

The Future of Road Transport; Plug-in Hybrids, Road-pricing, NGVs or Hydrogen?

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FOUR PROBLEMS

Lack of road capacity
to support population and economic growth

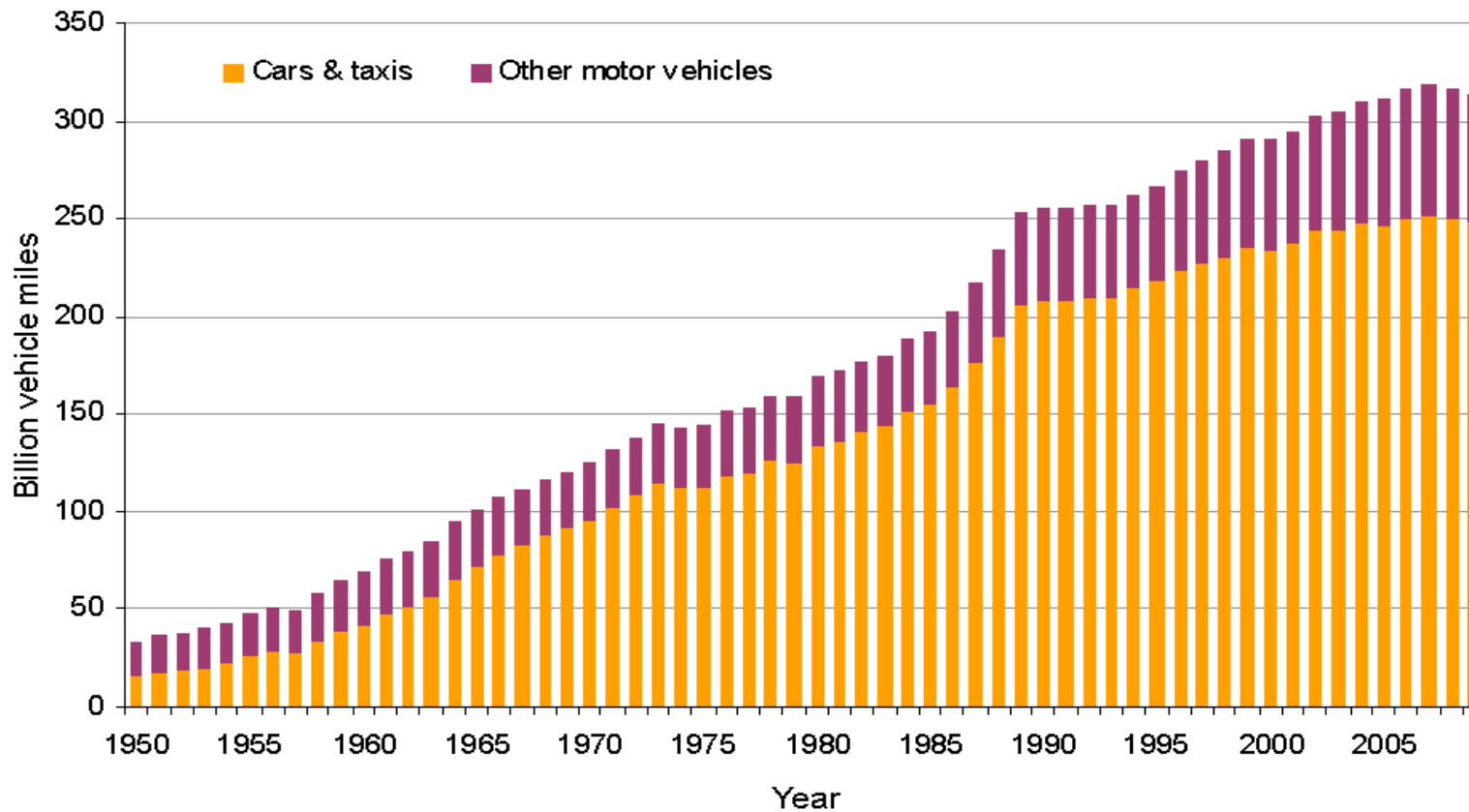
Lack of public funds
for road maintenance and enhancement

Distortion in tax rates
between hydrocarbons and electricity

Future fall in fuel duty revenues

Lack of road capacity

All motor vehicle traffic, Great Britain, 1950 - 2009



Construction of new Strategic Roads

Lane miles per period

12
10
8
6
4
2
0

Official population and traffic forecasts

	2008 population (millions)	Population growth %		Traffic growth %
		2018 on 2008	2033 on 2008	2005-2041
North East	2.6	4	10	31
North West	6.9	4	9	34
Yorkshire and Humberside	5.2	8	20	40
East Midlands	4.4	8	29	41
West Midlands	5.4	5	13	32
East	5.7	10	24	46
London	7.7	9	20	41
South East	8.4	8	20	31
South West	5.2	8	21	44
Total for England	51.5	7.3	18.6	38

These traffic growth forecasts are accommodated in CCC's carbon reduction trajectory

Road conditions will get worse!

Year		London	Large Urban	Other Urban	Rural	<i>All Areas</i>	Inter Urban
<i>Percentage change on 2003</i>							
	Vehicle Speed	-12	-5	-3	-1	-4	-2
2035	Traffic (Cars only)	31	34	34	38	36	41
	<i>Traffic (All vehicles)</i>	40	41	41	44	43	46
	Average Delay	67	54	41	58	54	54
	Vehicle Speed	-20	-10	-6	-3	-8	-5

DfT, *National Traffic Forecasts, 2009*

Spending Review 2010

Severe cuts to both Highways Agency and Local authority capital and revenue budgets

20% increase in rail capital.

£750m on preparation for High Speed Rail

There is now less planned investment than assumed in above congestion estimates

Note

Rail carries 8% of passenger miles

Bus carries 7% of passenger miles

The rest is by road

Similarly for freight

Investment in rail or bus cannot solve the roads problem

Highways Agency Spending Profile

David Bayliss.
NB 2009/10 numbers are made

Distortion in tax rates

between hydrocarbons and
electricity

Road taxes have grown

**GB Roads: taxes (ex VAT) and government spending
(2006 prices)**



There is no logic?

Fuel for domestic use carries 5% VAT + a component for cost of carbon trading

Road fuel carries 20% VAT + £0.70 per litre duty

Far higher than the appropriate carbon tax

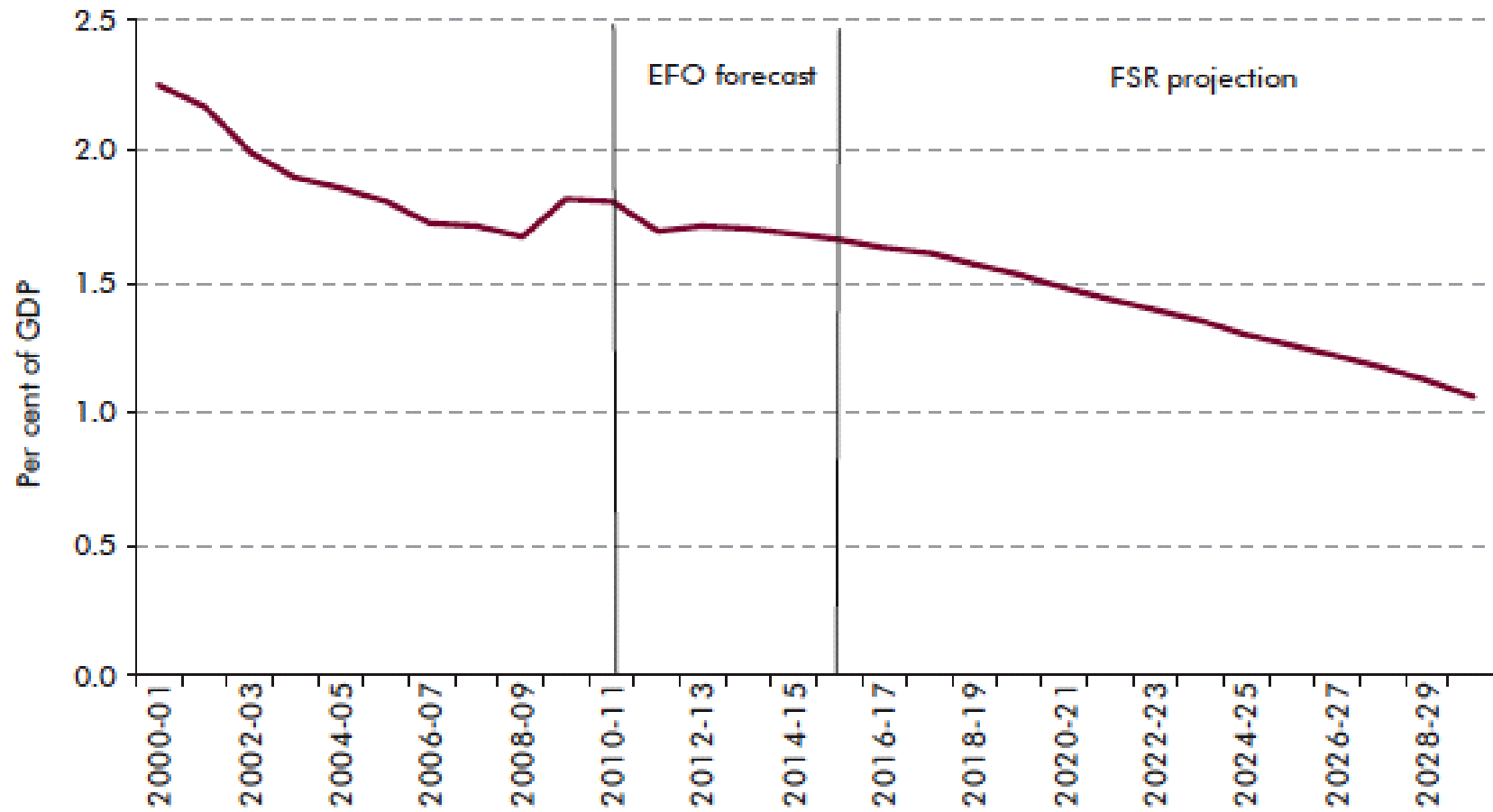
Fuel duty a sumptuary tax to fund general government expenditure

Highly distortionary:

why this particular sector?

Makes electric vehicles viable to the consumer only
because of an artificial fuel tax differential

If electric vehicles became popular would Exchequer be
able to maintain this difference?



Source: ONS, OBR

Pay-as-you-go will have to come sooner or later!

It is proven technology all over the world

It can be done at reasonable cost

People usually like the outcome

It is a fairer way to pay (c. f. utilities)

It would create a proper consumer relationship

It can be used to manage demand and reduce congestion

It will reduce Carbon Dioxide emissions

Together with changes to fuel tax and VED it can either
increase or reduce total revenues.

Table 2: Effects of PAYG charges with reductions in fuel duty and VED

Scenario	Reduction in VED (%)	Reduction in fuel duty (%)	PAYG rate for cars/HGVs (p per mile)	Type of road to which PAYG charge applies *	Change in traffic/CO ₂ emissions (%)	Change in net revenue (£ billion p.a.)
1	50	10	5/15	A, B	-1.3	-0.42
2	100	50	9.5/28.5	A, B, C, D, E	-3.8	0.12
3	0	20	10/30	A	-0.6	1.14
4	0	17	5/15	A, B, D	-0.5	1.09
5	100	25	5/15	A, B, C, D, E, G	-4.1	0.78
6	50	25	5/15	A, B, D, E, G	-2.7	1.30
7	50	25	2.7/8.1	A, B, D, E, G	0.0	-3.07
8	50	25	5/5	A, B, D, E, G	-2.5	0.23
9	50	25	6/6	A, B, D, E, G	-3.5	1.83

Source: authors' own

* A – Motorways; B – Rural A trunk; C – Rural A principal; D – Urban A trunk; E – Urban A principal; F – Minor rural; G – Minor urban

Governance of new body?

A new public enterprise, public trust, public benefit corporation

avoids “privatisation”

A privatised, regulated utility

creates a capital sale value for government
or concession: e. g. High Speed 1

The range of options



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