

Work progress regarding Self-Protection and Partner-Protection

Extension of French Accident Analysis

Objectives and method

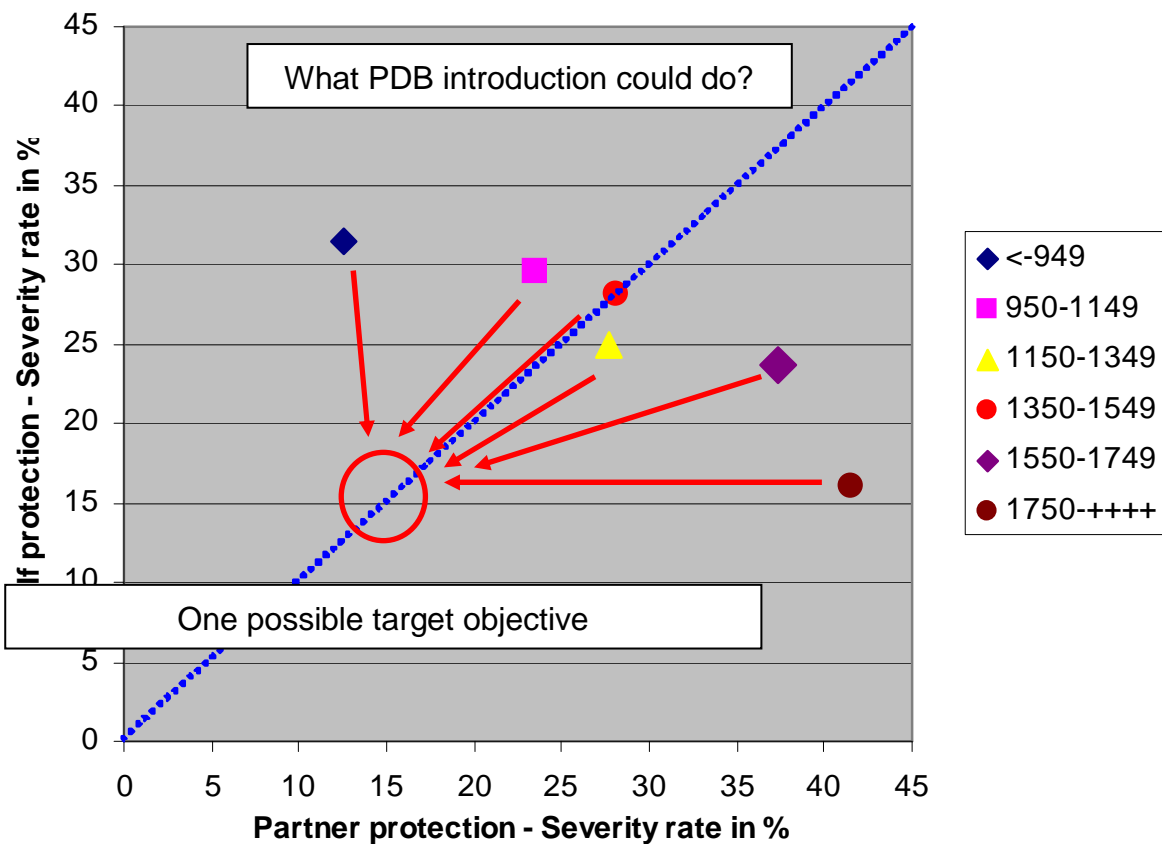
- Calculate the Safety Benefit Estimation for EU 27
- By extension of the French Safety Benefit Estimation
- Data limitations
 - No detail accident data at EU 27 level (mass, car designed according to R94 regulation,...)
- We have to find a different method to estimate this safety benefit
 - Use vehicle fleets from France and from EU 27
 - Compare the two fleet distributions

- French National data base: ONISR (BAAC: Bulletin d'Analyse d'Accident Corporel de la Circulation), for years 2005 to 2008 (with new french injury definition)
- Filter:
 - Car conception > 1999 or model year > 2003
 - Frontal impact against cars or against fixed obstacles (wall, tree,...).
 - A least 1 slightly injured people involved in the accident.
 - Front occupant belted (driver and passenger).
 - 6 mass classes : [<950], [950-1149], [1150-1349], [1350-1549], [1550-1749], [>1750]

- French National fleet
- European fleet (only 23 countries are available: missing Bulgaria, Roumania, Malta, Cyprus)
- Sample characterization:
 - Car not designed according to R94 regulation: conception < 1999
 - Car designed according to R94 regulation: conception > 1999 or model year > 2003
 - 6 mass classes : [<950], [950-1149], [1150-1349], [1350-1549], [1550-1749], [>1750]

French Self Protection vs Partner protection regarding front end collisions

BAAC 2005-2008, car occupants, belted, front seats, head on collisions, car to car (N=1875), according to mean mass classes, conception >1999 or model year >2003 for both cars



➤ Method:

- Estimation of the number of expected victims if all the vehicles had an identical Severity Rate.
- Choose a group of vehicles whose Severity Rate will be the target to be reached by the other vehicles
- New target with new input data is 16.07%.
- Calculation of the expected number of victims (N1), with this Severity Rate of reference.
- The difference between the number of victims N observed, and N1 represents the potential benefit for fatalities and severe injuries.

French Safety Benefit Estimation

➤ **Result:**

- France 2007 all impacts: 2 464 fatalities and 16 486 severe injuries in cars

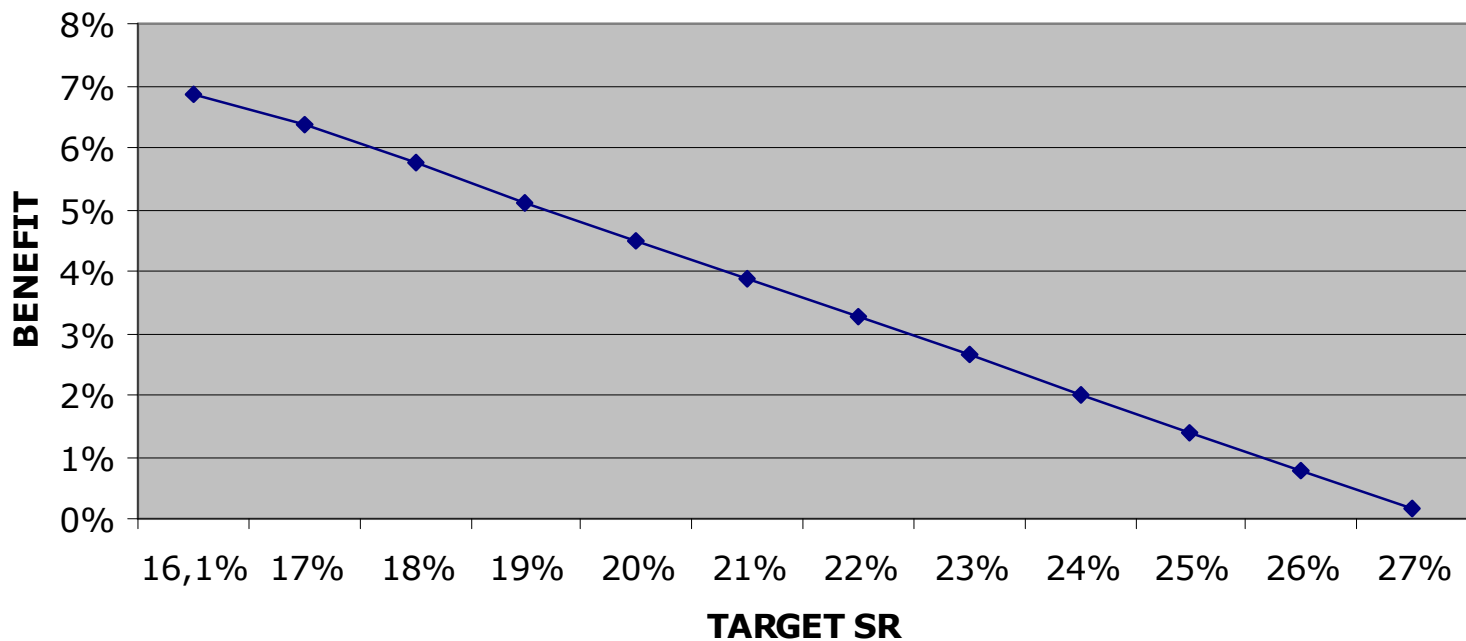
	Front end collisions	All impacts
	Victims reduction on pertinent accidents (front occupant, belted, head on collision between two cars of conception > 1999 or model year > 2003)	Victims reduction extrapolated to the whole set of car occupants
Reduction in fatalities and severe injuries (SR)	40,3%	7,0%

➤ **For France year 2007:**

- Reduction in fatalities and severe injuries will represent: 1 327 victims

French Safety Benefit Estimation

**BENEFIT OF THE HARMONISATION OF FRONTAL PROTECTION
 ACCORDING TO THE VALUE OF THE TARGET SEVERITY RATE (SR).
 Reduction of the the number of fatal and severely injured car
 passenger. SETRA 2005 2006 2007 2008.**



French and European fleet comparison

	France						Europe					
	< 950 kg	950-1149 kg	1150-1349 kg	1350-1549 kg	1550-1749 kg	> 1750 kg	< 950 kg	950-1149 kg	1150-1349 kg	1350-1549 kg	1550-1749 kg	> 1750 kg
Total Fleet(%)	21.7%	32.0%	25.5%	14.4%	4.1%	2.4%	20.6%	31.0%	26.8%	14.7%	4.4%	2.6%
Fleet designed according to R94 (%)	3.1%	25.1%	34.9%	25.6%	6.5%	4.9%	5.3%	27.4%	32.0%	24.9%	5.5%	4.9%
Fleet not designed according to R94 (%)	31.3%	35.5%	20.7%	8.6%	2.8%	1.1%	28.7%	32.9%	24.0%	9.2%	3.9%	1.4%

➤ No significant distribution difference between France and Europe

French and European fleet comparison

	France	Europe
Fleet designed according to R94 (%)	33.9%	35%
Fleet not designed according to R94 (%)	66.1%	65%

European fleet distribution

Country	Number	%	Cumulative %
Germany	41,183,594	18.8%	18.8%
Italy	31,414,905	14.4%	33.2%
France	30,700,623	14.1%	47.3%
United King	30,257,323	13.8%	61.1%
Spain	21,760,174	10.0%	71.1%
Poland	13,393,451	6.1%	77.2%
Netherlands	7,509,649	3.4%	80.7%
Belgium	5,006,294	2.3%	82.9%
Greece	4,805,156	2.2%	85.1%
Portugal	4,379,071	2.0%	87.1%
Czech Repub	4,285,465	2.0%	89.1%
Sweden	4,249,344	1.9%	91.1%
Austria	4,245,583	1.9%	93.0%
Hungary	3,012,165	1.4%	94.4%
Finland	2,553,556	1.2%	95.5%
Denmark	2,060,418	0.9%	96.5%
Ireland	1,899,639	0.9%	97.4%
Lithuania	1,592,051	0.7%	98.1%
Slovakia	1,433,926	0.7%	98.7%
Slovenia	1,029,342	0.5%	99.2%
Latvia	869,656	0.4%	99.6%
Estonia	523,766	0.2%	99.9%
Luxembourg	321,538	0.1%	100.0%
Total	218,486,689	100.0%	

- Five countries represent more than 70% of the European fleet
- Only 23 countries are available: missing Bulgaria, Roumania, Malta, Cyprus

Conclusions of this first approach

- There is no significant differences between France and EU 23 regarding the distribution of vehicles per mass classes (assume to be the same for EU 27).
- 5 countries (France, UK, Germany, Italy and Spain represent more than 70% of the European fleet.
- Assuming that type of crashes are nearly the same in all this countries, we can say that the Safety Benefit Estimation will be also about 7% for all Europe.
- Number of fatalities and severe injuries reduction
 - CARE source 2005: 20 countries (missing Germany, Lithuania, Slovakia, Slovenia, Latvia, Cyprus and Bulgaria)
 - 95659 fatalities and severe injuries in cars
 - Gain of 6 696 car occupants for this 20 countries

Thank you for your attention