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The European Experience Of Motorway Vignette Schemes For Cars

'Paying for Roads: What is the way forward?'

Supplementary Paper

January 2013

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The European Experience Of Motorway Vignette Schemes For Cars

Executive Summary

Experience with vignette schemes in central and eastern Europe provides some useful lessons for roads reform options here, given the possibility of an annual fee for motorway use being introduced in at least parts of the UK as part of new mechanisms to increase investment in roads. Austria is most relevant, as an EU member with a long-established scheme designed, as is mooted in the UK, to provide a funding stream for a ring-fenced road operating body. Their scheme is generally thought to work well and it met with little driver hostility, even at the outset; it has a high level of compliance and the few significant problems of traffic shifting to local roads, mainly in border areas, can progressively be resolved through refinements of the tariff.

But the key impetus for the schemes in Austria and elsewhere has been the ability to raise revenue from foreign vehicles using a country's roads; that would have little force in the UK, given the tiny volume of foreign car traffic on our roads. That doesn't mean a car vignette would be without merit here, but it does mean the initial stock of public support would be much lower. Careful scheme design would therefore be needed from the outset to fend off likely problems such as diversion impacts, and also to take account of the EU legal requirement for visiting foreign drivers to have the option of a short-term permit.

ITC will draw on this experience in Europe as it seeks empirical evidence on public attitudes in the next phase of work on Paying for Roads and Road Use.

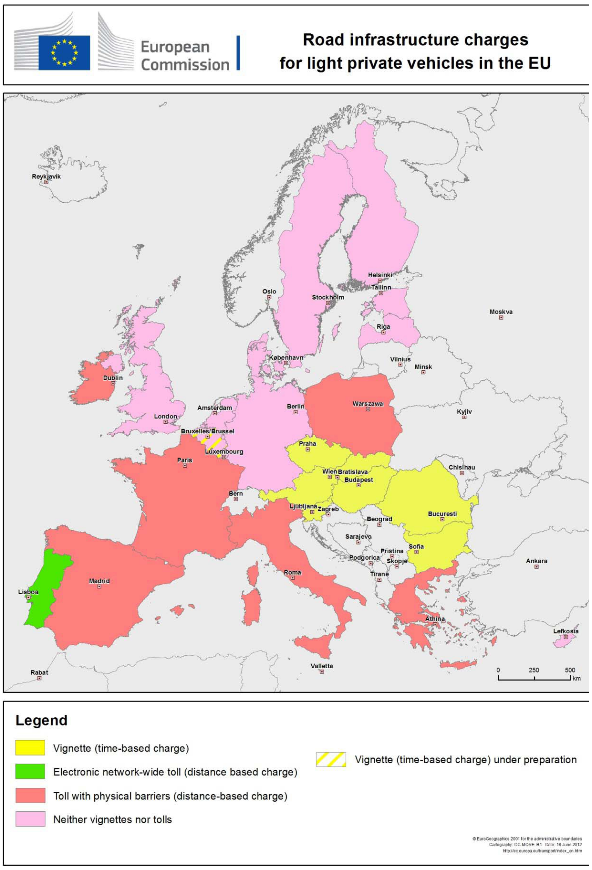
Introduction

The Government's current Feasibility Study into new ownership and financing models for the national road network needs to identify possible ring-fenced revenue streams from road users, and a simple and attractive option may be an annual charge for using motorways. Such schemes are well-established in a number of European countries, requiring all drivers, foreign as well as domestic, to buy a permit (available for a range of periods up to one year) before they use any designated roads, usually motorways. Whilst there are important differences in the context in which such 'vignette' charges have been introduced, understanding the impacts of these established schemes on usage of road networks and on public opinion would help the formulation of an acceptable proposition by the UK Government.

The Independent Transport Commission (ITC) strongly supports early action by Government to develop new ways of funding much-needed investment in improving our road network, given the safety and environmental benefits, and the boost to economic growth. Ring-fencing the receipts from a new country-wide access charge could provide the essential foundation for raising substantial investment from international funds to improve our network without adding to public sector debt. And with the charge connected directly, if crudely, to actual road use, it could be a significant first step towards a fairer way of paying for driving. But there is great uncertainty on how drivers would respond: the precedents in Continental Europe would be able to help policy-makers here maximise take-up and minimise diversion to less suitable non-motorway roads.

This note provides a brief overview of the motorway vignette schemes in operation for car traffic, and identifies some lessons for the UK. The aim is to focus on how the concept of the vignette has been successfully sold to the driving public; this is constrained by a lack of hard evidence on changing attitudes. But there is nonetheless sufficient learning here to inform how ITC takes forward its forthcoming Phase 2 work on public acceptability of this type of charging in the UK.

Summary of charging schemes



As this map produced by the European Commission shows, the UK, with Germany and Scandinavia is in the minority of EU member states without a national usage-related charge for car use. Some of the largest states by area (eg France and Spain) fund road-building through distance-based tolls collected at physical or electronic barriers, but a cluster of countries in central and eastern Europe has set up instead a time-based vignette charge, permitting unlimited use of motorways and other specified roads for a set period of time, typically between 4 days and a year. In all cases the charge has been introduced alongside, rather than instead of, the existing road tax regime.

Switzerland brought in the first scheme (outside the EU, so not shown on the map), but Austria followed suit in 1997. Since then, Czech Republic (CZ), Slovakia (SK), Hungary (HU) and Slovenia (SI) have also required both domestic and visiting drivers to purchase vignettes before they can use any motorway. Romania and Bulgaria have vignette schemes tied to the whole national network and are simply a means of spreading the burden of total roads funding. Belgium is also now planning motorway-based schemes for cars as well as for HGVs.

Austria provides the most useful precedent for the UK: whereas CZ/SK/HU/SI applied the charge in parallel with the growth of a core motorway network, such that drivers were paying mainly for new benefits, Austria (and Switzerland) started levying the charge for an established network which had hitherto been seen as free. Switzerland is less relevant, given the modest cost of the annual vignette in comparison to the continuing tax on car ownership, and because it is not bound by EU law requiring non-discrimination and proportionality in charging. But Switzerland did establish the principle that a smaller country whose motorway network was heavily used by foreign traffic in transit could raise new revenue from that traffic to fund the maintenance and continued development of its network.

This rationale applies most strongly to HGV flows, as in many European countries domestic lorries often form just a minority of total traffic. HGV charging schemes that catch foreign operators are now widespread, with the UK also now following suit: from 2015 it is planned that all lorries over 12 tonnes will need a shorter-term or annual vignette before they can use any UK roads (with the cost for domestic hauliers to be matched by reductions in their VED bill). Time-based charging for cars, however, remains so far limited to those countries where foreign cars – whether tourist or transit – are a significant proportion of total car traffic. This note is only concerned with those car vignette schemes.

There is no consistent methodology for estimating the proportion of foreign cars using a country's road network, and data collection is challenging; some national statistics offices interpret the principle of non-discrimination as preventing them from separately identifying vehicles from other EU countries. But indicative figures for main routes only have been extracted, for EU countries, from a European Commission modelling tool, as explained in the endnote.

Switzerland

In operation since: 1985

Annual charge: CHF 40 (£26.50); no shorter term options currently available

Other car ownership tax: large variation by Canton, but around CHF300 (c£200) for 1.4l car in Zurich

Take-up: [very high]

Switzerland was the pioneer of the vignette, as it suffers heavily from transit traffic, not just HGVs; well over 10% of cars on the main routes are foreign-registered. There has been strong political pressure to recover some of the costs of the now mature series of alpine motorways that in large part serve this transit traffic, and are still expensive to maintain. Their vignette system, with its roots in popular concern at the local Cantonal level, offers just one option, the annual permit. At CHF40, it's expensive for short-stay foreign visitors, but almost negligible as a top-up to the Cantonal tax that Swiss drivers have to pay[1]. Because of this, and the slow average speeds of the alternative roads, there is no evidence of significant diversion problems. There is no commitment that receipts (CHF356m / £240m in 2010) will only fund roads investment.

[1] Parliament has however just approved plans to hike the charge up to CHF100 (£67) from 2015, but offering a 2-month option for the old annual price of CHF40. This is the first increase since 1995.

Austria

In operation since: 1997

Annual charge: €81

Other car ownership tax: varies by engine power: typically €300 for 100HP car

Take-up: 70% of car owners buy an annual pass (see below re shorter term passes)

Estimated proportion of foreign car journeys on main routes ('EPFC' – see Endnote): 26%

Austria provides the most relevant model of using an annual charge on car owners to provide a revenue stream to fund the continued provision of a motorway network. For the past 15 years motorists have had to attach a physical vignette to their windscreen before they can use the 2,170km of autobahn across Austria. (Five stretches of autobahn through mountain passes or tunnels are subject to 'special tolls' instead: given the absence of obvious alternative routes, these can be high: eg €8.50 for the Brenner Pass). The high level of transit traffic, particularly in the west of the country, is the key feature of the policy context in Austria. Attention has focused on the adverse impacts of flows of HGVs on key north-south corridors such as the Brenner (the original 1997 vignette scheme for HGVs, over 3.5t, was converted into electronic tolling by distance in 2004); but the proportion of foreign cars on Austrian roads has also increased sharply since the accession of its eastern neighbours to the EU and the abolition of border controls.

The Austrian car vignette scheme was based on the Swiss model, but from the outset was set at a higher annual cost, accompanied though by several shorter term options to maximise take-up from transit traffic and to comply with the European law requirement for non-discrimination:

	Cost (2013)	Number sold 2011
Annual	€80.60	3.8 million
2 Months	€24.20	1.0 million
10 Days	€8.30	18.3 million

Purchase of the vignette, through any of the 6,000 sales outlets, is anonymous[2], and so we do not know what proportion of the total 23m sales is to Austrian motorists. The scheme operator ASFINAG (see box below) estimates that around 70% of Austrian cars are equipped with an annual vignette. Given the modest scale of the total car fleet registered in Austria – 4.5m vehicles at end 2011 – it would take only a small proportion of the sales of the shorter term vignettes to go to domestic motorists for the great majority of Austrian drivers to participate in the scheme for at least some part of the year.

[2] Whilst the vignette is designed to be affixed to the windscreen of one car and is invalid if an attempt is made to transfer it, the vignette sales network collects no data on the identity of the purchaser or his car.

ASFINAG: Autobahn and Expressway Financing Company

- This 100%-Government-owned company took on in 1997 the right to receive all vignette toll proceeds, alongside responsibility for the whole of the primary route network in Austria with its €5.6bn of liabilities.
- 2011 income from tolls €1.5bn, of which €1.0bn from HGVs, €370m from the car vignette and €130m from the 'special tolls'.
- Current 2012-17 investment plan totalling €6.8bn; focused less on the few new routes (red on map), more on enhancing capacity and safety/ environmental standards on existing routes (blue on map)
- Financed by €9.5bn of long-term borrowings, and €2.5bn of equity. All borrowings directly guaranteed by the Austrian State, so are not off-balance sheet.
- Has a recognised public profile, having taken over road management responsibilities from Federal Länder in 2004.

Both the HGV and car schemes have been generally well received by the Austrian public; they have been seen as a sensible political response to widespread concern about the impacts – on congestion, road condition and the environment – of the high level of transit traffic, and have provided the basis for a sustained programme of fresh investment in the network. Evasion and diversion across the country as a whole do not appear to have been significant problems, at any stage.

It is important to note that when the scheme was introduced in 1997 it was presented as merely a staging post towards distance-based electronic charging. That was introduced for HGVs seven years later, but was abandoned for cars largely because of strong opposition led by the main Austrian motoring organisation: electronic road pricing was seen as bureaucratic, costly and intrusive. By contrast, the vignette was perceived as a simple way to meet the recognised costs of providing the motorway network. It therefore had a smooth ride from the outset, even though there appears to have been no offsetting of existing motoring taxes.

Enforcement for both schemes is carried out using some 120 ANPR and laser scanner gantries, with initial fines of €120-240 for cars detected without a valid vignette. Spot checks indicate that around 1-2% of vehicles do not comply with the scheme. Fines, set at between €300 and €3,000, currently raise around €10m pa, but 40% of this is taken up in the costs of enforcement.

Displacement of non-vignette traffic on to the secondary road network is estimated at only 2% of total traffic at a national level, which ASFINAG describe as 'not excessive'. This potentially very damaging consequence of vignette tolling has been kept in check through traffic restrictions imposed by local authorities (and widespread weight limits keeping HGVs on the charged network), but the topography of Austria – the absence of suitable alternative routes in the more mountainous areas – also helps.

Austrian road charging scheme (ASFiNAG)

Diversion is more of a challenge close to borders, particularly with Germany, the only neighbour now not to charge cars for motorway use, and the scheme has needed refinement to cope with specific local challenges. In the far west the standard vignette cost makes the short tunnel bypass of the city of Bregenz an expensive option for traffic between Germany and Switzerland which would not otherwise use Austrian roads; a special Korridor vignette (€2 for 24 hours, rather than €8.30 for the 10-day pass) is currently being offered. ASFINAG is resisting pressure to make any further concessions, for example around Salzburg to relieve city streets of short-term excursion traffic from neighbouring Bavaria. This highlights a possible flaw in this governance model: the scheme operator is incentivised only to maximise revenue and the service quality on its own roads; it has no accountability for conditions off its network, where congestion may be higher and impacts on local residents worse.

Nonetheless the scheme, after 15 years of operation, is firmly established and largely uncontroversial. Its role in funding enhancement of the network is widely understood, and there is no reported discussion of plans to abolish or overhaul it. Attention has again turned (as it has in Switzerland) to the case for switching to distance-based charging for cars; widespread public opposition to that increases the attractiveness of the simple vignette.

Hungary

In operation since: 2001

Annual charge: €149 (not significantly more expensive to opt for multiple short-term vignettes)

Other car ownership tax: typically c €35 pa, but hefty initial registration fees

Take-up: 7% of car owners buy an annual pass

EPFC: 19%

The Hungarian scheme, now using electronic rather than physical vignettes needing to be attached to the windscreen, is unusual in offering little advantage in committing for the full-year vignette (buying a 10-day vignette works out only 2.5 times more expensive per day than the daily equivalent of the annual vignette; in other countries short term options are up to 8 times more expensive). The very low take-up of the annual pass means the scheme has more a of a pay-as-you-go nature, with drivers only buying vignettes for the days it is needed; this has the advantage of impacting directly on the travel choice to be made ahead of each individual journey.

Slovenia

In operation since: 2008

Annual charge: €95

Other car ownership tax: typically €70

Take-up: 87% of car owners buy an annual pass

EPFC: 39%

Slovenia has the smallest motorway network of the countries here, and the highest proportion of transit traffic. Even with the reluctant introduction of a 7-day vignette following a European Commission formal complaint in 2008 about the scheme's disproportionate impact on foreign visitors, Slovenia's scheme appears the most blatantly designed to extract revenue from transit traffic; the €15, 7-day vignette works out twice as expensive per day than any other scheme.

Slovakia

In operation since: 2008

Annual charge: €50

Other car ownership tax: (only where used for business) c€120

Take-up: 49% of car owners buy an annual pass

EPFC: 27%

(see commentary below)

Czech Republic

In operation since: 2010

Annual charge: €60

Other car ownership tax: (only where used for business) c€95

Take-up: 45% of car owners buy an annual pass

EPFC: 33%

Slovakia and Czech Republic share a common legal and taxation background, and the two schemes share key features around pricing and geographic scope. Whilst their annual vignettes are modestly priced, and they provide access to substantial new motorway networks (CZ 1087km, SK 467km), take-up is relatively small as the cost stands out against the low or non-existent ownership charge on most private motoring.

Relevance for UK policy making

Car vignette schemes have become attractive to a number of EU states because they can establish a distinct revenue stream to fund investment in essential road infrastructure. They can be easy to understand and relatively cheap to introduce and maintain. It is notable however that they have been adopted only by contiguous countries in central and eastern Europe, in part each simply responding to how their neighbour's scheme is impacting on their own motorists.

Most importantly, only small countries have opted for motorway-only schemes alongside an existing ownership tax for domestic motorists (Bulgaria and Romania's all-roads vignette is a more fundamental restructuring of road taxation). These small countries are most heavily impacted by foreign transit traffic, and the desire to extract a revenue contribution from this traffic has been the main motivation behind the spread of the motorway vignette. Statistics on fees collected from foreigners is hard to come by, but we can assume that Governments have proceeded to implement these schemes because that extra revenue is sufficient to generate some surplus for investment in the network as well as covering the operating costs.

Britain has one of the lowest proportions in the EU of car traffic by foreign-registered vehicles, at only 0.6%[3]. There would have be a different rationale for Britain going down the vignette route; it would have to rest primarily on it providing the basis for the ring-fenced investment programme, whose benefits would demonstrably outweigh the costs of running the scheme.

There are certainly very few traffic management or transport policy benefits arising from a motorway vignette. The simplicity of the vignette is also its biggest weakness: it represents a crude on-off switch, possibly encouraging more motorway driving by those who have paid the annual fee; and if there are no embellishments, it could weaken the fuel efficiency incentives inherent in the current VED tariff, or the opportunity to bring in some element of demand management (eg were a vignette needed only for peak period driving). Whilst there might be some relief to overloaded motorways such as the M25 as occasional traffic is excluded, there is a real risk of significant diversion of traffic in many parts of the country on to less suitable, more dangerous, all-purpose roads. Public readiness to tolerate these impacts would probably be much less in the UK without the compensating assurance that the scheme was primarily targeting 'free-rider' foreign motorists.

[3] Foreign Registered Vehicles on UK Roads, SPARKS Programme, 2007. This statistic is not directly comparable with the EPFC figure given for other EU countries, as it is an estimate of foreign car traffic across all roads.

The extent to which this would be a problem in practice would depend on how much of the network were within the vignette scheme, and the relative up-front costs of opting in or out. On scope, the Continental European schemes have been limited to motorways only. In the UK, however, all-purpose dual carriageway trunk roads also play an important role in the strategic network, and there would be a strong case for incorporating such roads into our vignette scheme. On the balance of costs, the more successful schemes so far in Europe, with the highest take-up, require only a modest premium alongside existing taxation; the approach to be taken by a UK scheme might more usefully follow the Swiss rather than the Hungarian approach.

But Hungary shows the value of offering affordable short-term passes. EU member states are prevented from blatantly exploiting the short-term visiting motorist, and so a UK scheme would need to ensure it were non-discriminatory (treating all EU citizens equally) and proportional (prices and penalties should broadly reflect usage and costs incurred), by offering an occasional user option[4]. But the far bigger benefit in this, if aimed at domestic rather than foreign drivers, would be in mitigating the diversion risk – which could otherwise be damaging in cities such as Cambridge and Exeter at the edge of our motorway network.

Meticulous scheme design would therefore be the essential pre-condition for a vignette scheme to deliver a step-change in investment without highly unpopular side-effects, which could undermine confidence in the scheme in its critical early years. It should be clear from the outset that simplicity can be counter-productive - a scheme would have to have some local adjustments to address special circumstances on the network.

ITC will draw on these lessons from experience in Europe as it embarks, in Phase 2 of this Study, on empirical research into how a charging proposition could be acceptable to drivers and the general public.

Phil Carey for Independent Transport Commission
January 2013

[4] Whilst explicit maximum price formulae are set for HGV charging under the Eurovignette Directive (2011/76/EU), charging schemes for cars are subject only to Commission guidelines, interpreting Treaty provisions. The Commission focuses on the 'average daily price ratio' – the ratio between the equivalent prices per day of the shortest and longest term options - and it judges Slovenia's ratio of 8.2 times to be the upper acceptable limit. A second study by Booz & Co, for the European Commission, on Impacts of Application of the Vignette Systems to Private Vehicles provides fuller advice to member states on how to adhere to the principles of non-discrimination and proportionality..

Endnote: derivation of Estimated Proportion of Foreign Cars (EPFC) data

The Booz & Co paper, *Assessment of Vignette Systems for Private Vehicles applied in Member States*, for the European Commission in 2010, used the Commission's own TRANS-TOOL transport network model to identify the number of international passenger vehicle trips ending in a country, and to estimate the number of transit trips passing through. These were then treated as trips made by foreign cars, and expressed as a proportion of total trips on the relevant road links in the model. The base figure of total trips excludes trips made within zones in the model, which are assumed to be on local roads; and so it will overstate the extent of foreign car traffic on the country's road network as a whole. It does however provide a basis for fair comparison between the countries analysed, in the absence of any agreed methodology from individual national statistical services.

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