HOUSE OF COMMONS

Transport Committee

Oral evidence: Road pricing, HC 789

Wednesday 20 October 2021

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Watch the meeting

Members present: Huw Merriman (Chair); Mr Ben Bradshaw; Simon Jupp; Karl McCartney; Grahame Morris; Gavin Newlands; Greg Smith.

Questions 47–95

Witnesses

II: Professor Phillip Goodwin, Senior Fellow, Foundation for Integrated Transport; Alistair Hunter, Highways Business Leader, Arup; and John Siraut, Director of Economics, Jacobs.

Examination of witnesses

Witnesses: Professor Goodwin, Alistair Hunter and John Siraut.

Q47 **Chair:** We continue with our second panel. You are titled consultants and academics, but I regard you as innovators and people who can tell us really what is possible. May I ask you to introduce yourselves for the record, starting with John?

John Siraut: Good morning, Chair. My name is John Siraut. I am director of economics at Jacobs, a multidisciplinary consultancy. We are presently introducing road user charging in Kuala Lumpur and Doha in Qatar. We worked on the New York scheme and obviously in London as well. I spent a number of years working in the Treasury, so I am very familiar with some of the issues you were talking about earlier on.

Chair: Excellent.

Professor Goodwin: Good morning. I am Phil Goodwin, emeritus professor of transport policy at UCL and the University of the West of England. I am here on behalf of a group of five professors in the Universities of West of England, London and Leeds who have been working on the research on road pricing for most of their careers.

Alistair Hunter: Good morning, Chair. My name is Alistair Hunter and I work for Arup, a design and technical engineering consultancy. I look after a part of the business that works on mobility pricing across the world—in Ireland and the UK, in the Netherlands, and other parts of Europe as well as the States.

Q48 **Chair:** Thank you to all three of you. I think the opening question I want to ask will lead to the questions that come from the rest of the Members, as I was just discussing with Ben Bradshaw, in terms of international comparisons. What we are really keen to hear about is what is possible and what is currently out there, which we believe is not that much if you look at it from a real tech pure perspective. What could you actually design in terms of a road pricing model that would really take advantage of new technology and perhaps have some other policy changes geared in as well? Alistair, could I ask you to start? While I do not want to take too much time on this, we really want to get your thoughts in terms of what is out there.

Alistair Hunter: A quick overview. There are lots of different systems out there. It is perhaps best to separate and differentiate between the long-distance HGV-type tolling systems, which typically operate on motorways in Europe. They are generally a combination of either roadside-based technology, which is shortwave communications speaking to gantries or little tags in the vehicles, or satellite-based solutions. There was a European directive that set out interoperability across Europe. The earlier adopters in that were central Europe spinning out to the east, towards Russia—Germany, Poland, the Czech Republic and so on. There

is a well-established global market in HGV long-distance charging, whether it is satellite based or roadside based.

In the UK, in clean air zones and that form of ecomobility pricing, they are more camera-based solutions. There is a differentiation on roads like the M6toll, for example, which are PFIs, as to whether they are open plazas and free flow or you pay at the toll booth as you go through. There is that differentiation.

The most advanced system being rolled out globally is, arguably, the Singapore model. They have been running a fairly heavy duty toll-based solution from gantries since 1998. They are now on the cusp of launching a satellite-based system for an urban environment, which is quite challenging because of the signal attenuation with the tall buildings around. It requires a degree of reinforcement. You cannot just rely on the satellite base. You need local strengthening signal units, if you like: bits that reinforce the signal.

There are pretty well-established, long-range long transport movements and satellite-based systems and roadside-based systems. In the more local congestion zones, there is much more of a mix of technologies being used in the urban centres.

Q49 **Chair:** In the Singapore example you said they were about to enhance, is that going to charge based on the time you are in your vehicle or the distance that you travel?

Alistair Hunter: They have the facility to move to that. At the moment it is more cordon based where you go from one area of the city to another and you pick up the charge, but they have that facility.[1] They also do an interesting thing whereby they evaluate the traffic movements every three months. Essentially, they are aiming to get an optimum speed at which the traffic moves through the city, so they flex every three months the pricing mechanism to try to get—it is not free flow—a reasonable speed of vehicle movements. They also, arguably more importantly, put an absolute limit on the number of vehicles in the country. You apply for a vehicle licence. It is called a certificate of entitlement and is incredibly expensive. That is the main cost of driving over there, so it is a really tightly controlled road user charging pricing environment. All the cars have a widget that talks to the infrastructure. You can take your card out of the car and then use it for parking, and on the tube, metro and what have you.

Q50 **Chair:** John, you said that you were developing a number around the globe as well. Is there the technology out there that would allow me to punch into my iPhone, "I want to drive from East Sussex to Oxford," and this is the price it is going to give me? Perhaps it would give me a better

[1] Correction by witness: At the moment it is gantry based, where you go from one area of the city to another and you pick up the charge. But they have to facility to move to a true-distance based system.

price if I was not driving in congestion. My phone sits in my car and away I go. Then it comes out of my account and it guarantees me that price until I get to the end point.

John Siraut: I do not know if the technology is available to do that now. The only point I would add to what we have heard is that motor insurance in a number of countries is very much based on pay as you drive. In Italy, about 20% of motoring policies are pay-as-you-drive policies. It is a telematics-type system. A lot of this technology is available. Obviously, it needs tweaks depending on exactly what we are trying to achieve. What you have just talked about there is certainly perfectly feasible to do. It does not exist at the moment, but it is certainly something that can be done.

Q51 **Chair:** Professor Goodwin, this is where the industry is actually taking us. What do you think in terms of the possibilities and what can be done?

Professor Goodwin: At the moment we are in the rather odd situation that the technologies that are or can very easily be made available are so far in excess of the degree of complexity of a system you would actually want that it is simply not a constraint. Anything that, politically, is realistic to design in a road pricing system, the technology can deliver already.

I would add one other point that of course the technology of paying is also being transformed. There are so many different methods that we just take for granted now. When we are travelling by tube, we can pay four, five or six different ways. I think that flexibility is going to be an important part of the system. The technical possibilities are no longer a binding constraint.

Q52 **Chair:** Very briefly, what do you think the constraints really are then?

Professor Goodwin: They are almost entirely political in the short run. It goes back to the discussion that you have just had: what the functions are, what the objectives are and what problems you are trying to solve. I very much found myself in sympathy with the line that was coming out of the earlier discussion that you start by making it absolutely as simple, clear and transparent as possible, but you quite deliberately and openly build in flexibility so that, as needs change, you can change the pricing levels and the systems and the use of the funds that you raise.

Chair: I have opened it up and I think it is now time for all the Members to come in. Grahame was coming first but there is a suggestion that Ben should.

Q53 **Mr Bradshaw:** That leads me on to the question I was going to ask all the panel. The earlier panel talked about simplicity and distance based. If we have the ability now to build in congestion and the kind of Uber model to that system, which I think for many people would seem to be fairer and they can understand that policy objective in terms of tackling congestion, why not do that from the outset, Professor Goodwin?

Professor Goodwin: I think the reason is about the dynamic of political implementation. If one has to get agreement on all the fine detail before you can start doing anything, it gets bogged down, partly because there is not full agreement on those things, and partly because some people who do not want it to happen at all will have a plethora of excuses and reasons, and so on. That is why the simple first stage is essential. Even the simple stage, I think, has to accommodate at least two objectives, and those are congestion and climate. If we do anything on pricing that makes either of those worse, the system is going to be politically unacceptable.

Q54 **Mr Bradshaw:** How do you do congestion and climate and keep it simple?

Professor Goodwin: The starting point is a mileage charge, which is the best way of dealing with both, but you also have to have discrimination by some dimensions of the nature or location of travel, or the type of vehicle.

This is itself rather a simple concept. You drive a car on to a ferry and it is completely normal to expect that a bigger car will pay more than a smaller car. One of the most serious problems in urban traffic at the moment is running completely counter to policy, which is the growth of far bigger and heavier vehicles that simply do not fit into the space available. Either you have to face that one by regulation, which is possible, or by pricing. I do not think there is a magic formula for which one to prefer, but you have to do one or the other. You cannot evade them.

Q55 **Mr Bradshaw:** Alistair and John, do you agree with that?

John Siraut: No, I would disagree slightly. Obviously, simplicity appeals, but I think the big advantage of road user charging is to tackle congestion, and congestion has a huge economic cost for UK plc. We heard from the Road Haulage Association about their vehicles being tied up in congestion. If you do not have a system that addresses that, I think you are missing a huge opportunity.

The other point that I do not think was raised enough in the earlier discussion was about climate change and the issue of how much is needed. A back-of-the-envelope calculation suggests you would need the equivalent of four new Hinkley Point C power stations just to power the existing vehicle fleet and the miles it does. If they are not paying the same level of charge as at present, we would expect the amount of traffic to increase by about 25%. That is another nuclear power station. At the same time we are trying to decarbonise household heating, for example. There is huge demand on the electricity grid.

It is a decision for parliamentarians as to where the priorities are. Is mobility more important than people having housing heated, et cetera? I would disagree. Once you introduce road user charging, the opportunity

there is to tackle a number of different objectives—the economic, the environmental and the financial—and they should all be tackled in one go. You introduce it at a fairly simple level to begin, with perhaps slight graduations. People are very used to public transport having peak and off-peak fares. People understand that, and perhaps over time you introduce additional granularisation into the system.

It addresses one of the points that was made earlier about people in rural areas. Rural communities do not face congestion; therefore, why should they pay a higher charge to drive? Again, it is not restricting mobility. It is addressing a particular problem of congestion at a particular time of day in particular locations, and that can be addressed in certain ways with congestion charging.

Q56 **Mr Bradshaw:** What is the technology that delivers that, in practice?

John Siraut: You have talked about the Uber-type systems already available. If you look at Google Maps, you know exactly how long it is going to take and you know what the congestion levels are. You can forecast the levels of congestion and you can forecast the levels of charge. I agree that to begin with you want to keep it simple, so you say to drive into an urban area between 8 am and 9 am in the morning it is going to cost you an extra 2p a mile, or whatever the figure might be. Over time, I would expect to see more granularity coming into the system.

Professor Goodwin: I am agreeing with your disagreement, incidentally.

Q57 **Mr Bradshaw:** Do you have anything to add, Alistair, before we move on to other colleagues?

Alistair Hunter: My sense is that, absolutely, you need flexibility in the system in terms of what it can achieve. The reason for that is really simple: because the challenges of the day change. At the moment we have all the challenges—air quality, carbon, a hole in the revenue. The clean air zones are being brought in, for example, to do what it says on the tin. If you look at those cities, there is a whole host of cities about to launch clean air zones. We anticipate that the carbon fleet will clean up, so what do you do with those systems? You need a system where, even if you introduce it on really clear principles to start with, you have the downstream flexibility, and also a system that is accessible and easy to understand nationally rather than 20 different systems, which in terms of business users is going to become a super-complicated environment to operate within. We need simplicity, but we need flexibility in what you may choose to do downstream.

Chair: I am going to bring in each Member in turn, so put all your questions in when I come to you. I will come to Grahame next and then go over to Karl.

Q58 **Grahame Morris:** How much would these various different models of

national road pricing cost to put in place? You gave some examples of Doha, Qatar and so on. I suppose there is enormous variation depending on the nature of the terrain and how developed it is, but do we have any indication?

Alistair Hunter: It is not super easy. It is a big question, and there is a big range.

Q59 **Grahame Morris:** Is it up-front costs?

Alistair Hunter: There are clearly capital costs. To answer the question properly, if you look at a system like the Dartford Crossing, for example, you have a situation there where you have super-high volumes going over a relatively small zone. It is really well controlled and the compliance levels are high. A lot of the operational costs are around chasing bad debt, so folk who do not pay, because you then go into a long-winded process of trying to get the money back, and there are appeals and everything else.

If you have good compliance levels and a high volume of traffic that you can tax—that you can toll—then your operational costs as a proportion on that kind of set-up might be 10% to 15% of your revenue. Conversely, if you look at a clean air zone, just for a comparator, in somewhere like Bath, there is only a small proportion of the vehicles that actually pay the charge because most of them are clean, according to the rules at the time, and the compliance is really low. Because it is such a small zone, people can zip in and zip out, and do not necessarily bother to set up properly. So you are trying to capture an awful lot of bad debt from a really small pot, which makes your operational costs as a proportion of the income that you are getting in quite high.

If you compare and contrast that to, say, a French motorway operator, they are pretty efficient, and, generally, the bigger the network, you do get efficiencies of scale, particularly in the back office costs.

Chair: Did you want to put that to any of the other witnesses?

Q60 **Grahame Morris:** Are there any strong views or particular examples you could quote that would illustrate the point?

Professor Goodwin: I think it is worth remembering that the advantage of taxing fuel is that the accounting is so much more straightforward and the infrastructure has been provided for us by the oil companies in opening up petrol stations. One does not want to relinquish entirely the ease of taxing both electricity and fossil fuels.

Q61 **Grahame Morris:** How would that work for people who are charging their vehicles on their own drive? Is the technology still there to do that?

Professor Goodwin: Interestingly, the technology of electricity charging seems to be getting very much more complex very, very swiftly as smart meters start to come into operation, so I expect there would be possibilities there opening up that are not there at present. It is worth

remembering that electric vehicles are not net zero, and they will not be for the entire period of urgency in climate discussions. There is still going to be a lot of carbon generated by all vehicles in the decade or 15 years that we have to actually tackle this problem.

John Siraut: I would add that there is a potential for synergies with motor insurance. If we go over to more pay as you drive, you could have a single unit in your vehicle for both insurance and road user charging payment systems, which would reduce the costs dramatically.

Q62 **Chair:** Briefly before I come to Karl, Alistair, you talk about the fixed costs of the infrastructure, but again I come back to the point that, if I am paying off my phone, my phone is with me and it is tracking where I am going—a bit like the Uber example that Ben gave—why do you need all that? Isn't all the technology almost there rendering all the toll booths completely redundant?

Alistair Hunter: You would think so, but with the satellite-based phone-based solution, for example, there is not a widespread phone-based system absolutely operational at the moment. All the satellite-based ones are little units in the vehicle. That is the first point.

To get the compliance where you need to get it, you still need a degree of infrastructure to kind of double-check on it. Interestingly, the compliance levels for satellite-based systems, certainly in a European context, are lower than traditional toll booths, simply because people can drive on and it is just more effort. You are not physically paying as you go along and you do not have a toll booth stopping you. It is more open to abuse, if you like, which increases your debt collection costs, which are a big factor in it all. I am sure the satellite costs will come down over time. That is still an emerging market in the urban environment, but it is not the Utopian, super-low cost at the moment.

Chair: Thank you. Sorry, Karl, I interrupted your flow.

Q63 **Karl McCartney:** I noted, Chairman. I will remember.

I have three different questions and I want to come back to Alistair first. I know you have just been talking and I am sorry not to give you a break, but I want to pick up on some of the things you have mentioned already. Are air quality zones really about improving air quality in these cities or are they about raising money? My view is that, yes, internal combustion engines create pollution, but we all know that there are other forms of pollution right across our country, and vehicles only contribute a small proportion. In fact, in my view, it is an eighth, less than 12%, compared to the 50% caused by heating boilers. Are these areas where they have been implemented seeing improvements in air quality or, whether compliance is high or low, are they raising money that makes it worth their while, and that is the real reason behind it?

Alistair Hunter: The evidence shows that they see reductions in their NO_2 and some of the particulates of PM2.5s and PM10s—

Q64 **Karl McCartney:** It is very specific to vehicles. We talk about pollution as a generic.

Alistair Hunter: They are specific to vehicles and they reduce congestion. If you look at London, perhaps 10% to 15% of the vehicles came off the road at various points. There have been various levels.[2] That has reduced congestion by a lot more, simply because you get to a point in the system where the cars can move more freely.

In terms of whether they are revenue generating, if that is the real purpose versus air quality, it is a bit of a mixed answer, I would say. With the exception of London, all the others are either very new or still in development. The way some of them are spinning out at the moment, ie with the amount of operational cost, I doubt that they will achieve much revenue at the moment. As time goes on and the policy use of them changes to perhaps more congestion-based charges, then clearly—

Q65 **Karl McCartney:** The cost-benefit analysis is cancelled by whoever has implemented them.

Alistair Hunter: There are various classes of clean air terms, as you will be aware. Many vehicles are already exempt from the charges, depending on the classification that sits with that city.

Q66 **Karl McCartney:** Professor Goodwin, Phillip, if I may, I just want to pick up on your mention of electric vehicles and what sort of pollution or energy they might use, whether it is in their construction or their lives. Have you picked up, as I believe, that synthetic fuels is a real possibility that has not been investigated as thoroughly as it should be? Perhaps it has been ignored a little by some of the establishment. Do you think there is a possibility that we could see a proportion of the circa 35 million vehicles on the road currently that are internal combustion engines staying on the road but using synthetic fuels, with a mix of electric vehicles that might be on the road?

Professor Goodwin: It is a bit of a no-brainer really, is it not? There must be a contribution.

Karl McCartney: I think we are both realists.

Professor Goodwin: The question is whether that contribution is big enough that it radically changes the level of priorities that you accord to the main discussions that we have been having. I think the answer to that is no. This is a worthy angle that needs funding, support and development, but it is not going to radically change the big problem of raising the money and reducing the emissions. Incidentally, I do not think really the way of framing that as, "What is the real purpose?", is a helpful

[2] Correction by witness: They are specific to vehicles and they may also reduce congestion depending on the severity of the charging regime. If you look at the combined London ULEZ and Congestion Zone, perhaps 10% to 15% of the vehicles came off the road at various points. There have been various charge levels.

one. Clearly both purposes are absolutely real. The trick is to try to raise the money, which you have to do, in a way that contributes to reducing emissions and congestion rather than increasing them, which in some cases is where we are. I think that one is possible to resolve.

Q67 **Karl McCartney:** I have one more question to go to John, if that is okay. John, you might not know, but a hobby-horse of mine has been car insurance for many, many years, so I am very intrigued by what you have to say. It is an open-ended question perhaps in a way, but how much kickback from the insurance companies have you seen or are you aware of for what you have told us, which is the possibility that as we pay by mile we might also pay by journey for insurance? I know we can pay daily or weekends at the moment for some car insurance, but do you see that as a real possibility, or do you think that the insurance companies will kick back because private enterprise will not accept the state interfering in that way in the market?

John Siraut: I do not know. It is a difficult question to answer, to be honest. From the discussions we have had, which are just very open-ended with some of the insurance companies, they are very interested in the idea of moving into road user charging because they have the technology and the kit available, and they see there is a clear synergy to do that. I think they will be interested. How far they will take it and how deeply they want to get involved, I do not know. It touches again on some of these privacy issues that we have talked about before. Who actually would run the system? Some have suggested it should be a body like HMRC, which has a good reputation of maintaining the privacy of people's personal information. Some people do not like the idea of Government having information and would prefer the private sector to have information, and vice versa. I think that is a debate for yourselves to have, if a scheme was introduced, of how you feel it should be operated and regulated.

Q68 **Simon Jupp:** Good morning. Thank you for coming in this morning. What I have been listening to this morning is a really interesting discussion about a future policy. It is not clear how long it would take to implement, put in place and be understood by the public. Given that it seems quite a faraway thought at the moment for the average car driver, how long do you think a policy like this could take to be put in place? John, may I come to you first?

John Siraut: It depends on the scale and scope that you are talking about. In the project we are working on in Qatar, they are looking to introduce it within two years before the World Cup comes into play. The cordon-based schemes can be introduced relatively quickly. If we are talking about a pay-as-you-drive mileage scheme, you are probably talking about a much longer timescale to introduce that. I would suggest that, as we are blessed with a couple of islands in this country, you would trial it and pilot it out first, to make sure all the technology works, and iron out all the issues that you might come across, and make sure it works properly before you roll it out throughout the whole of the country.

If you are going for a full, all-singing, all-dancing pay-as-you-drive scheme, you are probably talking five or six years down the line before it is introduced, and obviously it goes through a parliamentary system as well. It will take time to introduce a very detailed road user charging system, but you could introduce a cordon-based system relatively quickly.

Q69 **Simon Jupp:** I am glad you mentioned Parliament. Professor, do you have anything to add?

Professor Goodwin: It is quite interesting. I think the first Government-led study advocating road pricing was in 1964.

Q70 **Simon Jupp:** A while ago then.

Professor Goodwin: It was Professor Smeed's one. I think I am his last surviving student, so it is engraved on my memory. That report said that it would take about 10 years to introduce a full road pricing scheme by the time the technology was ready, and so on, and that has been the same conclusion, almost in the same words, of every single road pricing study ever since: that it would take about 10 years. I was delighted to hear your five or six years because at least we are making some progress over the years.

London congestion charging, although it had been under discussion for decades, took three years really from the decision to the actual payment of money. The amount of time it takes seems to be much more dependent on the time taken for political agreement than the time taken for technological implementation. We can do it pretty much as quickly as there is will to do so. We have some experience in the last couple of years of doing things very much more swiftly than Government thought they were able to do. That experience should not be lost, I think.

Simon Jupp: Thank you. Alistair.

Alistair Hunter: Super quickly, I agree with what has been said by Phil and John. I would add that particularly on a national road charging proposition we are at quite a low starting point. Countries like Singapore, as I say, have gone down that route, but they have had their ERP system—their gantry—in place since 1998, so they have learnt an awful lot as they have gone along. I would imagine five or six years would be a pretty ambitious target. The one lesson internationally that keeps resounding through is to think this through from every possible angle, because it can go badly wrong at so many different points in the process.

Professor Goodwin: What it means is that the political arithmetic becomes important. If it is five or six years, a decision has to be taken by one Administration and implemented under the next Administration. That fact is so dominant in the way one constructs the political discussions that it may be the decisive bottleneck.

Q71 **Simon Jupp:** To add further complexity to that, of course, we have

talked about Parliament, and you have just referenced the electoral timescale that we are talking about. There is also local government. In the last panel, I specifically touched on it. We have district, city, county and combined authorities.

Gavin Newlands: And devolved.

Simon Jupp: Sorry, Gavin, I am glad you pointed that out. It is obviously quite important because they might have to be part of the system that puts these schemes in process, and they may vary in different places. Do you have any views between you on how schemes could vary—the tax take of different options—and whether local governments' involvement or devolved nations' involvement would be welcome or a hindrance in the introduction of such a policy?

John Siraut: From my perspective, I would agree with the Road Haulage Association. It has to be a national scheme. You might have variations of charges locally, but it is a national scheme, otherwise you end up with all sorts of complications.

How we perceived it operating would be that the Office of Rail and Road, which has regulatory responsibility for national highways now in England, would actually be the regulator. We would see a charge for the maintenance of the road network. That would obviously flow through to the local highway authority and would address some of the issues that we have now on the state of local roads. There is no connection between the number of vehicles travelling on a local road network and the amount of money that the highway authority gets.

We would see a system in place where you would have the regulator, who would look at the efficiency of road highway maintenance in each of the highway authority areas, and a charge would be set for the road maintenance element at local authority level or devolved government level, depending on who was responsible for the highway network. Over time, we would hope that would drive efficiencies in the system, just like we saw in the newly privatised industries when they were first introduced, and the regulator was looking for an RPI minus one type of arrangement.

The involvement of local authorities and the devolved Governments would be in maintaining the road network and getting flow-through of revenues from the vehicles using that road network, and being regulated to drive down the cost of maintaining that road network.

Q72 **Simon Jupp:** I am intrigued by the idea of people sensing they have bad potholes in their road, and therefore driving up and down it until it becomes evident that something needs to change. Professor, is there anything you want to add, although not to my superfluous point?

Professor Goodwin: There is some experience of a different way of doing it, and that is in the 1998 Transport Act, which also proposed a nationwide implementation of road pricing. Its device was to say no

national road pricing but enable legislation allowing appropriate levels of local government to implement it if they wanted to. The incentive for them to want to was that they would then keep all, or a proportion, of the revenue gained for use for local purposes.

The political logic of that, I thought at the time, was perfect. What one has to say is that it just did not work because most of the local authorities chose not to, though London only exists precisely because of that option. It seems to me that the conclusion has to be national-plus. It would be daft not to take account of the fact that local conditions vary. Therefore, there has to be some way of reflecting that. Without a national starting point, I do not think you have the momentum to carry it on.

Alistair Hunter: I entirely agree: a national system, first and foremost, because you get the economies of scale, the simplicity, the quality, the governance and the regulation. That does not mean that all the charges are applied uniformly. You set those that meet the local needs of the city, the populace, the communities there.

Interestingly, the idea of the mayoral city regions and local authorities taking on the design of these schemes starts to worry them entirely because there is such a risk associated with them. You are much better rolling it out on a national basis for multiple reasons. It is the link to the hypothecated revenue. It makes it a much easier pill to swallow if a group of users start to pay for something that they previously perceived as being free but they can see an improvement in mass transit or local transport schemes. That is where the local directive comes in. We talked earlier about how you get proportionality and make it a fair system. To make it a fair system, particularly in the urban environment, if you are charging people, and you want them out of their vehicles for congestion or carbon reasons, or whatever, you have to offer an alternative. That is the sentiment.

Professor Goodwin: That is why hypothecation of a type has to be there, but it has to be for transport and related issues as a whole, not just for roads. If you are to encourage people to use cars less in inappropriate circumstances, you have to offer them a better alternative. That means that part of the revenue from a road pricing system—the hypothecated part—has to be used to make the alternatives better.

Q73 **Simon Jupp:** How do you envisage that drivers will interact with this system? We heard previously in the session about apps and things like that. Not everyone is as technical as others and their neighbours, so how would people interact with this and be able to make sure they pay their way but are not being charged unfairly and really understand the system? I think many people will find it quite confusing if, unlike ULEZ and other schemes in London for example, there are no sensors around the city in different places to catch drivers, so to speak.

John Siraut: It depends on the type of system you introduce and how it would work. How we would envisage it working is that you would have a

trial period beforehand, where you would actually send out dummy bills to people so that they get an understanding of what trips cost and why they cost certain amounts of money.

If we go down the insurance-type, pay-as-you-drive-type black box, we would expect to see a monthly statement coming through to people telling them how much their journeys cost. We would expect people just to be able to jump into their cars and drive, as they do now. We would also be proposing, certainly if you were making longer-distance trips, that you could use an app, or book online or by telephone. If you wanted to go from London to Birmingham, you would look at an app. It would give you options of going by coach or train, or driving. It would give you an expected journey time. You say, "Yes, I'm going to travel at that time. This is my expected journey time." If you arrived late, due to congestion or something that held you up, you would then have a system where you could pay back compensation, just like you do now if your train is late on long-distance journeys.

Again, it is providing a road service as a customer service, with customers clearly getting something back for their money. There are different ways to operate the system, depending on how much an individual wishes to engage with it. It is a bit like a mobile phone. At the moment, I am sure that none of you knows how much any individual call that you make costs, but you know what your monthly bill is. You could have a similar sort of system that says, "I am going to allocate a certain budget for my road use, and it is going to tell me if I am getting close to that limit." There are lots of different ways you could manage the system, depending on what people feel comfortable with.

Q74 **Simon Jupp:** I will move on from that question briefly. There is a huge potential security concern, isn't there, about the use of data and how that data is accessed? If, for example, people can see where you have been, if there is a way of doing that, every system is hackable. What security precautions need to be put in place so that people could not monitor your movements, know where you are and know the journeys you take on a regular basis, from where, and your end destination? That is quite a concern, isn't it, when introducing a policy such as this?

Alistair Hunter: If we think about cybersecurity, there are probably two or three main areas of attack, if you like. One is the financial repayment data, which holds the risk of every other Government or Apple Pay system. There is no real differentiator that I can see.

The second is the data around movement, as you say. If it is a satellite-based system, the signals are pretty well scrambled and hard to penetrate. It is when it gets to the city processing units that it is probably more susceptible. It is actually quite hard for hackers to make sense of that. One of the reasons is the pure volume of data coming through. The amount of data coming through is inordinate, so it is hard for them to make value from it.

The third angle of attack is on the transport system. If you link your speed control to congestion, and you are making operational decisions on the network as a result of live data feeds and transport movements that you may expect, there is the potential for those transport control systems to be hacked. I am not an expert on cyber, so I will stop there.

Q75 **Simon Jupp:** Very good. Thank you. Professor?

Professor Goodwin: The thing that amazes me is how much data we already give away perfectly happily without noticing it. Every time you drive anywhere, you have a number plate showing on your car. That can be noticed by anybody. The police can track information on that. Closed-circuit television can track it. You have to work quite hard to stop your phone giving information.

I do not want to minimise the issue. I do not want to trivialise it, but I do not think there are new issues of principle raised in paying for the resources you consume or the damage you cause by driving. It is such a simple concept. I do not think there are new issues. I think there are the same ones about the extent to which we have effective penalties against people who misuse and sell data that does not belong to them.

Q76 **Simon Jupp:** I think, with respect, I disagree, purely because it is more data gathering. There is then more data about your journey and your life that is available. I do not tend to post on Facebook every time I go for a drive. That would be quite odd. Someone, somewhere, through elements of data, would know that as a result of a scheme such as this. Therefore, there is a genuine concern that would have to be alleviated should the scheme be introduced, in my view. John, do you have anything to add?

John Siraut: I think part of it is a generational issue. Only a small group in society have that view, to be honest. You might not be aware, but every time you travel on public transport and use an Oyster card or your contactless card, that journey is tracked. The system knows exactly where you have been on the network. As Professor Goodwin said, it is the same with mobile phones.

I was one of the speakers at the Climate Assembly. I was surprised how relaxed people were about the privacy issue. They recognised that their mobile phones were trackable, and so on. That was not coming across as a great concern to people. Some people genuinely had that concern, but for the majority of people it was not a major issue.

Simon Jupp: I think for people outside London who do not currently use public transport on a regular basis it will be quite a change in the way they interact with an awful lot of different things, and the way they share their data. I take your point entirely about Oyster cards and suchlike. I will hand back to the Chair.

Chair: I was going to hand on to Greg, but I have remembered that Gavin did not come in at all in the last session so, if you will forgive me, Greg, I will bring him in.

Q77 **Gavin Newlands:** The substance of the area I was going to ask about has been touched upon fairly significantly, but I think it is worth asking this one question. Both the last panel and you have said that, essentially, it should be a simple system, albeit covering potentially a lot of different policy areas. That is the suggestion, initially.

Fast forward 10 years from the implementation of road pricing, what would you like the scheme to look like? You have touched on it a little, so I will start at the other end. In 10 years' time, when the initial basic system has come in and you have built in the flexibilities that you spoke about, what would your scheme look like if you were designing it?

Alistair Hunter: First and foremost, it would be a national system. That does not mean that it applies everywhere equally. You might choose different parts of the country to have absolutely no charging—rural areas for example. You would have the capacity to flex those levers as you chose.

You would also have a one-user account. One of the major issues that we can see with the plethora of clean-air zones and congestion zones springing up—there is stuff around Heathrow at the moment being considered and their forecourt charge goes live in two weeks—is that from the user perspective you need one-user accounts. People will have absolute transparency, if they are going from A to B, about what it might cost them. They understand it.

Secondly, I would like to make sure, particularly in the urban areas and outside London, which is pretty well provided for public transport-wise, that hypothecated revenue goes back into mass transit schemes and active travel and enables all that. You would get a sensible share of investment into urban forms of transport in particular, and people can then see the benefit.

As a final point, in the Stockholm example, they trialled it and congestion went down. They stopped the trial. The congestion went up again, and then they undertook a referendum when they were back in normal running. People narrowly voted that they wanted the tolling back in place. That demonstrated that the system had been accepted by people and that they saw it as a positive thing. You can argue whether it is a loaded question, but the questionnaires or surveys thereafter have shown a steady increase in support. That is what we would like to see in the UK: slow momentum and the public seeing the benefit over time.

Q78 **Gavin Newlands:** Professor Goodwin, what would your model look like 10 years after implementation?

Professor Goodwin: I agree with the points that have just been made. Perhaps an interesting way of looking at it is what we would want to see that has changed from the present after a decade of success. Let's assume that the whole thing has not crashed in a disaster and the Government have lost their credibility and all that. We do not want that to happen.

It seems to me that it would result in less traffic overall and a reversal of a long-term trend. A higher proportion of the traffic that was there would be essential, including freight traffic. It seems to me that that is quite consistent. In other words, that is a way of contributing to the efficiency of business movement. There would be a huge improvement in the quality of the alternatives that were offered, so that people did not feel trapped into cars, and a fairness built around the concept that fairness was not only a matter of fairness to drivers but fairness to everybody, as well as a Government that had plenty of money and societies that had almost no carbon. I think that is achievable, really.

Q79 **Gavin Newlands:** You don't ask for much. Do you have anything to add to that before we move on, Mr Siraut?

John Siraut: I would say that in 10 years' time what you would have is a road network that is well maintained and highly efficient, offering very reliable journey times and that is much better utilised across the whole of a day than it is at the moment with just the peaks and troughs. There would not necessarily be a lesser amount of traffic, but the traffic would be more evenly distributed over the day.

Gavin Newlands: On that optimistic note, I hand back to the Chair.

Chair: I was about to hand over to Greg, who is being very patient, but Grahame is itching to get in.

Q80 **Grahame Morris:** I just want to ask Professor Goodwin about his vision for the future. I do not know if you ever read the report that we did on mobility as a service. I know that we are often characterised as trying to beat up the motorist and the personal car user, but what are your views? Do you think that is going to be part of the vision in the future, where there are fewer personal cars and mobility as a service is a more integrated part of our transport needs?

Professor Goodwin: I think that is likely. It seems to me that the role of the car as a demonstration of success and social status has had its day. It is no longer helpful. The role of the car as one among many efficient ways of getting around is a much healthier way of looking at it, and I think a more balanced one.

Q81 **Greg Smith:** I want to turn the debate slightly on its head. At the moment, through the first evidence session and yours, there has been a presumption that any road pricing scheme would be a creature of the state.

Are there any examples from around the world that you are aware of, or have you any thoughts on how it might be more equitable in the interests of the road user to ensure that any pricing scheme for the use of the roads is, in fact, not set by the state and is not there to be skewed by factors other than the mobility factors and the getting from A to B factors, whereby the private sector could be the guarantor, using market forces, of providing the fast-flowing roads that we all want to see?

John Siraut: It depends how you look at it and the different angles. I am sure we have all been on toll roads. There are lots of private sector-driven toll roads around the world where a private sector company has come forward and built and maintained a road and takes revenue from that road. There are certainly ways of doing that. If you introduced widespread road user charging in this country, there is no reason why, subject to the usual planning restrictions and regulations, a private sector company would not then come forward with suggestions for road improvements, because they are no longer having to compete with a free competitor. There is no reason why you cannot have that situation.

How we envisage the situation operating in charging—again this is a matter for the Chancellor and Parliament to determine—is that the Office of Rail and Road would set the actual charges. It would be an independent regulator being set an objective by Government as to how much revenue needed to be raised, or however they wanted to work, and then it was the regulator that set the charges.

We could see a system where day-to-day government was not involved in the level of charges set on the road network, and you had a framework where you could allow private sector companies to come forward with road schemes.

Q82 **Greg Smith:** To be clear, do you see that as the private sector essentially being not dissimilar to the way railway franchises currently work, or do you see it as the private sector just coming in to deliver what the Government have set out? Of course, the Government would get a revenue stream; instead of from the road pricing charge from the end user, it would be from the contract fee from whatever company takes the M40 or whatever it might be.

John Siraut: There is a whole range of different ways you can run the system. You could franchise the operation as a road network. You could then encourage new entrants into the network to build new roads completely and charge for those roads—competing or existing charge roads. There are lots of ways you could introduce the private sector if you wished to do so.

Q83 **Greg Smith:** You have clearly worked on a lot of projects around the world in this sphere. Has there been any discussion of it being an entirely private sector solution anywhere? Has anyone gone with it? What are the reasons why people have perhaps ruled it out?

John Siraut: Not for existing road networks because they are perceived as already owned by the state, but there are some examples of private roads around the world that are built under concessions and tolled, so, for that new infrastructure, yes.

Q84 **Greg Smith:** I accept the point that there are plenty of private roads around the world. It was more a point of—

John Siraut: Not transferring existing state-owned roads to the private sector.

Q85 **Greg Smith:** Thank you. Professor, do you have any thoughts on that?

Professor Goodwin: I suppose one has to be a bit careful of unintended effects. The first thing that comes to mind is that if you had a completely private sector, where the pricing level was operated and determined by the private owners of the road system, the pricing levels would be set to maximise profit. They would be quite high. There would be perhaps desirable consequences on reducing volume, but there would be a lot of complaints. There would be calls for competitive operation of private road systems. I feel that one would be going down a pathway where you would think, "No, we didn't want this at all. Does it mean that the private operators of the roads, competing with each other, then have the right to take planning decisions about where road capacity should be increased?"

I am not saying that in principle there is no role for the private sector or anything like that—that would be daft—but I cannot quite see how a completely private sector-run system would contribute to the key public good objectives that we are trying to achieve.

Q86 **Greg Smith:** You believe there would be total market failure.

Professor Goodwin: It is not impossible. One of the difficulties about market failure or market success is whether the prices and costs charged between the owner and the consumer reflect social costs like congestion, pollution, climate change and so on. You would have to have such an elaborate way of building those into the costs of the private operator that you might find there is not the actual commercial space to operate in successfully.

Q87 **Greg Smith:** Thank you. Mr Hunter?

Alistair Hunter: I think it would be pretty difficult on a national system level. It exists in the UK on the M6toll, where the concession has the ability to levy their charges at whichever point best fits their commercial model. They balance off volume versus the price they are charging. At a national level, I am not aware of any international comparators. You can go back to the 16th and 17th centuries with turnpike roads and all that kind of stuff, but I think it would be difficult. I think you would end up in a situation where it would be the ultimate regulated market because there would be such a stranglehold on supply. You cannot build a new road in the sense that you can get a new internet provider.

Q88 **Greg Smith:** I understand that. This is my last point for you to comment on. You do not think it would be the case that company X runs the M40, and company Y runs the M1; company Y charges a tenner more than the M40, so everybody goes across and the other company goes bust and someone else has to come in to do it, and it will be the market in action.

Alistair Hunter: Theoretically, you could have that situation, but I think it would run into a load of difficulties. With the exception of things like the M6toll, there is not often a realistic diversion route that you can take or route round as a consumer without adding a lot more distance, depending on where you are going. You would end up doing a load more mileage as a consumer to go on a slightly cheaper road, which I think would be difficult.

There is the well-trodden path of the private sector working on an unsolicited proposal with Government, not so much in this country but, say, in New South Wales and Queensland. They come up and say, "Listen, you have a bit of your network here that is fundamentally missing." They get into a competitive dialogue, one on one, and end up in a position sometimes where they say, "Listen, we will build link X to Y." It might involve a tunnel in a place like Sydney, where there is a lot of traffic. They push forward with that and then they get the revenue from the tolls.

Greg Smith: Thank you.

Q89 **Chair:** To make sure we have got this down for the evidence—so very brief answers, please—were you pointing us to an existing country model that it would make sense for the UK to replicate, or do you feel we should be looking anew? That is to all three of you, so whoever has it in their mind first of all. We have heard about Singapore and Doha. Is that where you say we should go, or should we be thinking outside the box?

John Siraut: I think there is an opportunity for the UK to be a world leader in this area. Every country in the world is tackling the same problem. How do they replace vehicle excise duty and fuel duty with something else? There are models that I do not think capture everything that road user charging can do. Singapore probably comes the nearest, but I think there is an opportunity for the UK to push the boundaries and develop its own model.

Q90 **Chair:** So that is own model for you, John. Phillip?

Professor Goodwin: I would say there is a lot of experience that is worth learning from. We certainly should not say that we cannot learn anything from anywhere else, but I do not see there being a country that we can point to and say, "Yes, they've got everything right so we will just follow that model."

Q91 **Chair:** Alistair, do you agree with that?

Alistair Hunter: A little tweak. I think long-distance tolling and reduced charging in Europe, and going further east, is really well established. We should look at that for the motorway network, essentially. It is pretty established. There are a lot of lessons learnt. I totally agree with my colleagues on the urban environment. There is a big opportunity, particularly with satellite-based, to do something quite interesting from the technological point of view.

Q92 **Chair:** One of you mentioned that we have islands in this country and you could trial it on an island. Whoever said that, would you envisage that one day the fuel price is a lot lower because what you then have is road pricing that is brought in?

John Siraut: You would abolish all fuel duties and excise duties on that particular island. You would introduce road user charging and see how it all worked and changed people's behaviours. You would understand how the billing systems and all those sorts of things worked. As people have said, you do not want to introduce something that is botched and get it wrong. You need to trial it first.

Q93 **Chair:** I have a last quickfire question. I would be surprised if any of you have come up with what the per mile needs to be. If you have, do let us know. Are you envisaging a flat basis of mileage charge, or do you actually factor in distance and therefore price up the shorter distance to encourage active travel, or indeed the times that you travel as well?

Alistair Hunter: I think it has to be dynamic. You have to have flexibility. If you look at the outcomes that you are trying to achieve, that is where you start from. In an urban environment at peak hours, you are trying to disincentivise people from using the car. In a rural environment on a Sunday afternoon, it is a totally different price point. I see variability in that.

Professor Goodwin: I think some differentiation by vehicle is almost inevitable.

Q94 **Chair:** Sorry, I didn't mention vehicle.

Professor Goodwin: Clearly, fuel type, it goes without saying, has to be one of the dimensions. I would have thought weight, power and size and something based on that, because one wants to try to encourage the vehicle market to adopt vehicle types that are efficient, useful and sufficient for the job. That is not really happening at the moment.

Q95 **Chair:** Finally, John?

John Siraut: To roughly raise the same amount of revenues as you do now for vehicle excise duty and fuel duty, about 10p a mile would be the base charge. I agree entirely that you would want a flexible system that had very differential charges between rural and urban areas, time of day, and so on.

Chair: It is good of you to throw in a price, albeit with that caveat.

Mr Bradshaw: A nice round figure as well.

Chair: It certainly is. It has that simplicity to it. I thank all three of you for the ideas and thoughts as to where this could ultimately go. We are very grateful indeed. I wish you well for the rest of your day. Do stick with us as we bring our report out. Indeed, do stay and listen to Mr Williams from the Treasury, who is about to round us off. Thank you very much indeed.