

CO2 policies that work Myths and realities

Initial findings from a UKERC review
LowCVP Conference

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Who we are and what we do

- **UKERC – UK Energy Research Centre**
 - Research council funded cross-university collaboration: *'pre-eminent UK centre of research and source of information and leadership on sustainable energy systems'*
- **TPA – UKERC's Technology and Policy Assessment function**
 - Accessible, policy relevant reports drawing upon research evidence base
- High impact on policy development and engagement with policymakers
- TPA's 4th report, but first related to transport and CO2
- Our advisors from across Whitehall and industry wanted UKERC to attend to the issues we set out below

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What is this report about?

Based on evidence, which policies are most effective at reducing CO2 emissions from surface passenger transport?

- Compare between and across policies that target car tech/choice and that target wider travel choices
- Review 'what works' in individual areas of policy
- Seek out where policies are complementary or synergistic
- Draw conclusions relevant to current UK policy

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Our approach

What we did

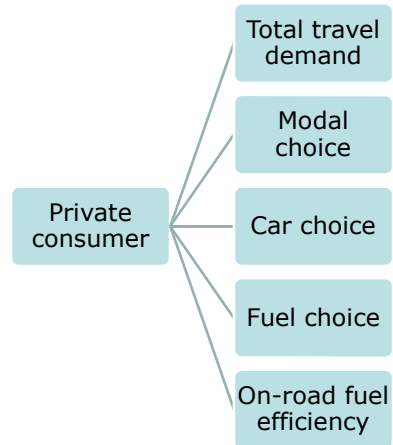
- Systematic search for evidence on CO2 relevant policies
- c.400 pieces of evidence revealed
- Created a framework: policies, choices, key actors:
 - Govts
 - Car makers
 - Consumers
 - Business users
 - Fuel companies

And how

- Define the question
- Form a team of experts
- Gather evidence
- Consult wider experts
- Synthesise
- Peer review
- Report (today is the start, publication after Summer)

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Example: private consumers' choices



Transport and carbon myths



Myth 1: Behaviour change can't make a big impact on carbon

- **Scope for behaviour change is large**
 - 25% car trips are less than 2 miles
 - Average car occupancy (commuting): 1.2
 - 20-30% trips by car 'unnecessary' (RAC; STT)
 - Number of households who already live without a car in UK: 24%; No. of households in urban areas without a car 35%
- **Policy can deliver savings**
 - Workplace travel plans – ave 18% cut in car trips (UK, Netherlands, Japan, US)
 - Congestion charging – 15% cut in carbon (London, Stockholm)
 - Road space reallocation – ave 18% traffic 'disappears' from the network (worldwide)
 - 'Parking cash out' – ave 13% cut in VMT (US)



Myth 2: Mode choice is all about public transport

- **Other areas may be neglected** e.g. cycling and walking, car clubs, car sharing
- **Public transport *is* important, but cannot do the job on its own**
 - New/better services can generate new demand
 - Users may switch from other non-car modes so net benefit is eroded
 - Greater PT use only delivers carbon savings if the relative efficiency is good
 - Much focus has been on local PT, but greatest travel growth is long distance trips
 - Can PT expand sufficiently?



Myth 3: Road user charges are effective at saving carbon

- **Highly visible variable costs can reduce car use but...**
- Impact on traffic demand is dependent on the scale of implementation and link to other taxes/instruments
 - -1% CO2 (*revenue neutral*) to -8.2% (*revenue raising*)
- Redistribution of journeys spatially and temporally may be good for congestion but do nothing for CO2
- No incentive to buy more efficient car (unless CO2 linked)
- There is a need for graduated charges and flanking policies

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Myth 4: Rising fuel prices will succeed where policy has failed

Strong data on elasticities - prices can affect demand through changes in car choice and use but ...

- *For car use* – carbon savings are dependent on the total price of motoring – emission reduction requires high and sustained increases
- Choice of vehicle is complex and more affected by upfront than recurring costs
- Mode choice is also complex and affected by more than relative price (convenience, safety, comfort)
- Elasticities may be changing – are people becoming more resilient to fuel price increases or have they had enough?
- Rising incomes can over-ride demand changes due to fuel prices

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Myth 5: Vehicle efficiency standards don't work

- **Vehicle efficiency standards can result in improved fleet fuel economy, provided they are mandatory, ambitious and cannot be circumvented**
- Japanese TopRunner programme has been broadly effective
- Both CAFE and the EU Voluntary Agreement got results. But regulation will disappoint if it:
 - Lacks sanction - EU VA
 - Lacks ambition - CAFE
 - Allows circumvention - CAFE

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Myth 6: Vehicle efficiency standards alone can deliver

- **Consumers can only buy options available to them,** and so vehicle efficiency standards are very important
- **However, policy is also needed to influence vehicle choice:**
 - Upfront costs feature strongly in purchase choices
 - Point of sale incentives may be more effective than circulation, road use or fuel tax
 - Information for buyers is needed to support other policies, but is not enough by itself
- Interactions with other choices are crucial:
 - Other policies needed to influence car use

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So what works?

There are no magic bullets

- **Policies must work in combination as packages** to:
 - Optimise effectiveness through synergies
 - Counter rebound effects
 - Ensure lock-in and longevity of savings
 - Address policy leakage
 - Ensure that all choices are consistent with saving carbon
- But we must recognise that the evidence is more authoritative in some areas than others...

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The state of the evidence

- There is a large body of readily accessible evidence on efficiency standards and fuel price elasticities
- **Evidence on other policies may be less visible:**
 - The data is not explicitly aimed at CO2
 - The data is not readily accessible (local council drawers)
 - Track record for 'soft' policies is relatively short in the CO2 arena
- The evidence tends to concentrate on single initiatives and not combinations
- More accessible evidence leads to action which leads to more evidence which leads to action. etc....

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Conclusions

- **There is untapped potential for carbon reduction from altering consumer behaviour**
- **Public transport is important, as well as other alternatives to private cars, though these are not the whole solution**
- **Road user charges can reduce road use but may not reduce carbon, unless accompanied by other measures**
- **Fuel costs are only one influence on vehicle choice and use – and response is fairly inelastic**
- **Vehicle efficiency standards can improve fleet fuel economy over time, if they are mandatory, ambitious and without loopholes**
- **Vehicle efficiency standards can make vehicles available, but policy is also needed to influence vehicle choice by consumers**

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Interactive **M**anual of **P**olicies to **A**bate **C**arbon **T**ransport

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