

**“Toll”, no problem, but “urban toll”? Not as clear.**

### **An attempt to define “urban toll”**

According to André Lauer, former director of CERTU<sup>1</sup>, “An urban toll is any form of payment imposed on motorists to be able to drive in a given part of a given urban area.” There are four kinds of urban toll system:

1. Infrastructure system, which is used to finance structures such as the Prado–Carénage tunnel in Marseilles, the A14 motorway between the A86 and A13 at Orgeval and the northern Lyons bypass, now known as Openly;
2. Cordon system, which is applied on main roads leading towards a city centre (Oslo, Bergen, Stockholm);
3. Area system, which consists of requiring vehicles entering a specific area of the city to pay a toll (Singapore and London’s congestion charging system);
4. Network system, which consists of charging a toll for using existing urban roads, in the same way as the toll charged for using motorways in the open country. This approach had been considered for motorways in the greater Paris region.

Although it looks a lot like it, an area charging system is not an *octroi*<sup>2</sup> (town toll) or a new tax because it brings socio-economic benefits – including environmental benefits – to the local authority and its residents, giving it official legitimacy. The economic benefit can be easily measured: it is the difference between “public usefulness” and operating costs. The social aspect is more complex to calculate since it covers both short-term effects (noise and pollution avoided) and long-term factors (the city’s social structure).

### **Evaluating “public usefulness”**

In 1849, Jules Dupuit, a French engineer who was seeking, like us, to finance road structures through tolls, defined “public usefulness” as the sum of all the individual benefits accruing to people concerned by the structure. An individual benefit is the difference between the amount that individual users are prepared to pay to make a journey and the actual cost of making that journey. All people going into a city are doing so for a purpose, and they value that purpose more than the price they have to pay to achieve it.

### **How does an area charging system contribute to public usefulness?**

Congestion occurs when demand to use a road is high. And when there’s congestion, the economic calculation has to take into account all vehicle interactions rather than just a single vehicle. This is because any additional driver coming onto the road increases the congestion and makes other vehicles lose more time. The net usefulness to the additional driver may well be less than the sum of the extra costs/time lost by all the other drivers. This transaction would therefore generate a loss for all users. Since each individual driver may want to go into the city and cause an overall loss as described above, traffic has to be regulated. This is done by trying to dissuade drivers from using the infrastructure by making them pay – in time or money – an amount that has to be adjusted to changing circumstances. With current

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<sup>1</sup> CERTU (the Centre for the Study of Urban Planning, Transport and Public Facilities) is a public entity based in Lyons. It carries out studies mainly on behalf the French state and local authorities.

<sup>2</sup> An “octroi” was an indirect tax levied to enter towns in France from the 14th century; it was abolished in July 1943.

technology, toll prices can be varied on an hourly basis, which is a good solution to this situation.

In the short term, the major disadvantage of area charging systems is the cost of collecting the tolls. The cost was high until a few years ago, but changing technology is causing it to fall. And the fall is all the more rapid when legislation is adjusted in line with more modern techniques and facilitates recovering unpaid tolls. This is not yet the case in France, but the situation might change.

Transport models give the economic value of a toll system; the shadow prices of noise and pollution provide a means of estimating the benefits of having a toll system compared with the existing situation, making it easy to estimate the cost of toll collection. It is then possible to carry out an overall economic and environmental assessment of an area charging system.

However, there are hidden long-term costs in such urban toll systems, which are due to the changes they cause to the area's jobs and housing structure.

The fact is that not all drivers carry the same weight. But transport models do not show this because they use average values and do not know how to treat the distribution tails that are so important from a political viewpoint.

Recent studies, including those that led to the design of the Pirandello® model, have shown that people reason logically: if conditions affecting their budget change, they change their behaviour or their place of residence. Some people win, others lose.

And that's why politicians are reluctant to introduce urban toll systems. Although the overall result may be positive, it does not necessarily justify the fact that some categories of people would lose out because of it. The way French society works, losers have to be compensated in some way or another, which economists refer to as a "Pareto optimal".

In concrete terms, a Pirandello® test on a cordon toll system around central Paris showed that there would indeed be less traffic in the city, but there would also be a fall in the number of jobs, people with money would return to the central area, traffic jams would shift to the inner suburbs and the poorest people would move to the outer suburbs where there is no public transport. In other words, failure to take all aspects of the urban toll issue into account could lead to false conclusions being reached about the efficiency of the toll system because it has a huge impact on the structure of society.

The VINCI Group has the technical capacity needed to make a success of urban toll systems, whether they are of the infrastructure, area or network type. Thanks to its car parks and motorways, the Group can even facilitate setting up a pricing mechanism that optimises the socio-economic benefits of the entire system as suggested by Pirandello®.

However, there is as yet insufficient knowledge about the long-term effects to be able to take definite action. The social structure (wealthy districts, poor districts, housing and shops) and fiscal structure are not the same in France as they are in Norway or England. A successful experiment could therefore be adapted, but certainly not copied.

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