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WORLD
EUROPE**Congestion charging****Ken Livingstone's gamble**

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Congestion charging is politically dangerous, but experience elsewhere in the world shows that it can be made to work

THIS century, mankind may well travel to Mars, but he will find it harder and harder to get across town. Since 1980, the number of vehicles in the world has doubled; in the next two decades, it is set to double again.

The costs are mounting. Few cities have reached the nadir of Bangkok (average peak-hour speed two miles, or 3.2 kilometres, per hour) where a booming business has sprung up selling empty plastic bottles to male drivers. But a 1999 study by the Texas Transportation Institute estimated that the annual cost of congestion in 68 urban areas, in wasted fuel and increased operating costs was \$72 billion. Motorways in many parts of the world are also heading towards gridlock. The record for the world's longest-ever traffic jam (109 miles) is held by the road between Paris and Lyon. Even in Los Angeles, which has concreted over more land than any other city on earth, officials predict that daily commuting times on its ten-lane expressways will double over the next 20 years.

All over the world, governments are trying to deal with this creeping paralysis. Simply building more roads no longer works, because voters almost everywhere object. Demand for road space is therefore bound to outstrip supply, which means that either the jams must grow, or road space must be rationed.

Some transport economists believe that congestion is bound to get worse because voters will never accept rationing. Anthony Downs, author of "Stuck in Traffic" and a senior fellow at the Brookings Institution, argues that peak-hour congestion in towns is inescapable. "This is a problem without a solution—at least a solution the American people will accept." His advice: "Get yourself an air-conditioned car with a CD player, a hands-free telephone and commute with someone you really like. Learn to enjoy being stuck in traffic as another leisure activity, because congestion is here to stay."

Ken Livingstone, London's mayor, disagrees. On February 17th, he is introducing a £5 (\$8)-a-day congestion charge for those driving in eight square miles of central London. The scheme relies on 700 video cameras, which will scan the rear licence-plates of the 250,000 or so motorists who typically enter the area between 7am and 6.30pm during the working week. This information will be matched each night against a database of drivers who have paid the charge either by phone, via the internet or at shops and garages. Except for those with exemptions (the disabled, taxis, nurses, for instance) or residents (who can apply for a yearly licence at a 90% discount), anyone who fails to pay by midnight will be fined £80.

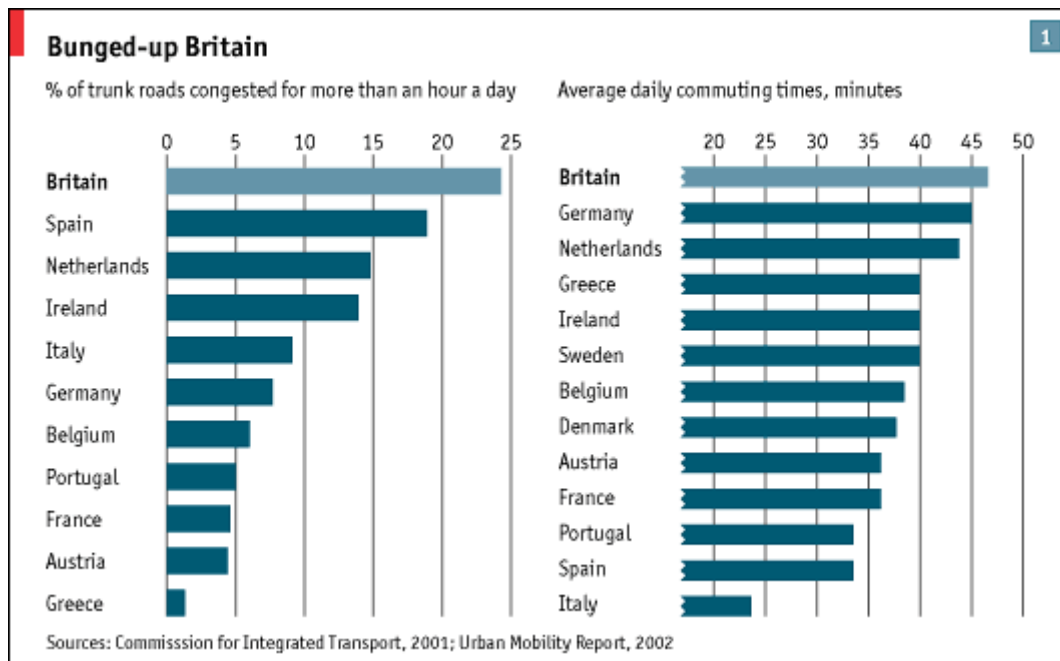
Those few cities that have successfully introduced charges have sweetened drivers with trade-offs such as better roads or lower taxes. All London's mayor is offering is a better bus service, financed by the £120m net annual revenues expected from the charge. Desirable as that may be, many of those who drive into central

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London (almost 90% of them from the richer 50% of the city's households) do not care to take buses. In effect, Mr Livingstone hopes that the promised benefits of a 15% reduction in traffic and a 25% reduction in traffic delays will drown the complaints of the minority who are forced to pay.

Since Britain is Europe's most congested country (see chart) such a scheme has as good a chance of being accepted in London as anywhere in the world. But it is, as Mr Livingstone admits, a gamble. In his darker moments, the mayor says that if the charge is clearly not working after two months, he will scrap it.



If the scheme works, many other cities round the world may try it. If it fails, says Rome's traffic chief, Maurizio Thomassini, urban congestion charging will be set back for a decade.

Other European cities have used regulation, rather than price, to cut congestion. Many German and Scandinavian cities have created extensive pedestrian shopping areas. In Athens, cars are allowed to enter only on alternate days. Even in France, whose citizens are more devoted to their cars than most, the right bank of the Seine in Paris, a virtual urban motorway, was pedestrianised (and turned into a beach) for a month last summer by the city's socialist mayor.

Italian cities such as Siena and Florence have banned cars from their oldest and narrowest streets. Rome has just introduced a sophisticated electronic system, similar to London's, to control entry into its historic centre. Traffic has been cut by 25%, with only residents and essential services allowed to enter. The city's mayor, Walter Veltroni, says there has been little opposition to the restrictions.

Regulation, at least in Europe, is easier to sell to voters than charging. And as a way of protecting historic cities, it has a part to play. But it is a blunt instrument—it cannot be fine-tuned according to changing levels of demand, as pricing systems can—and it produces no revenue.

One Californian trial has shown that a hybrid approach, using both regulation and price, can be effective. In San Diego, the local authority has converted eight miles of fast lanes, reserved for car poolers and buses, by allowing single occupancy vehicles to use them for a fee. The charge varies every six minutes from 50 cents to \$8 according to the amount of traffic.

Dynamic road pricing, using microwave transponders to assess congestion levels and deduct fees accordingly, may sound like a nightmare dreamt up by a mad economist. But in San Diego the high-occupancy toll (HOT) lanes have proved very popular. Although actual time savings in these lanes average only about eight minutes, drivers think the benefits are more than twice as great. A mix of commuters, not just the wealthy,

use them; utility vans and delivery trucks are a much more common sight than luxury saloons. And part of the revenue goes to subsidise an express bus service along the route.

More than 20 similar projects are in various stages of development in a dozen American states. Robert Poole of the Reason Foundation in Los Angeles says that building new roads or additional road space, which offers a premium level of service in return for tolls, is the best way forward. France discovered this secret a long time ago, with a network of toll roads operating alongside its congested *routes nationales*. In Britain, the new toll motorway around Birmingham, which will help siphon off traffic from the grossly congested M6 when it opens next year, is also a value-pricing scheme.

But in many areas, such as central London, building new road space is not an option. And schemes—like London's—which involve charging people for routes they are used to getting for nothing make politicians nervous. The world abounds in road-pricing schemes which have had to be aborted because of political opposition. Austria and Hong Kong have both abandoned them. The Netherlands has agonised for more than a decade over whether to charge drivers in urban areas.

Yet some road-pricing experiments are working, and the politicians who backed them are being re-elected. Singapore, which has led the way in restraining traffic by price since 1975, has addressed many of these issues. It is small, compact and its people are used to taking orders—not very like London, in other words. But it still offers valuable lessons.

Traffic in the inner city and on expressways around the city is controlled by overhead gantries which use short-range radio transmitters to deduct charges directly from drivers. Virtually all cars in Singapore are fitted with a unit into which a debit card is inserted. The tolls, varying by time of day and type of vehicle from 50 cents to S\$3 (£1.06), are designed to keep traffic moving freely at 25-35km an hour in the city and 45-65km an hour on the expressways. Every three months the fee structure is reviewed and adjusted, if necessary, to maintain these speeds.

Toll systems need to be flexible to be effective. Singapore's first charging system, in which drivers had to apply manually for a licence, reduced traffic into the city centre by 40%. The introduction of electronic road pricing (ERP) in 1998 has enabled the system to be fine-tuned with variable charging rates which can be changed every 30 minutes. The revenues are barely 60% of the previous manual scheme, but electronic tolling has reduced congestion in the inner city by a further 15%.

A recent visit suggests the system is working well. Even some of the city's obstreperous taxi drivers accept that it has reduced congestion. People were softened up at the start with a reduction in the very high vehicle-ownership taxes as soon as congestion charging was introduced. And the city's Land Transport Authority has been careful to listen to drivers' complaints. The fine for not having a valid cash-card was slashed, after an outcry, from S\$70 to S\$10.

You don't have to go to Asia to find a road-pricing scheme that works. More than a decade ago, three Norwegian cities—Oslo, Bergen and Trondheim—set up charging schemes, in which cars were charged by electronic tagging, to raise revenue for road tunnels and other transport improvements. Though the charges were low, they have reduced traffic by nearly 10%. And they have steadily become less unpopular. In Trondheim, 72% opposed them at first; five years later, only 36% did. Tolls in Trondheim now vary depending on the time of day. The schemes were meant to end after 15 years, but are now expected to be permanent.

So what makes a road-pricing scheme work? Of course, locals must feel that their roads run better. A scheme which diverts traffic, and thus worsens jams in some areas while improving them in others, will meet with opposition. But other features matter, too. The Norwegian experience suggests that drivers can be persuaded to accept charges if the cash is used for something they approve of. Britons seem to take the same view (see chart).

Privacy is another key issue. Hong Kong's charging scheme was abandoned partly because errant spouses thought their whereabouts might be tracked. The latest microwave tolling

technology, which uses in-car meters equipped with smart cards to deduct charges, effectively safeguards this because only violators' number-plates are photographed.

Another concern is fairness. There is some surprise that Ken Livingstone, London's mayor, a barely-reconstructed socialist, should be staking his political future on a regressive tax. Why, after all, should poor motorists pay a larger proportion of their income than rich ones to get into London?

Admittedly, few things are more egalitarian than a traffic jam. But whether the congestion charge is perceived to be equitable or not depends to a large extent on how the revenues from pricing are spent. If they are used to subsidise services predominantly used by lower-income groups, such as buses, then the charge won't be seen as unfair.

Advances in technology will help. The system London is introducing is cumbersome—requiring cameras on every road into the city centre—and inflexible—prices will not change according to congestion levels. But the next generation of pricing technology using global positioning satellites (GPS) needs little infrastructure and is extremely flexible. Cars fitted with satellite receivers can easily be charged via digitised on-board maps according to time, place and distance; and there is no risk that traffic will be diverted as drivers try to skip paying a fee by choosing an alternative route. At present such a system would cost several hundred pounds a unit, but that is likely to fall to less than £100 with sufficient demand.

Several European countries, including Germany and Britain, are planning to introduce satellite charging for lorries within the next four years. Proposals from the European Commission for such a scheme, which include tolls of *euro*4 (£2.65) for each 10km within a city, have met with much opposition and are being sat on; but if the plan sees the light of day, and works, a similar scheme for cars could be introduced within a decade. The Commission for Integrated Transport, an advisory body to the British government, claims that such methods could cut congestion by nearly half in Britain.

Congestion will always be a problem, but it can be managed sensibly. There is no reason why man should not be able to get to Mars and across town.

