



Food and Drink
Federation
www.fdf.org.uk



Benjamin Heydecker

Professor of Transport Studies

Centre for Transport Studies

University College London

ben@transport.ucl.ac.uk



Food and Drink
Federation
www.fdf.org.uk



Developing a Greener Supply Chain:

The Main Challenges in Reducing Transport Impact

Benjamin Heydecker Centre for Transport Studies, UCL



Impact of transport logistics

Delivering the food customers require - from seed to table

Impacts:

- Environmental pollution
 - Global: CO₂
 - Local: NO_x PM_n CO HC Acoustic ...
- Congestion
 - Delay experienced
 - Delay caused to others
- Accidents
- Infrastructure wear and tear



Opportunities for change

Consider:

- Scale of issue
- Scope for reduction
- Effectiveness of measures

Transport of UK food:

- 32 bn vehicle-km (of which 26 bn in the UK)
- 25% of HGV vehicle-km traffic in the UK
- 19 Mt of CO₂ (of which 10 Mt in the UK)



Opportunities for change

Scale of issues

Estimates							
£M	CO ₂	Air quality	Noise	Congestion	Accidents	Infrastructure	Total costs
UK HGV	120	165	123	1359	327	387	2480
UK LGV	21	48	27	1056	148	4	1303
UK Car	46	24	42	2576	965	9	3662
UK to OS	43	54	39	52	115	141	443
Overseas	49	76	52	144	451	275	1048

Source: AEA Technology (2005)



Where the costs arise in UK food transport

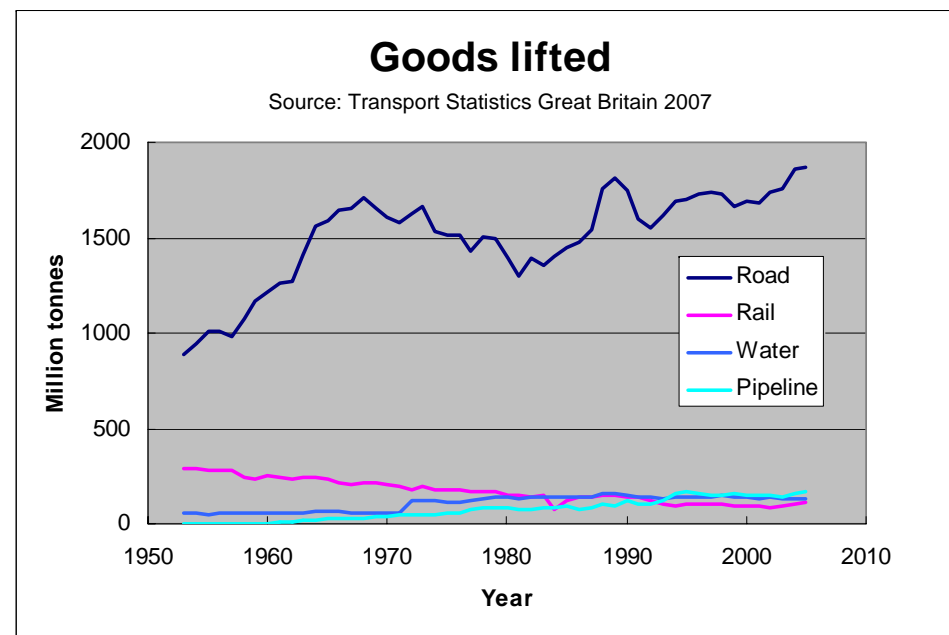
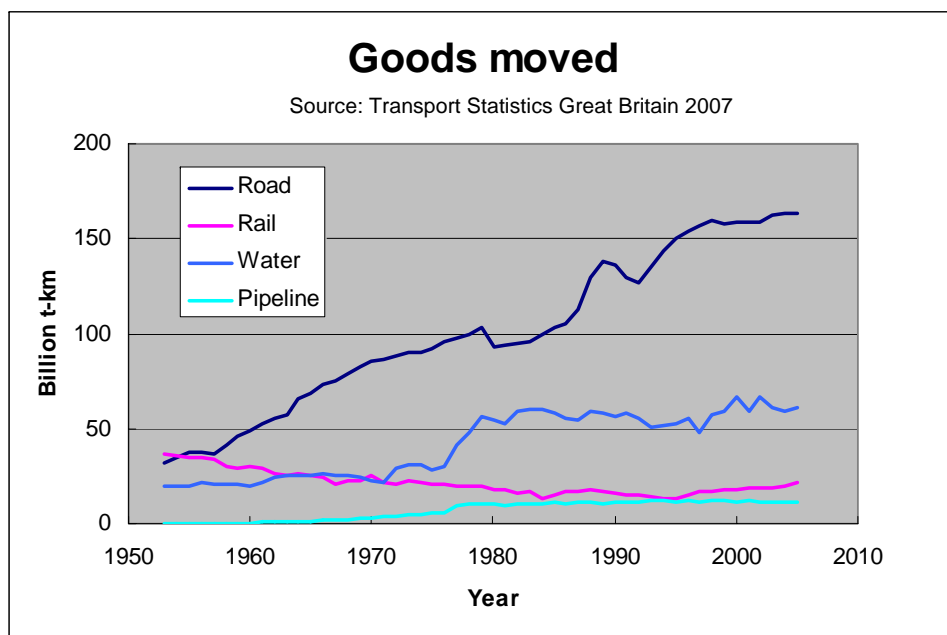
Congestion dominates: 5187 out of 9123 £M
of which, car causes 2576

Accidents: 2036
of which, cars cause 965

HGV is largest in:

CO ₂	120	out of	364
Air Q	165	“	439
Noise	123	“	283
Inf’struct	387	“	815

Modes used to move UK food freight



Most traffic by road
Increasing movement

Bulk of good by road
Increasing volume

How far we move UK food freight

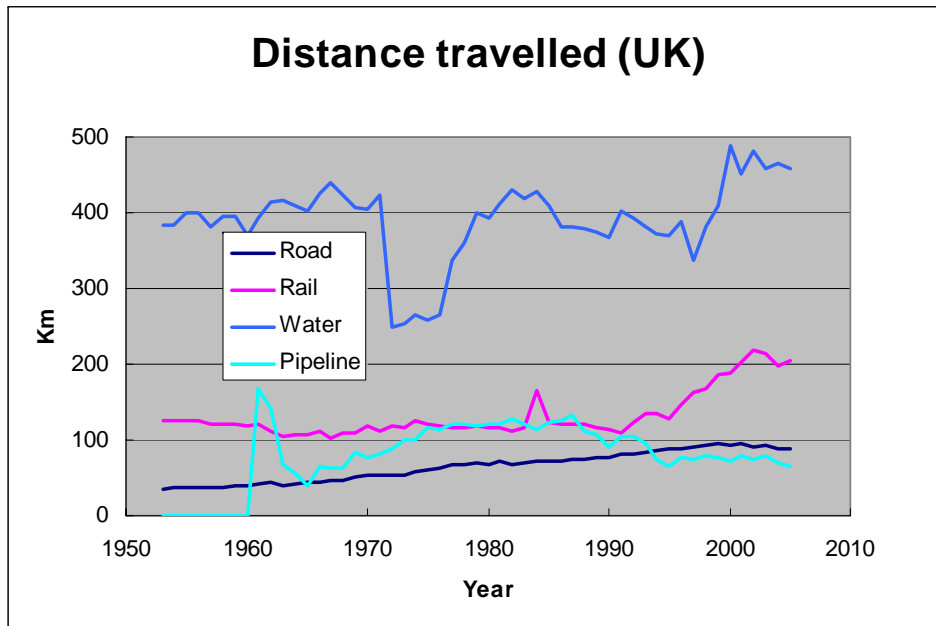
Mean distance (2005) km

UK:

Road	87
Rail	204
Water	459
Pipeline	65
All	112

Imports:

UK vehicle >3.5t	
Road	662





Where the CO₂ in food is used

Food and catering (UK, 2005)

Source: Carbon Trust: Carbon footprints in the supply chain
(CTC 616, 2006)

82 out of UK total of 648 Mt CO₂

Of which:

Direct	18
Indirect	57
Travel	7

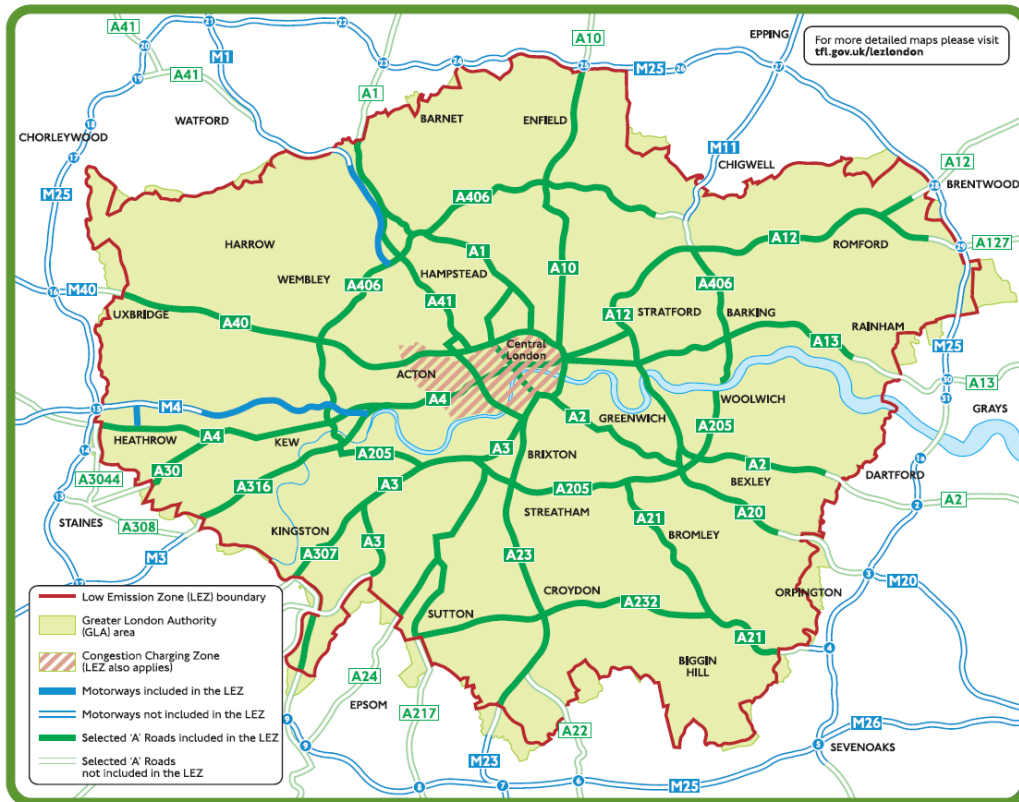
Might be better to grow some food away from UK

Spanish tomatoes

Specialist ingredients

Challenges in reducing transport impact

Air quality impacts: London low emission zone



Greater London Area

Affects commercial vehicles

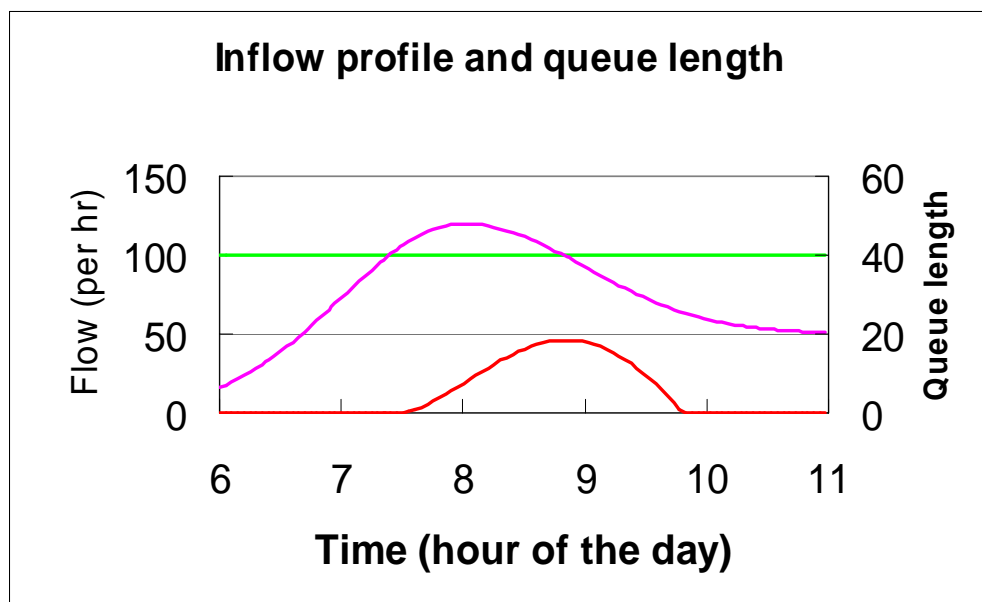
Standards on particulates:

February 2008: EURO III

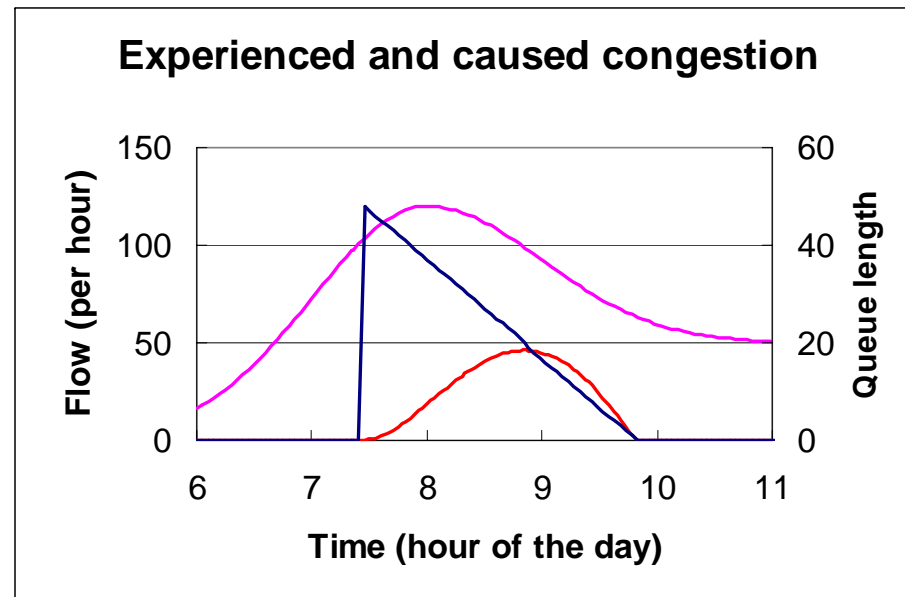
January 2012: EURO IV

Otherwise £200 daily charge

Congestion impacts: when to distribute



Delay lags behind demand



Congestion caused peaks early

Conclusion: Distribute before or long after peak periods



Engage consumers: remember lead additives

Pollutant (2001) <small>(source: NAEI)</small>	Transport (M Tonnes)	Transport proportion (%)
Carbon dioxide CO ₂	41.90	27
Nitrogen oxides NO _x	0.93	56
Volatile organic compounds VOC	0.30	20
Lead Pb: (1985)	0.00717	92
(2001)	0.00019	11



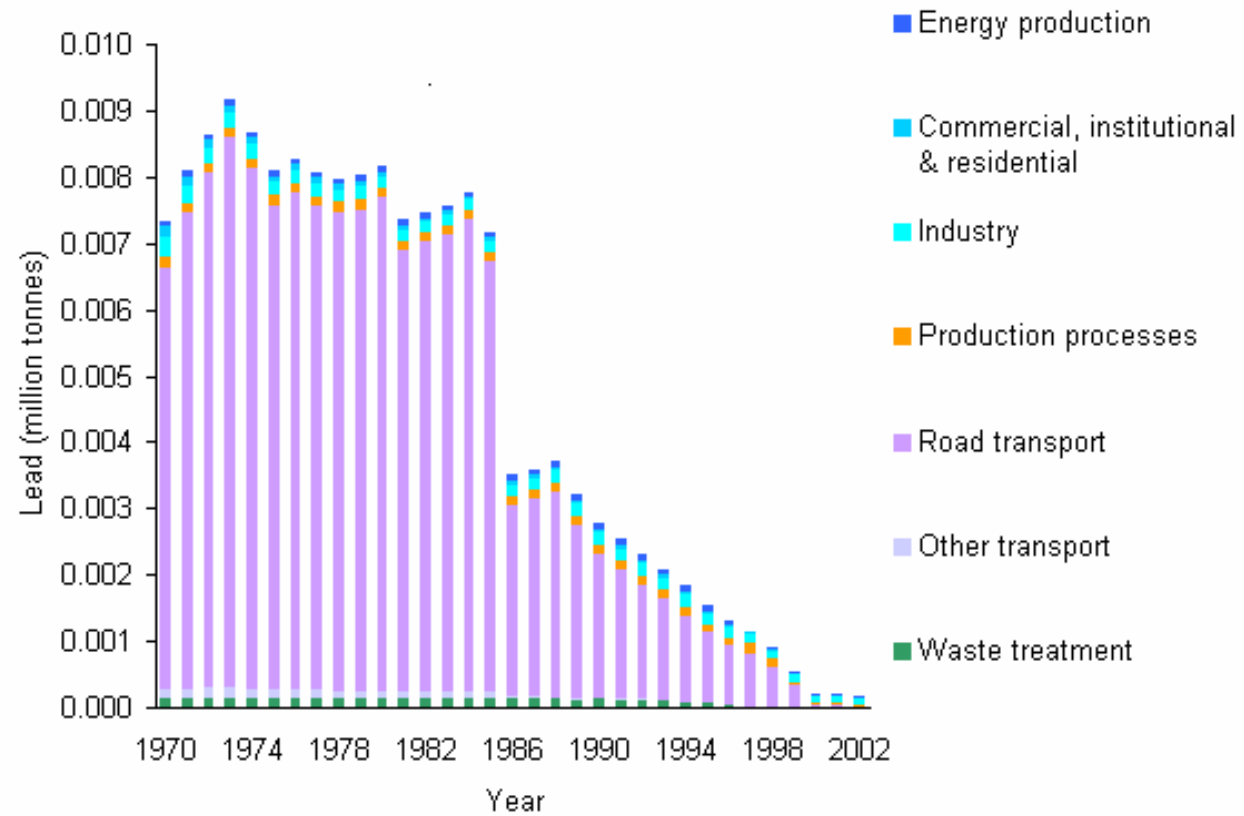
Effect of consumers' choice

Customer preference:
unleaded petrol

Despite suppliers' concerns

Bio fuels?

Lead (Pb) Emissions in UK, 1970 - 2002



Cha



Opportunities for change

Depend on balance of activities as between:

- Production and distribution
- Supplier and customer
- Methods of distribution:
 - Time
 - Mode
 - Location of source and retail

Plan actions in context of the whole

Recruit customer support