

Science for Environment Policy

Individual and social costs of car travel more than six times those of cycling

Every kilometre travelled by car incurs costs to the individual and society that are more than six times those of travelling by bicycle, a new study suggests. The researchers presented a cost-benefit analysis developed for Copenhagen, finding that cars resulted in costs of 0.50 €/km in comparison to 0.08 €/km for bikes.

Cycling brings numerous benefits, such as lower [air pollution](#), better [health](#) and reduced [greenhouse gas emissions](#). Fostering a 'cycling culture', however, can require significant investment; separate cycle paths or signed routes, for example, can all cost considerable sums of money.

Previous studies, examining the costs and benefits of such investment, have focused on cycling alone, rather than comparing it to car travel. This comparison is key, because a shift towards a cycling culture is also a move away from a car culture.

For this study, researchers compared travel by car and cycle using the cost benefit analysis that has been developed for Copenhagen by the Danish Ministry of Transport. This method includes air pollution, climate change, [noise](#), congestion, road deterioration, time cost, accident cost, health, vehicle operating costs, and tourism.

For several of these factors, cycling incurs no cost at all. Cycling does not produce air pollution, for example, but exhaust contains several toxic gases which all have health costs that are estimated at 0.004 €/km. This is likely to be an underestimate, since the study only included well-researched health impacts, but evidence is building for links to other less well-known problems.

Similarly, the researchers estimated that the costs of cycling with respect to climate change, noise, congestion or road deterioration were negligible. For cars, climate change impacts were valued using price per ton of CO₂ from the EU emission trading scheme and estimated at 0.005 €/km. Car noise pollution, which incurs both annoyance and health costs, totalled 0.007 €/km. The researchers valued congestion as the cost of delay and calculated this as a cost of 0.062 €/km for cars. Finally, road deterioration was calculated at 0.001 €/km for cars and again, zero for cycles.

The highest costs for cycling came from the time costs, as the relatively slow form of transport. Based on surveys indicating how much the Danish are willing to pay for their time, the valuation showed that the costs for cycling were 0.67 €/km and for cars 0.26 €/km.

Accident costs, measured as individual health costs but also societal costs in terms of emergency services, health care, etc. were also higher for cycling, at 0.106 €/km in comparison to 0.022 €/km for car travel. This is because cyclists are more exposed and vulnerable to injury. Although this is included in current calculations the researchers raise the point that as cars cause most cycling accidents these costs should arguably be attributed to cars rather than cycles.

In terms of general health, cycling provides active benefits such as increased life expectancy and fewer sick days which were estimated to be worth 0.741 €/km. Car travel, on the other hand, was assumed to be neutral for health, although the sedentary nature of this type of travel could incur costs, the researchers say.

Once these costs and benefits are summed the researchers found an overwhelming case for investment in infrastructure to encourage a cycling culture. The combined individual and societal costs of driving a car were 0.50 €/km in comparison to 0.08 €/km for cycling. Notably, when only considering the costs and benefits for society, rather than the individual, one kilometre by car costs €0.15, whereas society *earns* €0.16 for every kilometre cycled.



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