The economics of road safety: investment pays

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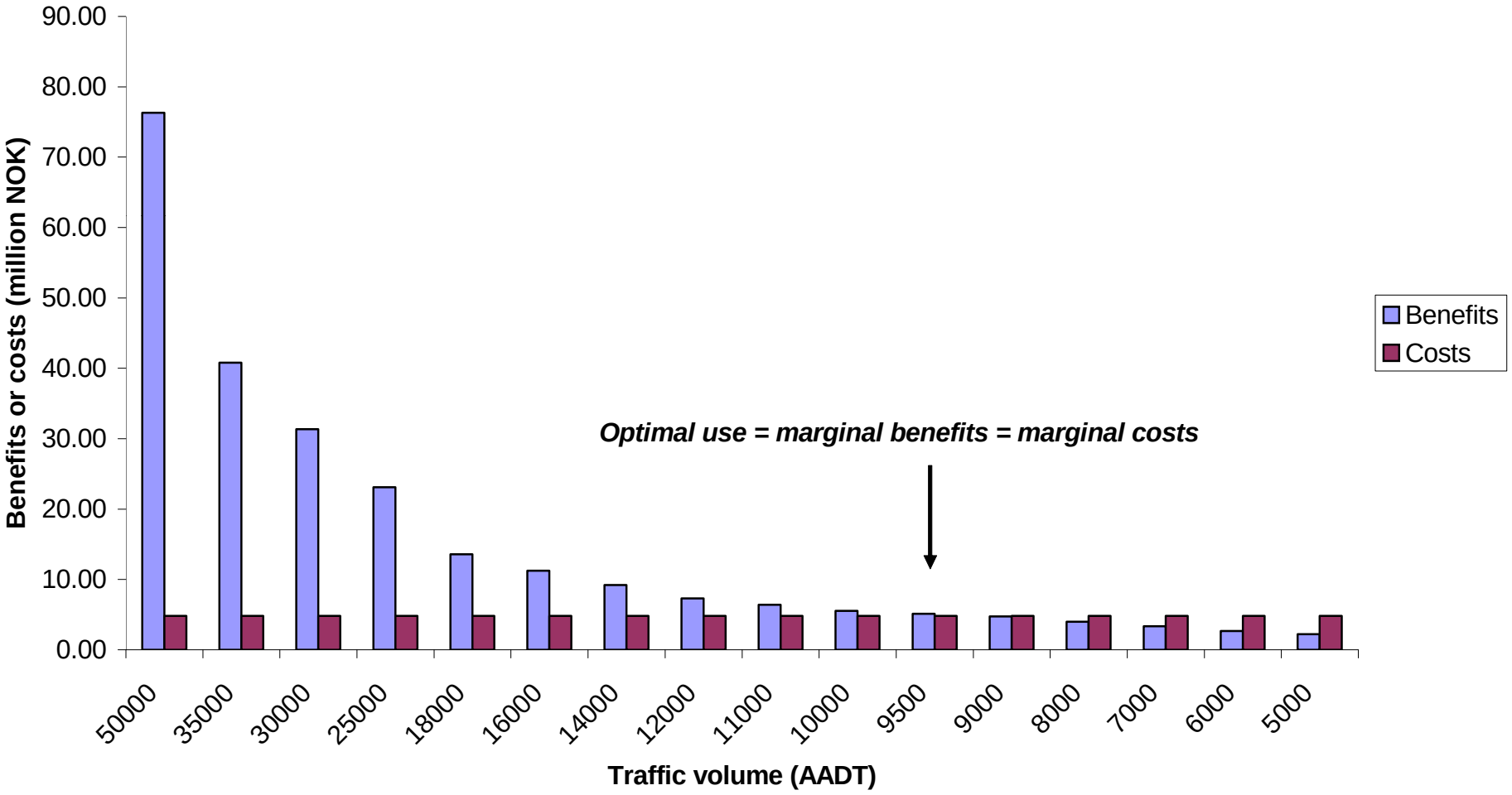
Findings from road safety policy analyses

- Analyses of road safety policy have been made for:
  - Norway 1984
  - Norway 1999
  - Sweden 2000
  - Norway 2007
- All these analyses show that there is a great potential for improving road safety by means of cost-effective measures
- Current road safety policies do not fully employ all cost-effective road safety measures to the optimal extent

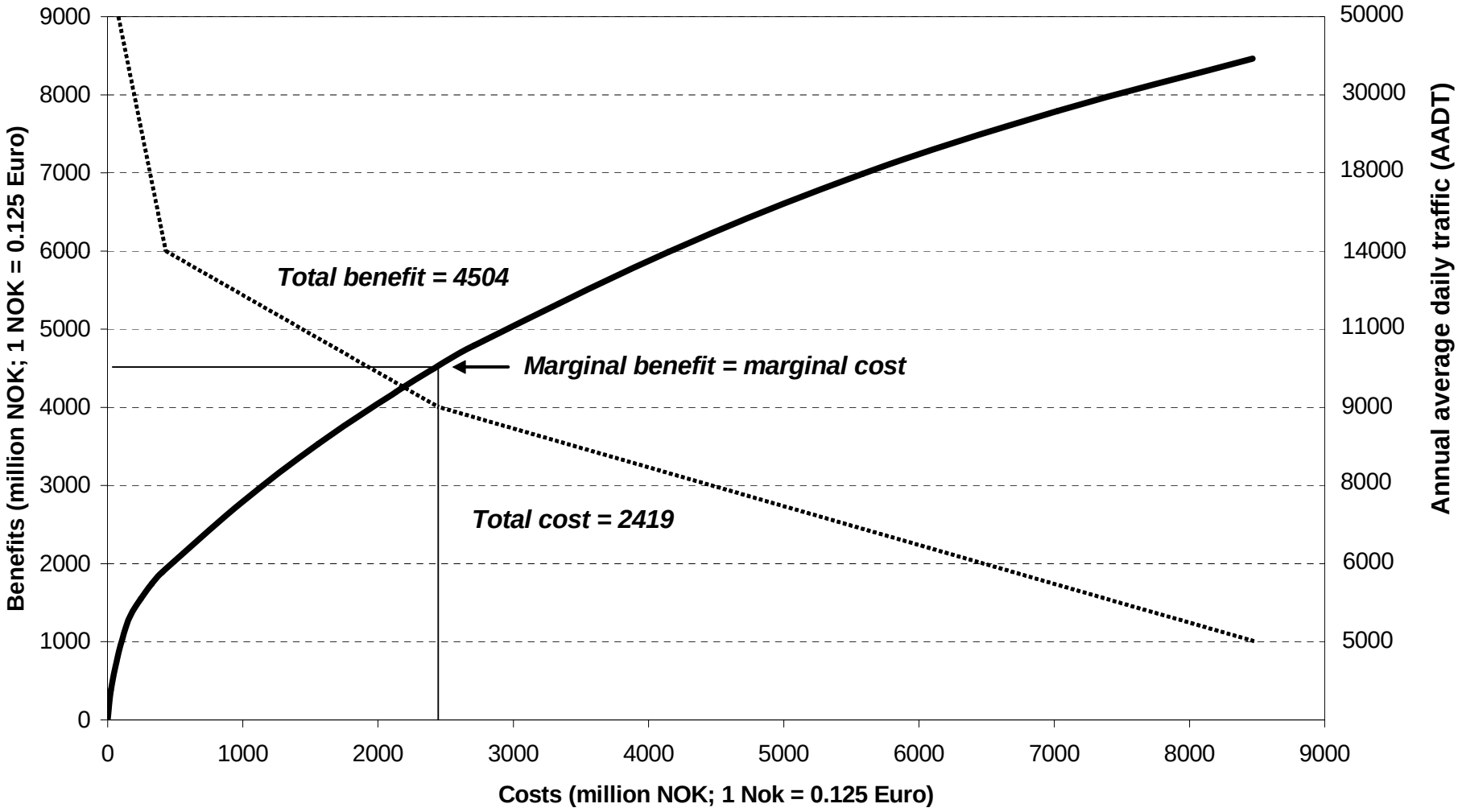
A maximally efficient use of road safety measures

- Each road safety measure is used optimally
- Optimal use is to apply a measure up to the point at which marginal benefits (i. e. the extra benefits contributed by a small increase in the use of a measure) equal marginal costs of using the measure
- Optimal use of road safety measures will maximise social benefits and yield the largest surplus of benefits over costs
- Benefits include all relevant impacts of measures on safety, mobility and environmental quality

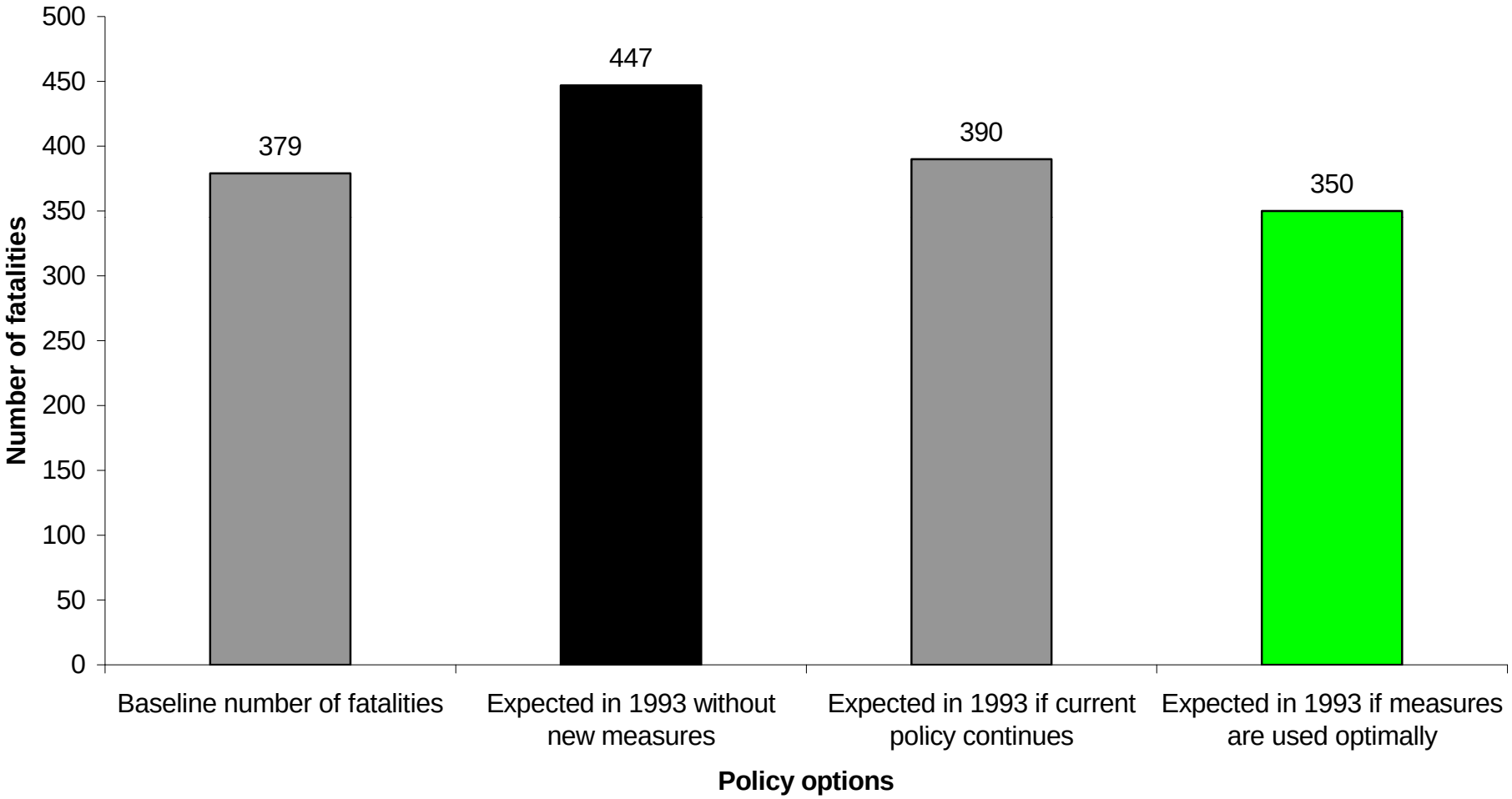
Illustration of how optimal use of a road safety measure is determined - conversion to roundabouts



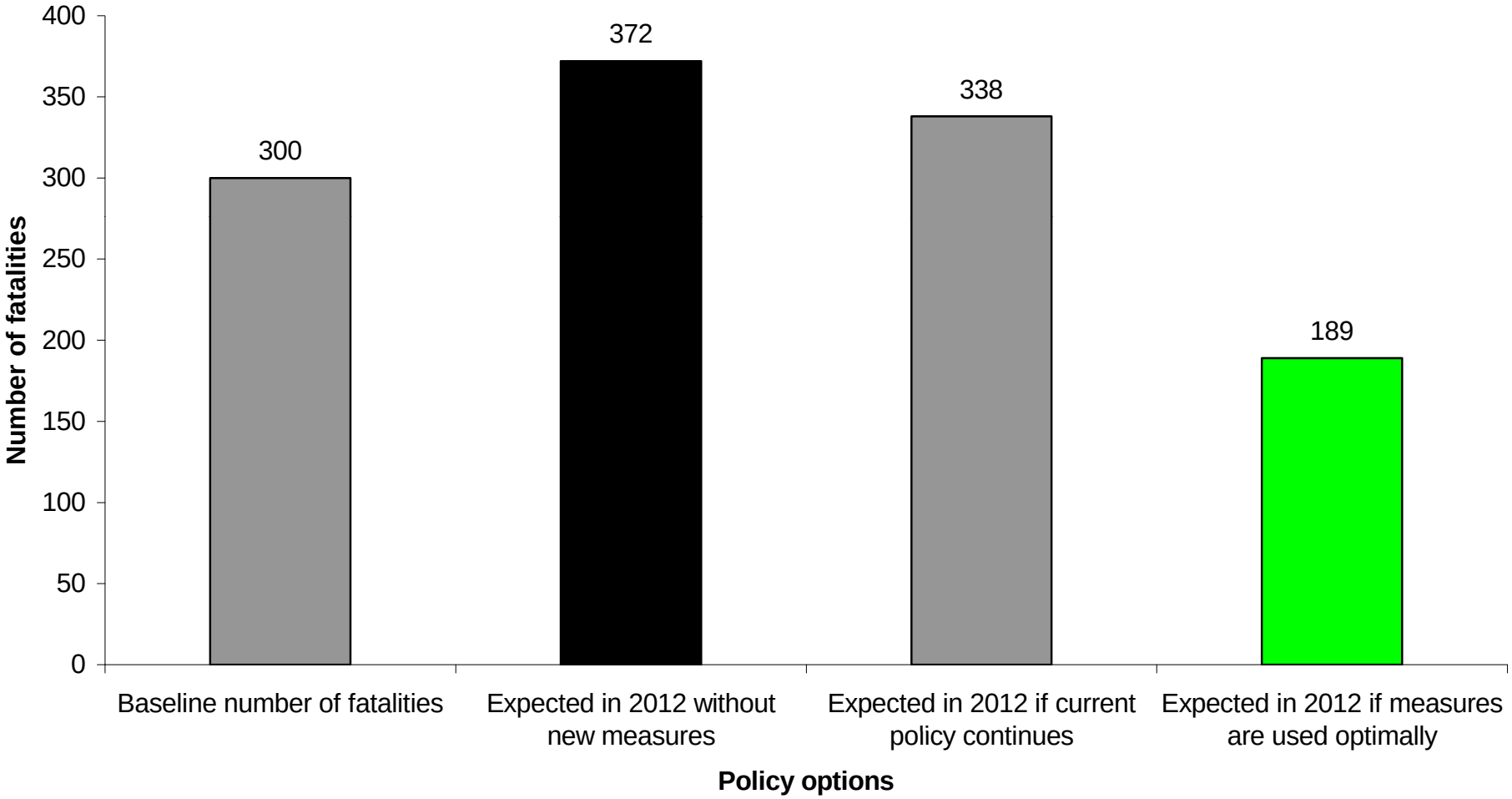
Total benefits and costs of converting junctions to roundabouts



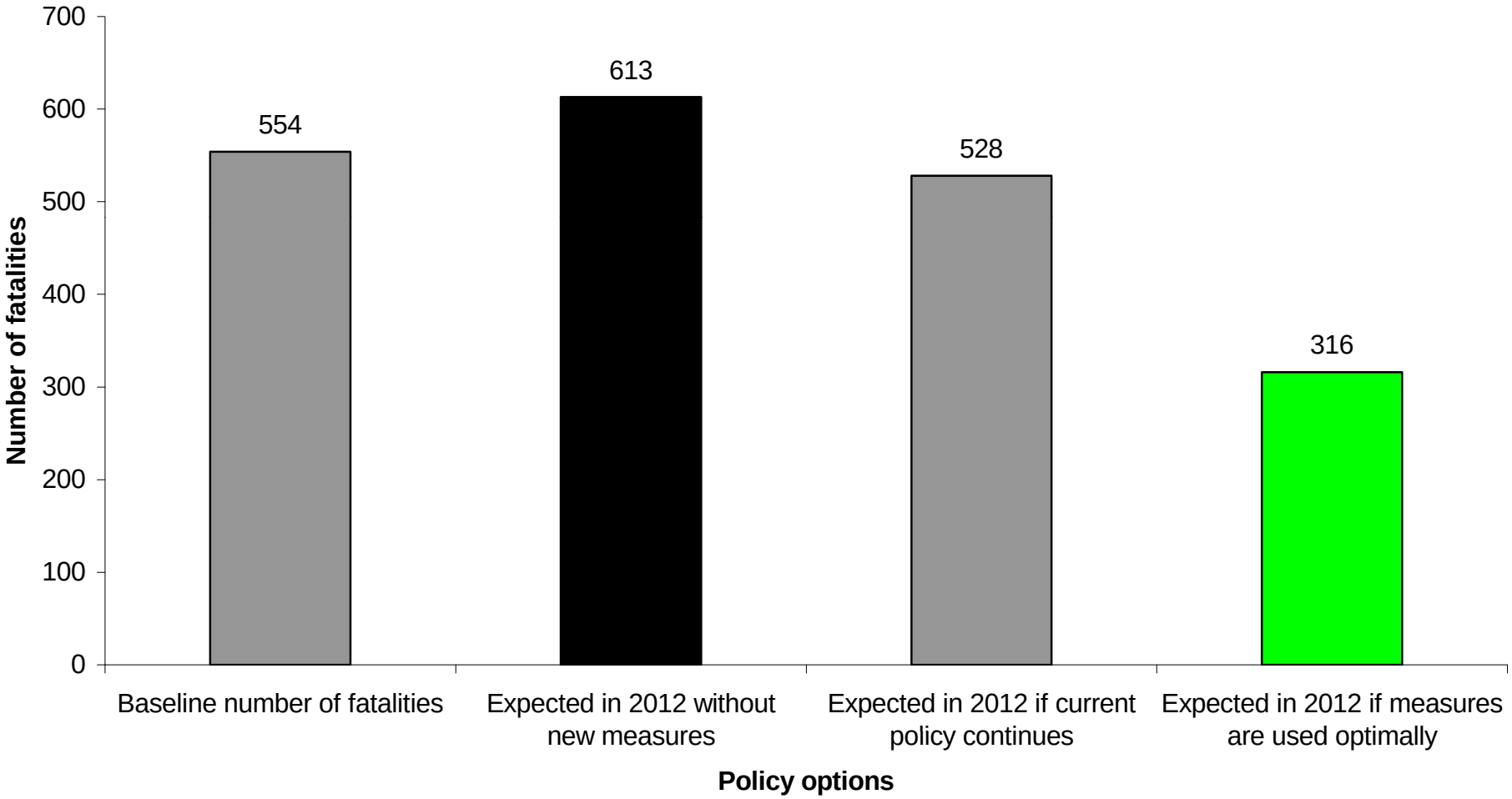
Potential reduction of road accident fatalities by 1993 in Norway according to policy analysis in 1984



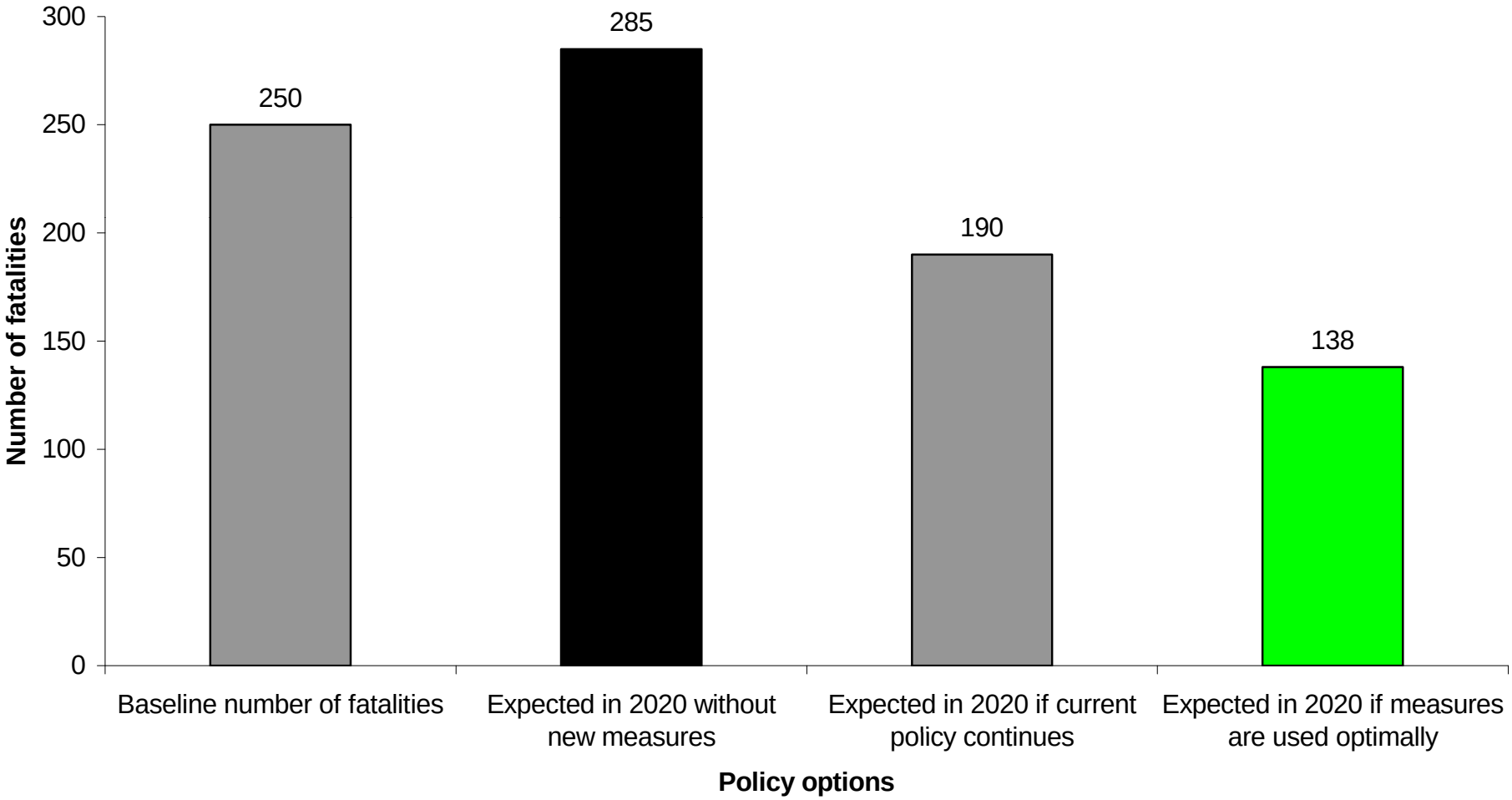
Potential reduction of road accident fatalities in Norway by 2012 according to policy analysis in 1999



Potential reduction of road accident fatalities in Sweden by 2012 according to policy analysis in 2000



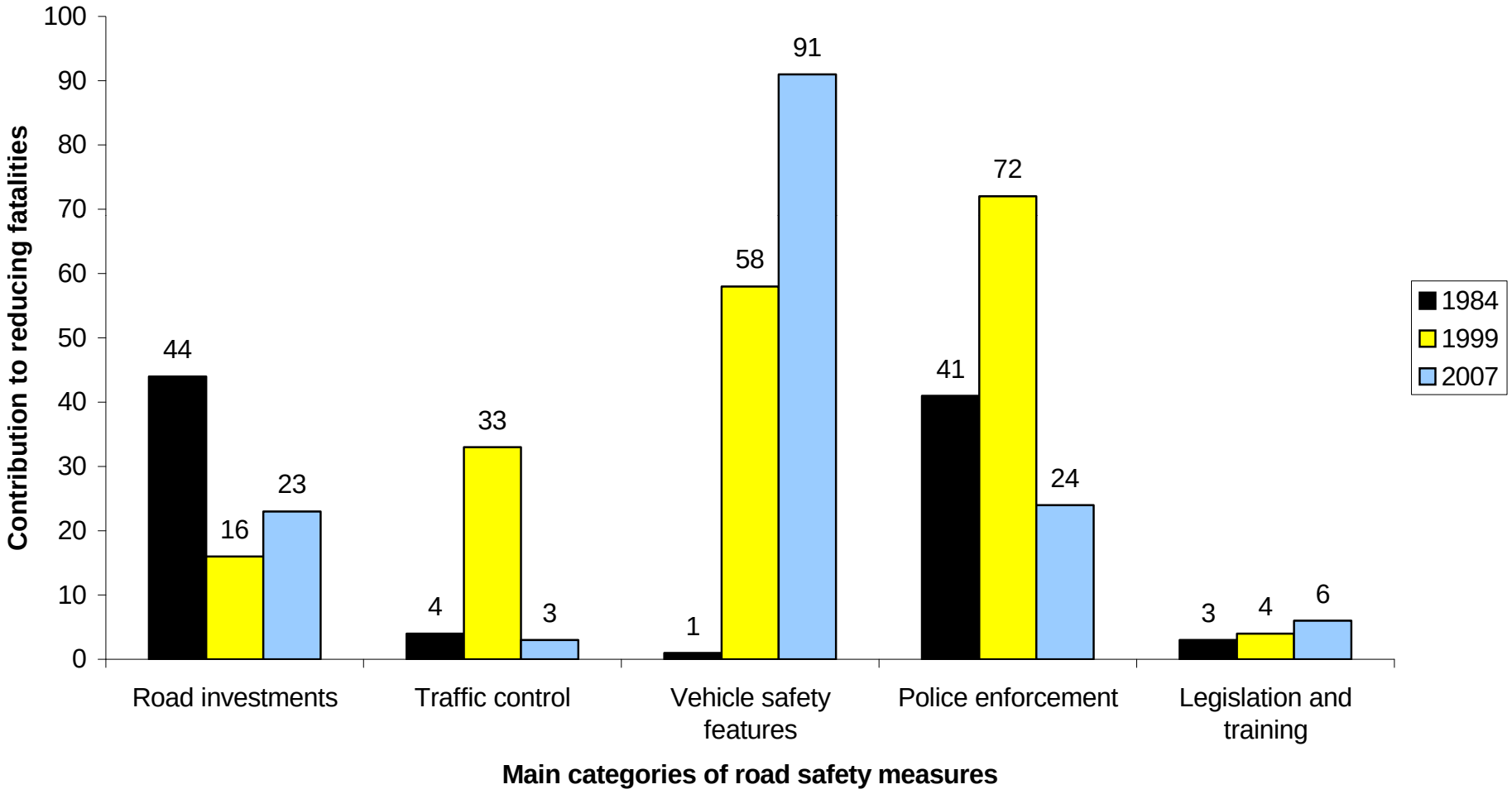
Potential reduction of road accident fatalities in Norway by 2020 according to policy analysis in 2007



Some preliminary observations

- Road safety can be greatly improved by using road safety measures optimally
- Current road safety policies do not use all road safety measures optimally
- The potential for reducing the number of fatalities does not appear to have been reduced over time
- Which are the road safety measures that can contribute the most to reducing fatalities and how realistic is it to apply these measures optimally?

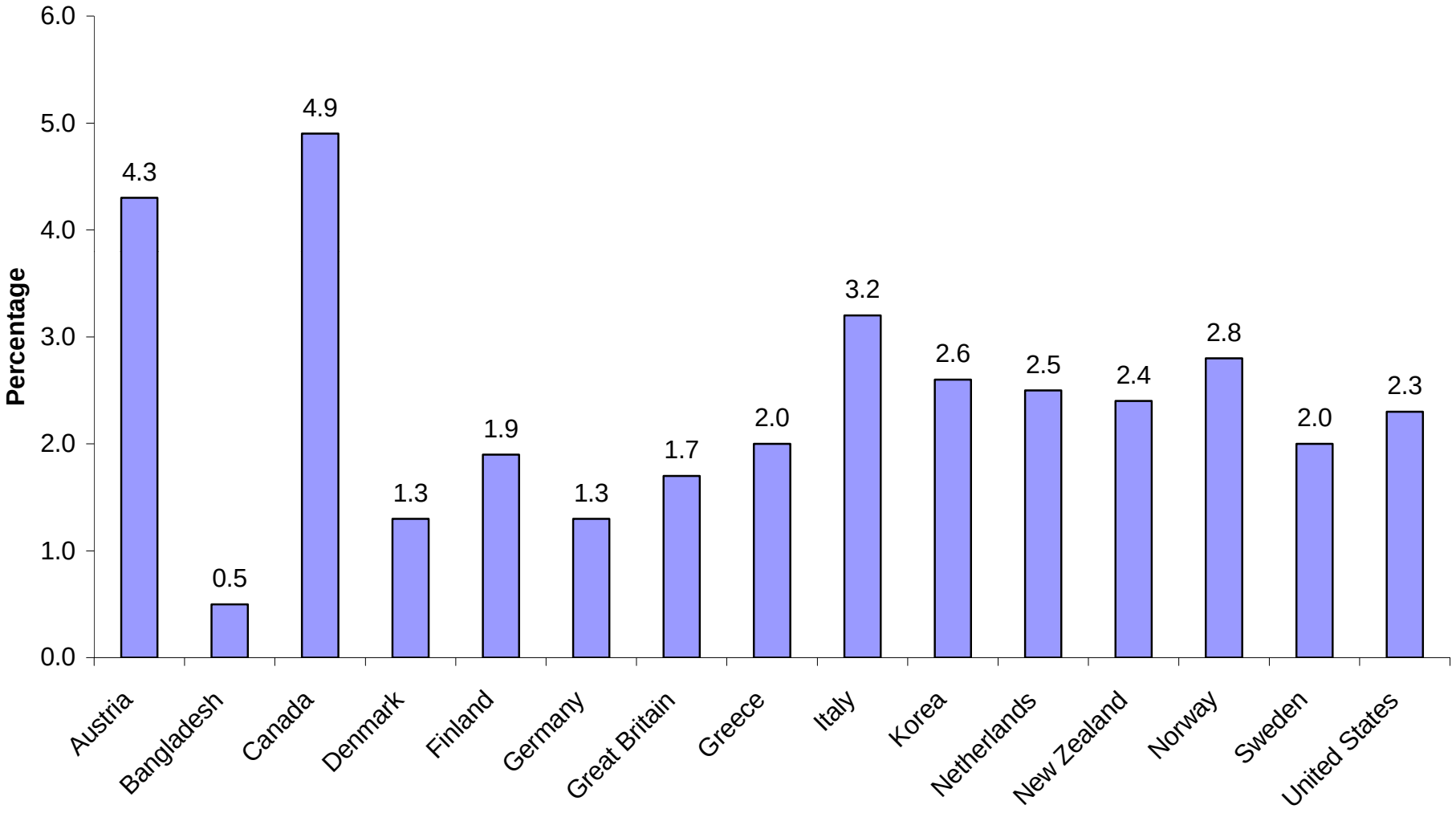
Contributions of various types of road safety measures to reducing road accident fatalities in Norway if used optimally



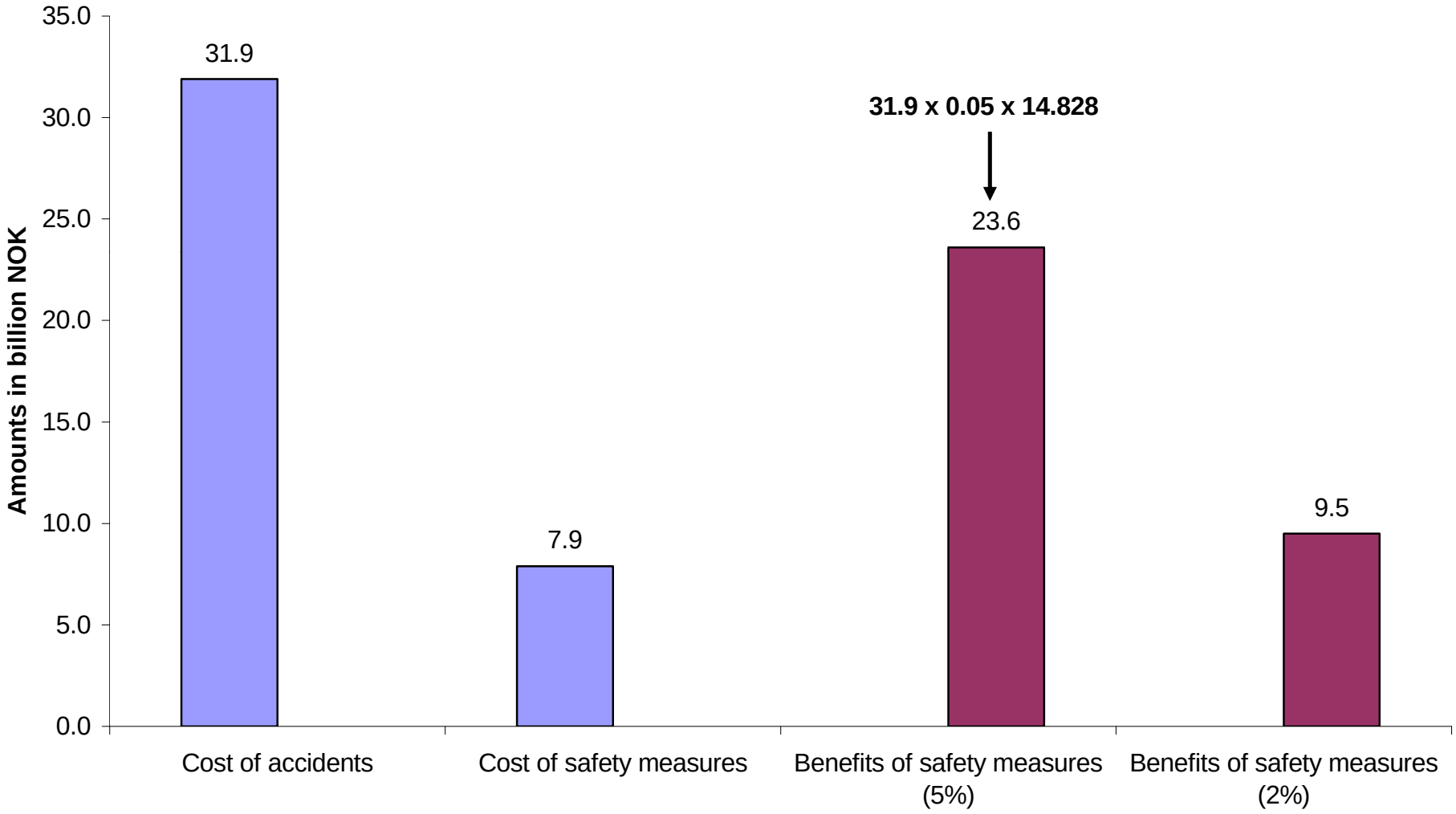
International cooperation is needed

- An increasing proportion of the potential for improving road safety is attributable to vehicle safety features
- Some promising new safety features include:
  - ISA (intelligent speed adaptation)
  - Accident data recorder
  - Enhanced neck injury protection in rear impacts
  - Electronic stability control
- To make new safety features mandatory on all new cars, international agreement is needed, as the market for cars is global and safety standards should be the same in all countries

Costs of road accidents as percentage of gross domestic product



How much to invest in road safety - illustration for Norway



Concluding remarks

- Cost-effective road safety measures can greatly improve road safety – even in comparatively safe countries like Norway and Sweden
- The potential for cost-effective improvements of road safety has not become smaller over time
- An increasing share of the potential for cost-effective improvements of road safety is attributable to vehicle safety features
- To harvest the benefits of these safety features, international cooperation and a common understanding of road safety problems is needed

Concluding remarks, continued

- Road accidents cost up to 5 % of the gross domestic product – in many countries costs are around 2-3% of GDP
- The amounts invested in road safety are likely to be smaller than the costs of accidents, although very few estimates of this are available
- How much it pays to invest in road safety, depends on the cost-effectiveness of the investments
- For Norway, current spending is cost-effective even if it reduces the annual cost of accidents by as little as 2 % - provided this reduction lasts for 25 years