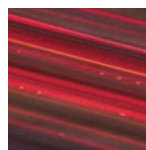


The Politics of Tolling and Road Charging in Europe

By Jean Mesqui

These personal thoughts result from my reflection on an interesting article by Bill Reinhardt ("A Way to Survive the Perfect Storm: Toll the Interstates," Public Works Financing, November 2002) published nearly two years ago. Reinhardt proposed the idea of a general Interstate open-road charging system based on global positioning satellite (GPS) mobile telecommunications technology. I intend to challenge the illusion that it is possible to raise new tax revenues using new technical means without first recognizing that important policy decisions must precede the technical decisions. I have tried to analyze the situation in Europe, focusing on the political framework, the technical means and, last but not least, the important question of clearinghouse functions in the complex world of tolling and road charging.



Political Framework

The situation across Europe is not homogeneous with respect to tolling systems. One could summarize the complex picture in the following way.

Concession tolling system

Tolling is a normal solution to create and maintain new infrastructures in France, Italy, Spain, Portugal and, to some extent, Greece.



This tolling is done in the form of concessions, which guarantee that the money collected is used to build, maintain and operate highways.

However, even in these countries the situation is not uniform. In Italy, about 90 percent of the interurban highway network is a concession network and the primary national roads network cannot compete with the concession network. In France, 7,600 km of interurban motorway is tolled; but there is also a primary national road network that is more than one-third the length of the tolled network. In some cases, these four-lane free highways run parallel to tolled motorways. In Spain, there is 2,300 km of tolled motorway; but there are also free “autopistas” which cover twice the length of the tolled network. In Portugal, most of the motorways are tolled; but, as in Spain, some secondary sections have been built using shadow tolls.

Unlike these Mediterranean countries, the northern countries of Europe are not accustomed to the concession tolling system. In the United Kingdom, Ireland, Germany, Denmark, Sweden and the Netherlands, there are very isolated examples of tolling for large bridges and tunnels or specific motorway sections. But these are exceptions and not at all common.

Norway uses a mixed system where tolls are collected only for the construction of some motorway sections, tunnels or bridges, leaving the cost of operating the highways to the government. In this

system, tolling ends when the capital is reimbursed. These concessions are not very long.

In this group of northern countries, Austria shows a very interesting evolution from a “free motorway system” to a concession-like one. Motorways had previously been free, with the exception of some tunnels or mountain motorway sections. The government collected time-related taxes on cars and trucks to compensate for the environmental effects of traffic in this alpine country. Toward the end of the 1990s, the government created a publicly owned company to build, maintain and operate the whole motorway network of roughly 3,000 km. This company, ASFINAG, was charged with the mission of transforming the then existing time-related or “vignette” system of charging trucks into a distance-related electronic tolling system. In exchange, ASFINAG received all of the charges collected on cars and trucks. The decision was very well accepted by the trucking organizations and unions despite their having to pay higher charges because the existence of a company that will keep and use the collected funds guarantees that road users will not have to pay a new anonymous tax. The new system was successfully implemented in January 2004.

The evolution of road taxes

For many years some central European countries, where cross-border traffic is large and disliked by the public, have collected time-related taxes (vignettes) to compensate for the environmental effects of this traffic. These taxes are governed by the European Commission because they affect the cross-border traffic within Europe and could, if not harmonized, have negative effects on fair competition. There is no earmarking of these taxes for any transportation purpose. As noted above, Austria recently changed its system to a concession-like one.

In 1999, Switzerland, which is not part of the European Union, instituted a new distance-related tax on trucks proportional to the

distance driven on any road in Switzerland. This tax was justified by the strong environmental effects of the trucks on this small alpine country and earmarked to upgrading the railway system and promoting “combinate transport,” or the movement of trucks on trains traveling through Switzerland.

During this same period, Germany decided to replace its ancient vignette system with a new fully electronic distance-related tax on trucks. To make this decision acceptable to the trucking unions, the government indicated that part of the revenues would be devoted to transportation infrastructure improvements. However, truckers also had to accept the fact that some of the revenues would be shared with the Lander, or regional governments. But at the present time there is no entity specifically designated to keep the

money except for the government, which is continually starving for money. This situation leaves open the question of how the money will be used in the long term. The new system is not yet in use because of serious technical problems that have led to a one and a half-year delay.

In June 2004, the United Kingdom launched a call for tenders for what is called the Lorry Road-Use Charge (LRUC) project, similar to the Swiss model, with distance-related charging on all roads in the

country. Managed together by the transportation department and the customs department, the funds from this scheme, as in Germany, are not specifically connected to an infrastructure improvement program. The project is forecast to begin in 2006 at the earliest.

The question of European harmonization

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often considered the very model of what needs to be done, even if it doesn't function yet. During the first half of 2004, the Commission has tried to advance a Directive to harmonize distance-related truck charging systems across Europe based on two principles:

- the money collected has to be earmarked for road infrastructure building, maintenance and operation; and
- in some very sensitive cases, an additional fee could be charged and used for cross financing of, for example, rail infrastructure improvements.

This proposed Directive failed to gain approval by the member states because of widely different positions. For instance, peripheral countries with huge truck fleets don't like the idea of charging “their” trucks in the center of Europe. Some “concession” countries believe the proposal does not respect “their” right to launch new concession projects. But what is very instructive to learn in these debates is that the main issue that resulted in stalemate was the mandatory earmarking of the revenues.

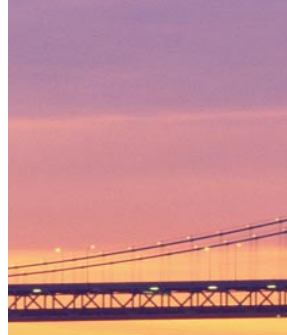
This situation shows very clearly that creating a new charging instrument for trucks is seen by most of the governments as a new way to get money to feed the black holes of their budgets. It also very clearly shows the huge danger that concessionaires see in confusing concession tolling with taxation. Concession tolling keeps the money inside the conceded projects and preserves it from the natural, and large, appetites of starving governments; universal road charging, in contrast, is a new way to pay new taxes.



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Technical Means

With respect to the funding of public infrastructure, there is often confusion between the political decision and the technical means used to implement the decision. It is a matter of fact, however, that some decisions could not have been taken without the support of highly sophisticated technical solutions. In the classical concession countries, there is no problem: collecting tolls manually or by credit card is the common way of life and ETC is an improvement, a service offered to the customer. In countries where tolling or charging is a new development, where the entire motorway network, or in some cases all roads, are to be covered all at once, the situation is more complicated. ETC is obviously compulsory to avoid the need to build toll plazas. There are three examples in Europe that illustrate this point.



In Switzerland, the new system was successfully implemented in 1999 based on a combination of tachometer, to calculate the distance driven; GPS, to verify the location within Switzerland; dedicated short range communication (DSRC), to check the traffic on the borders; and finally a magnetic card containing the data to be sent to the customs service for payment. On-board equipment is not mandatory for foreigners but it necessitates the use of border toll devices where the driver can register the tachometer reading on entering and leaving the country. It is important to note that this system is not totally electronic since it uses the normal mail for sending the magnetic cards to the administration. The non-equipped trucks are obviously obliged to stop.

On the 1st of January 2004, the new Austrian open-road tolling system for trucks, based on DSRC, was successfully brought in service, demonstrating the first completely open road tolling system on the

motorway system of an entire country. One of the reasons for the success of this system is that the on-board equipment is mandatory for every truck driving in or through Austria. It avoids any manual or Internet-based fee collection. Another reason is the simplicity of the technical solution chosen: DSRC beacons on 400 overhead gantries located between interchanges throughout the country.

In Germany, the ambitious truck charging system based on GPS (to position the vehicle and to calculate on-board the distance driven) and GSM (to send the data to the fee collection operator), is intended to be implemented in January 2005 after a one and a half-year



delay. The basic version of this system operates without online updating of the electronic maps. As in Switzerland, the on-board equipment is not mandatory; but unlike Switzerland, the distance driven by non-equipped users cannot be known through tachometer readings. The driver will have to announce in advance, at toll-booths or by Internet, the exact trip planned. If for any reason the trip is modified, the driver will have to inform the operator of the changes.

Here are some lessons to be taken from these examples.

The technical means of implementing a vehicle tolling or charging system depends on the political decision. If the network to be

charged is restricted, for instance the motorway network, the Austrian example shows that simple, well known solutions are certainly the best ones. If the network to be charged is a huge one, for instance the entire road network, the Swiss example shows that a solution using an existing on-board device which is mandatory at the European level – the tachometer – is probably better than a complex satellite positioning-based system (where the positioning is not the complex issue but the presence of on-board updated electronic maps!).

Whatever the technique chosen, the question of how to deal with non-equipped users is probably the most ignored one, despite its importance. The illusion that “the technology allows everything” is unfortunately widely held, masking the larger question, “How do we allow non-equipped users to pay when there are no toll plazas?”

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In spite of these lessons, the European Commission chose to solve the technical questions before having solved the political ones. Since it was easier to decide on techniques than on policies, the member states and the Parliament in March 2004 approved a Directive proposal from the Commission on ETC interoperability. This Directive strongly recommends the use of satellite positioning-based systems as the ultimate solution of the future. But due to the efforts of the entire tolling industry in Europe, it was possible to avoid having the satellite positioning-based system become the only solution permitted after 2011. So, the Commission

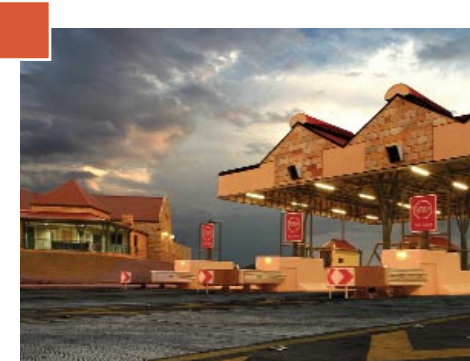
came to a bizarre compromise stipulating that in 2009 every ETC issuer should propose on-board equipment compatible with both satellite technology (which doesn't work yet) and with DSRC (which does).

Clearinghouses: What About Relations between Private Toll Operators and Government Finance Departments?

The belief that one can easily achieve universal road tolling and charging using new techniques is an illusion: it ignores the very complex nature of the tolling and charging worlds. Reflecting on the article by Bill Reinhardt, I would like to emphasize the challenges one has to deal with before building such a clearinghouse.

Everyone is familiar with the situation in the mobile phone world and in air transportation. Without knowing the technical details, you can phone (or travel) everywhere using the services of several different carriers while paying a direct fee to only one. The situation is far different in the tolling world and, in fact, is becoming more complex because the actors are very different from one another. Consider the present situation in Europe. There are historical toll operators, concessionaires that are ETC contract issuers, and road service operators. There are also external ETC contract issuers, such as banks, that do not belong to the tolling world. Now we can see in Germany and Switzerland a new kind of actor. In Switzerland, the finance department of the national government is the front line operator where the road charging payers are direct ETC “customers.” In Germany, a private company works on behalf of the government for the purpose of collecting road charges from the truck driver “customers.”

Exchanging money between concessionaires is feasible, but it becomes complicated when many concessionaires are involved. It is even more complicated with banks, which have their own rules concerning clients. Is it feasible to effectively conduct these exchanges between government finance departments? At the end of the day, the answer is certainly “yes.” But it will take time and it won't be easy.



Conclusion

- The existence of an “open road tolling” technical means should not form the basis of a transportation or charging policy; on the contrary, a transportation policy has to define the requirements which will allow the selection of an appropriate technical means.
- Tolling the “free highways” – at least tolling trucks on it – could be a good solution to gain new funds for road improvement, maintenance and operation; but creating a new tax is not a good solution because there is no guarantee that the tax will be used to support roads.
- Defending systems that allow concessionaires and toll authorities to keep the money they raise through tolling and to use it for building, maintaining and operating roads is a good deal.

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