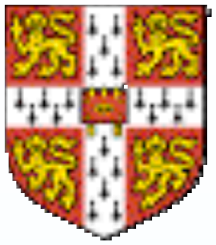


UNIVERSITY OF CAMBRIDGE

Road pricing: Lessons from London

David Newbery Cambridge University and CEPR

Economic Policy 42nd Panel Meeting

Bank of England London

21 October 2005

http://www.electricitypolicy.org.uk

London Congestion Charging Scheme

- Original scheme started 17 Feb 2003
- evaluation very positive
  - outcomes as predicted
  - evidence to support long-standing theory
  - huge victory for proponents of road pricing
- charge raised from £5 to £8 on 4 July 2005
- Extension consultation May-July 2005
- Mayor approves extension 3 October 2005

Cost-benefit of original scheme

- 65-75,000 daily car trips no longer made
- but only 5,000 individuals no longer travelling into charging zone
- considerable investment in public transport
  - £20 million p.a.
  - considerable benefits to bus users - £30 m p.a.
- little detectable impact on business

Table 6.1 Preliminary estimates of quantifiable costs and benefits of the central London congestion charging scheme (£ million per year, rounded)

Annual Costs	
TfL administrative and other costs	5
Scheme operation	90
Additional bus costs	20
Chargepayer compliance costs (telephone calls etc.)	15
Total	**130**
Annual Benefits	
Time savings to car and taxi occupants, business use	75
Time savings to car and taxi occupants, private use	40
Time savings to commercial vehicle occupants	20
Time savings to bus passengers	20
Reliability benefits to car, taxi and commercial vehicle occupants	10
Reliability benefits to bus passengers	10
Vehicle fuel and operating savings	10
Accident savings	15
Disbenefit to car occupants transferring to public transport, etc.	-20
Total	**180**
Net annual benefit	**50**

Cost-benefit of extension

Report to the Mayor

- Central Zone 21 km^2 430 km roads
  - 350,000 enter before, 290,000 after, 17% drop
  - 1.1 million employees

- Western Extension 18 km^2 320 km roads
  - 250,000 enter, predicted drop 5-10%, CZ +1-2%
  - 170,000 employees, 233,000 residents

Western Extension Report to Mayor

Table 3: Indicative costs and revenues, £ million per year

Financial Year	04/05	05/06	06/07	07/08	08/09	09/10
TfL management, design and supervision	3	3	2	1	1	1
Scheme procurement, implementation - low costs	27	53	12			
Scheme procurement, implementation - high costs	33	62	17			
Scheme operation - low costs			25	50	50	50
Scheme operation - high costs			30	60	60	60
Additional buses - low costs			7	10	10	10
Additional buses - high costs			9	15	15	15
Total TfL costs - low	30	56	49	62	62	62
Total TfL costs - high	36	66	64	77	77	77
Chargepayer compliance costs			4	8	8	8
Charging and enforcement revenues - low sensitivity			32	65	65	65
Charging and enforcement revenues - high sensitivity			27	55	55	55
Additional fare revenues - low sensitivity			3	7	7	7
Additional fare revenues - high sensitivity			6	12	12	12

Indicative CBA £ m discounted at 3.5%

	Low Sensitivity	High Sensitivity
Discounted Costs - low estimate	620	620
Discounted Benefits	450	680
Difference	-170	+60
Benefit / cost ratio	0.7	1.1
Discounted Costs - high estimate	750	750
Discounted Benefits	450	680
Difference	-300	-70
Benefit / cost ratio	0.6	0.9

Indicative costs and revenues over 10 years undiscounted £m

	Low Sensitivity	High Sensitivity
Total TfL Costs - low estimate	680	680
Total TfL Revenues	680	640
Difference	0	-40
Total TfL Costs - high estimate	840	840
Total TfL Revenues	680	640
Difference	-160	-200

Santos-Fraser:Annual costs and benefits for 2007

Costs (£ mill 2004 prices)Benefits (£ mill 2004 prices)

Santos-Fraser CBA 3.5% 10 years

Statistic

Western Extension: Comparisons

- S&F assume same scheme costs but exclude extra bus cost of £10 -15 m p.a.
- Mayor's estimated surplus £60-90 m p.a.
- S&F's surplus £123 m p.a. +5% accident and environmental benefits
- Benefit-cost ratio
  - Mayor: 0.6-0.9
  - S&F: 1.4-1.6

Impacts on public transport and city

- Switch from cars to PT increases PT demand
  - at same subsidy can increase service frequency
- reduced traffic increases PT speed
  - increased frequency and speed reduces time cost

=> increases demand: virtuous circle

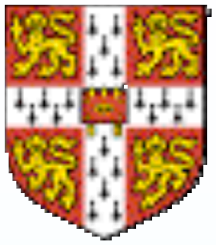
- combined with parking limits can increase urban density
  - contrast Los Angeles and San Francisco/New York

Ken Small's estimates of PT benefits

	London	Typical US City
ASSUMPTIONS		
Modal shift to bus as % of original bus ridership	6	30
Speed increase	9	9
Bus co. initial cost recovery %	80	40
New subsidies as % original co. cost	7	0
RESULTS		
Service % change	23	21
Fare % change	-11	-26
Patronage % change	16	31
Change in average user cost as % of fare	-48	-117
Average bus co. cost change %	-5	-15
BENEFITS		
From speed incease % of total bus co cost	35	35
From patronage % total bus co cost	4	-4

Conclusions

- Original LCC scheme attractive
  - but costs very high
- Considerable gains via public transport
- Extension and charge increase less clear cut
  - Mayor's assessment negative but going ahead
  - but Santos & Fraser find attractive
  - and different design could be better (if politically feasible)
- Demonstrates value of such work
- Congestion charging might work well in other towns because of low PT use?



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