

HEAVY GOODS VEHICLE TOLLS IN GERMANY

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ABSTRACT

Since 1 January 2005, Germany has been applying one of the most innovative and modern tolling systems in the world. The system is a dual one, comprising not only a manual booking option but also, for the first time ever, satellite-based automatic tolling. The automatic system uses a combination of satellite navigation and mobile communications technology to achieve a free-flow system. Germany therefore does not need any roadside infrastructure to levy the charges.

Moreover, the automatic tolling system is extremely flexible. That means: the system is not only capable of varying the tolls according to location but also according to the time of day. The software needed can be quickly updated. In addition, the German tolling system already has an interface to ensure interoperability with microwave systems.

1. STRATEGIC OBJECTIVES

The introduction of tolls for heavy goods vehicles in Germany is a central element of a strategy to cope, in the long run, with the expected growth in traffic volumes. As a consequence of the European Single Market, the eastern enlargement of the European Union and globalization in general, motorized traffic volumes in the passengers and goods sectors will, by the year 2025, increase by approx. 20 % and 80 %, respectively.

By introducing HGV tolls, it was for the first time possible to allocate the infrastructure costs to the people generating them in an optimum way. That means every user has to pay for every kilometer actually driven.

At the same time, tolling helps to mobilize additional funds for the improvement of the transport infrastructure.

Furthermore, the fact that tolls are charged according to the emissions produced provides a powerful incentive to purchase cleaner vehicles or convert older ones.

2. INFRASTRUCTURE

Germany has the longest motorway network in Europe with approximately more than 12,730 kilometers of motorways. There are more than 2350 access points to the motorways and more than 250 motorway interchanges.

Vehicles which are subject to tolls travel a total of approximately 27.61 billion vehicle kilometers per year. Therefore, it is imaginable that the implementation of a toll for heavy lorries in Germany was a technical and economic challenge.

3. LEGAL FRAMEWORK

The Coalition Agreement of October 1998 was the basis for the introduction of the German tolling scheme.

As is well-known, Germany has been levying tolls for the use of the entire federal motorway network since 1 January 2005. Vehicles and vehicle combinations with a maximum permissible weight of at least 12 tons are liable to pay the charge.

Besides the main fact that users have to pay for every kilometer actually driven, we have two criteria for the differentiation of the toll, one being the number of axles and the other the emission class of the vehicle.

The HGV toll act provides for the earmarking of the revenues for the improvement of the transport infrastructure, predominantly the federal motorways. This is an important fact because users see that the toll they pay is not included in the general public budget but strengthens investment to their own advantage. This is one reason for the high acceptance of the system by German and foreign users.

4. INFRASTRUCTURE COSTS

When Germany decided to introduce a tolling scheme it was, of course, clear that it had to be in compliance with European law. The so called Eurovignette Directive lays down common principles for tolls and user charges for heavy goods vehicles. Under the terms of the Directive, the level of tolls must be based on the level of infrastructure costs. Therefore, Germany was not at all free to fix the tolls to earn money. The tolls must be based on the actual costs caused by the use of the motorway, the costs of construction, operation and upgrading of the motorway network.

The infrastructure costs of the federal motorways (estimate of 2010) amount to a total of 11.74 billion euro. The share of heavy lorries accounts for about 45 % thereof, i.e. 5.2 billion euro. Consequently, we can assume an average amount of 17 cent per kilometer.

Owing to the acceptance by the road haulage industry, Germany has only been applying an average level of 16.3 cent per kilometer since 1 January 2009.

5. SYSTEM STRUCTURE

On the basis of our strategic objectives and in compliance with the principle of non-discrimination, Germany has introduced a dual HGV tolling system comprising an automatic and a manual component. To pay their tolls, users can choose among a total of three options: the automatic tolling system and the manual booking system with two options for booking journeys – via the Internet and at payment terminals normally to be found at filling stations.

The principle of automatic tolling is based on the establishment of so-called "virtual toll charging stations" on every motorway section. The geographical co-ordinates of the motorway sections are stored in the on-board-unit (OBU) in the form of a digital map. When a lorry drives along the motorway its current position is continually registered by GPS satellite positioning. As soon as the current position of the lorry corresponds to the virtual coordinates, the OBU recognizes that the lorry is on a section of the motorway which is subject to tolling. The OBU then calculates the toll in accordance with the declared number of axles and the relevant emission class.

These data are then transmitted to the back office where the bill is prepared. Before they start their journey, drivers simply have to key in the number of the lorry's axles. All the subsequent steps in the tolling process are then carried out automatically.

Germany, therefore, does not need any roadside infrastructure in order to levy the charges. The few toll gantries you see on German motorways were erected only for enforcement purposes. There are no maintenance costs for roadside equipment. Moreover, the automatic tolling system is flexible. That means: the system is not only capable of varying the tolls according to location but also according to the time of day. The software needed can be quickly updated. Since the introduction of the tolling scheme, the toll network has been updated several times to include new sections and new junctions. The users do not have to call at a garage, the data are transferred via the mobile communications network (GSM) simply and comfortably.

The most convenient way to pay the toll is automatic tolling. And the high degree of acceptance of the automatic system is demonstrated clearly by the booking behaviour of the users. Today, about 90 % of bookings are already made via the on-board-units.

6. TOLL REVENUE

The toll system raises additional revenue which is urgently required for the maintenance and further upgrading of the transport infrastructure in Germany. The total turnover for the last few years amounted to approx. 4 billion euro per year.

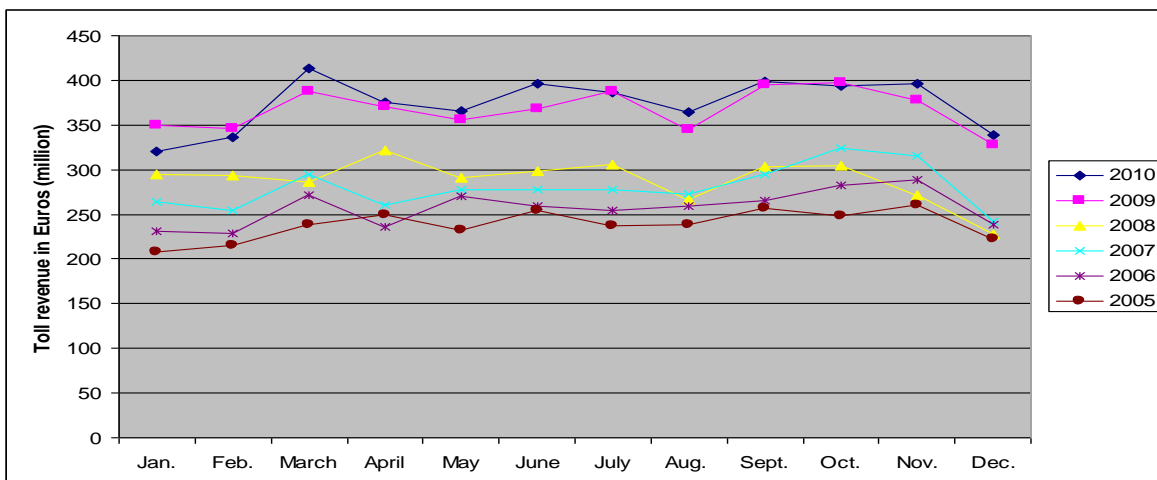


Figure 1 – Development of revenue

7. ENFORCEMENT AND ADMINISTRATIVE OFFENCES

Enforcing the payment of tolls is at least as important as levying them. The Federal Office for Goods Transport (Bundesamt für Güterverkehr – BAG) performs this important function with the reliable support of the toll operator Toll Collect.

Checks are carried out at any time of the day or night on all sections of the motorway. There is no section of motorway and no time where a toll dodger can feel safe. Checks are carried out at random all over the network. Every tenth journey is checked. The number of offences is significantly below 2 per cent (for domestic vehicles and for vehicles from abroad). The low rate of offences demonstrates the effectiveness of the enforcement system.

An offender does not only have to pay the toll but also a fine. First of all, the offender has to be identified- the haulier or the driver. For a first-time offence, a haulier has to pay a fine of 200 € for negligence and 400 € for intent. The driver has to pay half the amount in each of these cases. The maximum fine amounts to 20,000 €.

8. STATISTICS

Since January 2008, the Federal Office for Goods Transport has been publishing monthly statistics. Based on these statistics, it can be seen that the share of cleaner vehicles has risen. The purchase of cleaner Heavy Goods Vehicles with the emission standard Euro 5 increased from 0.8 % in 2005 to approx. 60 % at the end of 2010. Thus, the levying of HGV tolls is also a transport policy measure with a “green” factor.

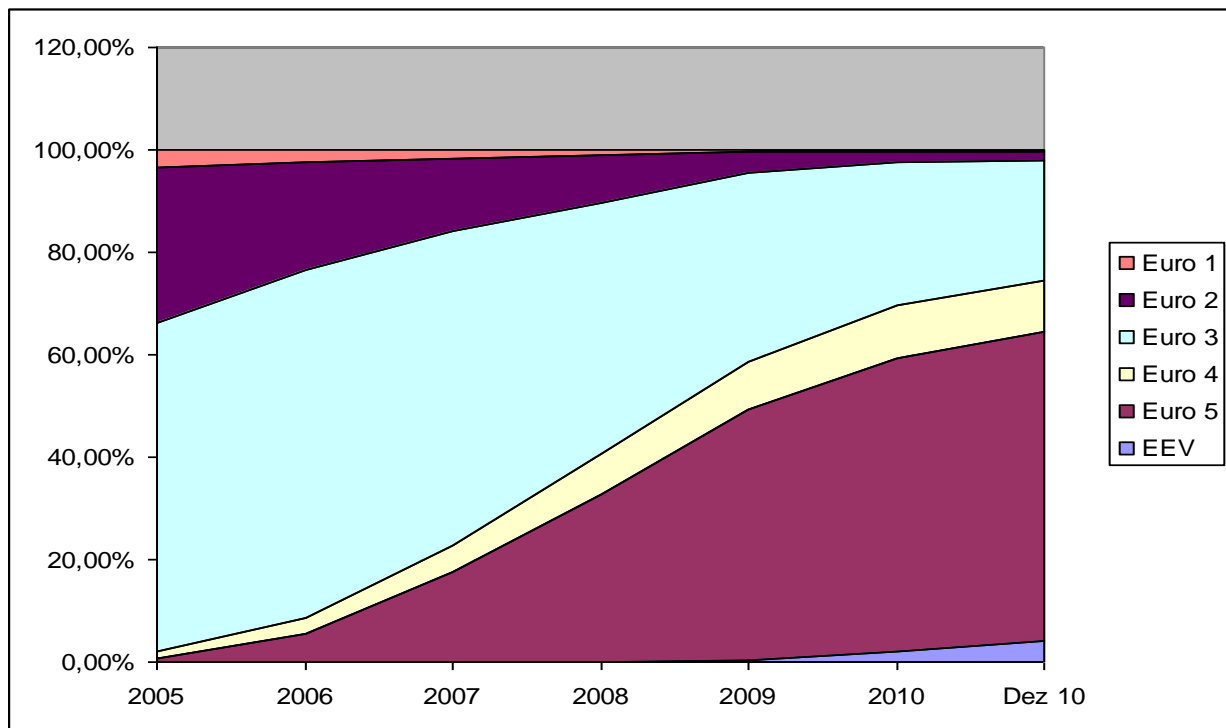


Figure 2 - Mileage

9. LESSONS LEARNED

With the introduction of HGV tolls, the Federal Government has launched one of the most important structural reforms in the field of transport. And it is the biggest public-private partnership project that has been initiated in Germany so far.

Processes will be simplified if there is only one operator responsible for construction, financing and operation of a tolling system. Problems due to the interfaces between different contractors are avoided.

Public private partnerships are an interesting model for the interaction the of public and private sectors. But the successful realization of such a project requires optimum control during each of its phases. Furthermore, auditing and supervising is of high relevance.

REFERENCES

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