

ROAD SAFETY COMMITTEE

Inquiry into federal-state road funding arrangements

Melbourne — 1 March 2010

Mr J. Eren

Mr D. Koch

Mr C. Langdon

Mr S. Leane

Mr T. Mulder

Mr W. Tilley

Mdcr I. Trezise

Mr P. Weller

Chair: Mr J. Eren

Deputy Chair: Mr D. Koch

Staff

Executive Officer: Ms A. Douglas

Research Officer: Mr N. Bunt

Witness

Professor H. Clarke, professor of economics, school of economics and finance, La Trobe University.

The DEPUTY CHAIR — I welcome you here this afternoon to the parliamentary Road Safety Committee in the absence of our Chairman, who has made a late apology. He is caught up in traffic and will join us a little bit later. We thank you for coming along today and making your presentation. I flag that parliamentary privilege is offered in this committee briefing but it is something we cannot extend to you outside the building, as you will appreciate. We look forward to your contribution and thank you very much.

Prof. CLARKE — Thank you very much for the invitation. I might say a bit about myself. I am an economist and a professor of economics at La Trobe University. My main interest is environmental economics. I have worked in that area for about 30 years, and I have had a longstanding interest in transport, particularly road transport.

As background, last year I was contacted by the commonwealth Treasury and asked to participate in the Henry tax review — a review of the Australian tax system. A colleague and I were asked to look at taxes and charges in the transport sector. I was asked by Alex to make a presentation on that work, so I have not tried to adapt the presentation to the specific interests of the Road Safety Committee. I have just tried to provide an exposition of the main ideas in that report, and I hope that they are of interest to you. If they are not, you can tell me and I will try to, on the spot, change my approach and do something different.

The report is the report made to Australia's future tax system review. It was great that the tax system review isolated out the transport sector. As you know, the transport sector is one of the most important parts of the economy; it is about 5 per cent of the total economy and it feeds into every other sector of the economy. It was a wonderful project to be involved in. We were given terrific freedom. We were told to not consider short-term, political or other constraints but just to try to think through the issues carefully. We were not told to toe a Treasury line or any line at all. We were simply asked to try to get the best ideas out that we could come up with for the transport sector.

Essentially we were asked to look at taxes and charges in this sector on road transport — it was originally intended to be the whole transport sector, but road transport was more than enough to do in three months — and how those revenues are spent. The main issues are that most of the revenues yielded from the transport sector come from excises on fuels — the excise on fuel is one of the most important taxes in Australia — and from charges on vehicles such as registration charges, licence fees and so on. I have just been to the OECD in Paris, and everywhere in Europe there is the same kind of reform agenda. The question is: should these kinds of old-fashioned charges be replaced by user charges — charges that are more directly related to the use of roads?

Mr TREZISE — When we are talking about taxes on drivers et cetera, do we also include speeding fines and things like that?

Prof. CLARKE — Yes. Speeding fines are a significant source of revenue.

The DEPUTY CHAIR — Any revenue raised?

Prof. CLARKE — It includes any revenue raised. It is a relatively small fraction of the total revenue that comes out of this sector, but yes, the report looks at speeding fines and so on.

We were looking at congestion issues, which are forecast to be dramatic in all the eastern state capital cities over the next 20 years, and Melbourne is no exception; road damage, with a discussion of the role of heavy vehicles; and the way you structure insurance for traffic accidents. The policy issue that we came to consider — it was not offered to us as a kind of a prior agenda, but we came to consider it — was really the possibility of swapping these user charges for the current sorts of charges that prevail in this sector.

A second issue — a big issue that is being pursued by COAG and other groups — is the case for hypothecating or dedicating these user charges to road supply issues. The road supply sector in Australia is a very important economic sector. It is probably the last major sector of the economy not to be exposed to microeconomic reforms of the type that have occurred in telecommunications and other sectors.

I am telling you the obvious, but Australia is a big country; it is as big as Europe. It has a very sparse population density, but kind of surprisingly it is a highly concentrated population density. We have very high levels of urbanisation. So we have issues of transporting goods across large distances, and we also have significant issues of congestion in large, sprawling, sprawled out cities. We have issues of getting raw materials and people

around the nation and to ports and significant congestion problems in the eastern seaboard cities and in some of the other capital cities of Australia as well.

Roughly that is the picture. The transport sector is important. It is a big user of public resources — around \$12 billion in 2005–06. It is a big generator of revenues. Just picking one item, the fuel excise is around \$10 billion; a huge source of revenues. It is also a source of external costs — unpaid-for costs. The BITRE has estimated that in the capital cities congestion costs plus pollution costs account for \$9.4 billion annually. Melbourne is about \$3 billion. Sydney is a bit more than \$3 billion — about \$4 billion. In Brisbane there is most of the residual, and there is some in the other capital cities. They are costs that are imposed on road users, but nobody pays those costs currently.

Overall, people who use Australia's roads do more than pay for them. If you tally up all the charges that people pay — petrol excises, registration charges, other kinds of charges — that does cover more than the costs, so what is the problem? The problem is that it is a very inefficient way of recouping those costs. They are not related to road use; they are often related to vehicle ownership or something else. They are not related to the extent to which — —

The DEPUTY CHAIR — Could you give us a percentage of collected versus expended?

Prof. CLARKE — The collected revenues are well north off of \$10 billion plus.

The DEPUTY CHAIR — Easily.

Prof. CLARKE — That is just that the congestion costs, so it would be a lot more than that. There would be, say, \$2 billion to \$3 billion in road maintenance costs, road damage costs. The congestion costs alone are \$9 billion. You have got significant traffic accident costs that are not included in that total and a variety of other external costs.

The DEPUTY CHAIR — Looking at it from the point of view of collection versus expenditure, what are we talking? Does the expenditure only make up 40, 50 or 60 per cent of that collected — what is going into general revenue that is not getting back?

Prof. CLARKE — I am guessing, but at an educated guess there would be a bit more than that — probably 70 per cent or 80 per cent.

The DEPUTY CHAIR — Is being returned?

Prof. CLARKE — Is being returned, yes. It is a bit hard to say exactly, because of difficulties in measuring things like road maintenance costs. It is hard to know when you are upgrading a road, building a new road, maintaining an old road or whatever; they are fairly slippery figures.

I could give you a specific example: registration charges are scaled for heavy vehicles to reflect road damage costs. We know truckies pay big registration charges, but they do not reflect the distance travelled or specific road durabilities. If you leave the truck in a field at the back of your house, you still pay the same registration charge. If you drive your truck along low-durability roads, you are paying the same registration charges as if you are driving it up the Hume Highway — and you are very unlikely to do much damage to the Hume Highway, because it is a very durable, strong road.

Fuel excises, likewise, do not really reflect congestion. They do a bit, because when you drive in congested conditions you chew up a bit more petrol, but that effect is not strong enough to capture the congestion costs that occur in a large city. The effect is not strong enough to capture those congestion costs, and of course fuel excises do not at all cover things like road damage costs.

That is the reform agenda that our report is mainly looking at. You can think of the current charges on motorists as kind of fixed charges — things like registration charges and charges that vary a bit with how vehicles are used, like petrol excise. You could think of that as a kind of two-part tariff. There is a fixed bit of the tariff and a variable bit of the tariff, and the question is whether that should be replaced by user charges, congestion charges, heavy vehicle charges and so on. That is the core thing that our report is trying to examine.

I have said that in fact people do pay their costs, but they do it inefficiently. You really want the signals that are sent to road users to modify their behaviour so that they behave in a cost-minimising way. You do not just want to recover the costs. You want to recover the costs efficiently so that when people are driving they understand the costs that they are imposing on other users and on the public sector. In fact with efficient pricing you hopefully should get an efficiency dividend.

For example, if you thought about the trucking industry, if you could efficiently recover the costs of damage done to roads by trucks, hopefully you could reduce the total impost on truckies. Hopefully you could get some kind of efficiency dividend. We have tried to persuade the trucking industry that that might be the case, to get it to support our arguments, and it is not totally averse to those arguments.

We are thinking about introducing these user charges, and we want those to feed back into supply decisions. Most levels of government agree that road supply decisions in Australia are not made in the most efficient way at times. They are often somewhat political decisions. What you really want are road construction decisions to be based on the projected revenue that can be yielded from roads. If you have user charges in place, you can generate lots of revenue along a particular stretch of road and you can afford to build a very durable road that is very long-lived and requires low maintenance costs. That is the second part of the proposition.

I will go through the various parts of the report. The major tax in Australia on the road sector is the fuel excise, the 38 cents a litre. What we know is that road users in Australia do not care much about petrol prices in terms of their driving behaviour. Elasticities of demand are very low, which means that people do not respond much in terms of their driving behaviour when you alter fuel prices. The current set of excises is quite well designed in the sense that they are only levied on consumers of fuel, not on truckies and so forth who use fuel as an input to produce. Economics says that is a good way of doing things. You should tax final consumption use, not production use.

That means that from the point of view of just designing a tax, this is quite a nice-looking tax. It does not alter behaviour much and it yields lots of revenue. If I am teaching a course on public finance, I tell my students, 'That is the kind of tax that you are often after. It does not distort behaviour a lot and you get lots of revenue from it'. It is something like a tax on cigarettes. Even ignoring the issue of the health problems of cigarettes, demand is very inelastic. It is a good revenue earner for government and it does not oppose big costs on behaviour.

Even if you ignore the idea of perhaps taxing road users by a fuel excise for the extent to which they use roads, this is not a bad-looking tax. You need to think about that very carefully, because a lot of people are thinking about user charges as a way of getting rid of this fuel excise. We are going to argue that that is probably not a good idea. It is a good idea to retain this fuel excise.

What we did was model that. We said, 'Suppose you are a government and you want to design an excise on fuel that optimises the revenue you can get from consumers and which also might act as a proxy for environmental charges'. You do not have congestion charges. You levy something like a tax on petrol as an approximate way of capturing congestion costs or, for example, greenhouse gas emission costs. You do not have an ETS in place; you want to collect a tax from motorists because they contribute to greenhouse gases.

Do not fall over when I give you the next line. If you do that exercise, the optimal tax works out at about \$1.99 a litre. It is a huge tax, which I am not suggesting you guys go away and present to Parliament. You will get into a lot of trouble if you do. What I am saying is that there is a big motivation for keeping that tax as a revenue-gaining tax. It is a very efficient tax for doing that, and even as an environmental proxy, 48 cents of that \$1.99 you would want to levy just to capture environmental effects if you did not have congestion charges, and 48 cents is quite a bit bigger than the current tax of 38 cents. If you are not going to introduce user charges, it is a good tax for revenue-gaining purposes, and if you are not going to introduce user charges, it is a good tax as an environmental proxy from the lack of other taxes — congestion taxes and so on.

The DEPUTY CHAIR — When you say it is a good tax, it is an easily collected tax.

Prof. CLARKE — I think that is another thing. There are low collection costs, low evasion costs, but the main sense in which I am saying it is a good tax is that economists do not like taxes that really alter people's behaviour markedly, that distort markets a lot. This is not a tax that does that. People tend to bear the tax and pay it, so it does not cause big distortions; it does not cause dead weight losses in markets.

Mr WELLER — If you put it at \$1.50 a litre, it might change behaviour.

The DEPUTY CHAIR — You would get a distortion.

Prof. CLARKE — It certainly would, and I really want to emphasise I am not advocating a tax of \$1.99. All we did was this exercise to work out the optimal tax from this perspective.

The DEPUTY CHAIR — By increasing the tax like this, this went well for government revenue?

Prof. CLARKE — Yes.

The DEPUTY CHAIR — What did it do for the return of a state percentage for transport needs and road safety?

Prof. CLARKE — The question here was a good question: what happens to demand at very high taxes? We do not really know. We can only observe how demands behave at a moderate kind of tax. That is the only data that we have, but the elasticity we are using is very low — 0.23 — so a 10 per cent increase in tax causes a 2.3 per cent reduction in fuel demands. But if you get a tax up to that kind of level, you are going to have a very significant effect.

The DEPUTY CHAIR — Taking that on board, where did your discussion go? Was it about what was returned for road safety state by state, or was it purely about raising taxes, raising revenue?

Prof. CLARKE — It was purely trying to advance the proposition that this is quite a good tax from the point of view of raising revenue and, even ignoring that, if you did not have user charges in place, it was quite a good tax for capturing the effects of congestion. You would want to set a tax of, say, 48 cents just to capture things like congestion costs and greenhouse gas emission costs at all. But we are going to argue a case for user charges. We are trying to point out initially that this is a tax that is worth thinking about, hanging onto and not abolishing simply because there are good arguments for retaining it.

There are other arguments too. It is not a high tax compared to excises in other countries. It is certainly a fraction of the excise in most European countries. The only major country with a smaller fuel excise is probably the United States, which has very low excises.

Mr TREZISE — And in Europe, for example, what are some of the excise charges there in the vicinity of?

Prof. CLARKE — A couple of dollars — I think \$1.80, around that kind of figure, so very substantial excises.

Mr LEANE — At the start of your presentation you said that this country is very vast. In those particular European countries, they might not necessarily be travelling long distances.

Prof. CLARKE — I think there is something to that, yes.

The DEPUTY CHAIR — Lots of them do not have a fuel resource.

Prof. CLARKE — Australia is now an oil importer, so we do not have a great deal of oil resources either, but I think there is something to that argument that Australians are big travellers and they travel long distances. While you might want to set a fuel excise, \$1.99 is not going to look good for the cockies and other groups in the community — and, please, I want to make sure that no-one goes away and says Harry Clarke says we should have a tax, because I did not say that at all. It is just a purely academic argument. If you wanted to work out the best tax, what would it turn out to be? So we are saying we support user charging. We think it is a good idea, but we do not think it should necessarily be balanced by cuts in future excise — not if you think there is a revenue role for this excise.

You might want to seek cuts in other revenue-raising taxes, so you might want to seek cuts in registration charges or other charges. I am going to discuss the case of the Netherlands. They are abolishing all taxes on vehicles and introducing user charges. They are abolishing taxes on cars, car registration — the lot. The only charges would be user charges on roads.

Mr LEANE — So how do they actually charge user charges?

Prof. CLARKE — I will come to it.

Mr KOCH — Professor Clarke, just before we go on, I would like to introduce our chairman, John Eren, who got caught in the traffic, as I mentioned to you earlier, and John will continue chairing the meeting.

The CHAIR — Thanks for being here.

Prof. CLARKE — John, if you had user charges in Melbourne, you would not have got caught in the traffic. Just pay the charge and you would have been able to get here.

The CHAIR — Actually I got caught at the Geelong Football Club.

Prof. CLARKE — As to other taxes, there are concessionary taxes on most alternative fuels. They are very popular. They do not make a lot of sense in many cases because, if you use biofuels, you are still creating congestion as with petrol. There is really no argument for setting these taxes at zero.

Luxury car taxes are popular. They do not yield big costs to the community, but there are no really sensible arguments for picking one luxury item and saying, 'We are going to tax that'. If you are trying to tax wealth, then you need to do that in other ways, but taxing one item does not make a lot of sense and, like most economists, I favour abolishing the 10 per cent tariff on imported cars, which I think is an inefficient tax.

I will talk a bit about congestion charges and how you might tax congestion. Cities like Melbourne and Sydney face severe congestion problems now. The congestion costs in Melbourne are estimated to be around \$3 billion a year and they are expected to get much worse over the next 20 years.

Future forecasts by the BITRE suggest there will be a doubling of these costs over the next 20 years. People are thinking very much now, when they are thinking about congestion not just in terms of the average density of traffic on the roads; they are thinking about particularly the morning and afternoon peaks — these bottlenecks that develop — and trying to encourage people to shift away from those peak periods, to shift discretionary travel away from those peak periods, and of different sorts of travel.

You make different types of journeys in a city. If your wife is pregnant and her waters have broken and you want to get her to the kids hospital quickly, you are quite happy to pay a hefty charge to get there promptly. If you are going to visit your friend who you have not seen for a couple of weeks, it is not as urgent; you can postpone it; you can do it outside of peak periods.

The idea is to think about people making journeys in a city and trying to work out what are the discretionary journeys taken in a city and trying to shift a fraction of those discretionary journeys away.

Mr KOCH — Is that not government moving responsibility across to the community instead of putting infrastructure in place that is required by community demands to either meet their work responsibilities or, as you say, their health responsibilities or their social responsibilities? I think that is a major shift in responsibility from government that you pose.

Prof. CLARKE — Absolutely, and I am supporting that shift. I am supporting a shift away from measures to deal with congestion that involve purely supply measures — supplying extra roads, extra tunnels — and looking at managing the demand side of congestion.

The difficulty is that you are making supply decisions in an environment where you are not charging people for the congestion they are creating, so there are too many people using the road; there are too many low value journeys being taken on the road. So the argument is very much that you should think about supply decisions, and I will come back to that in a while, but you should also think about managing demand.

Mr KOCH — But that is the argument you are going to take that taxes should be dropped. I think collecting all taxes increases the responsibility on governments on the supply side and it should be supported, contrary to your own argument.

Prof. CLARKE — I will look at the arguments for hypothecating, say, congestion charges to supply decisions. I think there are some good arguments for doing that.

I think the experiences of cities in the United States and most European cities suggest that supply measures are not going to resolve traffic congestion issues; they are just not, they are going to fail. They are going to be pursued again and again, and installing extra infrastructure becomes more and more expensive just because land is expensive in large cities, and eventually you have to deal with the demand side of things.

It is certainly true that the argument I am presenting is quite a radical sort of argument in terms of Australian transport thinking, but it is not a radical argument at all around the world. I think all European governments — Britain, Sweden, Norway and all these countries — have introduced road-pricing schemes. They are all shying away from purely supply-oriented measures and trying to think a bit about demand and managing journeys in the city from the demand side.

One key issue is how far you want to go with this. Do you want to have comprehensive pricing, and you have the technology for doing that now, or do you want to have limited schemes? Limited schemes include things like the London cordon-pricing scheme. You price a cordon around — say — the centre of Melbourne, and you price entry into that cordon. You price access to the city along the major arterials but most of the city is not priced. Or do you price the lot as in GPS or other kinds of technologies?

In the report we said comprehensive pricing is now available. You can price travel electronically on roads using GPS technologies or gantries if you have a cordon-type of system as they have in Singapore and in the London scheme. Those technologies are proven. They are feasible now. You can have partial reforms, as I said — just small cordons with pricing of the major ring-roads and arterials. How do you determine what you should do? Remember I am thinking about this issue as an economist and not as a person facing re-election in four years time. I am trying to think what would be the best way of going about doing this. It seems to me you have to be hard-headed about that and think about the cost of providing the technology and how acceptable the different technologies are to the public and second-best issues; issues that if you price certain parts of the city and you do not price other parts traffic tends to divert onto the unpriced parts. You had terrible problems if you were the member for Essendon years ago when CityLink was introduced because people dived through Essendon in order to escape the effects of the tolls.

Our general argument is this: we think there is a case for waiting and doing something big on Australia roads. There is a case for waiting because in fact there are some very interesting things going on in the world that you can look at and learn from. It is not an argument for doing nothing now. We think you can pick some low-hanging fruit, you can go for some cheap partial reforms. I mean 'cheap' in the sense of being inexpensive. With partial reforms, for example, you can price some roads that are obvious you should price. You can reform parking policies, which is a very useful policy in a city like Melbourne, but then eventually think about that as a precursor for jumping towards comprehensive electronic pricing of all travel in a city, and in fact potentially all travel in a country.

What we know is that the cost of partial reforms is high. In a city like London the costs of administering the cordon-pricing scheme are about 70 per cent of the revenue that is generated. London is a different city of Melbourne. It is not as sprawled out and it has a neater boundary. It is easier to price London than it would be to comprehensively price Melbourne. My guess is that the costs would be higher in Melbourne than in a city like London.

I think we can learn. We have dramatic things going on around the world now. There is a lot of evidence from the London scheme about the cost of verifying that people have paid their toll and so forth. The Stockholm scheme is a very interesting scheme because they trialled a scheme with the public and then held a vote on it to see if it was popular, and people voted for it. That is one way of improving acceptability. They said, 'Let's try this scheme. Let's see if it works. If you don't like it, we won't go ahead with it. If you like it, we will introduce rate pricing' and they voted for it. People found the increased convenience was worth more than its cost.

I have just been at the OECD in Paris, and there were some representatives there from the Singapore scheme. It is still an amazingly informative scheme. They have been running road pricing for 35 years. They know everything about it. These people are really clever. They know lots of practical issues about how you design road pricing schemes.

I think the trials in the Netherlands are fascinating. The Netherlands now are pricing all travel in the country. If you drive 1 kilometre in the Netherlands, you will be levied a charge, although a relatively small charge. If you drive in a congested area, you will be levied a higher charge. All car registration charges, all taxes on vehicles will be abolished. Again, they are introducing this scheme incrementally. They are trying it with 250 000 motorists a year, but gradually building up numbers, and people are queuing up to participate in the scheme. They are interested in the scheme. They are attracted in particular by the fact that they might not have to pay their registration charge. It is a kind of nice offer.

The CHAIR — But the Netherlands has one of the highest numbers of pushbike riders anywhere in the world. I think they have about 13.5 or 14 million people who ride their bikes. I suppose if shifted to an alternative model of transport, it would be easier to implement some of these things.

Prof. CLARKE — It is also just a small country compared to Australia. I think it would be a lot smaller than the state of Victoria; that is right. Things like encouraging people to use bicycles I think is a very practical way of improving the livability of cities, and that would be a consequence of congestion pricing. If you are confronted with a fee for taking your car on a low-value trip maybe you would take your bicycle, and I think that is certainly one of the objectives. There are lots of ways people change their behaviour.

People often think you have half a million people everyday who have to go into Melbourne at 9 o'clock in the morning to get to work, otherwise they will get the sack and so they cannot change their behaviour. That is not true. Not only do people have modal choices but people have very complicated ways of adjusting to something like a congestion toll. If they were going to visit a friend, maybe they can ring them up or visit them at another time that is away from the peak. There are lots of adjustments that people can make.

I teach at the University of Melbourne once a week. I live in Ivanhoe and I drive in. It is a pretty terrible drive on most mornings in the peak, but it is interesting that when I take that journey during the school holidays the congestion is close to zero. I just scoot along Lower Heidelberg Road and there is no congestion at all. You are only interested in deflecting a small amount of discretionary traffic off the road in order to greatly improve the congestion situation.

People often give the figure of 40 per cent of journeys in a city being discretionary. If you can cut into one-quarter of those you will substantially relieve the congestion issue, and that is the target. Get people to take bicycles for some of those low-value trips or make some other kind of adjustment in relation to them.

Mr LEANE — Another good example is that on nearly every second Monday, when the construction industry has a rostered day off, you have a great run.

Prof. CLARKE — Absolutely.

Mr LEANE — When you have that percentage of people off the roads.

Prof. CLARKE — You are targeting the marginal driver. You are not trying to reduce the aggregate of travel that much. You are trying to get those people who are making very low-value trips to rearrange their lives.

Mr LEANE — I suppose the bottom line with London is: has the congestion improved since they set up this system?

Prof. CLARKE — Substantially.

Mr LEANE — It has?

Prof. CLARKE — And it is now very publicly popular. Again initially there were grave doubts. When Red Ted introduced the scheme, people were frightened of it, but now it has widespread public support. In fact a while ago they substantially increased the tolls and likewise surprisingly that did not raise the amount of public opposition to congestion pricing. People just work it out. They say, 'It is better now. If we have a high-value trip we can make it although we have to pay the charge. But it is a high-value trip and we are not concerned about it. And yes, we can arrange our lives so we can avoid some low-value journeys'.

Mr TREZISE — I suppose, Harry, you need to look at other issues as well. In reducing the congestion you could also create other social issues such as for pensioners for example. You could create the social issue of isolating pensioners more than they are already if, for example, they cannot afford to use their car to visit their club or their friends or whoever it may be. In reducing congestion you could also be creating other social issues for, as I said, people such as pensioners.

Prof. CLARKE — I think you can pick particular groups in the community and say they are disadvantaged in some respect; for example, pensioners, people with restricted mobility or other groups. You really need to target those people with income-related measures, not measures that are related to congestion. If they are contributing to congestion — often they will not be; I think pensioners would often be making journeys on the city periphery rather than to the centre of the city — then I think they should bear the charges.

I think you should be hard-headed about the choice of technology. There is not a lot of sense in going for the sexiest, most fancy technology. For example, satellite technology is very fancy and very modern but something like a gantry-based system is much cheaper and much more practical in a city like Melbourne. They are all mature technologies. You can just be hard-headed about it and make the choice that does the best job for you at the least cost.

I am enthusiastic about telematics and the use of boxes in vehicles for a variety of things, for congestion management. It is probably premature to endorse the use of these in-vehicle boxes with GPS capabilities across the board, but for congestion I think the evidence is that they are good. Even for assessing the weight of laden vehicles and assessing road damage costs the evidence is in but there are high costs for implementing them on a fleet of heavy vehicles.

I want to say a bit about parking because I think parking is a useful interim policy. I favour a big step towards user charges but I think parking is a useful policy in a city like Melbourne. It has a high community acceptability. A lot of people do not like the idea of paying for road use — that is a mental obstacle for a lot of people — but most people are used to paying parking charges.

Particularly in a city like Melbourne where on-street parking has not grown at a great rate, people are used to the idea of paying parking charges. There are lots of poor features of parking charges so still on-street parking is a lot cheaper than parking in a parking station. That means people search for an on-street spot. Some people estimate that the 30 per cent of the congestion in a large city is due to people searching for a parking spot. You want to get rid of that; you want to make those parking markets work efficiently.

Technologists tell you that if you target about a 15 per cent vacancy rate in parking spots — if on average you keep 15 per cent of spots vacant by setting appropriate user charges — you will eliminate search costs for parking. That means essentially people can park wherever and whenever they want provided they pay the charge. If you park out the front of Parliament House you would probably get hit with \$2000 an hour charge because it is a spot that is greatly in demand.

Essentially it is setting user charges for parking that reflect the demand for parking and stop people cruising for parking spots. In many cities it will resolve the congestion problem if you can just do that. It is a simple policy and a very useful one.

People talk about taxing cars for greenhouse gas emissions. I am a big supporter of an emissions trading scheme in Australia. If you have that, that will do it; you do not need anything else specifically on fuel. If you work it out, say a \$20 a tonne CO₂ charge works out at about 5 cents a litre for fuel. It is tiny.

If you think about how much you pay for gasoline at the pump today — I think \$1.20 or something like that — 5 cents is neither here nor there. Anyway, it is not a big issue; if you have an emissions trading scheme you will capture those kinds of charges. Nor did I think it was a wise thing to exempt petrol from those charges. It would not have made a lot of difference if you had just included petrol, it would have been about an extra 5 cents if you had a \$20 a tonne carbon charge.

Vibration and noise costs are user costs. These are not things you can price away. They are best dealt with by regulation, by restricting the types of vehicles that use certain types of roads in certain areas and so on.

This committee might be interested in traffic accidents. In the United States 70 per cent of traffic accidents involve another vehicle. You do not drive into a tree or into a sign, you drive into another vehicle 70 per cent of the time. In that case if the average damage per vehicle is, say, \$D — \$2000 — the social damage is 1.7 times D; it is more than the damage that is incurred to the vehicle because you are crashing into another vehicle and imposing a cost there. When you insure you pay your own damage costs, but there is still a spillover; there is still a cost that accrues to society as a whole.

People have looked at these traffic accident costs. Again, you can think about trying to levy insurance charges in a way that more accurately reflects the damage that accidents cause in society. One proposal is to levy charges on the basis of distance travelled.

For example, if you levy a charge in the order of magnitude of, say, 2 cents to 6 cents per kilometre travelled so that you pay more if you travel further, and of course you stack up the premium a bit if you are a young hormonal male aged 18 to 20 who drives in a fairly unpredictable way anyway; you can have a charge that reflects personal characteristics and the distance that people travel on the road.

Mr KOCH — So do you put a lot more public transport into regional Victoria?

Prof. CLARKE — Yes, you do, but, again, the argument that various parts of Victoria are poorly serviced by public transport is true. It is true also in the periphery of Melbourne. In areas away from the CBD in Melbourne there are not particularly — —

Mr KOCH — But you cannot have it both ways. You are going to force people to pay higher insurance charges on distance travelled yet you do not give them the opportunity of alternative travel modes.

Prof. CLARKE — I am not suggesting they should pay higher charges, I am suggesting replacing the current charges they pay in insurance policies. In fact, people who do not drive their vehicles much would make a saving; they would pay less. People who drive a lot would pay a higher insurance charge.

Mr KOCH — My point exactly: a lot of country people have no option but to travel a lot.

Prof. CLARKE — That is true. There are many people who would be disadvantaged and certainly you would want to build up the public transport system but most of the time you are really targeting the marginal traveller. In country areas there is lots of discretionary travel: travel that can be abbreviated, travel that can be cut back. This is just a fair way of getting people to pay the cost of accidents they are imposing on the community.

Yes, country areas likewise would be subject to exactly the same charge as city areas unless there was evidence that driving in the country caused less accidents than driving inner-city area. What you are trying to do is recoup the costs that people impose when they use roads. Whether they are congestion costs, whether they are road damage costs, whether they are traffic accident costs you are trying to send a signal to the motorist that says, 'These are the costs that you are imposing. Account for these when you decide whether you are going to make a trip'.

Of course these charges have become a commercial reality. There are private insurance companies that offer this kind of distance-related insurance. I have just turned 60 and I see an ad on TV most nights saying, 'If you are over 55 and you do not have a full-time job, we will give you a good deal on car insurance'. That is essentially a distance-related insurance policy. It is essentially saying, 'Old people do not drive as much, therefore we can levy you a lower charge', so it is becoming a commercial reality anyway.

We do not know a lot about these accident costs, so there is still a lot of work to be done here. It is amazing that so little work has been done on this in Australia. We know that the number of collisions increases with traffic density, so we know that you have more collisions when you have more people travelling on the roads. There are two views about how this pans out. One view is that you have more collisions but you have less serious collisions, so if you are driving in congested traffic you tend to just bump into the fender of the guy's car in front and you do not do much damage. US evidence suggests that that is not true; you even have significantly higher mortality and other kinds of costs when you are driving under congested conditions. I am happy to take questions, of course, on that traffic accident thing. That might be something you want to explore.

On road damage costs, currently damage to roads is recouped very inefficiently. The COAG proposals are to change this, so that you get some kind of mass-distance-location pricing occurring. You charge a trucker for the distance he travels, the specific location, the specific type of road he is travelling on and the weight of his loaded vehicle, so you try to capture the actual cost that he is imposing on the road. The technology of doing that is resolved, but there are big transaction costs of retrofitting vehicles. It is easier to install the sensors in vehicles that have not been constructed, but retrofitting is an expensive kind of thing. People have suggested this interim policy of incremental pricing that goes part of the way to pricing for heavy vehicle damages. The idea is that you can allow heavy vehicles to travel on low durability roads if they pay an extra charge. They are not excluded from using those roads; but if they want to use those roads, they have to pay an extra charge.

The big part of the COAG reform agenda is to link the user charges to supply decisions. This is really complicated. Current road planning in Australia is very largely divorced from economics. It is driven by engineering and safety considerations. I will not deny the role of safety considerations, particularly to a safety committee; I think that safety is really important and engineering issues are important. But let me give you a suggestion that there is a role for economics in this whole story, too. This is one study I have picked. It is a study of Small and Winston, two famous US transport economists. With a very simple model they looked at working out the optimal road durability on US interstate roads. They looked at the costs of installing thicker roads, making them more durable, and the savings in maintenance costs. They found they could make a net saving of 40 per cent in the cost of maintaining roads simply by making them a bit more durable — net saving after the cost of making the roads a bit thicker. If you are talking about road maintenance costs in Australia of perhaps \$2 billion to \$3 billion — we do not have good data — you are talking about saving a lot of money with that kind of very, very simple reform. There is a role, I would argue, for involving economists in these types of decisions.

Mr KOCH — Has that been undertaken in the United States, or is it still being spoken about?

Prof. CLARKE — No, it has been undertaken. Some of the US roads in fact have been designed to last forever. In the past, roads were designed with a certain life in mind, and now they are designing some high-traffic roads that will hopefully last forever.

Mr KOCH — And the capital costs?

Prof. CLARKE — The capital costs go up, but they figure — —

Mr KOCH — Is it double or four times? We would appreciate that they would go up.

Prof. CLARKE — They go up. There are some increasing returns, because you are still dealing with the same roads. For example, if you are installing a concrete road and you are making it thicker, you will get some economies, so it will not cost you twice as much to make the road twice as thick. Those scale economies are not that great, but it does not become more expensive to make the road more durable.

The general idea is that you try to think of roads as assets, as you do of telecommunication assets or something else as assets. They are community-owned assets and you try to optimise the value of these assets. You are thinking about these assets yielding a stream of benefits, and these benefits you can hopefully measure by user charges. That would be a strikingly different way of thinking about road planning in Australia. It is complicated, because you need to account for community service obligations, you want areas of Australia to be connected with other areas and indivisibility. You cannot build very narrow roads in country areas; they will not function. You have to build roads of a certain minimum scale, so it is complicated.

The idea is and the COAG research documents are suggesting that you impose these user charges and then you project them forward by user type, and then you design roads with the sort of durability that will account for those projected user charges and give you a normal rate of return on capital investment. As you would for any community asset, you want some kind of rate of return on these valuable assets that compete with other assets in the community.

As I say, there are problems with that, and we have discussed that at length in the report. There are problems if road use is uneven; if certain lanes of the road wear out first, the results do not work out so well. If you have indivisibilities or community service obligations — and roads in Australia are owned by different groups —

there is the potential for particular road owners, if you are commercialising roads, to hold up the rest of the network. So you need some kind of regulatory framework to stop that from happening.

These are our bottom lines — the co-author agrees with these. There is a case for shifting to user charges on roads, independent of the excise on fuel, perhaps cutting other kinds of charges on road users. The big agenda is to link the revenues from these charges with efficient road provision. What we need are courageous politicians of the type who implemented the tariff reforms in Australia. When I went to university, it was inconceivable that Australia would move away from extensive reliance on tariffs. I can remember that very distinctly: we had 40 or 50 per cent tariffs on cars; now we have 10 per cent tariffs on cars. Everyone said that if we abolished these tariffs the world would end, but it did not. We have an economy that is growing very, very strongly. So I think we need a bit of courage.

I think that economists are now focusing on the political economy issues of getting these reforms accepted by the community, not just saying in a kind of pretension way, 'This is what you should do'. We are trying to say, 'This is what we think you should do', and, 'This is the way you might go about getting support for these kinds of propositions, because we know it is a difficult kind of proposition'. One idea is that you would conduct a trial, as in the Stockholm procedure; you say, 'Let's try this thing and see if people like it'. In the Stockholm case, they did like it. Another idea is offering alternatives: pricing some lanes on an expressway but not pricing other lanes, so you can travel under congested conditions without paying a price or you can pay a premium and travel under uncongested conditions. If you give people alternatives, they are not so averse to charges.

Another idea is to have sweeteners. If you have telematic devices that are charging people for driving along, you want of course to persuade people that you are not after their revenue; you are going to cut other charges. You can also make those devices palatable to the community. Now telematic devices can provide parking information in a city. You can drive into San Francisco and your device can tell you exactly where all the vacant parking spots are in the city, and you can charge for a parking spot using your credit card on a device. It makes people's lives easier if you can do this. You can extend the time you want at a parking spot, using your telematic device; you do not have to walk back to your car and so on. There are these kinds of reforms.

Another idea is to consider electoral cycles. You present major programs for micro-economic reform and you build up support for them. Before the proposal is introduced the community goes through fits of anxiety and support drops off. The proposal is introduced and gradually people learn to live with it again. It has been the experience with tariff reform and various kinds of micro-economic reforms in Australia. So you try to factor in those issues when you are thinking about trialling these types of procedures.

I have talked long enough. I will just thank you for listening to me.

The CHAIR — You spoke a lot about the taxes and excises. I suppose we are focusing on the current arrangements that the states and territories have and what percentage of money we receive from the federal government. Have you thought about how there may be a more equitable system in terms of distributing some of those taxes, charges and excises?

Prof. CLARKE — Under a user-charge principle — a user-charge principle is essentially a user-pays principle — you would have returned to you under these kinds of proposals an amount that reflected the costs that you are experiencing in managing your road system. Quite frankly New South Wales is very keen on these types of proposals, because it experiences a lot of interstate traffic that uses its roads, so it is supporting these types of proposals because it understands them to be a kind of user-charges principle.

Mr TREZISE — Where is that, Harry; New South Wales, did you say?

Prof. CLARKE — That is my view. My reading of the situation is that they feel they have got lots of, in particular, heavy vehicle traffic moving up and down the eastern corridor and that the costs they are incurring are costs that are related to interstate traffic to some extent.

The CHAIR — So are they seeking compensation for the wear and tear on their roads?

Prof. CLARKE — Wear and tear on roads would be reflected in user charges, yes. There are difficult issues there if a truck is registered in one state and it is using roads in another state — you are getting a certain amount

of inequity. If you are levying user charges on road damages that reflect where you travel, then you do get equity so you actually recoup the costs that are imposed on you, on the roads that prevail in that state.

The CHAIR — So it is not just a matter of how much, for example, GST a certain state or territory would give to a federal government. It is also how much their roads are being used for various purposes. That would mean that it may in some circumstances go well beyond and above the revenues raised from that particular state or territory?

Prof. CLARKE — You need to have some sort of global transport plan, because you cannot just optimise along individual lengths of a road network. I think most of the COAG supporters understand there has got to be some kind of overall plan. But then the idea is that Victoria would think about, say, constructing a road between point A and point B.

It might go to the commonwealth and say, ‘We want so many dollars to bring that road through’, and the commonwealth might give that amount of money, or it might give a smaller amount of money. You might say, ‘That is it. You have got \$50 million to build that particular section of road’, and you build a crummy road that falls to pieces in a few years.

Under this proposal what you do is look at that road, and you project forward the kind of revenues you expect to yield from that road, and you build a road that is appropriate, given the level of traffic on that road. What you are trying to do is match up the benefits that you anticipate getting from the road in terms of traffic measured by user costs and then making wise investment decisions.

I think it is a better proposal for the states. It reduces wasteful and frivolous roadbuilding, and it essentially implies some kind of cost–benefit standard when you come to installing new roads. It means that a state government is not bound by a budget allocation — ‘You have got so much to build this road’. Instead you are projecting forward, saying, ‘This looks like a good deal for us. We could build the road between these points and generate lots of traffic, generate lots of user charges. We could invest in a good, durable road between those two points’.

If it is a private operator or an authority, they can even borrow against those projected revenues. You are not bound by some kind of arbitrary budget constraint, but by what you think the productivity of the road is.

The CHAIR — But then, Professor, does that not mean that the incentive would be to have more traffic so that you get more dollars? Then how do we go with the congestion we were talking about earlier?

Prof. CLARKE — You need to have in place the right kind of congestion charges in the city. In country roads, yes, you are going to have patterns of maintenance on roads that reflect use. If you have a relatively low level of traffic between two nodes — say, point A and point B — you might sensibly invest in a low durability road and spend quite a lot on maintenance. If you are investing in the Hume Highway, you will not; you will invest in a very durable road, because you are carrying lots of traffic and you are getting lots of user charges from that link.

Mr WELLER — When you have got your user pays there is obviously the ability to charge different rates at different times of the day.

Prof. CLARKE — Absolutely. A bottleneck is something like a queue; it is really like a queue. You can imagine that I am queued up for a theatre ticket, and James Packer is at the end of the queue and I am at the front of the queue. I value my time at \$100 an hour, and James Packer values his at \$50 000 an hour. We can make an exchange. I can shift him to the front of the queue, and I will go to the back of the queue for \$5000 and we are both better off, are we not? You get very big gains. I make that dramatic example just to make the point that you can get very big gains from managing queues appropriately. In fact the gains you get from congestion management are very considerable if you can manage these bottlenecks efficiently. That is essential to what you are doing. You are pricing so that you put people at a higher value of travel at the front of the queue and people with a low value of travel at the back of the queue, and making some compensation for people at the back of the queue.

Mr TILLEY — Just a quick one on engineers versus economists.

Prof. CLARKE — You are not an engineer, are you Bill?

Mr TILLEY — No. I probably should have stayed at school a bit longer nevertheless. Say, for example, with innovation road safety and design, for our road freight tasks in the future we are coming up with new designs innovation where we have less pavement damage on our current roads. How do we apportion that if we now have vehicles on our roads that are causing less pavement damage, whereas currently what I understand you are saying is we are looking at sheer axle weights?

Prof. CLARKE — Right.

Mr TILLEY — We have the same weight, same length vehicles, but they are causing less damage because of the innovation and the design — —

Prof. CLARKE — Of the actual road surface?

Mr TILLEY — No, the vehicle itself.

Prof. CLARKE — Do you mean they have got more axles, or lower axle load?

Mr TILLEY — No. You have got a seven-axle prime mover and trailer, and we continue with that, but through innovation and design, say, in the area of suspension, we have a vehicle which causes less pavement damage to our roads overall — it is the same truck, same prime mover.

Prof. CLARKE — If your levy charges reflect the damage you are doing to roads, most of the time those charges would relate to the axle load. Quite frankly I have not thought through the issue of other design issues in relation to trucks. Ideally what you would want to do is provide incentives for trucking fleets to make those kinds of innovations. One possibility would be to have, say, a fixed charge and a variable charge — a fixed charge would be something like a small portion of the current registration charge, and a variable charge that reflected the damage — and then reduce the fixed charge if people had those kinds of innovations in their design.

Mr TILLEY — Dangle a carrot.

Prof. CLARKE — Yes; something like that. I had not actually thought of that. Most of the time designers are focusing on this axle load.

Mr TILLEY — I was just reading some papers from Queensland on some design innovation which is causing less damage to pavement.

Prof. CLARKE — Certainly; absolutely. If you have got those kinds of innovations possible, then you want to structure pricing so that you provide incentives for people to pursue them.

The CHAIR — Excellent! Thanks very much for your assistance today.

Witness withdrew.