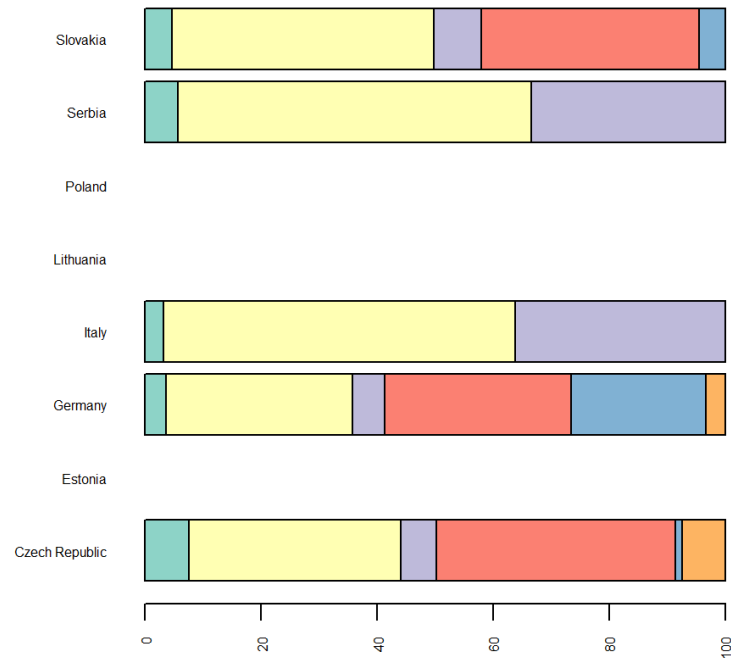
Method human costs



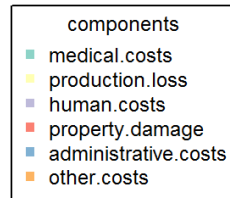
Cost by component



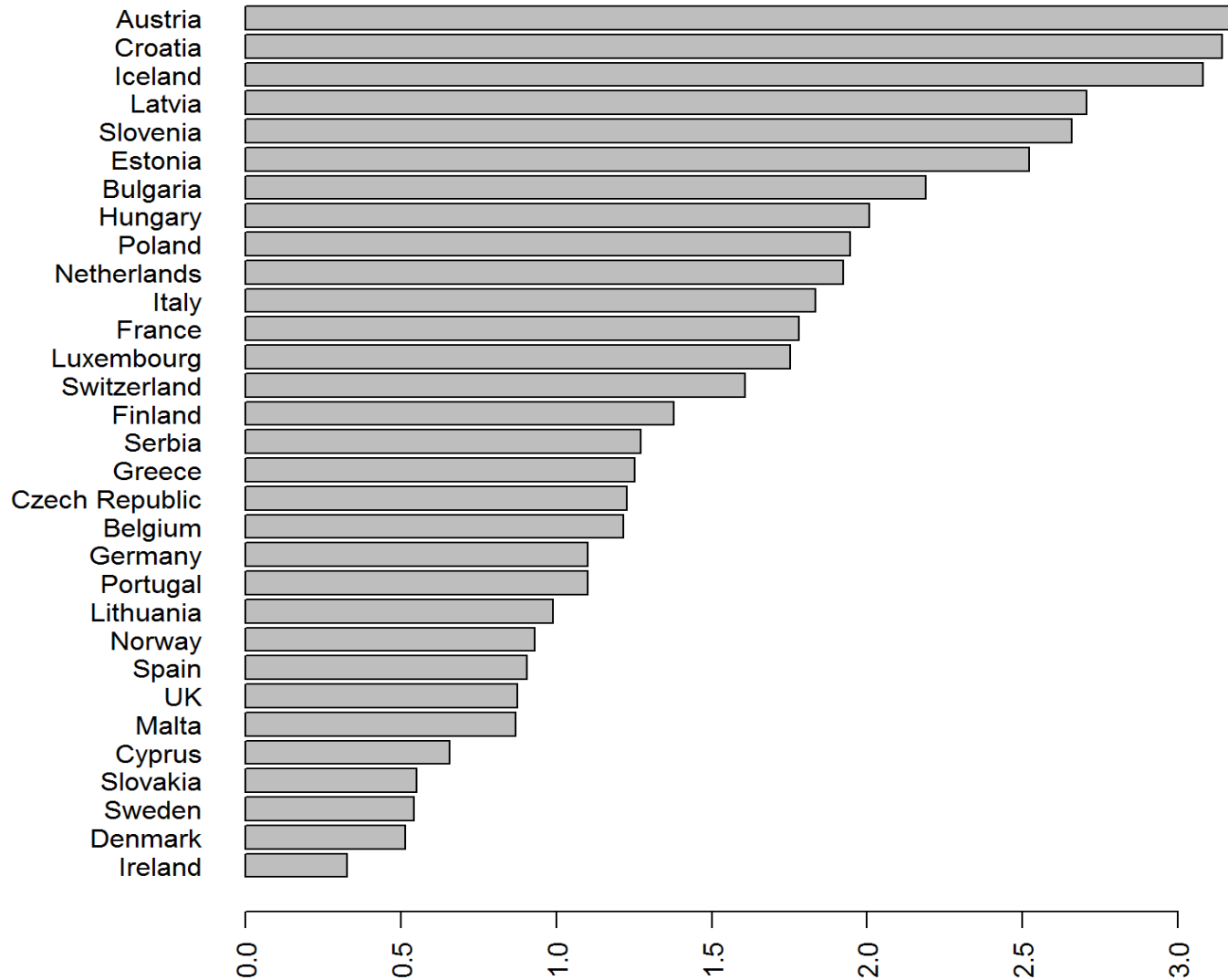
WTP countries



Non-WTP countries



Total costs (%GDP)

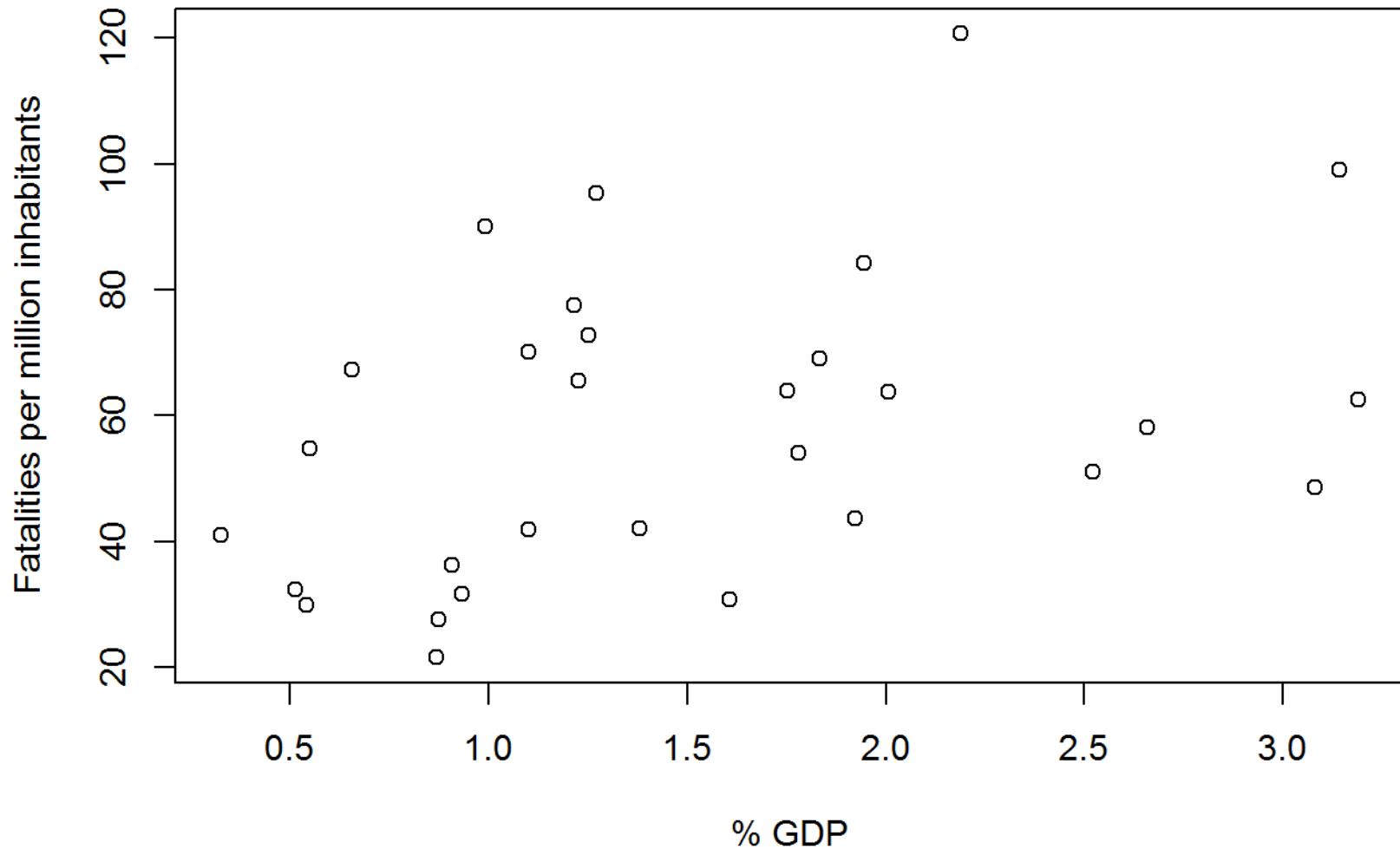


What explains the differences in total costs?

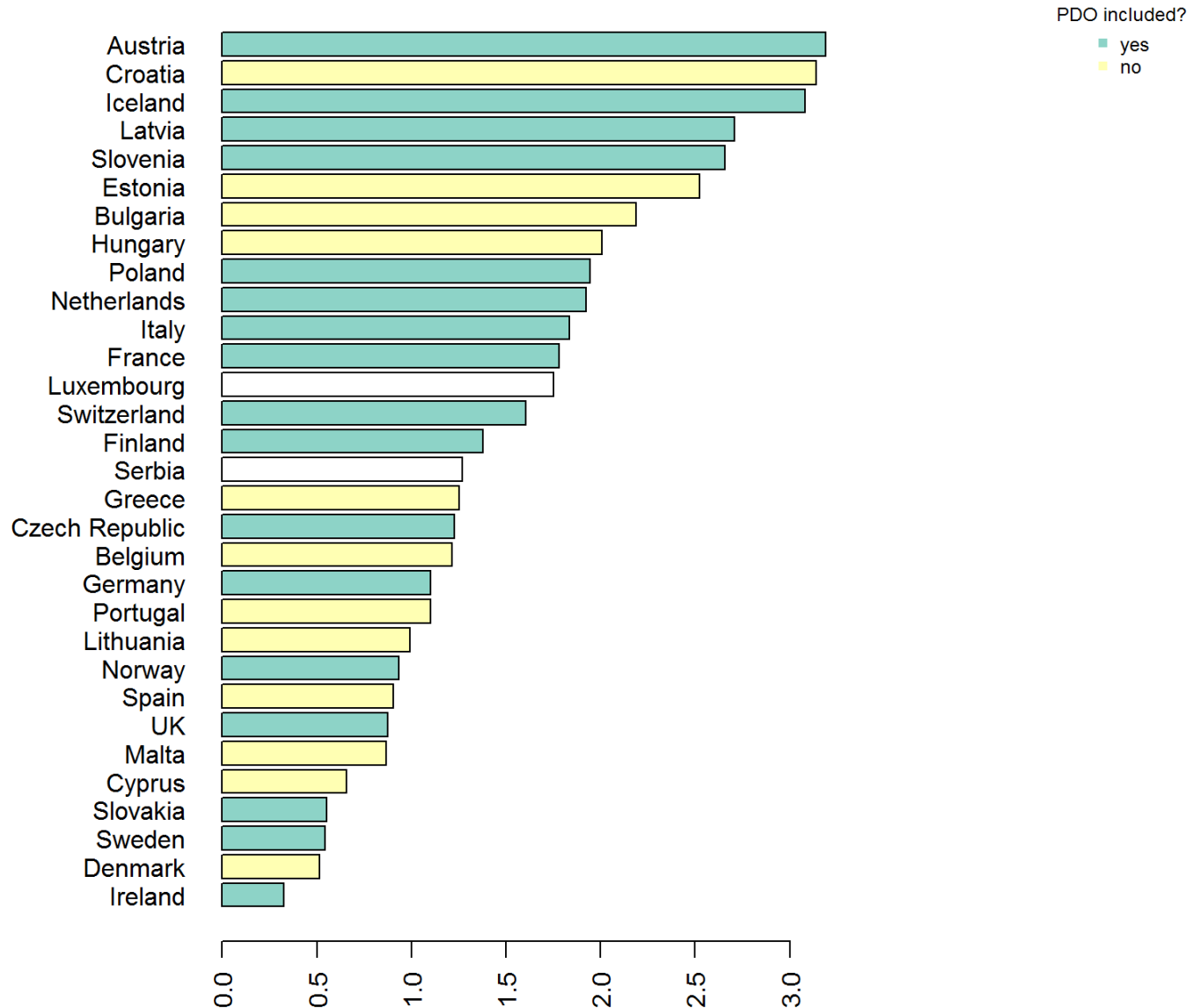


- Road safety level (number of casualties / crashes)
- Methodological issues:
 - *Cost items included*
 - *Methods*
 - *Severity categories included, particularly property damage only crashes*
 - *Correction for underreporting?*

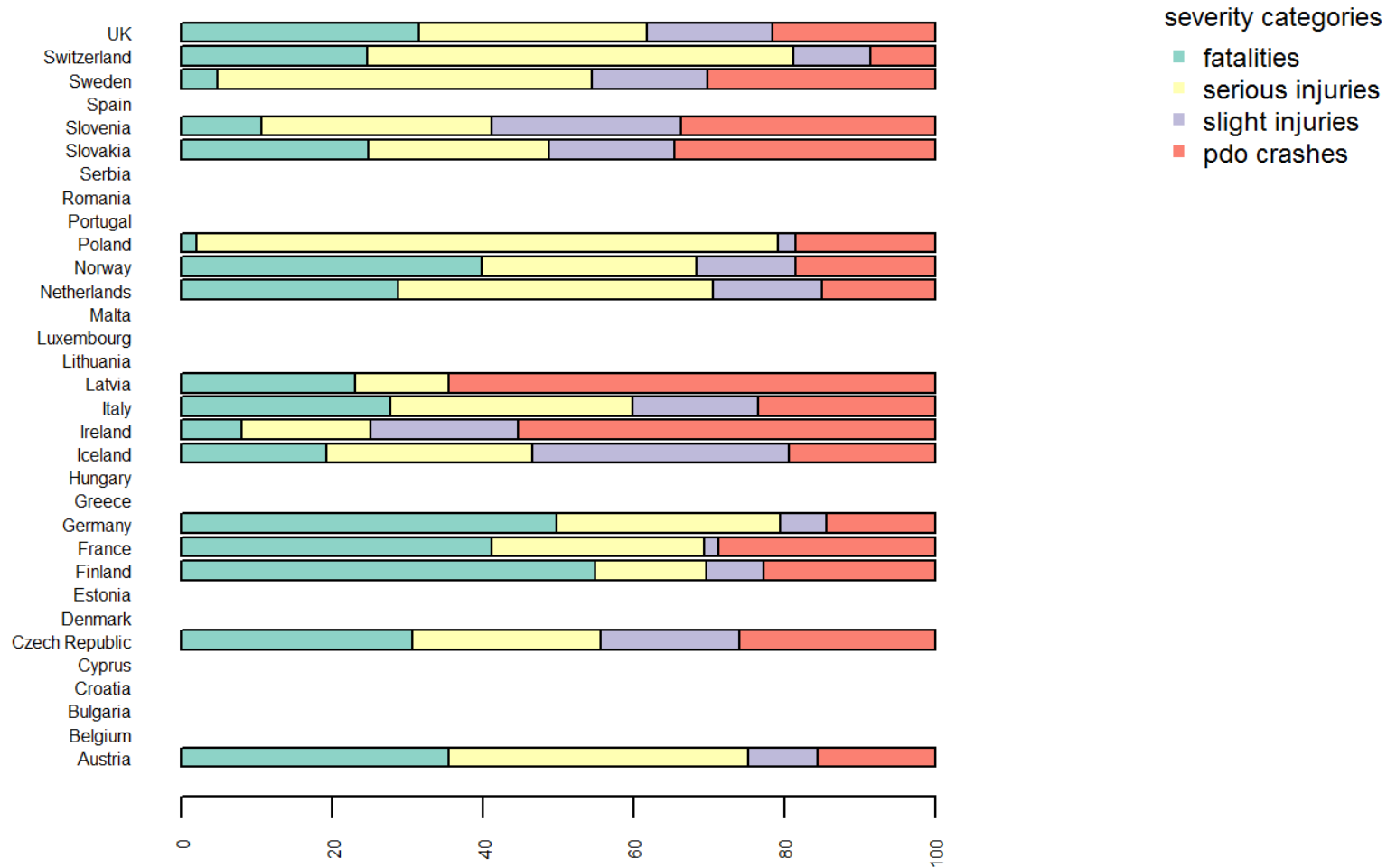
Relation mortality – total cost



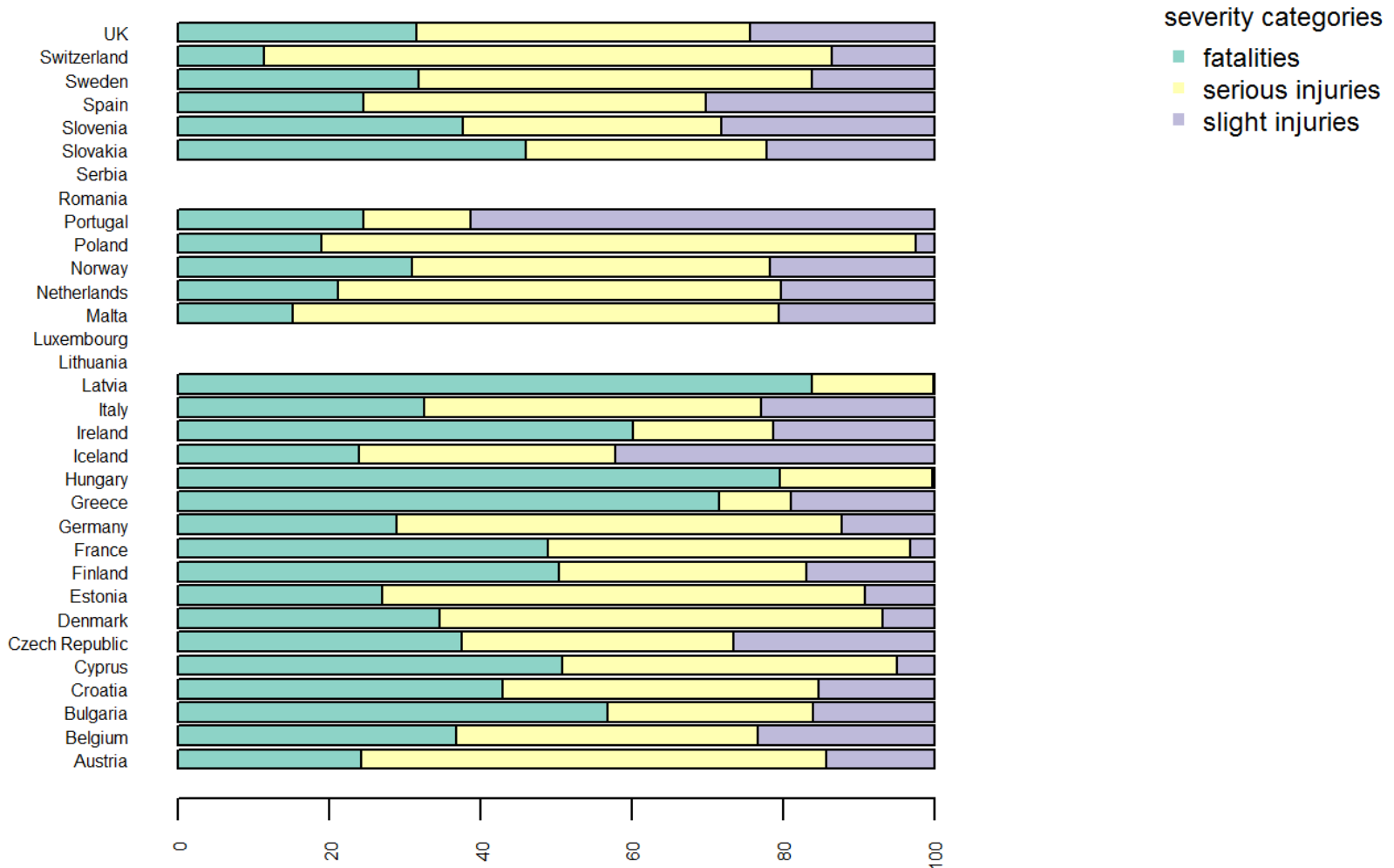
Total costs (%GDP)



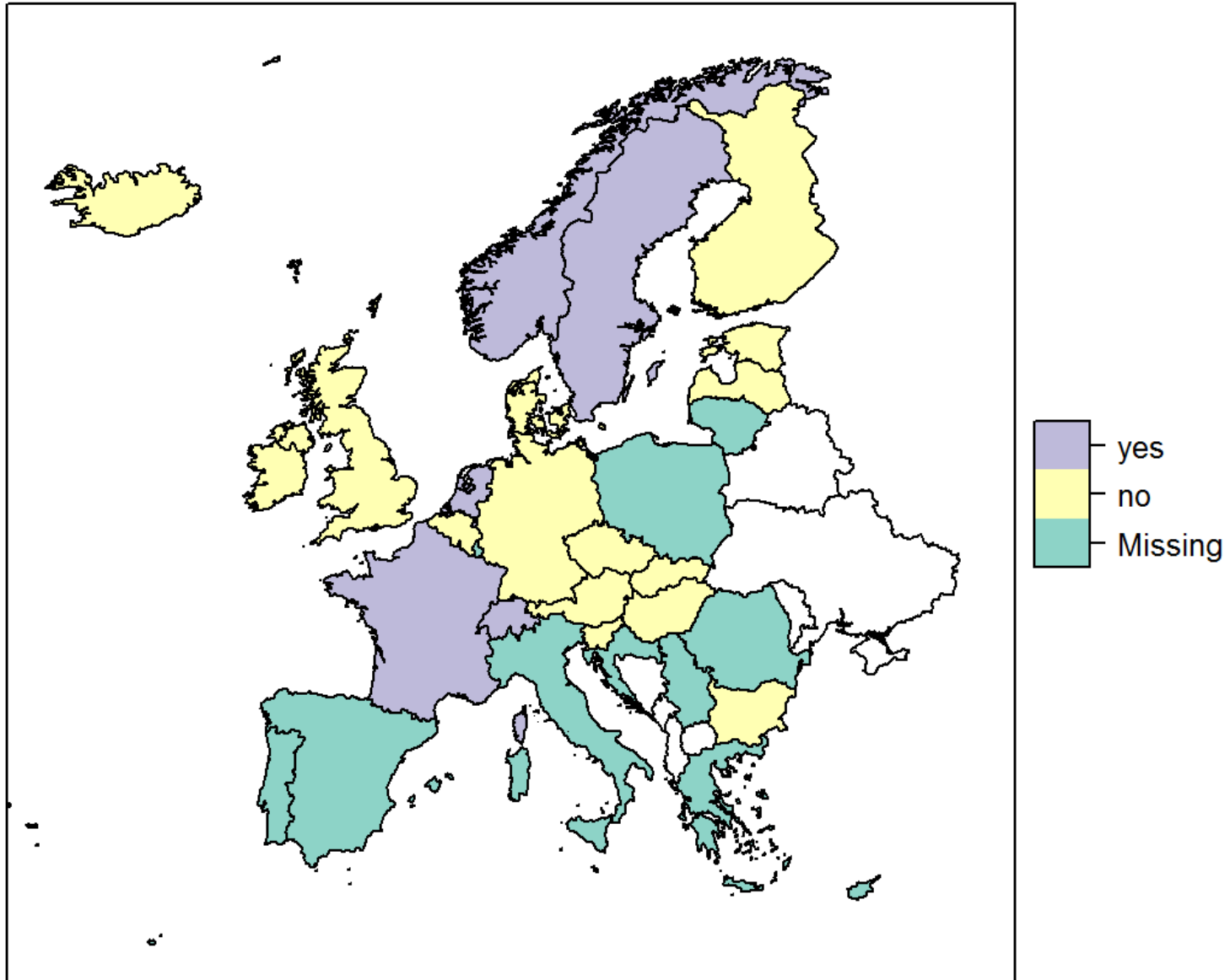
Total costs by severity



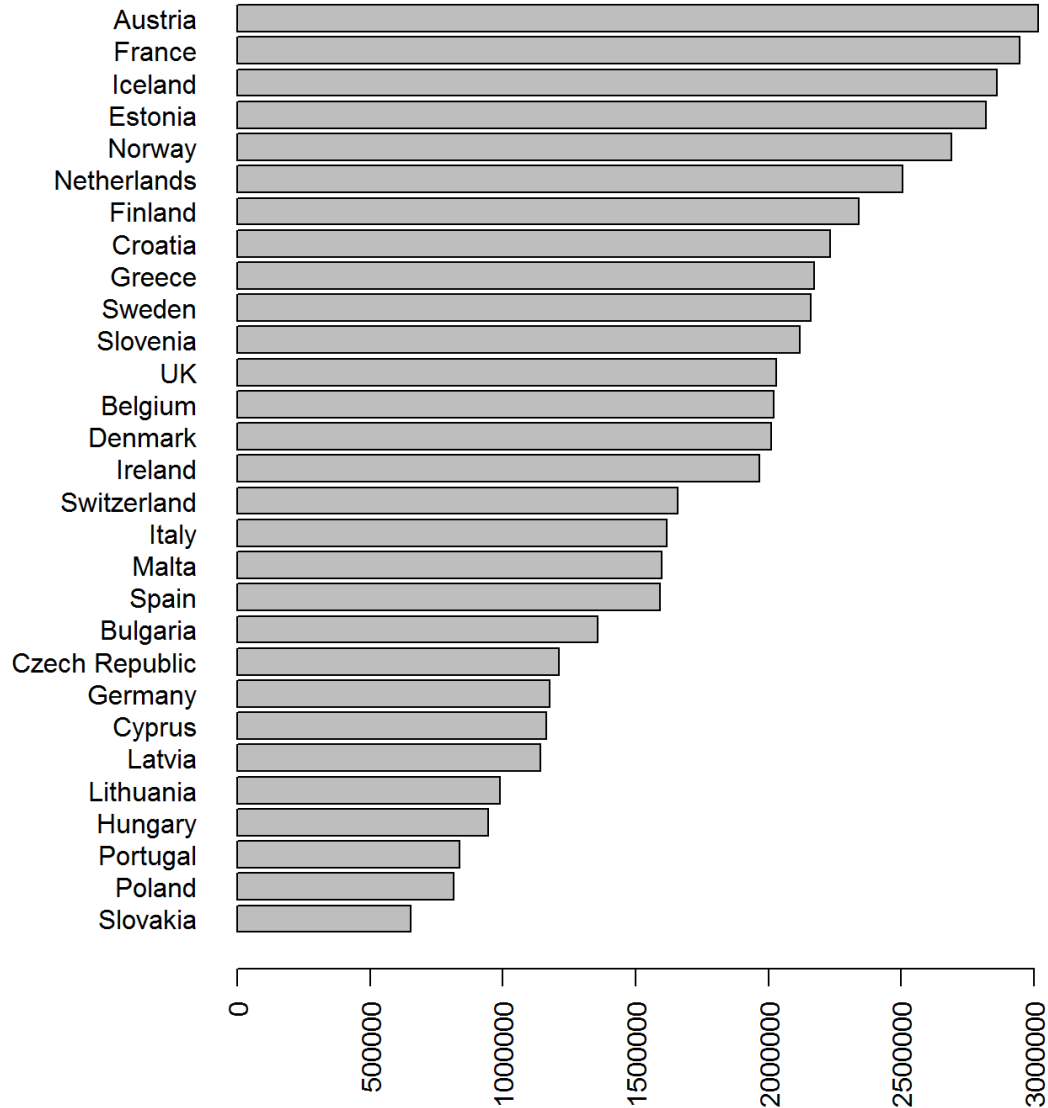
Total costs by severity



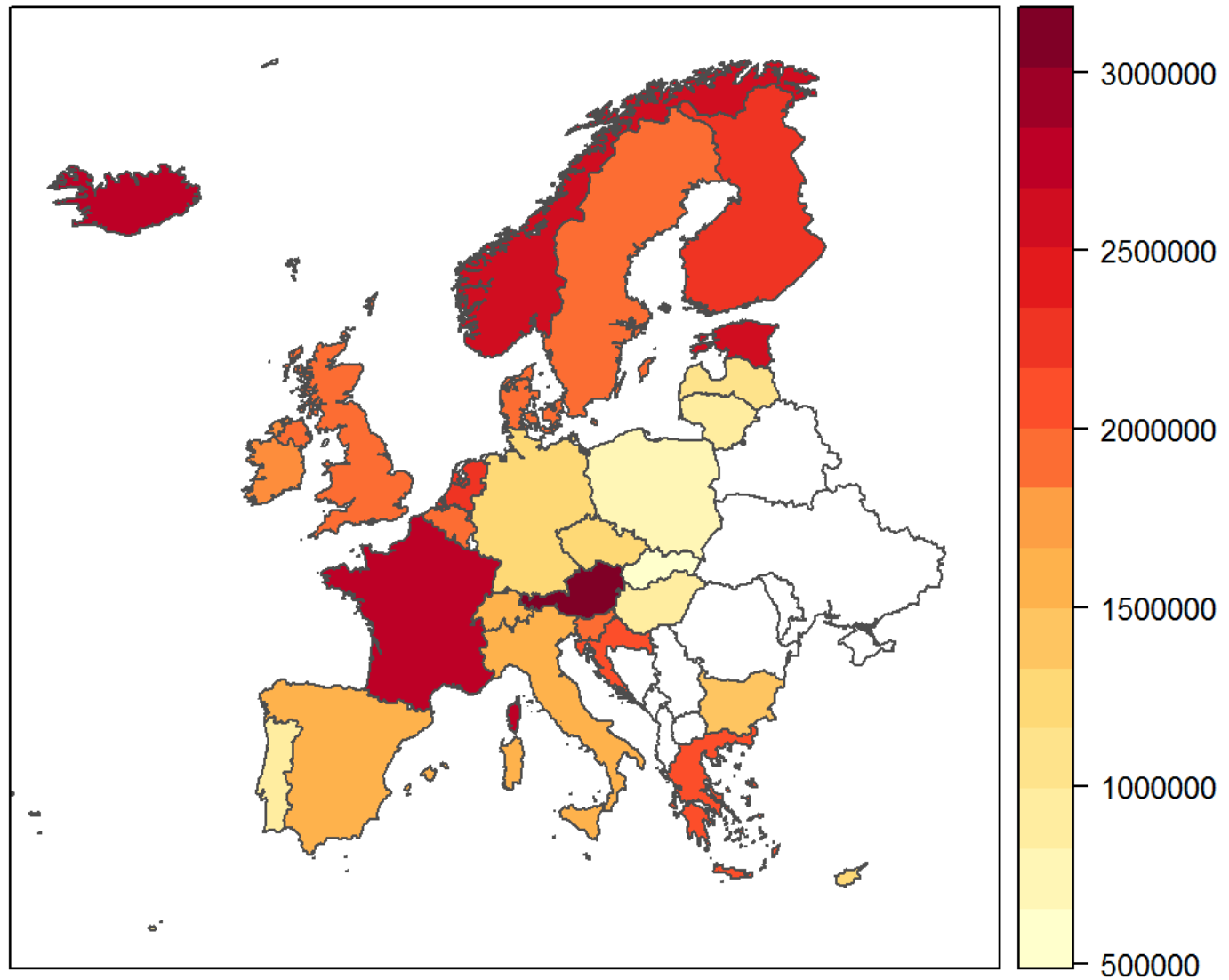
Correction for underreporting



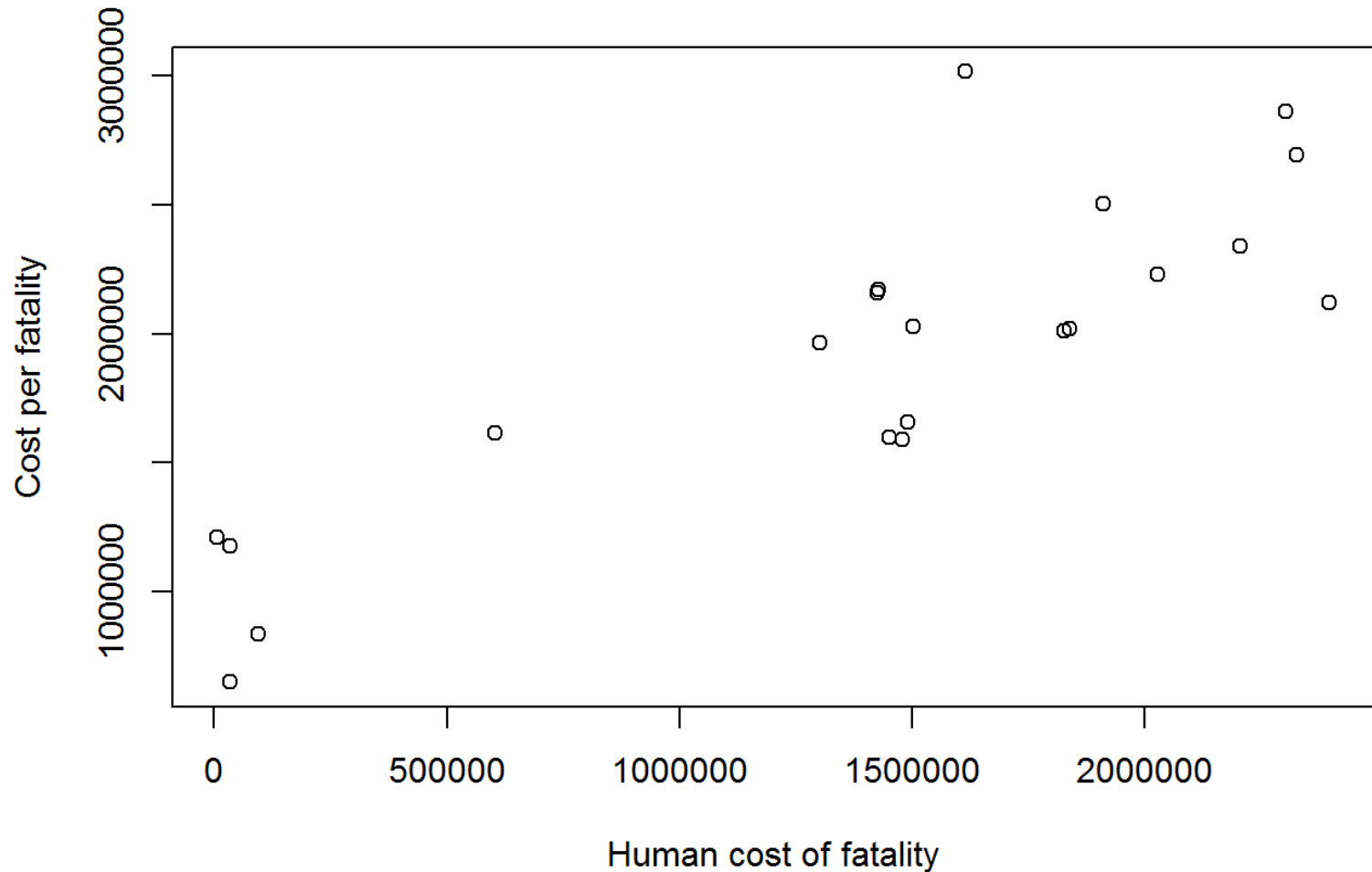
Costs per fatality



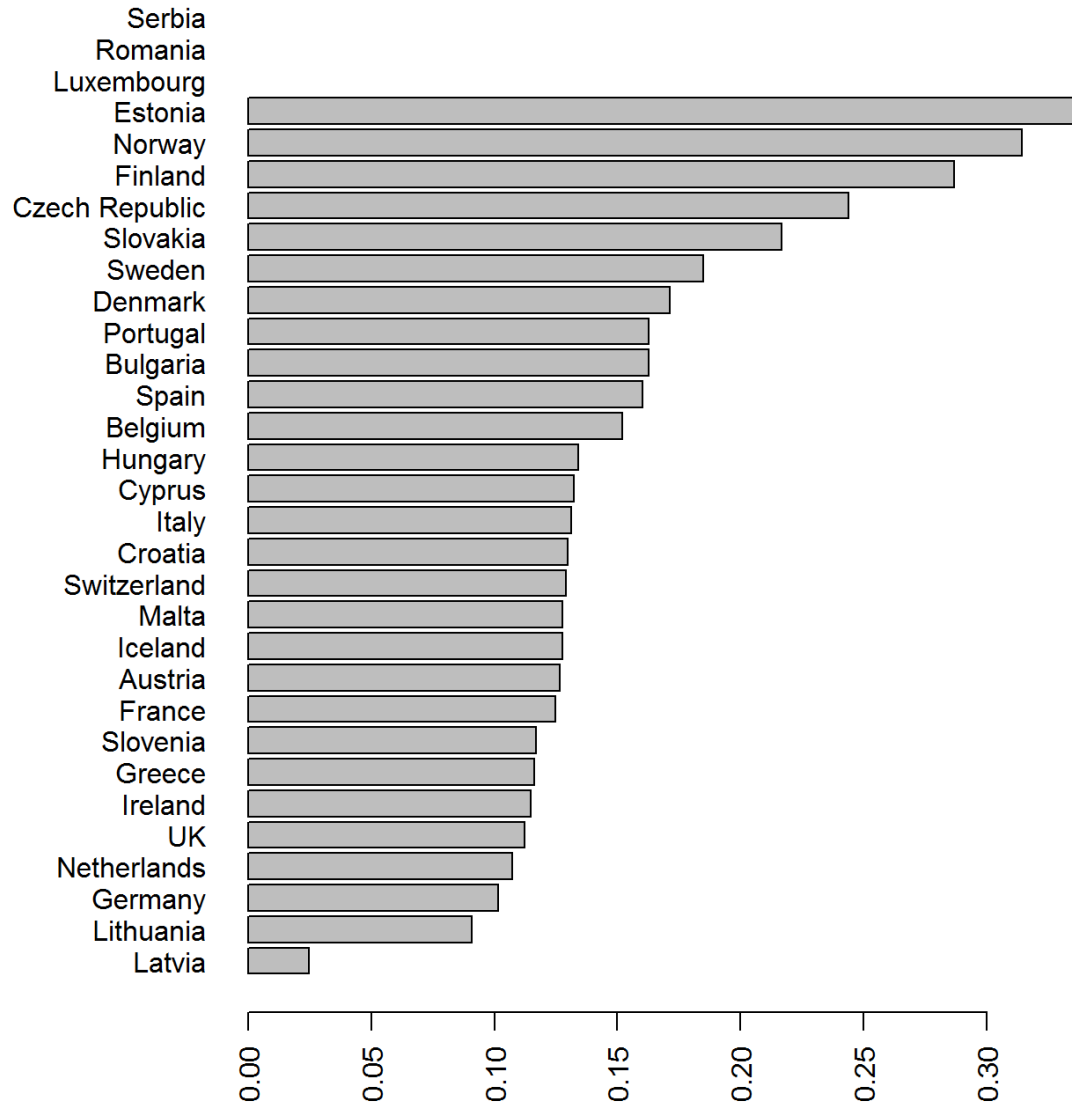
Costs per fatality



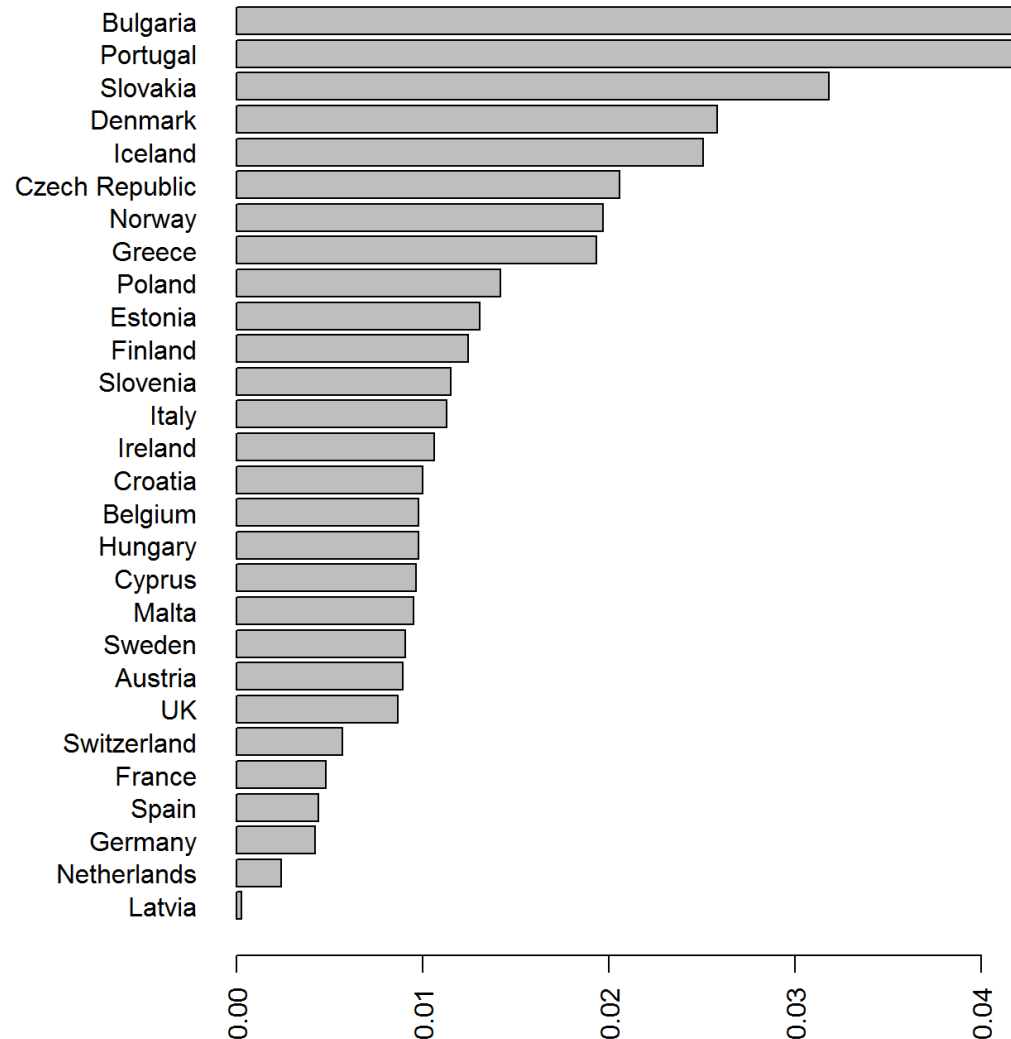
Human cost fatalities



Costs of serious injuries



Costs of slight injuries



Conclusions



- Official estimates of costs of road crashes in European countries range from 0.3 to 3.2% of GDP
- Costs per fatality range from 0.7 to 3.0 million EUR (2015)
- Variations mainly explained by methodological differences:
 - *Different cost components*
 - *Willingness to pay or other method*
 - *Correction for underreporting*
 - *Inclusion of property damage only crashes*
- Harmonization of cost estimates is needed for cost-benefit analysis on EU level

Next steps



- Developing a coherent set of EU values for cost-benefit analysis
- Value transfer
 - *Adding missing cost components*
 - *Estimating values using methods recommended in guidelines*
- Incorporating all values in the EEA-tool of the SafetyCube Decision Support System