

TRANSCRIPT

ROAD SAFETY COMMITTEE

Inquiry into serious injury

Sydney — 5 August 2013

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Witness

Dr R. Tooth.

The CHAIR — Dr Tooth, thank you for contributing to our work today. We are conducting a study into the issue of serious injury, and we welcome informed submissions to further our work. You will get a copy of the transcript of today's commentary, being recorded by Hansard, and you will be invited to correct any typographical or factual errors and return it to us. It would be envisaged that it would be placed on our website. If there is any comment or commentary you would like to make in camera to us, you would be at liberty to do so, and that would remain available and would be distributed to the committee overall. We have a number of questions we would like to ask you, but at the outset we invite you to speak to your submission. I note here as well that your motto is 'Sapere aude' — dare to be wise. That is a good challenge for us all, and we look forward to your contribution.

Overheads shown.

Dr TOOTH — Thank you. It is a pleasure. Just as background, I am a director with the consultancy Sapere Research Group. I consult primarily as an economist on regulatory and public policy issues. I am also president of the New South Wales branch of the Economic Society of Australia, but I am here representing myself at this inquiry. All comments have nothing to do with these organisations.

Particularly relevant to this inquiry in terms of my background is that in 2010 I wrote a paper looking at the key issues associated with the cost of road crashes. That was for the Australasian Railway Association. I think most of the points in that paper are highly relevant to item 1 of this inquiry. I have subsequently undertaken a lot of research on the economics of road safety and insurance, and I have a long history of working either directly for the insurance industry or as a consultant for insurance clients or insurance industry associations.

My comments today are really on three aspects: first of all, around the cost of serious injury, and then looking at items 5 and 6, which are around cost-effective countermeasures and what we might do in the longer term. I will keep these comments reasonably brief just so we have some time for questions.

[Slide 3] This is really covering a lot of what was discussed in that 2010 paper. The first point in terms of cost is that the approach really depends on purpose. With policy in mind — that is how I interpret your terms of reference — we do not actually cost an individual injury; what we end up doing is that we cost the benefit to society of reducing risks to injury. That becomes really clear when you are looking at value of life, which is that we do not put a value on somebody's life. Really what we are doing is what people do every day, which is basically evaluating small risks to their life — so, where you cross the road, how fast you drive and all those sorts of things. They are all about trade-offs.

You will notice that there are two very common methods that are used. One is called the human capital approach, and another one is called the willingness-to-pay approach. In theory these two approaches could lead to the same result; in practice every implementation I have ever seen of the human capital approach has led to a very low value. I am of the opinion, and I think most people who look at this area in detail are, that the human capital approach has led to unrealistically low values. The main criticism of the willingness-to-pay approach is that there is large variance in the values. The way I have summarised this is that the human capital approach gets it exactly wrong; the willingness-to-pay approach gets it broadly right. Given those two alternatives, I would go with what is broadly right.

When you are looking at serious injuries as opposed to fatalities, potentially you could look at some other approaches. One is more around evaluations of people's lives once they have the serious injury. One you might have heard about is disability adjusted life years, and another one, which is getting much more attention now, is analysis of subjective wellbeing and measuring people's wellbeing in different states. I think those are developing areas.

[Slide 4] Just turning over the page, there are risks that the willingness-to-pay approach values will also be too low. There are a number of issues here. First of all we have to take care when we are doing international comparisons. There have been a lot of large revisions in recent years. I saw one of your submissions which presented what I thought was some very old data. It showed that the values we use for statistical life were higher in Australia than in the US, and that is incorrect.

Mr TILLEY — Can you tell us which submission it was?

Dr TOOTH — I cannot recall; I will dig it out. You will see the bar chart graph that shows the different countries. The US is now using a figure of \$9.1 million. As I discussed in the 2010 paper, historically transport agencies used very low figures. I think that was more a case of them trying to transition from the human capital approach. The value that is often talked about here in New South Wales is a figure of, I think, \$6 million to \$7 million, so we are still using a lesser value than the US.

The second point is that values will increase over time. Both the theory and the evidence suggest that they will increase faster than income, which is not surprising. As we get richer, we are going to value life more and value removing risks to serious injury more. If you are doing long-term projects, you want to take into account the future. The US department of transport recommend increasing it by 1 per cent, but they also recognise that it is lower than the predicted growth.

Another key factor that is hardly ever discussed is that the impact on friends and family does not appear to be fully incorporated, and there is strong evidence that people value the lives of their children more than they value their own lives. Think about an 18-year-old choosing to drive; in his evaluation of the risks, he is taking into account his evaluation of his life, but does he fully incorporate the impact on his family? I suspect not. This then comes back to the studies that are used to form those figures like the \$9.1 million. There are some other issues, but those are probably the main ones that I have covered.

[Slide 6] I will move on to what we can do about countermeasures and what we can do about reducing serious injury. There are three key points. First of all, our current arrangements have the effects of taxing safe road users and subsidising unsafe road users. The second point: unravelling these subsidies has the potential to reduce significantly — and I mean very significantly — road crashes and the financial costs of getting on the road. To get the full benefit we need a market-based approach.

The CHAIR — If we move on, could you amplify no. 1?

Dr TOOTH — [Slide 7] I will go into each of these. The current arrangements, and when I say current arrangements I am talking about compulsory third-party regulation, which we have in each Australian jurisdiction — and it is effectively the same in New Zealand — have the effect of subsidising unsafe road use. With minor qualification the CTP premiums are the same for those who speed in a heavy vehicle and those who drive carefully in a compact and safe car. This issue is becoming more and more significant, and the reason why it is becoming more significant goes to technology, and I will elaborate on that.

[Slide 8] I now take you to the chart, which is a way of demonstrating this. On the vertical axis is the expected CTP claims cost. Effectively, this is what we might pay out in terms of claims. We could also draw this graph in terms of the expected social cost, which would be much higher. It is a subtle but very important point, and it is really an extension. The horizontal dotted line is the regulated insurance premium, which is pretty much the same for everybody regardless of what vehicle you drive and how you drive it. There are some small changes here in New South Wales, and I believe you have some regional variations in Victoria.

On the horizontal axis I have expected driver risk, and you might also think of this as vehicle risk as well. The people on the left-hand side are high risk; the people on the right-hand side are low risk. If you did not have this sort of regulation and you had a free market, the people who are the very low-risk drivers would be paying very little indeed. If they only brought out their cars once a year, they would be paying an incredibly low amount for this CTP component of their insurance. That regulation, of everyone paying the same, has the effect of putting a tax on those people, and it is a tax that is very targeted; the safer they are, the bigger the tax.

Then we go to the left-hand side and it is the reverse. Effectively we are looking at a subsidy to the high-risk drivers, and again, the higher the risk the bigger the subsidy. When you think of it in these terms you come to the conclusion that we have a regulation that is perverse; it is taxing safe road use and subsidising unsafe road use.

The curve really depends upon what we can measure and understand. If we could not measure risk — if we could not estimate risk — and we could not tell the difference between two different drivers, then we would have to price them pretty much on the dotted line. As we improve the measurement of risk, the curve becomes steeper and the subsidy gets bigger to the point where I suspect — and if we measure this in terms of social cost — that the size of the subsidy might exceed what you spend on trying to discourage unsafe road use. It is a

horrific thought that through our regulation we are spending more to encourage unsafe road use than we are spending to discourage it.

[Slide 9] What would happen with unravelling the subsidies? A number of things would happen. First of all we would get incentives to choose less aggressive and safer vehicles. You should be paying a lower insurance premium if you drive a small, compact car and a car with a higher ANCAP safety rating than one which is aggressive with bullbars and which does not have the same safety capability to protect passengers.

Mr TILLEY — What if you are in a rural setting and you are surrounded by open space and the bush? We call them Toorak tractors in Melbourne. With the topography of the nation and in much of Victoria a more suitable vehicle would be something that might well have bullbars — —

Dr TOOTH — Absolutely, but you can still think of it within the category of vehicles. You are still encouraging the unsafe ones versus the safe ones. Then there are issues like how the bullbars are applied and so forth.

The next one is the greater incentive to maintain a safe driving record. By having a single insurance premium you are reducing that incentive.

The third one is the big one that is changing, which is usage-based insurance. It uses telematics technology, which is effectively in-car technology that can capture how people drive and enables safer driving to be rewarded. This is taking off in places other than Australia. One area where it is taking off is in the UK. Just to see how this works, there are a number of devices; one plugs into the onboard diagnostic port of the car. Others are more like your mobile phone; they have an accelerometer in it. They all communicate back to the insurer. Some of the factors they consider include night-time driving, aggressive acceleration and braking, mileage, speeding and cornering. There are many different types of policies.

[Slide 10] These are some of the benefits. They are giving incentives and analysis to make drivers safer, so they are getting feedback. I think it is the biggest UK insurer who is actually doing usage-based insurance. They reckon they are getting a 35 to 40 per cent reduction in accidents in young drivers who have taken this up, and then a very large premium saving. This is for the young drivers. They are obviously targeting the high-risk drivers.

[Slide 11] This is just to give you a sense of how quickly this is taking off. There was a lot of dabbling with this in the mid-2000s. I actually worked on a project in Australia that was looking at very early on, but it just did not stack up. Recently it has just sort of taken off. You can see on the chart on the left-hand side there is the number of UK policies in thousands; they are predicting 500 000 by the end of 2014. On the right-hand side you see all the different brands. You see a picture of a young couple there. Most of these policies are targeted at young people, at the high risk, because that is where the big benefit is. This is a really interesting thing. It is a survey that I think was done late last year or early this year of people in the UK, and 57 per cent of drivers thought they would be switching to a telematics or black box insurance policy by 2017. This will take off. The regulatory conditions here in Australia are such that the incentives to adopt this are constrained, so we have the risk that we will rapidly fall behind the UK.

[Slide 12] Why a market-based approach? There are a number of reasons. First of all, privacy. Can you imagine the government sticking a black box in people's cars and monitoring how they are driving? In the UK, people readily adopt it. People in Australia readily adopt smartphones, even though those phones track where people are at any point in time, what phone calls they are making and who they are calling. In a market-based approach, you get an opt in, which can deal with the privacy issue.

A huge benefit of having a market-based approach is that insurers can flexibly trial more different approaches. One of the things that they will try is that they give a massive benefit if you do not drive your car at night. You probably know that an awful lot of accidents happen at night-time. So you can make a very cheap policy for a young driver by saying, 'We'll give you this insurance premium, but you don't drive at night. You'll lose a lot of your financial benefits if you drive at night', so they take a cab. They control it and they can sort of work out when is the best time — 11.00 p.m., 12.00 p.m. — what sort of cut-off and what sorts of age groups do they need to apply this to.

The other thing is that they have the incentive to compete on getting the right balance of the regulatory burden and road safety. If you are an insurance company and your conditions, your incentives or your penalties for doing the wrong thing are too severe, people will leave you. On the other hand, if you are not encouraging road safety, then your claims costs will be too high. So you have this competition to get the right balance between regulatory burden and road safety. One issue which I sort of get into in the paper is this difference between social cost and claims cost, and that needs to have a full solution. The UK solution is only part way there. To get the full solution, we want to address that one as well — but just getting to the UK solution would be a big way.

I want to make one final point before getting to the questions and answers. It is that we can really separate the issue of how usage-based insurance and compensation is managed. Ultimately, when you review one you will probably review the other, but you can separate those out. You do not need to change compensation arrangements. All you want to do is give incentives for insurers to manage the road safety problem. That is the end of my presentation.

The CHAIR — Thanks very much for your contribution.

Mr PERERA — Using the willingness-to-pay methodology, can you explain how the value of a statistical life is calculated?

Dr TOOTH — Certainly. A number of approaches are used. One of the most common approaches is called the hedonic wage study, which is basically that they look at the wages that people receive and look at the risks associated with that type of work. Unsurprisingly, the riskier the work you take, the more you will be compensated, so there you have a direct measure of how much people are willing to pay for a riskier job. There are quite a number of different studies, but that is the most commonly used one, as I understand it. Another approach is a stated choice study, where they do surveys on people and basically ask, ‘Given this type of scenario, how much would you pay for this safety device?’ or ‘How much would you pay to drive on this road, which is less safe than this road?’.

Mr PERERA — So at the end of the day the WTP evidence base is based on surveys?

Dr TOOTH — Yes, either evidence based on a survey or evidence based on people’s behaviour, people’s choices.

Mr PERERA — In your view, what is the most accurate way to calculate the value for risk reduction of a serious injury? For example, is it feasible to derive this value based on a fraction of the cost of a fatality, or should it be estimated separately?

Dr TOOTH — I think the two are probably extremely related. There have been far fewer studies around serious injuries than there have been around fatalities. One issue with serious injuries is that I know that if I got a very serious injury I would actually receive claims compensation through my private insurance and also through CTP insurance. So I guess my evaluation, my risk judgement, is influenced by that. You actually end up with the strange situation where the total cost of a very serious injury could be greater than that of the statistical fatality. Ultimately, a few studies have been done on this. I think the US approach, which is pretty much what you said, is probably a reasonable approximation.

Mr PERERA — What are some of the key external costs of road crashes? What is the proportion of these costs in the total amount of the social costs of road crashes?

Dr TOOTH — I would have to check my notes, but that willingness to pay to avoid a road crash is an extremely large component. The financial costs that we pay are only part of the true social costs.

Mr TILLEY — Just very quickly, if I may indulge, going back to the slides in relation to the issues-based stuff and market manipulation itself, when you take in the factors that are considered, is there anything else that insurance companies can add or subtract in relation to the telematics sort of stuff?

Dr TOOTH — What other factors they might use?

Mr TILLEY — Yes, or where would they determine the goal post is? Say, for example, cornering: if you are a rural or country driver who drives on roads with many bends, you keep power to the floor, keep traction on the vehicle.

Dr TOOTH — I see. When I say cornering, it is actually aggressive cornering, so they actually pick up.

Mr TILLEY — What is aggressive? With some drivers, their skills are probably not as good as those of a lot of others.

Dr TOOTH — Absolutely. An interesting issue is that all of us were 18-year-olds once.

Mr TILLEY — We survived.

Dr TOOTH — We are lucky we survived. When I look back at how I drove, I think I was lucky. It was not because of lack of skill; it was more lack of care. If somebody had put a whole bunch of dollar notes on the ground and said, ‘Swerve all over the road to drive over each of those dollar notes’, I probably would have done it if I thought I was going to get those dollar notes. I had the skill to do that. Likewise, if someone gave me the dollar notes if I kept at constant speed without swerving or braking fast, I reckon I could have done it.

Mr TILLEY — That is when a bit of a black and white — —

Dr TOOTH — Yes. In terms of the rural or regional side of it, I think you have regional pricing now. I have tried to get that information for Victoria. I think you actually have the claims costs such that the premium pricing is varying by region.

Mr TILLEY — It has been, yes.

Dr TOOTH — Effectively you can consider the cross-subsidies happening within each region right now.

Mr TILLEY — Yes. All right, I will get to the ones that were prepared earlier. It has been noted both in submissions and in published research that while the willingness-to-pay approach is the most appropriate costing model conceptually, there are a number of methodological issues that need to be overcome before it would be adopted. Associated issues include the significant cost involved in undertaking a willingness-to-pay survey, the time taken to complete a study and issues associated with the ability of survey participants to assess risk. What are your views on the methodological issues associated with the willingness-to-pay model, and do you believe they can or have been overcome?

Dr TOOTH — My view is that you would not base it on a single study. There have been many studies that have been done on willingness to pay, and I would not base it just solely on what happens here in Australia. There was a very good study done here in New South Wales. Is there any reason to believe that Victorians are any different to New South Wales people? Similarly, is there any reason to believe that Australians are much different to people in the US? There are a lot of studies. You really want to do a meta-analysis. If you just have the one study, then I would agree it is an issue, but there are many studies. Do the meta-analysis — that is effectively what was done in the US — and apply it in a broad fashion.

Mr TILLEY — Is the New South Wales study the Austroads model?

Dr TOOTH — There is one by David Hensher. I think it was sponsored by the RTA — the Roads and Traffic Authority.

Mr TILLEY — Yes, okay. No worries. The committee understand that some willingness-to-pay values comprise both the direct cost of crashes — that is, hospital treatment costs, property damage et cetera — and values stated by survey participants relating to what they are willing to pay to reduce their relative risk of injury or death. Do you think that this is an appropriate approach, or should the willingness-to-pay values exclude the direct cost of crashes? I think you covered that.

Dr TOOTH — Yes. I think it comes down to how the survey question was asked.

Mr TILLEY — Thank you. That is great.

Mr ELSBURY — A number of submissions referred to the New South Wales willingness-to-pay values that have been endorsed by the New South Wales Treasury and are likely to be adopted by the Western Australian government. According to the New South Wales WTP values, the cost per fatality is \$6.9 million

and the cost per serious injury is considerably less, at \$337 100, both in 2010 prices. What are your views on the feasibility of the New South Wales figures and the methodology behind the study?

Dr TOOTH — The study, I believe, is the David Hensher study. I know there are other authors — sorry, I can only remember David's name. I did not do a peer review of that study, but from my understanding it was a fair study and it was in line with the international estimates. I put up the evidence from the US. They did a review of studies and did that meta-analysis and came to the \$9 million figure, so it was actually higher than the \$6.9 million. This is \$9 million in 2012.

Mr ELSBURY — Early on you did mention that there was a variance in different willingness-to-pay studies. Would there be any issue with the use of the New South Wales model of willingness to pay being implemented for Victoria and Western Australia, considering the possibility of variance?

Dr TOOTH — I do not think there is much difference between Victoria and New South Wales, despite what my friends say!

Mr ELSBURY — Okay. We will beg to differ! One of the key insurance reforms required under your proposal for the usage-based insurance program in Australia is modification of compulsory third-party insurance pricing to reflect the value of prevention. Can you please explain this reform, including how this will be encouraged for road user safety? You have shown us a few — —

Dr TOOTH — Yes, certainly. First of all, we compare where we are versus the UK. In the UK effectively you buy a bundled insurance product, which includes your CTP and your accident insurance. There is no real price regulation to speak of — there are some regulations but no real price regulations — so the variance between a high-risk driver and a low-risk driver can be very large indeed in terms of the price. That then gives the insurer a big incentive to be able to offer another product which says, 'If you can prove to us that you can drive carefully, then we will give you a lower insurance premium and you will get a big benefit from it'. Not surprisingly, young drivers fit into that category where, if they can demonstrate that they can drive carefully, they will get a big benefit.

There are two things there which the UK do that we do not do. One is that they bundle the insurance, so if the insurer can get the insured to drive more carefully, they are getting a double benefit — a reduction in the CTP claims cost and also a reduction in the vehicle damage cost at the same time — whereas here the insurer cannot be sure. In New South Wales we have competition; I might have my CTP insurance with one firm and my motor accident insurance with another. In Victoria that is definitely the case.

Secondly, because they have that price variation, that then gives the big incentives. Then the insurer can work out how best to actually encourage safer road use. Then we can actually go further than that. The problem there is that the incentives are only to reduce the claims cost. The social costs of road crashes are much greater than just the claims costs. We can actually tweak the insurance system through carrots and sticks such that we would give the insurance companies the same incentives as maybe the road traffic authorities in reducing the risk and cost of road crashes, in which case you then have a full market solution.

Mr ELSBURY — I am aware that there is a company in Australia — I am not going to name them because that might be construed as being some sort of endorsement, but certainly there is a company in Australia — that do offer insurance based upon usage of vehicle.

Dr TOOTH — Certainly.

Mr ELSBURY — They say they ask more questions so they can get more answers out of you and make a better premium. Are you aware of any other jurisdictions — you have mentioned the UK — where this is being implemented?

Dr TOOTH — Certainly; the US. I am probably quoting older figures now, but there was at least in 30 US states the insurer Progressive, which is doing the ads here in Australia now. They have the telematics-based solutions. They do not, I believe, have yet the telematics-based solutions here in Australia. South Africa has taken this up in a big way. That was more driven by other issues, as opposed to road safety, but road safety is the add-on benefit. Italy is very big in this, but I have generally limited my research to English-speaking countries.

Mr ELSBURY — Thank you.

The CHAIR — What do you think might be the limitations to the broad adoption of user-based insurance in Australia?

Dr TOOTH — Really the regulation. There is no technical limitation. I have checked that with technical providers.

The CHAIR — And among insurers, what do you think the level of interest might be?

Dr TOOTH — The challenge for the insurance industry is that the insurance industry, I believe — and I am quite happy to go on record saying this — is a pretty competitive industry. Effectively, whatever you do to the industry is going to be passed on to consumers. You increase their costs; they will pass it on to consumers. You decrease their costs; they will pass that saving on to consumers. The insurance industry as a whole will still expect to get the same sort of level of profit. When you do a change like this the main concern for the insurance industry as a whole is the transition.

Transition aside, there will be some big winners and losers. Who the winners and losers are is always hard to predict. The insurance industry as a whole does not have a huge incentive to push for this; on the other hand the insurance industry as a whole does not have a huge incentive to resist it either. That is part of the issue; we do not really have a burning platform. We do not have a huge winner in this reform other than the general public and perhaps the technology providers.

The CHAIR — What has been the basis of your interest in this field, noting that you had a published article in April that covers these matters?

Dr TOOTH — I have no real commercial interest in this. It is more the case, I guess, that our business model includes doing innovative work and innovative research, and that helps to build a client base and builds our brand.

The CHAIR — Are you aware under the model proposed that some drivers might be restricted from getting insurance if they are erratic drivers?

Dr TOOTH — Interestingly, I understand that one of the big take-ups of this type of insurance policy in the US is by drivers who have a very bad record and cannot get insurance. But by putting in these devices they get a reduced insurance premium. If there is demand, generally the market delivers. If someone is going incredibly crazy, then eventually I imagine they will be uninsurable.

Mr ELSBURY — They probably will not need insurance if they are really crazy drivers.

Mr PERERA — Can you please explain the telematics box concept? How does the technology work?

Dr TOOTH — I am not an expert in the technology, but this is my understanding. Pretty much every car, I cannot remember since when, has what is called an onboard diagnostic port, which allows you to plug a device into the car that will then track speed and distance. There is also a device that they can plug in which will also have a GPS in it, so they will be able to track location and, I assume, time as well. That uses the mobile phone tower technology to transmit back to the insurer. The way these devices work is such that they have a record of information such that, if they are out of signal range for a while, as soon as they come back into signal range they will transmit the full information of what happened when they were out of signal range. The devices also detect whether there has been any attempt to tamper with them, which is not surprising.

There is a second set of devices which are separate from the onboard diagnostic port. There might be a third set, but I know about the second set. Effectively you can think of this as like your mobile phone plugged into a dock in your car. The mobile phone can pick up speed, and it has the GPS and the accelerometer, so it can pick up swerving, braking and whatever you like — and obviously time of day. Basically it transmits information back to the insurer.

Mr PERERA — It is provided by the insurer?

Dr TOOTH — Provided by the insurer. Each of the different companies offers them in a slightly different way. Most of them will install it free on the basis that you then get your insurance policy from them. The cost? In one of my earlier papers I estimated the cost would be around \$500 a year. I have been told that cost estimate is way too high; you are probably looking at about one-half or one-third of that. We are looking at a ridiculously small cost to have this.

The CHAIR — There are already 8 or 10 companies offering usage-based insurance in the United Kingdom?

Dr TOOTH — Yes.

The CHAIR — But none in Australia at the moment?

Dr TOOTH — No. There is a company I am aware of that provides the device and will sell it. It is called BetterDriver. You can put the device in the car, which just gives you feedback. In terms of usage-based insurance I predict that the take-up in Australia will be the horizontal line being the axis at the bottom and by 2014 you will not get one here, just because the regulatory incentives are just not here.

Mr PERERA — Can it track whether you go through a red light?

Dr TOOTH — I do not know.

The CHAIR — When you say the regulatory incentives are not there, what would need to be done to generate those regulatory incentives?

Dr TOOTH — I would argue that what you want is a system where you allow insurers to offer a bundled insurance product which includes the compulsory third-party and the accident insurance and removes the price regulation. Importantly, one big concern that always comes through is that the insurance premiums for young drivers would increase. There are a number of answers to that. One is that, if we want to give a subsidy to young drivers to be on the road, the last way we want to do that subsidy is through unsafe driving use. We know what their age is; we can give them a subsidy. Another thing is that of course it is not really a subsidy; it is effectively just a loan. Eventually they become older drivers. There are lots of ways. Because of the technology, if they can prove they are a safe driver, they will get low-cost insurance.

The CHAIR — Dr Tooth, thank you very much for your contribution today. It has given us new territory to work through. We appreciate the precision with which you have presented your views to us today and your answers to our questions. Thank you very much.

Dr TOOTH — It has been a pleasure. Thank you.

Witness withdrew.