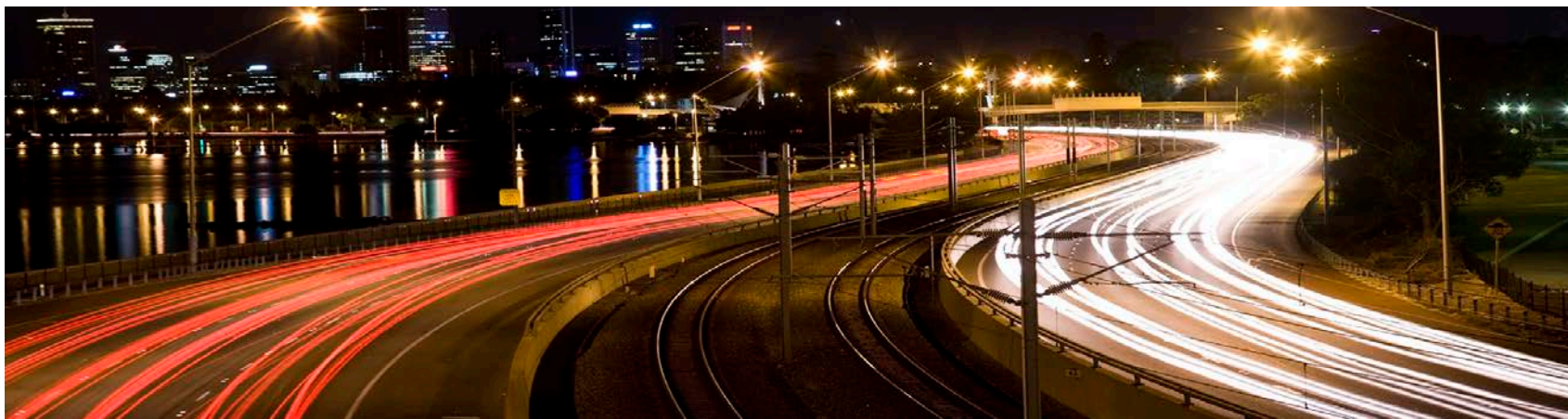


# Regulating road-safety and autonomous vehicles

## *Time for an insurance market approach?*

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**sapere**<sup>®</sup>  
research group

# In a nutshell:

## Rationale for insurance market reform

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- There's a lot insurers can do on road-safety...
- and much more effectively than Government

Whether we drive

What we drive

How we drive

Current incentives for insurers for road-safety are far less than optimal

# Three hypotheses

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- 1. [By a large margin] The most significant cost-effective policy to reduce the road toll involves reforming vehicle insurance markets**
- 2. Vehicle insurance market reform provides a cost-effective means to managing most key road safety issues relating to safe vehicles [inc. Autonomous vehicles], speeds and road-users**
- 3. We cannot cost-effectively meet road-safety goals without reforming vehicle insurance markets**

# What's the underlying problem?

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Perceived 'cost' to the individual of their risky behaviour is less than the cost to society

- We impose costs on others (Externalities)
- We're overconfident (Behavioural bias)

# The value of safety

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With regard to valuing human costs

- We don't value a person's life
- ...we value reducing *small* risks to life

Work with the Value of a Statistical Life (VSL)

- E.g. \$700 to remove a 1 in 10,000 chance of death then  $VSL = \$700 \times 10,000 = \$7m$

Average CTP claim for a fatality ~\$0.2m

# Motor vehicle insurance

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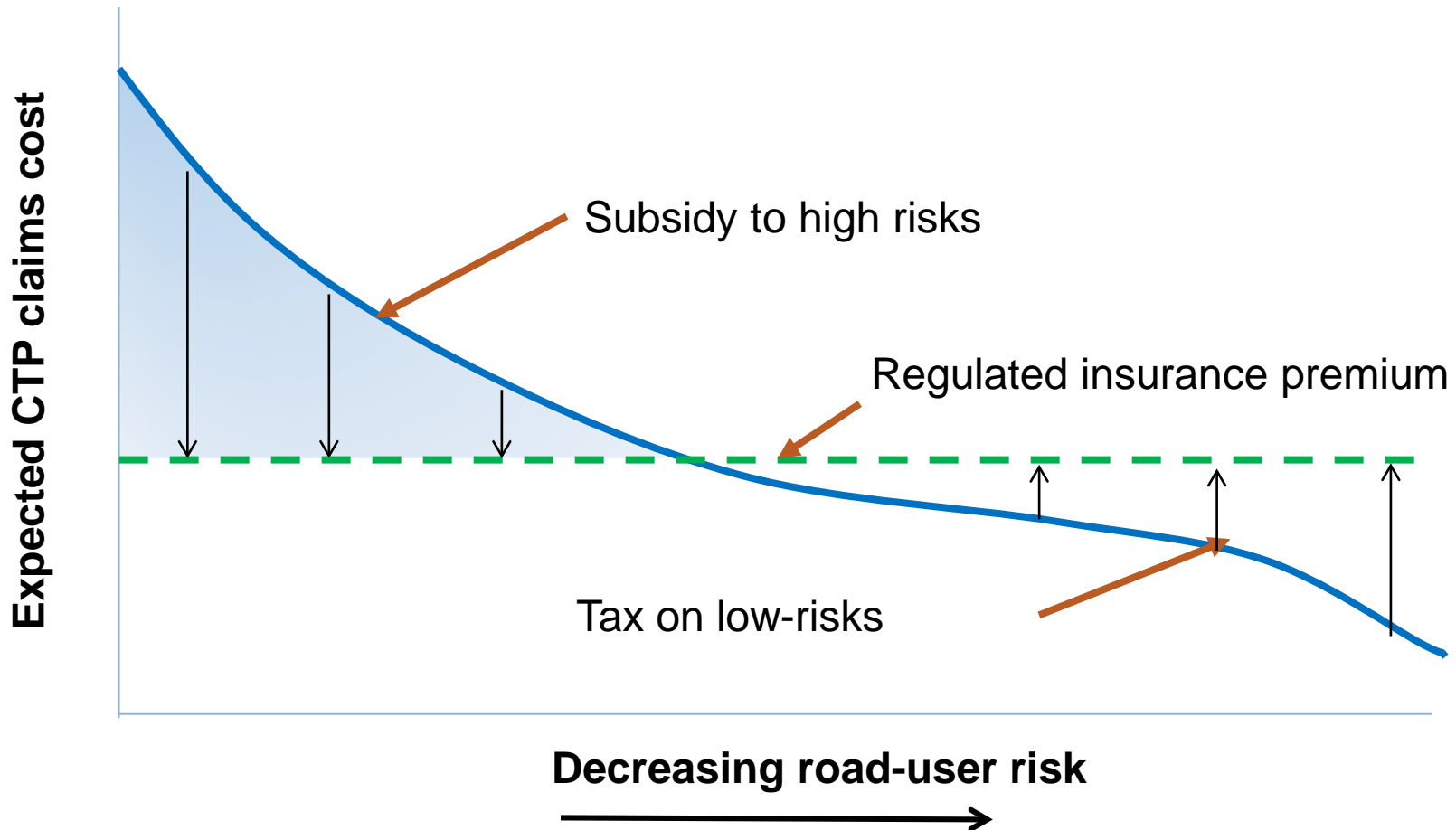


- CTP insurance separate from motor vehicle insurance
- Limitations on CTP pricing



- One (bundled) insurance product
- No material limitation on pricing

# Australia's CTP regulation (relative to UK): Tax safe road-use and subsidise unsafe use



# Does it matter?

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- Kelly and Li, (2008)\*  
*The U.S. conclusions are unanimous [...] **more stringent rate regulation** is associated with [...] incentive distortions **resulting in higher insured loss costs** and in the end, **higher premiums overall***
- 2013 survey of 161 members/former-members of ARIA
  - *expert opinion **strongly favors** the idea that auto insurance **prices** should closely **reflect a driver's accident risk** and **be determined by competitive market forces***

\*Kelly, M., & Li, S. (2008). The Impact of Rate Regulation on the Performance of the Canadian Property/Casualty Insurance Industry. Wilfrid Laurier University Working Paper



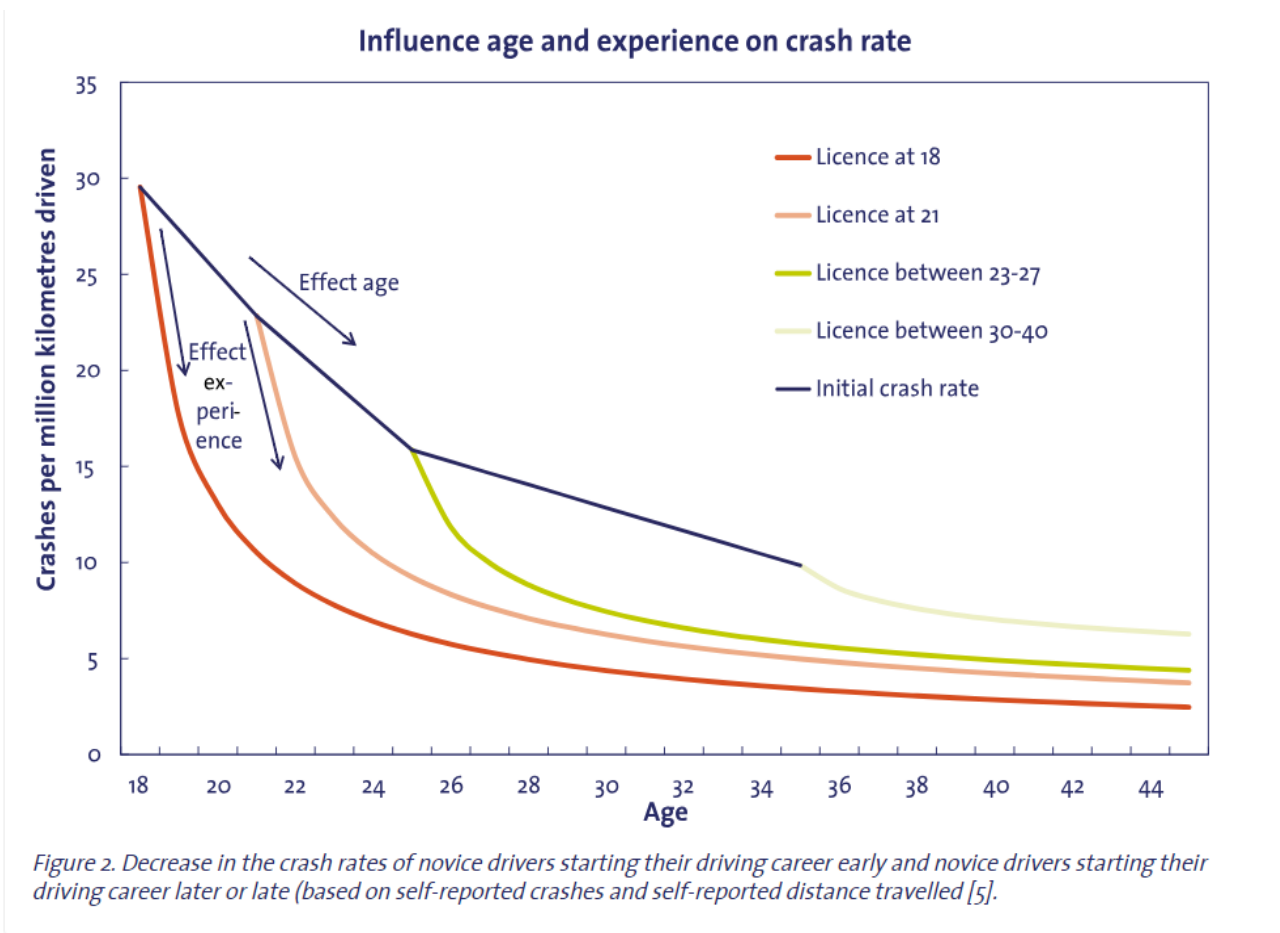
# Important developments

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- Safety technologies
  - Advanced driver assistance systems (ADAS)
  - Autonomous vehicles
  - Telematics
- Transport alternatives
  - Mobility as a services

# Whether to drive

## Encourage high-risks to use alternative transport

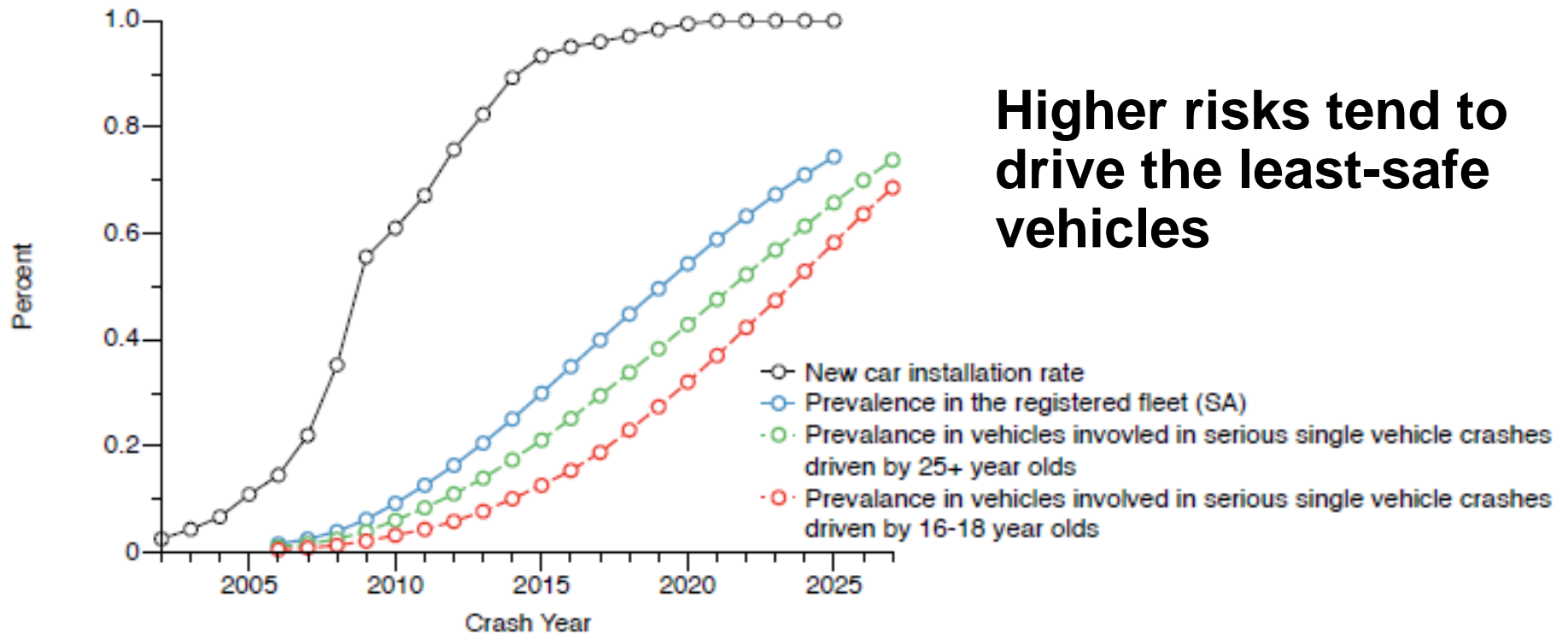


SWOV (2016). 18- to 24-year-olds: young drivers. SWOV Fact sheet, May 2016 , The Hague.

# What to drive

## Encourage use of safer vehicles

### New car installation rates and penetration rates for Electronic stability control



**Higher risks tend to drive the least-safe vehicles**

Anderson, R. W., Raftery, S., Grigo, J., & Hutchinson, T. P. (2013). *Access to safer vehicle technologies by young drivers: Factors affecting motor vehicle choice and effects on crashes*. CASR118. Adelaide, Australia: Centre for Automotive Safety Research.

# ***What*** to drive

## Encourage use of safer vehicles

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- Increased incentives for drivers to adopt safer vehicles and technologies
- Highest risks receive largest incentives for safer choices

**“Tesla® Drivers Can Now Earn up to 12% off Insurance Rates Due to Increased Safety of Autopilot.” (US – Root insurance)**

### ***Autonomous emergency braking in the UK***

AEB as an option costs in the order of £1000.

Average premium discount for AEB

- Drivers aged 45+ was £10
- Drivers aged 17-24 was £313 *See report for details*

# The benefits of insurance reform on adoption of safety technologies

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- Increase demand for safety technology
- Potential to displace regulation that hinders innovation and adoption

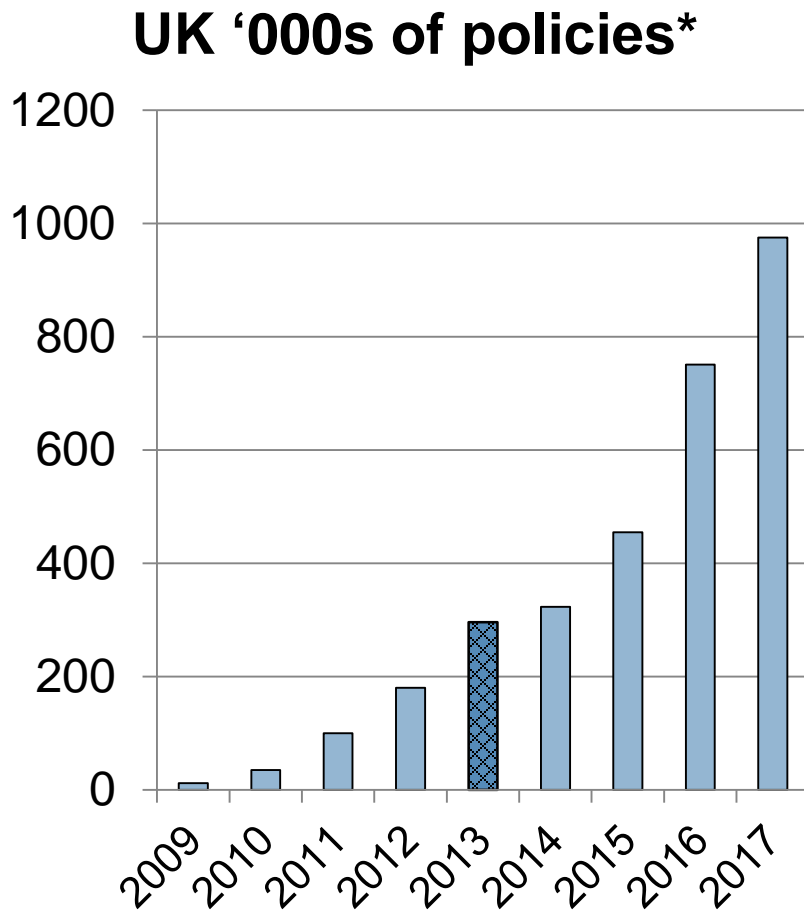


# **How** to drive Insurers reward safer driving

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- Traditional approach:
  - Deductibles to share risk
  - No-claims bonuses
- Now/emerging
  - Telematics-based usage-based insurance (UBI)
  - Research: reduced crash risk by 20%+ (up to 35-40% in young drivers).

# Usage based insurance in the UK



*Research by LexisNexis Risk Solutions strongly supports the safety benefits of telematics and concludes that telematics insurance **has done more to cut accident risk than any other road safety initiative aimed at the young driver market.**\**

\* BIBA [British Insurance Brokers' Association] (2018), BIBA Research on Telematics market, <https://www.biba.org.uk/press-releases/biba-research-reveals-telematics-almost-reach-one-million-mark>



# Estimating the benefits for Australia

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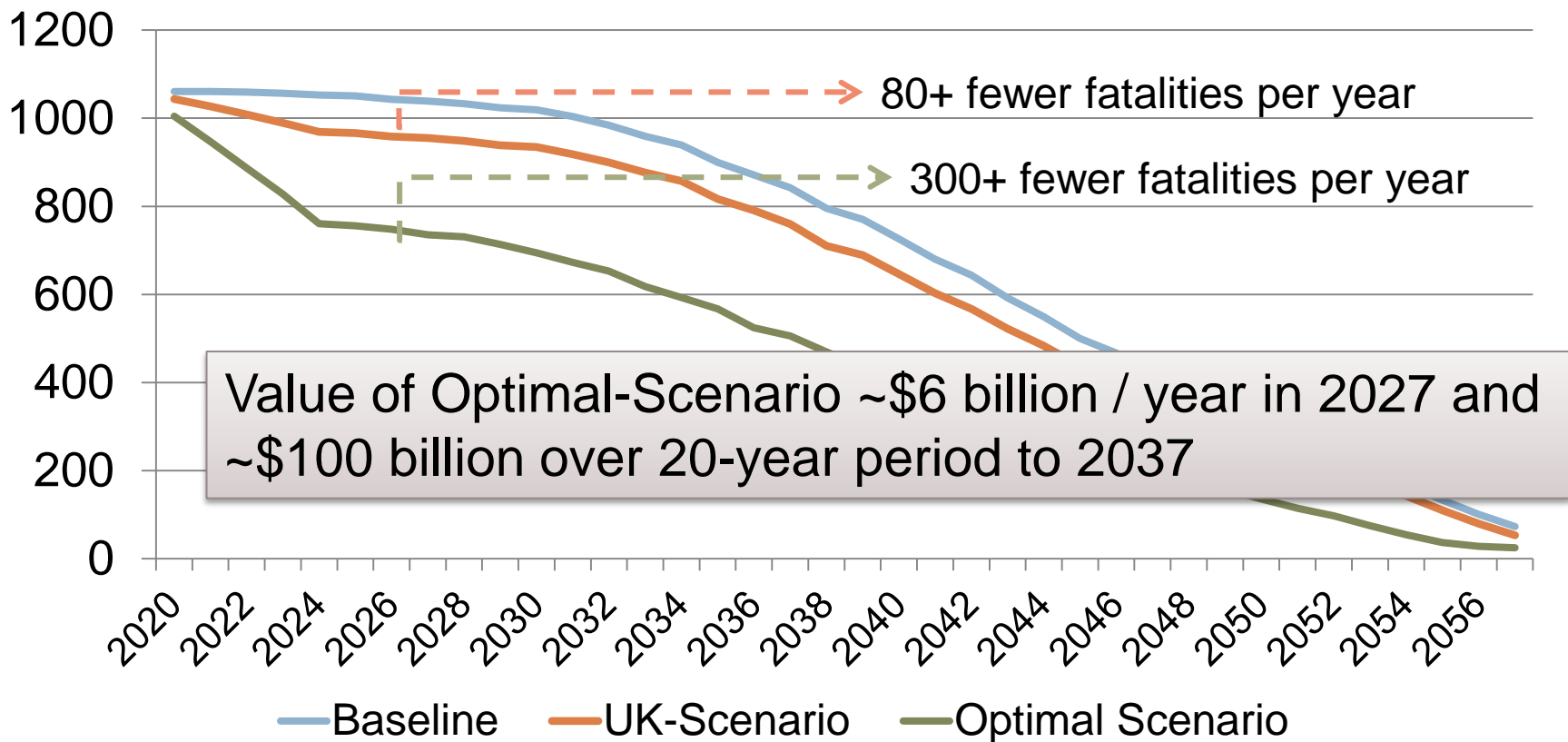
- **Scenario 1 (the “UK-Scenario”)**
  - Insurers have liability for bodily injury and property damage claims and can price premiums based on individual risk
- **Scenario 2 (the “Optimal-Scenario”)**
  - Insurers have the societally optimal incentives for safety

**“Prediction is difficult,  
especially about the future”**

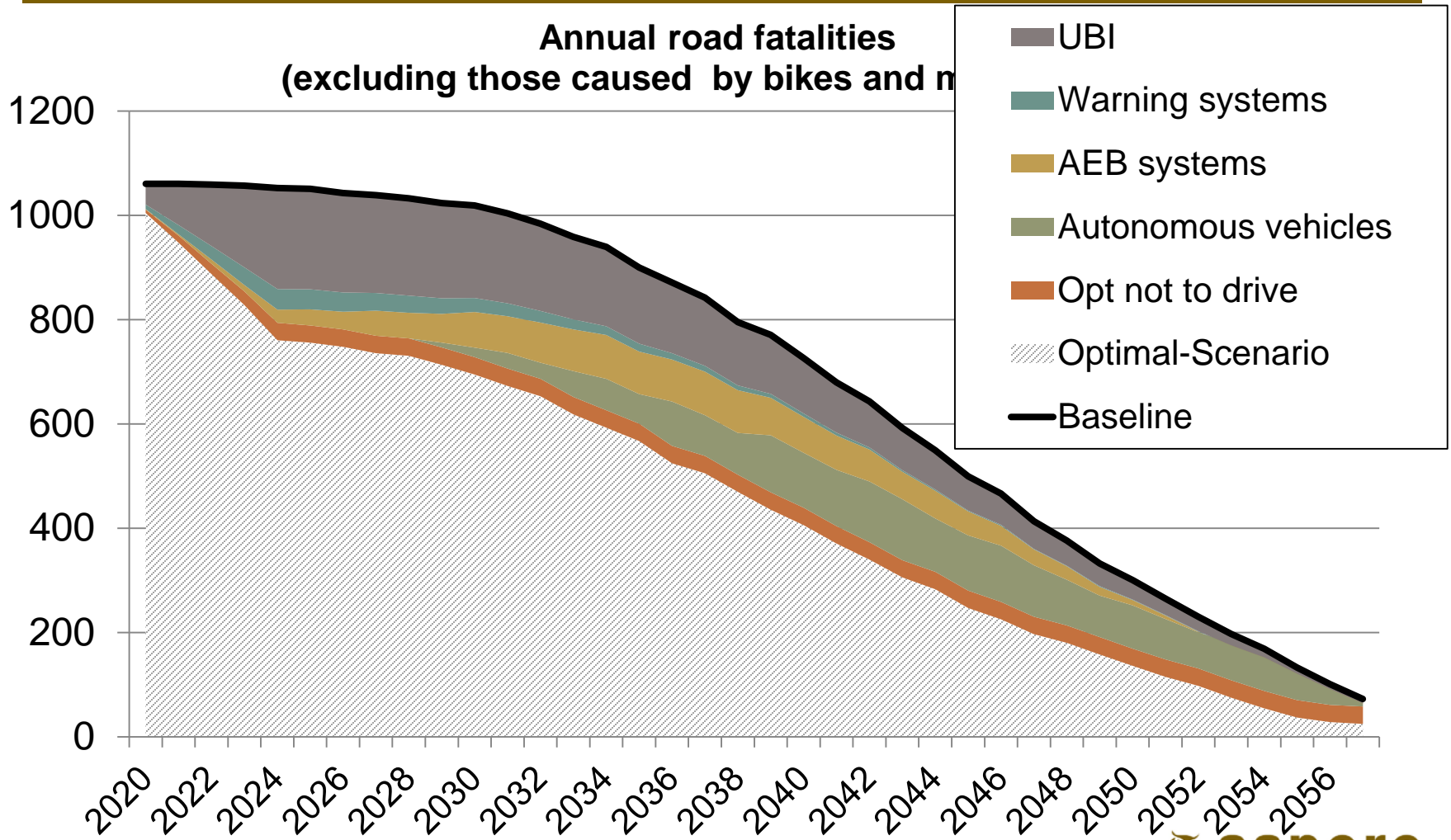


# Estimated safety benefits

**Annual road fatalities under different scenarios  
(excluding those caused by bikes and motorcycles)**



# Source of benefit





# Why a market based approach?

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The discipline imposed by competition

- Innovation and flexibility
- Targeted risk management – Marketplace rewards those who manage risks efficiently
- Privacy – Its opt-in, consumers have choice

# Other costs and benefits

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## Costs

- Additional expenditure by insurers on risk management
- Transition costs

## Benefits

- Less vehicle use (congestion & environment)
- Supplementary technology benefits
- Potential to reduce cost of other regulations

# The key concerns

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- The high risks will pay more
  - But UBI /other choices mean its manageable
  - Could transition/ cross-subsidise on age etc
- Uninsured driving
  - Evidence suggests a minor issue if at all
- Privacy / ‘big brother’
  - Not an issue in UK etc

# Fairness?

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Opposition calls on ACT to rule out P-plater curfew  
“...a very **unfair** attack on young people, ...”

Over 300,000 NSW driving licences revoked for fines non-payment

**Elderly drivers: Grieving family calls for greater political courage to deal with 'growing deadly problem'**

**FIGHT UNFAIR FINES**



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