2nd SafetyNet Conference
European Road Safety Observatory (ERSO)
Road Safety Management in Action
Evidence based policy setting for the European Community

Risk exposure data availability and compatibility

From data needs to a common European framework

E.Papadimitriou, A.Chaziris, G.Yannis
National Technical University of Athens

Transport

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Objectives

- The development of a **Common European Framework for Risk Exposure Data**, taking into account data needs, data availability, and data compatibility, as well as the data transformation rules required

  - Optimal exploitation of the existing data
  - Improvement of the current potential for European comparisons
  - Towards a future European framework for risk exposure data

Methodology

- Identification of risk exposure data needs and priorities
- Assessment of the compatibility of existing risk exposure data
- Synthesis of the common framework
  - Identification of comparable sets of data
  - Combined assessment of data needs and existing data quality

Analysis of data needs

Methodology

- An ad hoc survey was carried out (7 countries)
- SafetyNet partners were asked to fill in a grid indicating the exposure data needs, according to their experience in road safety research in their countries
- Ranking the various exposure measures and the related variables and values in terms of importance for different road safety analysis tasks
  - health risk analysis
  - traffic risk analysis

Analysis of data needs

- Two Summary Tables were created
  - priority needs for exposure data
  - overall needs for exposure data (example below)

Exposure Indicator	VARIABLES	Road Safety Analysis			
		Public Health Risk	Traffic Risk		
		Population	Road User	Vehicle	Network
Population	Age	HU,FR,PT,NL,GR,NO			
	Gender	HU,FR,PT,NL,GR,NO			
	Nationality	FR,PT,GR,NO			
	Region	FR,PT,GR,NO,NL			
Vehicle Fleet	Vehicle type			HU,AT,FR,PT,NL,GR,NO	
	Vehicle age			HU,AT,FR,NL,GR,NO,PT	
	Vehicle engine size			AT,FR,GR,NO,FR,PT	
	Region			FR,PT,GR,NL,NO,HU	
	Mass			NL,FR	
	Fuel type			NL,FR	
Driver Population	Age	HU,AT,FR,PT,GR,NL,NO	HU,AT,FR,PT,GR,NL,NO		
	Gender	HU,AT,FR,GR,NL,NO,PT	HU,AT,FR,GR,NL,NO,PT		
	Driver license age	AT,FR,PT,NO	AT,FR,PT,NO		
	Nationality	AT,PT,GR,NO,FR	AT,PT,GR,NO,FR		
	Region	FR,PT,GR,NO	FR,PT,GR,NO		AT,PT,FR
	Active driving license	HU,FR,PT	HU,FR,PT		
Road Length	Area type				HU,AT,FR,PT,NL,GR,NO
	Road type				HU,AT,FR,PT,NL,GR,NO
	Region				FR,PT,NL,GR,NO,HU,AT
Vehicle - Kilometres	Vehicle type			NO,AT,FR,PT,NL,GR,HU	
	Vehicle engine size			NO,AT,FR,GR,HU,PT	
	Vehicle Age			NO,HU,AT,FR,GR,NL,PT	
	Area type				NO,HU,FR,PT,NL,GR,AT
	Road type				NO,HU,FR,PT,NL,GR,AT
	Year/month/day/hour				FR,GR,AT,NL

Results for data needs

Summary of priorities in data needs

- Vehicle-kilometres per vehicle type and age (and per road type and area type)
- Vehicle-kilometres per (driver) age and gender
- Person-kilometres per person class, age and gender (and per experience, nationality, vehicle type and age)
- Driver population per driver age and gender
- Population per age and gender
- Vehicle fleet per vehicle type and vehicle age
- Road length per road type, area type and region

Analysis of data compatibility

Methodology for information collection

- A grid was created, in which the Member States were asked to provide information about each exposure indicator used in their country:
  - definition of the exposure indicator
  - variables and values available (and their definitions)
  - data structure (possibility to cross-tabulate the data)
  - collection methods used (and their main characteristics)

Compatible values (compatible definition)
Probably compatible values (unknown country definition)
Incompatible values or incompatible definition with CARE
The value is not available

Country 1 - Road length data

1. Variables and values

Variables	Values	Definition (Eurostat / Other) (if other please define)	Methodology / Source		
			Register	Survey	Other Method*
Area type	Inside urban area				
	Outside Urban area				
Region	NUTS*				
	Other*				
Road type	Motorway (yes/no)				
	Road type groups*				
Other*	Other*				
Other*	Other*				
Other*	Other*				
Other*	Other*				
Other*	Other*				
Other*	Other*				
Other*	Other*				

2. Methodology Questions

Survey

Who is responsible for this survey (organization, contact person)?	
Since when is the survey carried out?	
How often is the survey carried out?	
When were the last two surveys carried out?	
What is the target group number?	
What is the coverage rate of the survey?	

Analysis of data compatibility

Methodology for an in-depth analysis

- Data compatibility was examined by country and by indicator / collection method / variable / value

- For the available data, compatibility is assessed:
  - Is the exposure indicator defined as in Eurostat?
  - Are the available variables and values defined as in CARE?

Compatible values (compatible definition)
Probably compatible values (unknown country definition)
Incompatible values or incompatible definition with CARE
The value is not available

- Transformation rules proposed where possible

Results for road length

- Collection method: Road registers

Variable	Value	AT	BE	CY	CZ	DE	DK	EE	EL	FI	FR	HU	IE	LT	LU	LV	MT	NL	NO	PL	PT	SE	SI	SK	UK
Area type	Inside urban area																								
	Outside Urban area																								
Road type	Motorway (yes/no)																								
	Road type groups																								
Region	NUTS																								
	Other																								

- Compatible in the above countries per:
  - motorway (yes / no)
  - region (NUTS classification)

- Probably compatible for 6 countries (EE, ES, FR, NO, SK, UK) per area type (inside/outside urban area).

Results for vehicle fleet

- Collection method: Vehicle registers

Variable	Value	AT	BE	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	SE	SI	SK	UK
Vehicle type	Passenger car											a															
	Lorry < 3,5t											a											a				
	Truck > 3,5t											a											a				
	Bus or coach											a															
	Moped																										
	Motorcycle																										
	Road tractor											a															
	Agricultural tractor											a															
	Trailers and caravans							a				a															
	Other																										
Vehicle age	0-99							a																			
	Age groups																										
Vehicle engine size	Administrative power																										
	0-5000 cc																										
	Engine size groups																										
	Unknown																										
Region	NUTS																										

[a] coefficient required

- Compatible for most countries for the following variables:
  - vehicle type (passenger car, bus or coach, motorcycle)
  - vehicle age
  - vehicle engine size

Results for driver population

- Collection method: Driving license registers

Variable	Value	AT	BE	CY	CZ	EE	EL	ES	FI	FR	HU	IE	LV	MT	NO	PO	PT	SE	SK	UK
Driver age	0-99																			
	Age groups																			
Driver gender	Male																			
	Female																			
Driver license age	0-99																			
	Age groups																			
Region	NUTS																			
	Other																			
Driver Nationality	Country names																			

- Compatible for almost all countries per:
  - driver age
  - driver gender
  - driving license age

Results for vehicle kilometres

- Collection methods: Traffic counts / Travel surveys

Variable	Value	CZ	DK	EE	FI	FR	HU	NO	PL	SE	SI	UK
Road type	Motorway											
	Road type groups											
Vehicle type	Passenger car											
	Lorry < 3,5t											
	Truck > 3,5t											
	Bus or coach											
	Moped											
	Motorcycle											
	Road tractors											
	Other											
Vehicle registration country	National											
	Foreign											
Year	Year											
Month/day/hour	1-12 / 1-31 / 0-23						a		a			
Day of week	Day of week											
Area type	Inside urban area											
	Outside urban area											
NUTS	Levels 1,2,3											

Variable	Value	AT	DK	DE	EE	FR	NL	NO	PT	SE	SI	SK
Road type	Motorway											
	Road type groups										b	
Vehicle type	Passenger car											
	Lorry < 3,5t											
	Truck > 3,5t											
	Bus or coach											
	Moped											
	Motorcycle											
	Tractors											
	Others											
Vehicle age	Years											
Year/month/day/hour	1-12/1-31/0-23	a										
Day of week	Day of week											
Driver age	0-99											
	Age groups											
Driver gender	Male											
	Female											
Driver nationality	Nationality											
	Nationality groups											
Area type	Inside urban area											
	Outside urban area											
Seat belt use	Yes/no											

- In both cases, comparable for only a few countries per:
  - motorway (yes / no)
  - vehicle type (passenger car, lorry, bus or coach, motorcycle)

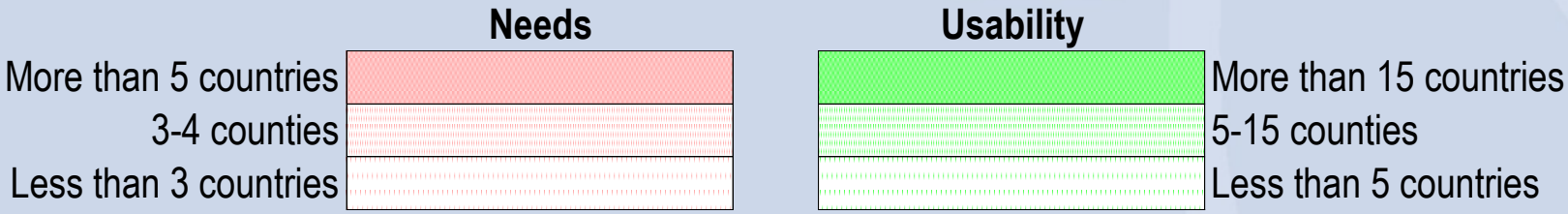
Results for other indicators

- **Population**: compatible for all countries per person age and gender

- **Person kilometres, number of trips, time in traffic**
  - Collected by travel surveys
  - Comparable for only a few countries
  - For very few variables and values

Combined analysis of data needs and current potential

Methodology



- A way for qualitative assessment of current data compatibility in relation to the current needs and priorities

Combined analysis of data needs and current potential (1/2)

		Data needs	Data usability
POPULATION	Age	HU,FR,PT,NL,GR,NO, DK	All
	Gender	HU,FR,PT,NL,GR,NO, DK	All
	Nationality	FR,PT,GR,NO	All except NL
	Region (NUTS)	FR,PT,GR,NO,NL, DK	All except CZ, DK, LV, UK
VEHICLE FLEET	Vehicle type	HU,AT,FR,PT,NL,GR,NO, DK	All
	Vehicle age	HU,AT,FR,NL,GR,NO,PT, DK	All
	Vehicle engine size	AT,FR,GR,NO,FR,PT	EE, NO, PL
	Region (NUTS)	FR,PT,GR,NL,NO,HU, DK	NO, AT, PL
	Mass	NL,FR, DK	-
	Fuel type	NL,FR	-
DRIVER POPULATION	Driver age	HU,AT,FR,PT,GR,NL,NO	All except DK, DE, FR, IT, LT, LU, SI, UK
	Driver gender	HU,AT,FR,GR,NL,NO,PT	All except DK, DE, FR, IT, LT, LU, SI
	Driver license age	AT,FR,PT,NO	All except DK, DE, FR, IT, LT, LU, NL, SI, SE
	Nationality	AT,PT,GR,NO,FR	CZ, AT, SK
	Region	FR,PT,GR,NO	ES, MT, NL, NO, AT, PL, SK, SE, UK
	Active driving license	HU,FR,PT	-
ROAD LENGTH	Area type	HU,AT,FR,PT,NL,GR,NO, DK	EE, ES, FR, NO, SK, FI, UK
	Road type	HU,AT,FR,PT,NL,GR,NO, DK	All except DK, DE, IE, CY, LV, LT, PL, SI, SE
	Region	FR,PT,NL,GR,NO,HU,AT, DK	BE, CZ, EE, EL, ES, FR, IT, NL, AT, NO, PT, SK

Combined analysis of data needs and current potential (2/2)

		Data needs	Data usability
VEHICLE KILOMETRES	Vehicle type	NO,AT,FR,PT,NL,GR,HU, DK	BE, CZ, LV, UK
	Vehicle engine size	NO,AT,FR,GR,HU,PT	-
	Vehicle Age	NO,HU,AT,FR,GR,NL,PT	-
	Vehicle registration country	-	SI
	Area type	NO,HU,FR,PT,NL,GR,AT	EE, NO, SI, UK
	Road type	NO,HU,FR,PT,NL,GR,AT	CZ, EE, FI, HU, NO, PL, SI, SE, UK
	Year/month/day/hour	FR,GR,AT,NL, DK	DK, EE, HU, NO, PL, UK
	Day of week	-	NL
	Region (NUTS)	-	UK
PERSON KILOMETRES	Person class	AT,FR,NL,GR,PT,DK	DK, DE, NL, NO, FI, SE, UK
	Person age	NO,AT,FR,PT,NL,GR, DK	DK, DE, NL, NO, FI, SE, UK
	Person gender	NO,AT,FR,NL,GR,PT, DK	DE
	Person nationality	NO,AT,PT,GR,FR	-
	Driver license age	AT,FR,GR,PT, DK	-
	Vehicle type	AT,FR,NL,GR	DK, DE, NL, NO, SK, FI, SE, UK
	Vehicle engine size	AT,FR,GR,PT	-
	Vehicle Age	AT,FR,GR,NL,PT	-
	Area type	FR,PT,GR,AT	DK, DE, PL, FI, SE, UK
	Road type	FR,PT,GR,AT	DE, PL, SE
	Year/month/day/hour	NO,FR,NL,GR, DK	DK, DE, NL, NO, SK, FI, SE, UK
	Day of week	-	DK, DE
	Alcohol/drug use	NO,FR,PT,GR	-
	Seat belt use	NO,FR,GR,PT	-

Synthesis

- A lot of data is available at national level

- However, for several indicators comparability is limited
  - Differences in variables and values definitions
  - Differences in collection methods used
  - Differences in the features of each collection method

- *The most useful data are the least available / compatible*

- The present analysis provides a tool for optimal use of the existing data
- The proposed transformation rules improve the current potential for analysis
- Important additional effort is required to meet the data needs

Towards a future European framework for exposure data

A two step process

1. Immediate research should focus on the **full harmonization of the existing data**
   - Continuation of SafetyNet work
   - Gathering the available exposure data
   - Development and improvement of transformation rules

2. Collection of **new and harmonized data**

Towards a future European framework for exposure data

Collection of new and harmonized data

- A pan-European **travel survey**:
  - vehicle and person kilometres per driver/vehicle/road characteristics
- A European framework for **traffic counts**:
  - vehicle kilometres per vehicle / road characteristics
  - Continuous over time
- European **registers** for vehicle fleet, driver population and road length
- Other (guidelines, recommendations)

- Proposals to be considered by the EC or by individual countries

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