

Electronic toll - why adopt a halfway solution again?

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Dear Ladies and Gentlemen,

Charging of goods transport on highways of former Czechoslovakia was considered since early 80's when the first highway connecting Prague with Bratislava was put in work. It was presumed that the toll should be assessed for real performance of vehicle on infrastructure – for tonnes carried on a trajectory – so called “tonnkilometres”. Measuring of distances was not a problem on highways, but a device for measuring of actual load of vehicle in motion suitable for installation on highway entry was missing. Suitable measuring devices for weighing of vehicles in motion were only developed in these times.

Although the former Czechoslovakia was separated from technologies of western world, the first WIM weighbridges capable to measure the load of wheels, axles, axle groups, gross vehicle mass and classify vehicle even at 50 km/h speed were successfully developed and tested in practice. Nowadays we can put this weighing device into class IV of ASTM E 1318 standard – as a low speed WIM.

When former political regime in Czechoslovakia collapsed and state officers at Ministry of Transport were changed, the idea of toll collection and preserving the roads from overloaded vehicles was nearly rejected. In spite of that, charges for overloading were determined in Act 368/1992 and overloaded vehicles (namely foreign) should have been penalised.

Czechoslovakia was divided into separate Czech and Slovak Republics and new border crossings were built up, where WIM weighbridges were installed under the direction of Ministry of Finance – Board of Customs. The installation started on two highway border crossings and then continued on main roads. Since 1998 we could put the toll collection in international transport into practice.



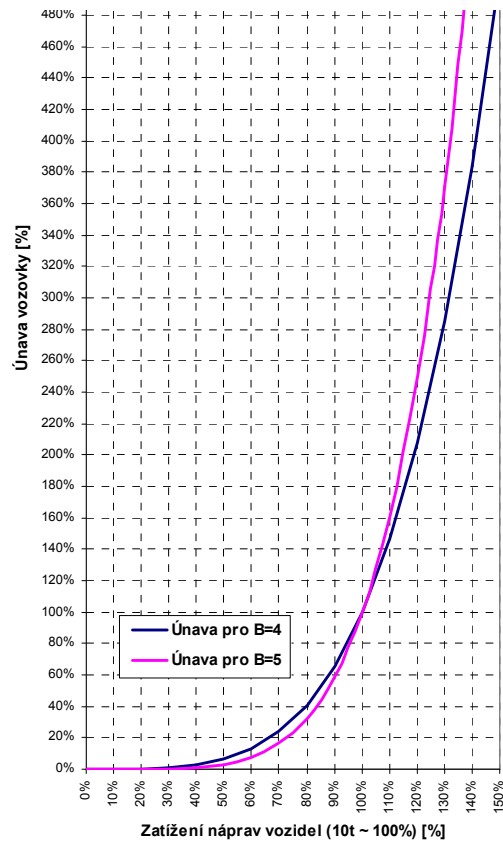
Pictures 1., 2. : Border crossing Lanzhot – Kutý. More than 1,5 mil vehicles checked since 1996

In 1995, only a short time before the first weighbridges were put in work on borders, the Czech Republic adopted the “vignette” charging for highways usage coming from Western Europe. It is very unfair charging - the most are affected the passenger cars, although they have no impact on highway deterioration at all. Heavy vehicles were affected minimally. In

2003 were collected CZK 2.1 billions from vignettes, CZK 1.5 billions came from passenger vehicles and only CZK 0.6 billions from heavy vehicles over 12 tons.

It was known that the main cause of road deterioration are overloaded axles of heavy vehicles even at that time. The road wear is speeded with the fourth or fifth power of axle load as shown on the graph. Thus in 1995 it was unprofessional and uncoordinated proceeding of state officials who had no vision of fair charging of road transport.

The question of toll collection was opened again with our forthcoming accession to European Union. At the day of our accession to the European Union the Czech Republic was forced to stop weighing in motion on border crossings. So the non stop in-motion checking of nearly two millions vehicles per year was silly “substituted” by several mobile Police groups that are able to check no more than 20 thousands vehicles per year – fractional effectiveness at the same costs. In the last couple of years Austria and Germany presented their systems of electronic toll collection that are based on travelling distance, emission class and No. of axles, not on actual axle load that damage the roads in real. It is questionable how this type of unfair charging can save the roads and improve the condition of European road infrastructure. Both toll collection models are based on technically questionable idea, that number of axles noted in vehicle registration book can represent its real influence to road wear caused by this vehicle. The price of travelled km is calculated from “paper predictions” – from number of axles, not from real influence to the road. It will tend to massive and systematic vehicle overloading as soon as the carriers recognise this. Then there is evident inequity when driver of a big, but empty vehicle pays more than driver of a smaller, but overloaded vehicle – see the pictures below – dashed line is the load limit, bold line is the actual load:



Pict.3: The road wear (Y axis) depends on applied axle load (X axis)



Pictures 4., 5.: Who should pay more?



The idea of such composed electronic toll is depreciated by inequity from the beginning and leads only to good business for companies trading with toll collection devices and to danger loading of vehicles without real benefit for the state, which is responsible for administration and investments into roads and highways.

Moreover, electronic toll composed in this way doesn't contribute to increasing of road safety anyway. The number of traffic accidents caused by heavy vehicles is increasing for several years and volume of total damages (except damage on vehicles itself) are not counted in Czech Republic. The "size" of vehicle charged by present electronic toll don't give any information about safety of vehicle loading and random police checks aren't able to stop raising trend of road accidents. The more systematic and preventive checking by more sophisticated toll system is absolutely necessary.

In the last decade were developed methods and equipments able to check actual vehicle load and his safe or danger loading even at highway speeds up to 200 km/h. There is no obstruction to apply better system of electronic toll based on measurable values of real usage of the road infrastructure. The same halfway solution of electronic toll introduced in Austria and Germany nowadays shouldn't be hastily adopted in Czech Republic, as the highway vignettes were in the past.