



THE NEW DUTCH PER-KILOMETRE DRIVING TAX

BERT VAN WEE*

Introduction

In highly urbanised regions worldwide congestion is a severe and increasing problem. Mainly due to population and income growth car ownership levels increase, whereas the extension of the road network capacity increases less rapidly because of high costs, environmental concerns or space limitations. As early as 1920 it was recognised that if demand for infrastructure capacity exceeds supply (and increasing capacity is not an option) road pricing increases the general welfare (Pigou 1920). Additional benefits from pricing could be environmental and safety benefits (e.g., Verhoef et al. 2008).

For a few decades pricing has frequently been the subject of academic research and policy debates in many countries. However, despite the benefits shown in academic literature, only few examples of real world implementation of any form of road pricing exist. These include private companies that own roads impose tolls, for example in France and Portugal, and specific pricing in some urban regions, such as London City, Stockholm, a few Norwegian cities and Singapore. Germany has also introduced a system of road charges for lorries using motorways (the Maut system).

In the Netherlands the idea of introducing a form of road pricing has been discussed now for over two decades. The current Dutch government announced the introduction of a per kilometre road charge, replacing the current taxes on new road vehicles and yearly taxes. At the time of writing the first draft of this paper (February 2010) the introduction of this form of road pricing was closer to implementation than any form of road pricing that has been proposed

since 1988. However, on 20 February 2010 the government collapsed. On 18 March 2010 the Christian Democrats announced that they would no longer support the plan. At the time of finalizing this paper (April 2010) it is very uncertain whether the plan will be implemented. Much depends on the coming elections (June) and the coalition that will follow.

This paper aims to give an overview of the current Dutch policy plans, their effects and the preceding discussions in order to learn lessons for future policy developments in this area. Although the system includes most road vehicles, not only cars, the emphasis of this paper will be on cars, firstly because these outnumber other road vehicle categories by far, and secondly because cars are the most discussed road vehicle category.

A brief overview of the history of transport pricing in the Netherlands

This paper starts with 1988, the year in which the proposal for the so-called Second Transport Structure Plan (Dutch abbreviation: SVVII) was launched. In 1990 the official governmental decision on that plan (an updated version) was taken. The plan presented a forecast for the period 1986–2010 showing that an increase in car use of 70 percent was expected. This increase was considered to be undesirable because it would lead to congestion and environmental impacts. The policy target was a (maximum) growth in car use of 35 percent. Many policy measures were suggested that would reduce the expected growth, ranging from land-use policies and improving public transport, to road pricing. The most effective measure by far was thought to be the introduction of road pricing on Dutch motorways, with prices varying by time and place. Due to a lack of support in society and – and closely related to that – a mainly negative press, the policy was abandoned and replaced by proposals for (1) a toll system, (2) a rush hour permit, and (3) road pricing again. None of these proposals were implemented due to a lack of support from society. The Dutch motorists union, ANWB, which was against the proposals, played an important role in influencing opposition from society.

* Delft University of Technology.

The former Dutch minister of transport, Karla Peijs, realised soon after she became minister that without any form of road pricing congestion would increase severely. And she also realised that without wide support from society any new attempt to introduce a road pricing system was doomed to fail. She made a very important decision. She asked the (then) former director of the ANWB, Paul Nouwen, to chair a committee that would investigate the idea of paying for car use and car ownership in the future. The official name of the committee was Paying Differently for Mobility (in Dutch: Anders Betalen voor Mobiliteit). This time it was not the ministry that first developed a plan quite autonomously, but the representatives of important organisations. Committee members included the ANWB, Natuur en Milieu (the most important Dutch environmental organisation), the employers organisation, the employees organisation, three ministries (transport, the environment and finance), the union of car importing companies, the union of garage managers, organisations of good transport companies and others.

The committee reported in 2005 and advised the government to transform the current vehicle-ownership-based taxes (new vehicles, yearly taxes) to a per kilometre charge. This charge could vary according to place and time, and the environmental characteristics of vehicles. The reactions of politicians and press to the report were less negative than to previous proposals, and in many cases quite positive. The new government that was established in 2007 announced in their coalition agreement that they would introduce the per kilometre charge before the end of their four-year governing period.

Current situation

This section describes the situation in March 2010.

Announcing the plans to introduce a tax is one thing, implementing it is another. After two years it became clear that introducing the first stage of the system before the change of governments was not possible. Many decisions had to be made and many policy options were discussed, focusing on tariffs, via hard- and software to tendering procedures. The minister announced that he would set “a first step after which no return will be possible”. What that meant was not clear at the time. In November 2009 the current Dutch minister had presented his bill. Key elements of the proposal were:

- The yearly tax and tax per kilometre will be converted to a per kilometre tax, starting with lorries (2012), to be followed by cars the year after.
- The implementation will be gradual, not only by vehicle type (lorries first, followed by cars and other road vehicles), but also by gradually reducing fixed taxes and charging per kilometre. The idea is to avoid shocks in governmental income and huge disturbances in the vehicle markets.
- The system includes all roads, not only motorways.
- The system includes most, but not all road vehicles. Motor bikes and pre 1987 vehicles will be excluded.
- Total yearly income for the government should be as high as what would have been the case without the introduction of the new pricing system.
- The costs of the hard- and software need to be paid by the vehicle owner, to a maximum of five percent of the costs of revenues.
- The revenues will be earmarked for infrastructure costs.
- A basic fee of 6.7 ct/km for cars will be (gradually) introduced. In addition a CO₂-emissions-dependent car charge will be added, as will a charge based on time and place.
- The differentiation of charges by time and place will be implemented gradually, starting with regional experiments.

The bill received a lot of media attention and generated a lot of policy and non-policy related discussions – see below.

Although it received hardly any attention in the debate, an important characteristic of the system as proposed is flexibility: many changes can be made over time, varying from differentiations by time and place, CO₂ emissions, but possibly also by safety related factors, and harmful pollutants. In case of the introduction of electrical vehicles, charges to compensate for a loss in government income resulting from levies on fuel, will also be possible.

An overview of relevant research

The Netherlands has a tradition of doing a lot of policy-related research in the area of transport (and in other policy areas such as the environment, the economy and land use). Also for the development of pricing-related policy plans a lot of research has been carried out. Before the discussion that resulted in the establishment of the Platform Paying Differently for

Mobility took place, the former minister of transport asked for an overview of literature on road pricing (resulting in Verhoef et al. 2004). Some of the conclusions of that report are listed below.

- Road pricing can reduce congestion effectively.
- Road pricing can increase the general welfare if the system costs are not too high.
- Acceptance can be problematic. It can increase if (1) differentiation is relatively great so that people can select cheap alternatives; (2) a lot of attention is paid to the travellers' point of view; (3) revenues are used to compensate for negative effects (e.g., reduced fixed taxes on cars, increasing road capacity), or – in case of lowering income taxes – if low income groups benefit most.
- Business travel is less price sensitive, followed by commuting. Car use for social and recreational purposes is most price sensitive.
- Road pricing cannot only reduce congestion but also overall car use. The reduction of congestion increases the reduction of car use, firstly because a 1 percent increase in car use results in more than 1 percent increase of congestion, and secondly pricing can be time and place specific, with relatively high levies on congested road segments in rush hour periods.
- Road pricing can result in many behavioural responses, including mode switch (to car pooling, train, bus, tram, metro, bicycle), change in time of day (in case of time specific charges), reducing travel frequency (e.g., work at home for one day a week), change in residential location, change of destination (e.g., work location).
- The devil is in the details: pricing is not necessarily always “good” (from perspective of the general welfare). It is very important to design a “good” policy. There are several second best options that could perform relatively well if the theoretical first best option is not an option (e.g., because of a lack of political support).

Directly related to the platform and discussions that followed, several research reports were published, all in Dutch. First research was carried out to support the development of the proposal of the Platform Paying Differently for Mobility. Secondly, a project called Joint Facts Finding was carried out, resulting in a research report. Thirdly two cost-benefit analyses (CBA) were carried out, and fourth, a study into the effects of several levels of converting the tax on new cars into a kilometre based taxes were carried out. The study of Joint Facts Finding was used as input for both CBAs and the latter study. It is beyond

the scope of this paper to describe all the studies and their alternatives. Below some key results are presented, mainly based on the second CBA (Ecorys 2007) and the study into effects of several levels of converting the tax on new cars into a kilometre based taxes (Besseling et al. 2008).

- Converting the yearly tax on cars to a per kilometre charge that varies by time and place, and CO₂ emissions has significant positive effects on congestion, safety and emissions.
- In addition converting the purchase tax to a per kilometre tax results in additional benefits (safety, environment, less congestion), but also in additional costs. The balance could be roughly zero to negative (up to minus 20 percent of the balance that results from converting the yearly tax only). The results presented below assume converting both yearly taxes and purchase taxes, and are for the year 2020.
- From an overall welfare perspective the pros are much stronger than the cons. Important benefits include a decrease in congestion (and so a reduction in travel times), more reliable travel times, fewer accidents and lower emissions. Negative effects include a loss of welfare due to a reduction in overall travel, mode change and change in the time of day of travel, less government income due to levies on fuel (as a result of a reduction in fuel use, mainly due to a reduction in car use) and system costs.
- The positive welfare effect (benefits minus costs) can be as high as more than EUR one billion per year (base year of calculations: 2020).
- More people gain than lose. This because more than 50 percent of people's car use levels are below the break even point.
- Reductions in congestion (positive effect) minus losses in welfare due to changing travel behaviour) can be as large as roughly EUR 800 million to one billion per year. Business travel benefits a lot (slightly over EUR one billion), households lose: gains of travel time reductions do not fully compensate for losses due to changes in travel behaviour (total effect: up to EUR 300–400 million per year).
- Car use decreases by about 15 percent, emissions decrease also by about 15 percent.
- Car ownership might increase by two percent in 2020 (and up to five percent in 2030).
- Fuel efficiency of the car fleet is hardly affected by the pricing system. Efficiency increasing effects of prices are dependent on per kilometre CO₂ emissions and the increase in car ownership resulting in

the purchase of relatively fuel-efficient cars compensate for the efficiency decreasing effect of removing purchase taxes and yearly taxes that (directly or indirectly) increase greatly depending on per kilometre CO₂ emissions.

- Safety benefits are in the order of magnitude of EUR 500 million per year, environmental benefits up to EUR 300–400 million per year.
- Decreases in government incomes of levies on fuel can be up to EUR 850 million per year.
- System costs are roughly EUR 500 million per year.

In addition to these conclusions a few more reflections on the results are important. Firstly, it should be noted that system costs are relatively uncertain. On the one hand many ICT projects have (sometimes huge) cost overruns. A Google search on “cost overruns” (or “cost escalations”) and ICT, provides many examples. On the other hand, due to efficiencies of scale and learning effects, many innovations have decreasing unit prices over time. At the time of writing several countries including the UK, Germany, and Belgium, are discussing, at least informally, the introduction of a per kilometre tax, depending on the Dutch experience. If several other countries were to introduce such a tax, system costs could decrease over time. A second consideration relates to the adequacy of the models used for the forecasts. Geurs and van Wee (2010) analyse the models used and conclude the direction of the effects is plausible, but the results are probably upper bound. Especially the reduction in car use might be upper bound, mainly because car ownership increase might be underestimated, but also because of characteristics of the model to forecast travel behaviour, a state of the art tour-based model. They estimate the reduction in car use to be in the order of magnitude of -5 to -15 percent. The break even point from a welfare perspective is around -five percent reduction in car use. As a result, the system would result in welfare losses only if the reduction in car use is highly overestimated and/or huge system cost overruns occur.

Support

The previous minister of transport realized that without support from important actors and society it would be impossible to implement an innovative form of road pricing, at least in a country like the Netherlands with a tradition of discussing and accepting policies while involving a lot of related actors. This in itself is an important lesson. In addition, enough support will be crucial for real world implementa-

tion. In my opinion the question whether the policy will really be implemented remains uncertain until the day of implementation, and even thereafter. But if no serious system failures occur, it is likely that support will increase after implementation. This, for example, happened in Norwegian cities, where after the introduction of the toll system support rapidly increased (Tretvik 2003). I speculate that an inherent resistance to change plays a role in a lack of support, at least from the public. In the Netherlands “fairness” is an important argument for opponents of the system. They give examples of low-income people that have no other options than driving at rush hours on expensive road segments. These people are worse off after the introduction of the new system. This, of course, is true: there will be winners and losers, and certainly there will be losers that one might not want to be losers. But suppose we had the new system in the past decades, and the proposal was made to change the system of a per kilometre charge to fixed taxes on cars (the current system). Then a lot of people would consider this highly unfair. E.g., a low-income pensioner driving her car for 1,000 km per year would have to pay as much as a high-income person owning the same car, driving it for 50,000 km a year. I hypothesise that again fairness would be a strong argument against change.

The important role of support is illustrated by an event in early 2010. The ANWB was a member of the platform (see above) that developed the new policy. But many members might be against it. This placed the board of the ANWB in a difficult position. Therefore they organised an internet-based questionnaire to find out how members (and non-members) think about the policy, and under which circumstances they would (not) support the system. The questionnaire showed that about two third of the respondents support the idea of changing fixed taxes to a per kilometer tax. However, differentiation by place and time gained little support, and respondents are doubtful about the capabilities of the ministries to be able to handle such a complex system well. Related to the ANWB survey, the Dutch minister of transport announced that if the ANWB no longer supported the new system, he would abandon the policy. A lot of protest was raised, also by the ANWB which did not want this role or the responsibility. The minister weakened his statement arguing that he wanted to emphasise the importance of support.

Will the policy be implemented? This is quite uncertain. As already mentioned above on 20 February

2010 the Dutch government collapsed. New elections could result in coalitions that do not support the system. On the other hand, most political parties wrote in their election program that changes with respect to pricing in transport should be made, generally not specifying which changes. A coalition of parties supporting changes in pricing in transport could receive a majority in parliament. But even in case of such a coalition, it will remain uncertain until the day of (successful) implementation, or even thereafter.

Lessons to be learned

Some of the lessons to be learned from the Dutch experience are listed below.

1. Although the Netherlands announced road pricing more than two decades ago, it has not yet been introduced, whereas the UK, Sweden, Norway and Germany all implemented a form of road pricing. The lack of support is the main reason for not implementing policy plans.
2. A major shift in policy making was made by the previous minister of transport who asked a committee ("platform") comprised of many organisations to develop a proposal for pricing in transport, chaired by an important opponent of previous road pricing systems, the former head of the motorists union. It was not the ministry who first developed a plan and then sought to gain support.
3. From a broad welfare perspective the benefits of road pricing in general can be (much) higher than the costs. This also applies to the current policy plan to transform the fixed vehicle taxes to a per kilometre tax. Benefits include reduced congestion levels, a reduction of accidents and less environmental pressure. In addition the new system will increase fairness: paying varies with vehicle use. Costs include system costs, reduced revenues of levies on fuels and welfare losses due to changes in travel behaviour.
4. It is uncertain if the system will actually be implemented. After (successful) implementation of road pricing, support may increase.
5. The Dutch system is a modern system using GPS, charging for all kilometres (not on motorways or a specific area only) and prices are based on time, location, and CO₂ emissions.
6. The characteristics of the system make changes in the future quite possible, such as including safety or harmful emissions in the tariffs.

References

- Besseling, P., K. Geurs, H. Hilbers, R. Lebouille and M. Thissen (2008), *Effects of Converting the Purchase Tax on Cars to a Kilometre-based Charge (Effecten van omzetting van de aanschafbelasting op personenauto's in een kilometerprijs)*, Planbureau/Planbureau voor de Leefomgeving, Den Haag/ Bilthoven.
- ECORYS (2007), *Costs and Benefits of Alternative for Paying Differently for Mobility (Kosten en baten van varianten Anders Betalen voor Mobiliteit)*. ECORYS, Rotterdam.
- Geurs, K. and B. van Wee (2010), *The Use of Models for Forecasting Traffic-related Effects of the Kilometre Charge (Het gebruik van modellen voor inschattingen van de verkeerskundige effecten van de kilometerprijs)*, Tijdschrift Vervoerswetenschap, in press.
- Pigou, A.C. (1920), *Wealth and Welfare*, Macmillan, London.
- Tretvik, T. (2003), "Urban Road Pricing in Norway. Public Acceptability and Travel Behaviour", in J. Schade and B. Slag, eds., *Acceptability of Transport Pricing Strategies*, Elsevier Science, Oxford.
- Verhoef, E., C. Koopmans, M. Bliemers, P. Bovy, L. Steg and B. van Wee (2004), *Design and Effects of Road Pricing: Effects, Efficiency and Acceptance from a Multi-disciplinary Perspective (Vormgeving en effecten van prijsbeleid op de weg. Effectiviteit, efficiency en acceptatie vanuit een multidisciplinair perspectief)*, Vrije Universiteit Amsterdam, Stichting voor Economisch Onderzoek/ Rijksuniversiteit Groningen/Technische Universiteit Delft, Amsterdam/ Groningen/Delft.
- Verhoef, E., M. Bliemer, L. Steg and B. van Wee (2008), *Pricing in Road Transport: A Multi-disciplinary Perspective*, Edward Elgar, Cheltenham, UK, Northampton, Mass., US.