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EUROPEAN EXPERIENCES IN METHODOLOGY OF EXTERNAL ROAD ACCIDENT COSTS CALCULATION

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International
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GAMBIT
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Contents:

- ❖ Current road traffic safety situation in EU member states - targets, achievements and threats;
- ❖ Examples of European projects on accident costs;
- ❖ Internal and external accident costs;
- ❖ Methods of calculation of specific accident cost items;
- ❖ Estimations of accident costs based on European studies;
- ❖ Conclusions.

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EU Road Safety Targets and Their Achievement in EU-25

Strategic documents – objectives:

- ❖ White Paper, European transport policy for 2010: time to decide” of 2001 – target: decrease road traffic fatalities by 50%.
- ❖ The European Road Safety Action Programme of 2003 underlines the fact that this target is a “shared responsibility” and can thus only be achieved with the joint effort of all stakeholders.

Achievements:

- ❖ In the period 2001-2005 the number of fatalities was decreasing by 5% per year;
- ❖ The number of fatalities in EU-25 decreased by 18,1% in the period 2001-2005.

Threats:

- ❖ With the current trend the number of fatalities in 2010 will reach 32 500.

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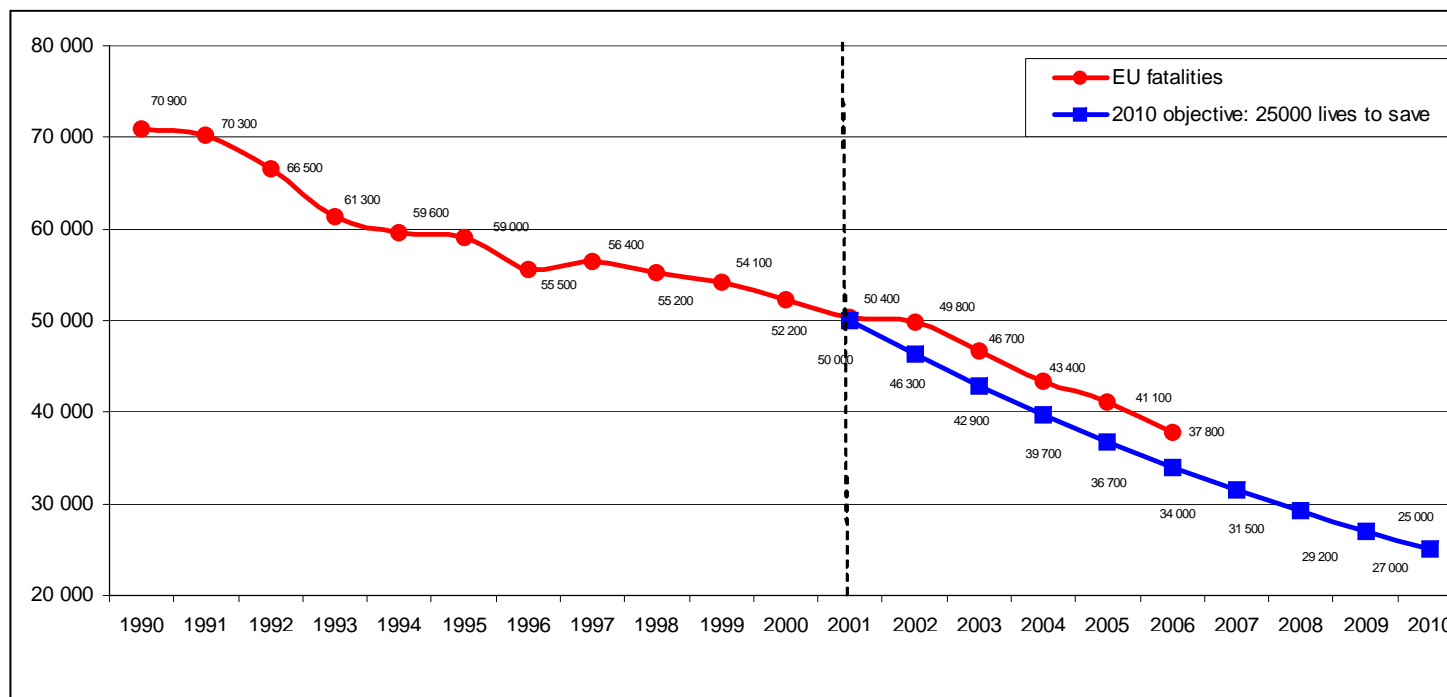
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Road Accident Ratio in EU-25, 1990-2010

Accidents with Fatalities



Source: http://ec.europa.eu/transport/roadsafety/road_safety_observatory/doc/historical_evolution.pdf

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Overview of European Research Projects on Social/External Road Accident Costs

Author, Title, Year of Publication	Base year(s) of results	Countries covered	Effects
High Level Group on transport 1999	Methodology	European Union	Marginal costs
UNITE 2003	1998, (1996, 2005)	EU-15, Hungary, Estonia, Switzerland	Total, average and marginal costs
HEATCO 2006	2006	EU-25	Avoidance costs for EU-25 (prices 2002)
GRACE 2007	2007	EU-25	Marginal costs
INFRAS/IWW, External costs of transport, 2000	2000	EU-15, Norway, Switzerland	Methodology and estimations for total, average and marginal costs
IMPACT	2007	EU-25	Comparisons of methods

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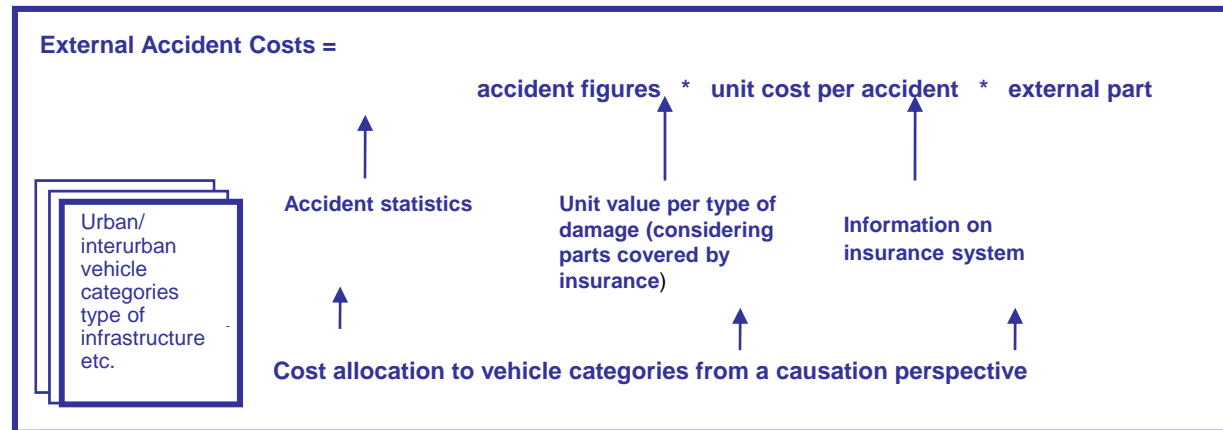
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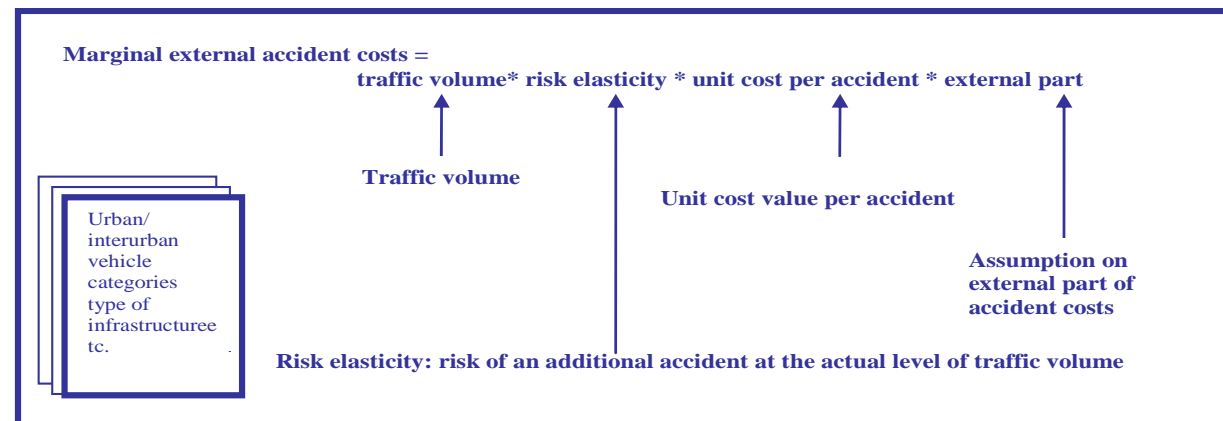
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Two Main Approaches Concerning Social Road Accident Cost Category Predominant in Research:

1. Approach based on total and average accident costs:



2. Approach based on marginal external accident costs:



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Internal and External Accident Costs

- ❖ **External costs - caused by individual transport users but covered by the whole society,**
 - ❖ medical and rehabilitation costs of accident victims;
 - ❖ production losses or human capital costs;
 - ❖ administrative costs: police, fire brigade, medical emergency, court, etc;
 - ❖ material losses not covered by insurance (applies mainly to losses in public property).
- ❖ **Internal/private costs - covered by insurance companies under claims settlement**
 - ❖ Risk value- - based on the VOSL indicator - *value of statistical life*.

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Calculation of unit accident cost comprises five elements:

- ❖ **Material damages costs:**
may be calculated based on current expenses of insurance companies incurred for claims settlement
- ❖ **Administrative costs:**
Average unit costs per accident or victim taking into consideration severity
- ❖ **Medical costs:**
Costs of individual medical treatment or procedures are the basis for calculation of medical and rehabilitation cost of accident victims
- ❖ **Production losses:**
Firstly, the cost of employee replacement for the period of medical treatment and rehabilitation, secondly, the cost of current and future production losses
- ❖ **Cost of suffering (risk value),**
It can be estimated as the amount of money which people are willing to pay (WTP – willingness to pay) to avoid the risk of accident.

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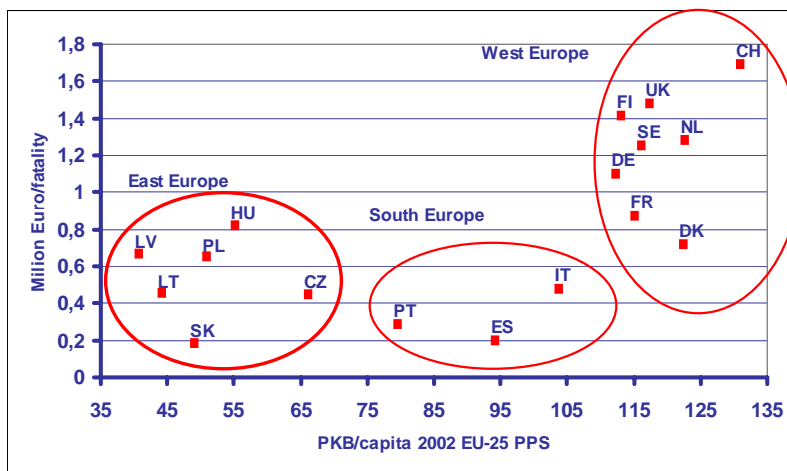


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Estimation of Road Accident Cost

Accident cost and its components:

	Fatality	Severe Injury	Slight injury
(a) VOSL based on WTP	1,50	0,20	0,015
(c) Additional accident cost for the Rest of the society	8%	20%	20%
Total cost I (a+c)	1,62	0,23	0,02
(b) Additional WTP based on relatives and friends	40%	40%	40%
Total cost II (a+b+c)	2,22	0,31	0,02



Statistical value of life of accident fatalities by GDP/capita (EUR 2002 factor prices, PPS)

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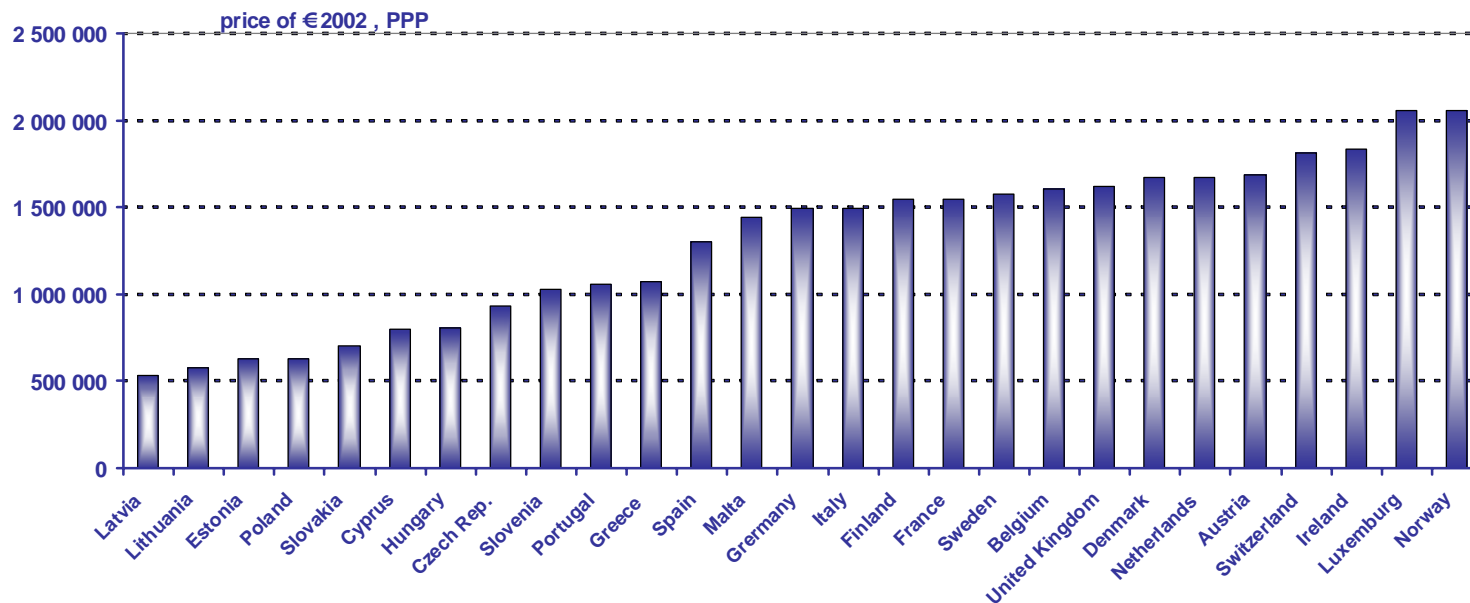


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Estimated Values for Fatality Avoided (€2002, factor price)



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Conclusions:

- ❖ Significant insufficiencies of statistical data concerning road accidents. The data differ with respect to detail in individual states;
- ❖ The number of unreported accidents is different. Such accidents are not included in estimations in individual countries;
- ❖ There are differences in the definition of an accident;
- ❖ There are differences in assumptions concerning the division of social costs into internal and external parts;
- ❖ Different methods are used to estimate the risk value or the VOSL indicator in individual member states.

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Conclusions

**Handbook on estimation of external cost
in the transport sector - prepared within
IMPACT project**

Published on EC web page:

http://ec.europa.eu/transport/costs/handbook/index_en.htm

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Thanks for your attention

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