TRANSCRIPT

ROAD SAFETY COMMITTEE

Inquiry into serious injury

Melbourne — 28 October 2013

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Professor J. Richardson, foundation director, Centre for Health Economics, faculty of business and economics, Monash University.

The CHAIR — Professor Richardson, on behalf of the Victorian Parliament Road Safety Committee I welcome you to today's hearings and thank you for giving up your time to enable us to learn more about your own knowledge and background in the area. Your contribution to our terms of reference will be invaluable. Evidence given to the committee is protected by parliamentary privilege. Any comments made outside the hearing are not so afforded the same privilege. The transcript today will become a matter of the public record. You will get a copy of it in due course, and you are invited to make factual or typographical corrections but not to the substance of the transcript. I would like to invite you to speak to your submission and, in doing so, just at the outset to introduce yourself by way of your name and your position in your area of work.

Prof. RICHARDSON — Professor Jeff Richardson. I am the foundation director of the Centre for Health Economics at Monash University. My chief interest at the moment is measuring quality of life, which feeds into the measurement of QALYs for cost-utility analysis or for whatever purpose. It is basically quality of life that I am interested in.

The CHAIR — You can consult to us after the meeting as well, I think.

Overheads shown.

Prof. RICHARDSON — Okay. I am addressing the first term of reference. I was asked to talk primarily about what I am qualified to talk about, and that is basically the first term of reference. The first term of reference is to identify the cost of serious injury. I interpreted what I expect to be the real interest in that as: how much should be paid for serious injury and for death?

What I am going to cover are four topics. The first one is probably the most significant in that I suspect you will not be getting other people presenting on this topic — that is, social versus individual decision making. Secondly, there a few comments on willingness to pay, which is a problematic approach but nevertheless the one that dominates in transport circles; thirdly, the QALY approach; and then, tossed in at the end, what I would be doing if I were sitting on the other side of the microphone.

A summary of conclusions: the most important but negative conclusion is that when you ask the question, 'How much should be paid?', there is not a technical answer. Economic analyses very commonly imply that there is a correct answer, and it is commonly accepted because it is a difficult question and a solution is offered. There should be a second dot point under negative messages. Willingness to pay really is a problematical approach to this question. The positive messages — the QALY/DALY approach — are rather less problematical.

The next positive message, 'Correct willingness to pay', is not an economic decision; it really is a social decision which is ultimately yours, Parliament's, but not one that can be given to you. First of all, on social versus individual decisions, which is a distinction that economists too seldom make, individual decision making permeates the economics approach to analysis, particularly when it comes to talking about welfare and wellbeing. At the back of an economist's mind is an individual-based model, as shown there. The individual faces a cost, which is the price they have to pay for an activity. They get a benefit if they pay that cost, and it is the same person — and this is the pivotal point — bearing the cost and getting the benefit. If the individual benefit is greater than the cost — the price they pay — then you are fairly confident that wellbeing has gone up. The same person has made the decision. So economics tends to compare individual costs and individual benefits.

The social decision is a rather different situation. We are talking here about Medicare, national transport, national compensation, national whatever. You do not have the one person bearing the costs and receiving the benefits. On the left-hand side there you see the cost being borne by a very large number of taxpayers. When there is expenditure the beneficiaries, shown on the right-hand side, are not everybody and equally, but a very small number of people. So you have a split, a wedge driven between the benefits and the costs.

Therefore for the large majority the costs will be greater than the benefits because they are paying taxes and not getting a benefit. For a very small number, benefits will be greater than costs. So the real social justification in economics — the justification, in a footnote — is a utilitarian ethic, meaning the situation when the sum of benefits is greater than the sum of costs, and forgetting about the distribution. Otherwise, the direct comparison of costs and benefits is not really compelling because you are comparing different people.

The individual question, just to emphasise that, is: are my costs greater than my benefits? And the relevant analysis is fair enough to compare costs and benefits. The social question is how much we, you, others, are willing to pay for other people's benefits, subject to a small probability that it may affect them. What is ultimately relevant here is the generosity of one group who will bear the costs, and the benefits the other will obtain, and the distribution of those costs and benefits. That is, if you like, the comment on the ethics of the social payment schemes.

Turning to the measurement of willingness to pay, in transport economics that is the dominant method of trying to make decisions. The motion famous person in this area is Jones-Lee and in Australia it is Hensher. The key point I am going to be making and re-making is that willingness to pay is a payment to lower risk, and risk is not one and the same thing as suffering and the value of life. So the logic of the orthodox willingness to pay is that one person is willing to pay $1000 to reduce the risk of, say, death — a simple example, by 1 in 2000 — and 2000 similar people would be willing to pay 2000 times $1000, or $2 million, and one person's life would be saved.

There is a semantic fudge from there. The analysis up to this point can be quite rigorous and quite objective. The semantic fudge is that the willingness to pay is for risk. It is not for a person or for suffering, and the terminology is where that statistical fudge is included. The value of a statistical life clearly implies it is for a life, and the value of a preventative statistical fatality is for a statistical fatality.

In fact, we are valuing risk, and risk is not the same thing as quality of life. It is not the same thing as life years, and it is not necessarily the same thing as what you would want to value if you are saying somebody is going to die. Risk comes from fear, dread, excitement, anxiety and a whole series of emotions in the context of possible outcome — anticipated regret. That is the first key point. The second is, when you are using these techniques based upon willingness to pay and risk, when you ask them about what they are willing to pay for a particular risk, people's understanding of risk is extremely poor. One of the most fundamental things about our cognitive processes is that we cannot really handle probabilistic data very well at all.

This is one of the first and fundamental findings of the two most famous names in this area — Kahneman and Tversky. They have investigated people's ability to handle data which involved risk, and basically people cannot. They are highly erratic, which is why these estimates based on willingness to pay in the summary that was done by Access Economics reports variation in the value of a life from $1 million to over $30 million, and that has been the case all through the history of this literature. People are highly erratic.

This next overhead simply elaborates this point. On the left you have the context. The first context is, say, sport — bungee jumping and mountain climbing. That leads to a positive emotion: excitement. Next, a dreaded disease, cancer, leads to a very strong negative emotion, and so on. So in the middle there you have risk perceptions and emotions based upon imperfect information, poor processing of it and very variable emotions. Moving vertically upwards, that is what people have in mind when they are asked their willingness to pay for risk.

Moving to the right-hand column, when we sum up the willingness to pay for risks, that is what we end up with: the summation of the willingness to pay for risk. One of the inputs into those emotions — I do not have a laser pencil unfortunately — but I have called it 'true risk', so of course there is an objective element in it as well, which contributes to that emotional mix. That true risk will lead to an event, but that event is not directly linked to, nor is it the same as, the risks that are being paid for.

Mr LANGUILLER — Professor Richardson, what comment would you make on the concept of choice.

Prof. RICHARDSON — On the concept of choice?

Mr LANGUILLER — Sometimes one has the choice to take certain risks; otherwise one takes risks not having much of a choice.

Prof. RICHARDSON — I will not pass a personal comment apart from stating in general terms that choice is desirable, but the question here is: what is it you wish to quantify? If you say, 'we are interested in paying for risk, and we will get like a pseudo market and we will behave as if there was a market there where people could pay', that gives you a different answer from if you were saying, from a social perspective, 'We value people dying, and we have a particular value for pain and suffering'. The point I am trying to make is that these are

different, and you are entitled to select either of those. But what commonly happens is that risk gets wrongly equated with the other concern. This rather complicated picture here shows a time line in the middle. You will see the large term 'accident'. That is where an accident happens — to the left of that. That is earlier, before the accident, when you are dealing with risk. The dominant features there are fear, dread, anxiety, perhaps anticipated regret perhaps, if you have made the wrong decision. On the right-hand side, after the accident, you have quality of life and length of life lost.

At the top there you have individual valuation, which can be for either of those, and they are separate. You can have the individual valuation: 'What is your personal willingness to pay for risk?'. Moving to the right, you could ask 'What is your personal willingness to pay for loss of quality of life?'. Down below, at the bottom there, we have the social valuation question, 'How much should governments, Medicare or perhaps a social insurance scheme pay?'. You could ask either for a risk or for how much society can pay for quality of life.

The bottom right is what I suspect is usually in people's minds when they are thinking about payment for social systems and speculating. We have in mind reducing suffering, quality of life and life itself. That is the concern, but there is no literature, and there is no clear method for evaluating that. So we jump to the opposite side of that diagram, and that is what actually is measured. We are measuring what seems to be measurable, but in doing so we may not actually be measuring what it is that we think we are interested in.

Has the quality-adjusted life year been raised, or do I need to explain it? It has been? Okay. It is life years times an index of the quality of life. DALYs are essentially the same thing. QALYs came out of the health economics literature generally; DALYs came from the World Health Organisation. There are different methods of creating these. They are both used for essentially cost-utility analyses, where you rank an independently measured cost against benefits measured as QALYs or DALYs. Then you have to compare that cost — the QALY or DALY — with a threshold. That threshold comes from discretionary judgement, which I think is probably a strength. The context of this at the moment is not transport; rather, it is health services and pharmaceuticals. That is not driven by logic; that is driven by history — that transport economists went one way and people interested in other aspects of health went another way.

I might jump this overhead, which compares the advantages of each method. I will conclude by saying that the present state of the answers to the question 'What should we measure?' is in fact problematical. Willingness to pay is for risk, and there is not a good willingness-to-pay instrument for social willingness to pay. I have created an instrument for relative social willingness to pay, but that is not the absolute willingness to pay.

If I were sitting on the other side of the table, the first question would be to ask what is to be measured. It is an ethical question and a social question. Is it what people are prepared to pay for risk as if in a private market, or is it suffering and death, and are we making a social judgement on that? Given the state of the literature in this area, I would be looking at the evidence elsewhere as to how much is being paid for life years. The comparisons would then be extremely rough because there is not a unified methodology for doing this, but a judgement then has to be made about whether or not you think incrementally the status quo ought to be incremented up because we are currently paying less for road deaths and road trauma than in other contexts, where other people's judgements have been made, or incremented down if we are paying a lot more. I guess I am putting in a plea for pragmatism on the basis of the absence of a really convincing methodology for making these decisions.

The CHAIR — Thank you. I invite Mr Perera to ask the first question.

Mr PERERA — Could you provide us with an explanation of the RSWTP, which is relative social willingness to pay? Is it a social utility instrument?

Prof. RICHARDSON — Yes. That is an instrument I created. It has only been used once; it is fairly recent. What in effect we do is ask people to take a budget and then divide it between two activities. One of those activities will be the activity we are interested in, and the other activity is a sort of standard that we keep constant. Then by varying the activities at the top we can say how much we value those activities relative to a standard. The advantage of that instrument is that you are asking a social question. Imagine that you are a social decision-maker and you have a budget that has to be divided between these two activities. It is a relative valuation, rather than putting a dollar valuation, which has the advantage of, if you have a fixed budget, not being able to put open-ended amounts on your spending.

Mr PERERA — Do you think it should be used in the road safety space?

Prof. RICHARDSON — It certainly could be, but it would need more work. As I say, about 18 months ago we published the only article in this area, so that instrument needs to be validated — but it is certainly directly applicable in this area, yes.

Mr LANGUILLER — To what extent is willingness-to-pay methodology used by health economists, and is it an appropriate way to calculate the costs of injuries and illnesses more generally?

Prof. RICHARDSON — That goes directly to the material in my presentation. I could return to that rather complicated diagram that has a point at which an accident occurs. Willingness to pay can be for risk before the accident or for the consequences of the accident. In the transport literature, there is a very large number of articles that look at risk. The reason for that is historical and also because it lends itself to measurement and sophisticated analysis, and that is a very appealing thing for analysts. But that is for risk; it is not for suffering pain and life per se. After the accident has occurred, there is a smaller literature on people's willingness to pay to avoid pain and suffering. One experimental article — and I am going to replicate the study — went from there to infer what that probably meant for a full life. Yes, willingness to pay can be used, but the important thing is to measure what — risk, or pain and suffering and life.

Mr ELSBURY — Thank you for your presentation. The only problem is that the slide you went over is probably the one where my question is going, which is: in your opinion, what are the advantages and disadvantages of using the willingness-to-pay methodology to calculate the social cost of crashes?

Prof. RICHARDSON — If by social cost you mean suffering and how much we as a society value avoiding having people die — that is, the bottom right-hand side of that complicated diagram — there is no clear methodology for doing that. Nobody has simply asked the question 'What is the social willingness to pay for suffering and loss of life?'. There has been the question 'What is the individual willingness to pay for suffering?', and there is a smallish literature on that. Could you repeat the question, in case I did not answer it fully?

Mr ELSBURY — In your opinion, what are the advantages and disadvantages of using the willingness-to-pay methodology to calculate the social cost of crashes?

Prof. RICHARDSON — The chief advantage is that a lot of economists can get a lot of very sophisticated articles published. It does lend itself to the most sophisticated mathematical modelling, and that is of tremendous appeal. My personal assessment is that the numbers you get out of it are deeply problematical and that people cannot handle probabilities when they are given them. There are two approaches to this. You could try to look at what people actually do pay, implicit in the wages when they are in a risky job or various other activities, but that is tremendously context specific and gives huge variation in the answers. Another approach to it — the most common one now — is stated preference, and there are very sophisticated techniques to ask people 'What is your willingness to pay when there is risk?'. But people have great difficulty with that.

One interesting article by David Hensher and his group includes a willing-to-pay study where, instead of having probabilities, they simply put life years. There is a very sophisticated analysis out of which they get some numbers. The difficulty is that they are asking people to evaluate life years without asking them the question 'What would you personally choose?' when the person has no idea whether or not the number of lives lost is 1 in 100 or 1 in 1 million. While the analysis is highly sophisticated, it seems to be conceptually flawed.

In summary, I think the willingness-to-pay approach, while enormously popular in the transport area because it gives numbers and sophisticated analyses, is highly unreliable and at best is measuring risk. It is not measuring pain and suffering.

Mr ELSBURY — Moving on from that answer, you said that using it in the road safety field gives you lots of nice numbers but does not give you an actual result, so what are the ramifications, if any, of adopting the willingness-to-pay approach used by transport economists in the road safety area if it is not used in other policy areas such as health? For example, the committee is aware that the value for a life year in a road transport area might be substantially higher than its equivalent amount used to assess therapeutic drugs as part of the pharmaceutical benefits scheme. Do you think the use of willingness to pay in one area or a higher willingness to pay derived from the value of a life year amount might disadvantage policy areas that do not use willingness to pay or share the same values as the VLY amount?

Prof. RICHARDSON — I think the short answer is yes. The bases for valuation in the two — this is the slightly longer answer — are simply not comparable. In the one case you take a small risk, and people are prepared to pay a great deal for that because risk scares people. If one person will pay $1000 for a 1 in 2000 chance of avoiding death, you can then extrapolate that and get a value of $2 million. The other analysis you referred to simply looks at outcomes and then asks what is the amount we are willing to pay for that, and that willingness to pay has no reference to the public. It has come historically through decisions of, in Australia's case, the PBAC, MSAC and what has traditionally been paid for drugs and medical services, so willingness to pay in the transport area has percolated out of the historical assessment of risk.

Mr ELSBURY — So would you say, considering you would have possibly two different departments using different models, that they would be inconsistent or that they could live in the same universe?

Prof. RICHARDSON — They are inconsistent at present. You could quite easily work out the quality-adjusted life years as they apply to road transport, but that was an exercise that has been done for accidents. It is very much in the minority. I had a doctoral student, Wendy Watson, who with Joan Ozanne-Smith at MUARC at Monash University actually looked at accidents and the QALYs, the quality-adjusted life years, that were associated with them. The DALY team, Begg and co. for Australia, have produced DALYs in the area of accidents, so there are measures. The consequences of accidents are measurable in these terms. Then you could make the two fields comparable by saying that we would have the same threshold. We will pay $50 000 for a quality-adjusted life year, be it in pharmaceuticals or traffic accidents. Yes, they are reconcilable, but just at the moment they are not. They have come historically from different literatures and different economists.

The CHAIR — Thank you for your expertise and time contributing to our hearing this afternoon and also for the preparation of your submission that you have spoken to. You will get a copy of the transcript within the next fortnight or so, and you will be invited to correct any factual or typographical errors and return it to us, whereupon it will be placed on our website. Thank you for your time.

Prof. RICHARDSON — Thank you very much.

Committee adjourned.