

# French accident data Self-Protection and Partner-Protection involving new vehicles

## *Summary of the presentation*

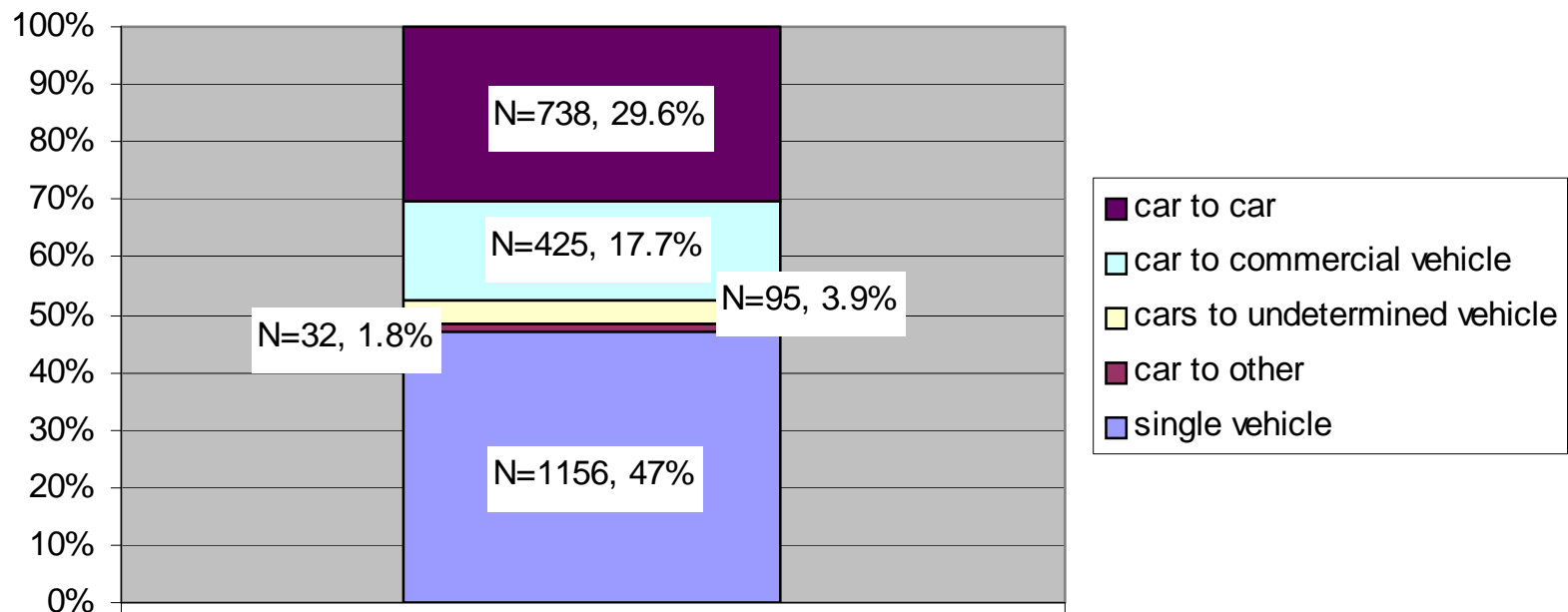
- Objectives
- French national statistics
- Input data and methodology of the study
- Self protection regarding frontal impact
- Self protection vs partner protection regarding front end collisions
- Safety benefit estimation

## *Objectives*

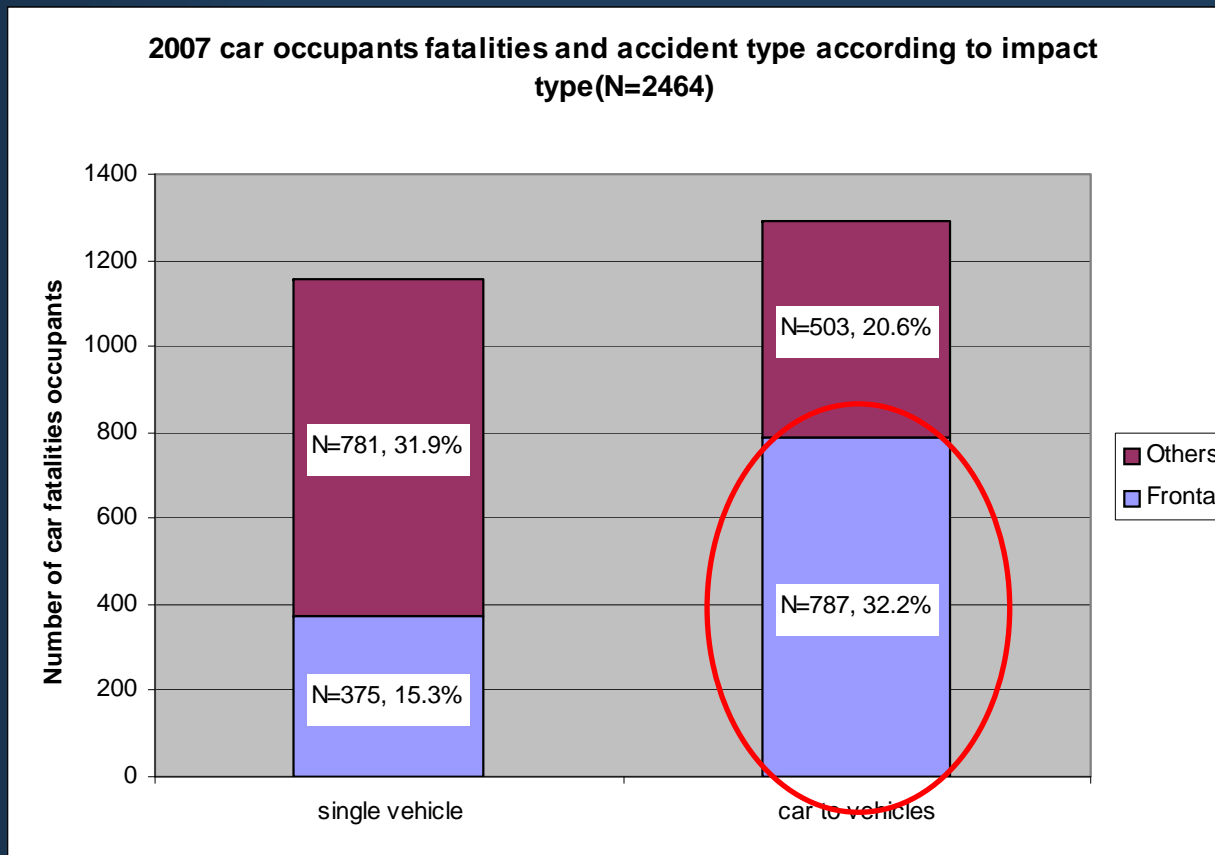
- French data
- Frontal impact and protection for new vehicles

- Car occupant fatalities
- All accident types in France
- Year 2007, N=2 464 occupants

**2007- car occupant fatalities and accident type (N=2464)**



- Car occupant fatalities
- Year 2007, N=2 464 occupants



- Compatibility:
  - Capacity of 2 vehicles to distribute in a balanced way the energy (proportionally to its mass) of an impact to offer to their occupants the same chances of survival as equal as possible, without degrading the level of protection offered.
- It is characterized by 2 indicators:
  - **Self-protection:** number of injured people (slightly injured, seriously injured or fatal) observed in the considered car model (internal injuries).
  - **Partner-protection:** number of injured people (slightly injured, seriously injured or fatal) observed in the impacted vehicle by the considered car model (external injuries).
- Classify vehicles involved in accidents according to their Self-Protection and to their Partner-Protection.

- In each indicator we calculate
  - SR=Severity Rate indicator (fatalities + serious injuries) internal (frontal protection):

$$SR( protection ) = \frac{(Fatalities + Severe \_inj)_{int}}{(Fatalities + Severe \_inj + Slight \_inj + Not \_inj)_{int}}$$

- MR=Mortality Rate indicator (fatalities) internal (frontal protection):

$$MR( protection ) = \frac{(Fatalities)_{int}}{(Fatalities + Severe \_inj + Slight \_inj + Not \_inj)_{int}}$$

- French National data base: ONISR (BAAC: Bulletin d'Analyse d'Accident Corporel de la Circulation), for years 2005 to 2008.
- New french injury definition (year 2005):
  - Severely injured = injured people hospitalized more than 24 hours.
  - Slightly injured = injured people hospitalized less than 24 hours.
- New 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).
  - Vehicle mass class : [ $<950$ ], [ $950-1149$ ], [ $1150-1349$ ], [ $1350-1549$ ], [ $1550-1749$ ], [ $>1750$ ]



# Input data and methodology

French National data base - Years 2005 to 2008 - All severity

323 431 accidents, 728 429 involved people, All users

Car occupants, in identified vehicles, 181 621 accidents, 299 750 involved people

Frontal impact against cars

Frontal impact, front seats, belted occupants

33 327 accidents, 54 137 involved people

Car conception > 1999 or model year > 2003, identified mass

1 793 accidents, 2 871 involved people

Frontal impact against wall, tree, pole

Frontal impact, front seats, belted occupants

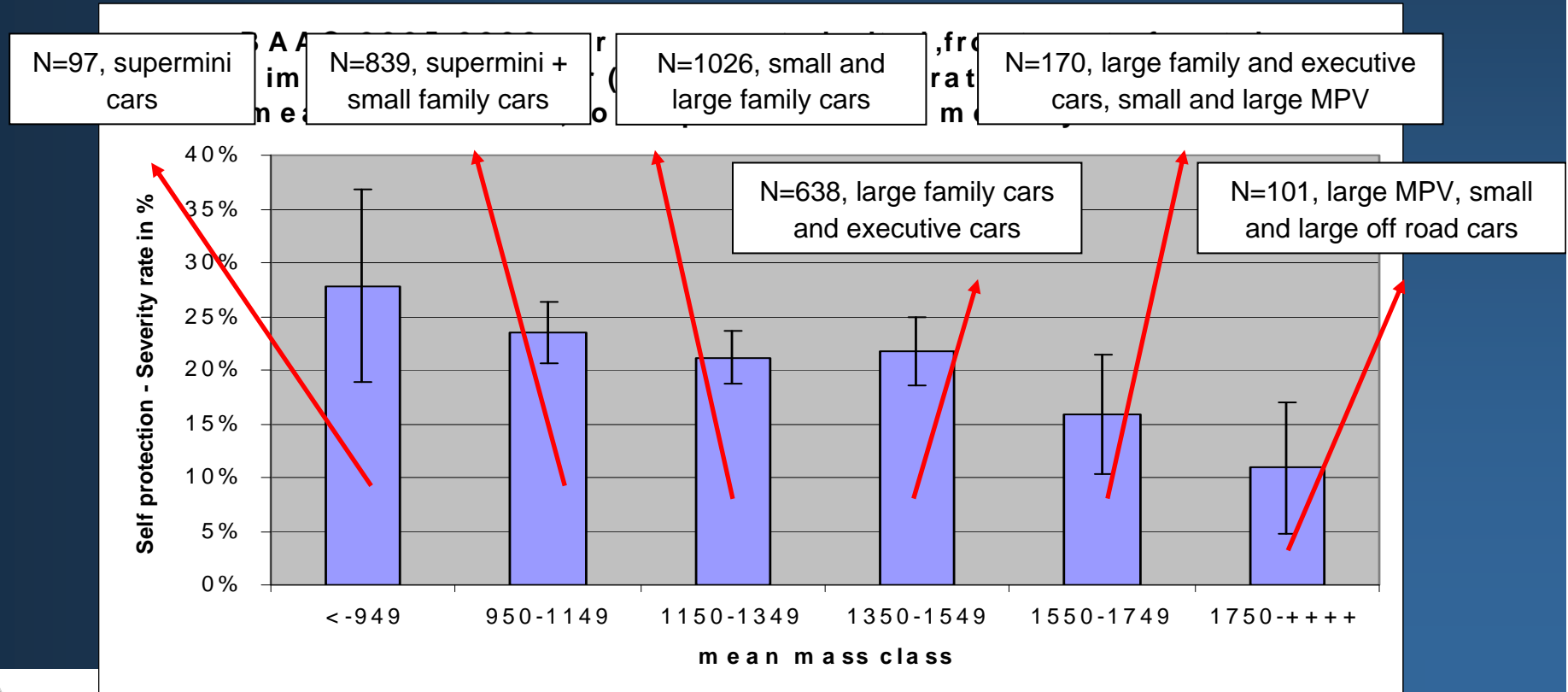
5 661 accidents, 7 414 involved people

Car conception > 1999 or model year > 2003, identified mass

861 accidents, 1 126 involved people

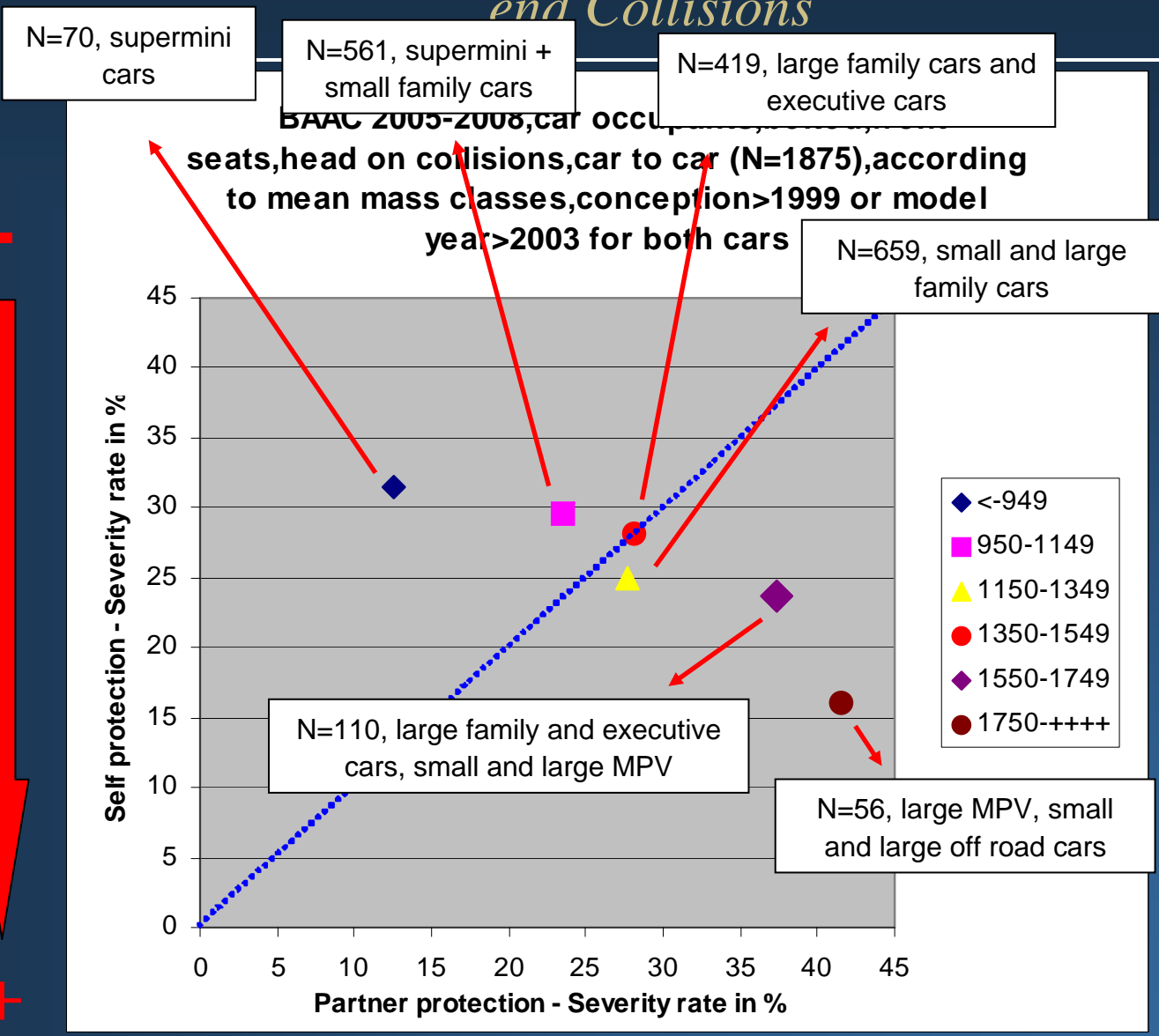
# Self Protection Regarding Frontal Impact

- BAAC 2005-2008
- Front car occupants belted
- Frontal impact against car (n=2 871)
- Severity rate according to mean mass class
- Conception >1999 or model year >2003



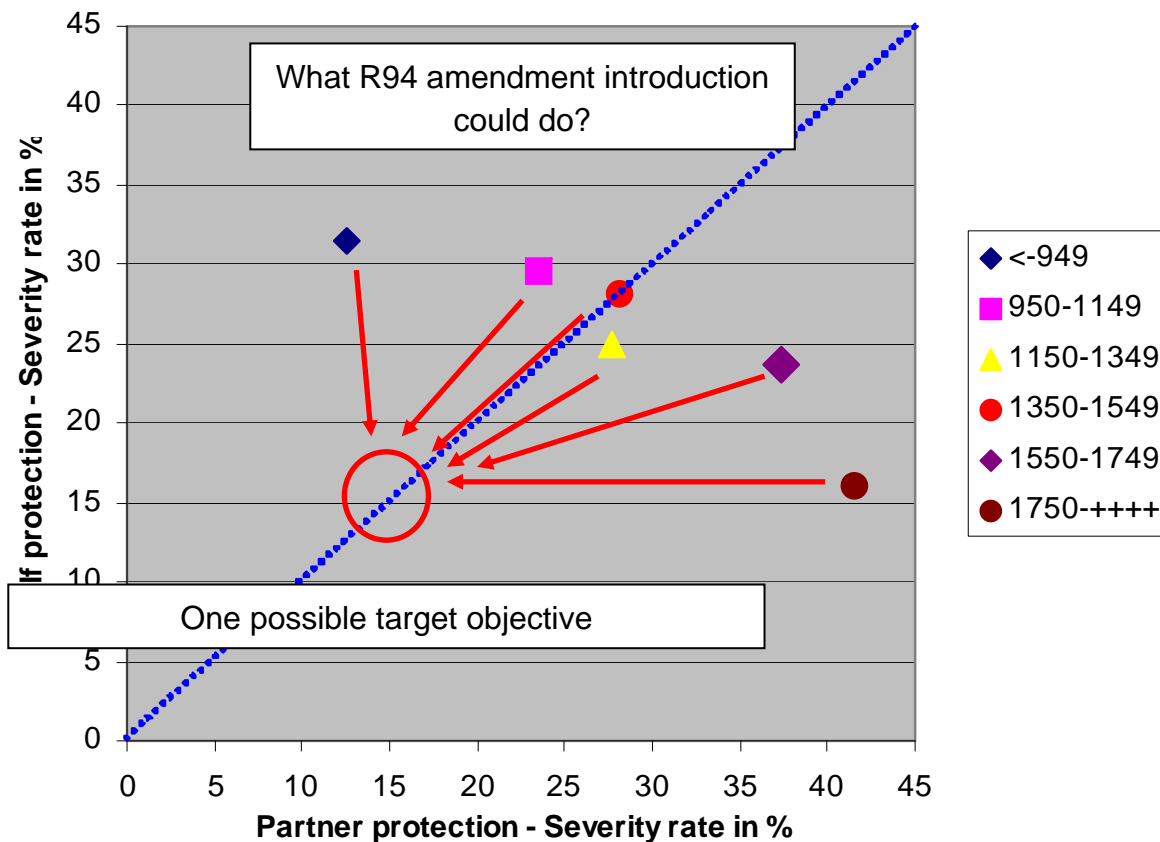


# Self Protection vs Partner Protection Regarding Front end Collisions



# 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.

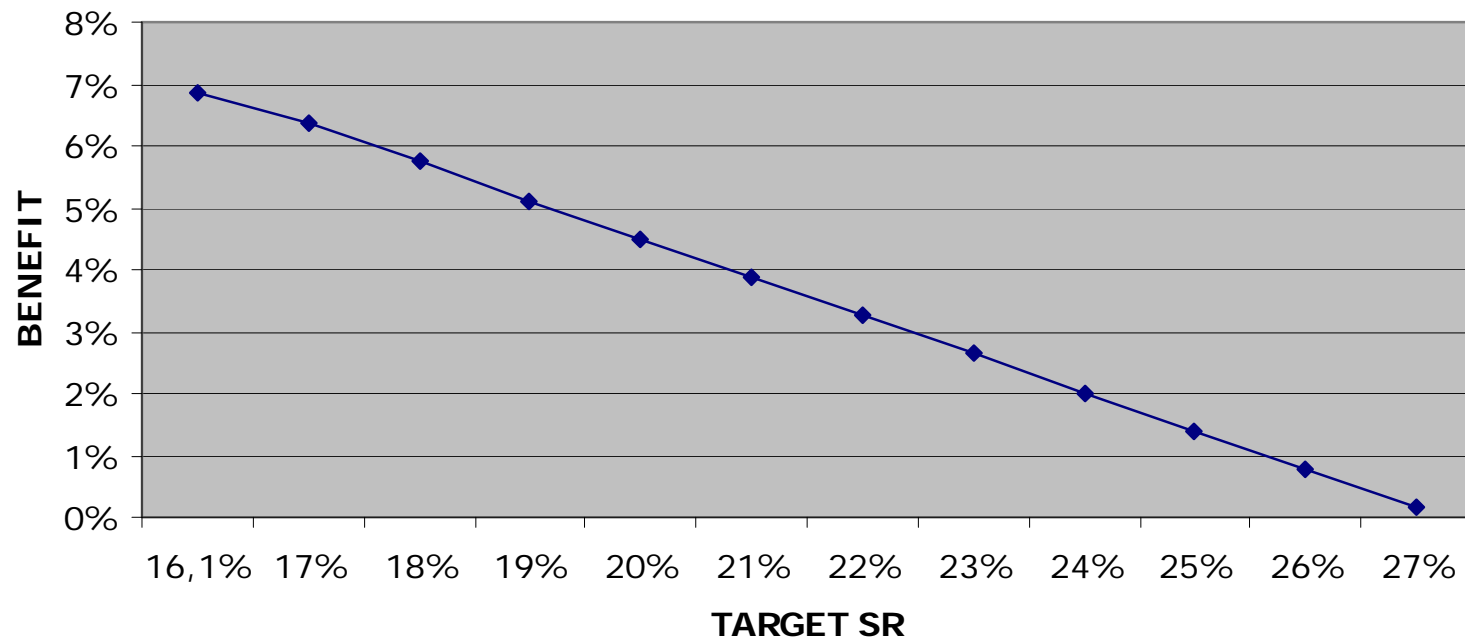
## Safety Benefit Estimation

- Result (method B1 and B2 explained in the last presentation):
  - 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
<b>Reduction in fatalities and severe injuries (SR)</b>	<b>40,3%</b>	<b>7,0%</b>

- For France year 2007:
  - Reduction in fatalities and severe injuries will represent: 1 327 victims.

**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.**



Thank you for your attention