
Bend it like Becker

Simon W. Bowmaker

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I interviewed Gary Becker on Friday, 12 March 2004 in his office at the Hoover Institution, Stanford University.

Early discrimination

This book applies microeconomics to social issues. I understand that when you were first introduced to economics as a Princeton undergraduate the subject did not help you understand such issues. Why was this and what made you change your mind?

Well, I didn't believe it helped me understand social issues because of the way price theory and economics was taught, particularly in those days. I had a very respectable teacher, but it was taught like a series of simple formal propositions with no connection with real world problems. That bothered me a lot. I did well on the courses, but I felt there was a disconnect with what I was interested in and what was being taught in economics.

Now, I changed my mind really when I went to Chicago to Graduate School. There is no doubt the major influence on me was Milton Friedman because Friedman taught in those days a first-year price theory sequence and he taught it as a field where the theory was useful in explaining all types of phenomena. He had many examples, it was rigorous, and became the basis for a book he put out called *Price Theory*. That really convinced me that, yes, this could be a powerful tool to understand the problems I was interested in.

Once you began to apply economics to social issues such as discrimination you received a fair degree of criticism. Were you confident that your approach would eventually be accepted?

Well, confident is maybe a little too strong [*laughs*]. I did believe that what I was doing on discrimination and subsequently later on other issues was a useful way of looking at it. And it was important to me that I had the support of some of the professors at Chicago who I admired the most, including Milton Friedman, Greg Lewis, Theodore Schultz, to mention a few, two of whom subsequently won the Nobel Prize in Economics. If they had confidence that what I was doing was significant, my own belief made me not confident that it would win out but more willing to take the risk that this was a good way of looking at it and ultimately the profession would come around. It took a while, but that was my belief. I needed that support from the people I mentioned. That was very important.

Happy families

We devote chapters in this book to economic behaviour of the family, specifically marriage, divorce and assisted reproduction. Why do you think your work in this area has been the most controversial?

Well, it probably was the most controversial. I hesitate a little in agreeing with that statement. Certainly, discrimination was very controversial for I would say ten years before economists began to take these issues seriously and merge into the field. At that time, when I mention anybody working on discrimination, including eminent economists, they didn't think that was economics. Some of the people at Chicago required a sociologist on my committee to keep me in line because they were sceptical.

Even the Nobel Committee in 1992 mentioned discrimination, crime and human capital with approval, but when it came to the family, it was still considered controversial. It's changed a little since '92, but not enormously, although an increasing number of economists are using a similar approach to marriage and divorce. There's actually a kind of mini-boom in that area and not long ago *The Treatise on the Family* was considered in the top 20 books in sociology over the last 50 years. I think it's had some impact.

The reason it remains controversial is that one is dealing with very intimate questions when one talks about the family. There is a belief that economics is a cold discipline. How can you talk about marriage, love, having children, divorce – issues of that type – which are emotional decisions at a certain level, with this cold calculus? I try to tell people that it's not cold calculus, it's a theoretical way of looking at people's behaviour, which has a lot

of common sense to it. People want to do as best they can, and when I restate some of the language, I find many begin to agree. But then they say, 'that's kind of obvious', and so the question is to show them certain implications of the theory that surprise them, such as who is most likely to divorce and why birth rates may have gone down.

Do you believe changes in divorce laws account for the relatively high divorce rates in the USA and Europe?

No. In *The Treatise on the Family*, I did a little calculation for California and some theoretical analysis which suggested that the movement toward no-fault divorce would have basically no effect on the divorce rate. That discussion produced a fair number of subsequent papers that are still continuing. On the whole I think it fair to say that even among those people who say there was an effect on the divorce rate believe it was a small part of the total increase in the divorce rate. There is nobody to my knowledge who has studied this question empirically who has concluded that the change in the divorce laws was the major reason for the increase in divorce rate. I believe if it was a factor, it was a very *small* factor and there are other forces such as the increased labour force participation of women, the lower birth rates, the higher earnings of women compared to men and a bunch of other factors that one could mention that are far, far more important.

I understand you are in favour of marriage contracts. How exactly would these work?

Well, I am in favour of marriage contracts. I think it would give families more flexibility. I have often said that the best way to do it is to obligate that the family has the contract prior to getting married so that suggesting a contract to your potential wife or husband would not look like you didn't have confidence in the marriage. That's a bad signal. The contract is a requirement, everybody has to do it. What it would do I think is enable people to tailor what they have in their contract to their particular circumstances. Circumstances vary a lot. In the present system, we have to rely on courts and judges to make adjustments to take account of circumstances. Since the people and their children are the most involved, they are the ones that should make the contract.

The main provisions would be the custody of children because there are third parties to this arrangement. The provisions would be flexible such as how to allocate property, for instance, and you could re-open the contract every three years to look at changes in circumstances. You would give people much more flexibility and I think it would reduce the role of the

courts and judges. Let the people involved be the deciders of the type of marriage they want. They could have a contract which can't be broken (you can't divorce), and others can have a contract which could be broken by either party under certain penalties or whatever, like a business contract. That's what I think it should be. It would reduce a lot of the problems we face under the current system.

What are your views on the same-sex marriage controversy in the USA?

I don't see what all the fuss is about to tell you the truth. I'm generally sympathetic. If you had a contract as the rule, well, gay couples can already write contracts, they can already adopt children. People say, 'well, that's adoption', but adopting children is legal by same-sex couples as far as I know in the overwhelming majority of, if not all, states in the US. I have known a number of couples who have not only adopted children but had them through various ways. Let's say there are two lesbians living together. One of them would be the host of the child and they would have a sperm bank at some other place.

You know, the jury is yet out on whether there are significant effects on children brought up by same-sex parents. One could maybe argue that issue and I don't know the answer to that. I don't think anybody does. We don't have enough experience.

The marital issue seems to me to be a much less important step. We already allow people of the same sex to live together. We already in many respects have moved to make them eligible for a lot of the benefits in companies and so on. So, I'm not sure why this has hit a button someplace in the so-called Right. Maybe you don't want to call it marriage and everybody would be happy but basically we are allowing it to happen today in terms of contractual arrangements. If we went to a marital system, I would say, yes, people of the same sex should be allowed to enter into that kind of relationship. I don't see why not from my point of view. If there is a controversy, it is over the children issue. That I don't have a strong opinion on because I don't think we really know enough about that. It seems to me there is a mis-emphasis someplace in the discussions.

How do you see the family (and its economics) evolving over time?

Well, it's changed enormously in the last 50 years, no doubt more rapidly over the last 50 years than in the previous 500 years. I think we understand not all of the reasons, but a lot. It will continue to evolve, although at a slower pace. Let's say 40 per cent of first marriages now break up. I don't expect we will ever get into a situation where 80 per cent of first marriages

break up or anything like that. You will see the increase slow down dramatically in that regard.

Birth rates have come down a lot. They have low replacement levels throughout Western Europe and much of Asia. I estimate that almost half of the world's population are in countries with below replacement fertility. It's been a remarkable change. Are birth rates going to go lower? They could, but it is hard to believe they could go much lower in countries like Italy without immigration. In 25 years, they are going to have a much smaller population, in 50 years, an even smaller one. So I don't expect much evolution in terms of those countries. I do believe that birth rates will come down in countries that have high birth rates like India and some in Latin America and Africa. That will be an important step.

I think divorce rates will not rise much more radically, and more women will come into the labour force. These are the directions in which I think the family will evolve. We will get a much more complicated structure of families with people in second marriages and stepchildren mixing together. One may or may not like that, but I think that is a clear response to basic forces that, in a broadly defined sense, are economic in nature.

Are we likely to see, particularly in the USA, more inter-racial marriages?

Probably, but that's been slow to pick up. We have very low rates of inter-racial marriages, although they are perfectly legal.

Do you know why might that be?

Well, it's not difficult to understand why. I have studied that question although I haven't written or published anything on it. It's still true that blacks are considered in a lower-level position in the United States than whites. And typically they are. So, for a white person to marry a typical black person – I say *typical* because there are many blacks who are extraordinarily successful – they have the feeling they need some compensation for that. If you look at inter-racial marriages, you will find that the white person marrying the black person will get some compensation. When they are marrying a black man, they (the black man) will be more educated than the man a woman of her characteristics would get if they married a white person. It's a compensating differential if you like. I say compensating not for any intrinsic inferiority but because the social perceptions in the United States of blacks are at a lower level.

Now, to the extent that this weakens, and it has weakened a lot in the last 30 or 40 years, you would expect to see an increase in inter-racial marriages and we have had some increase. And we have had them by inter-religious

marriages and so on. That has increased a lot. How far will it go? I don't know. It has been a slow process, and I think it will continue to move in that direction. Will we ever get to the point where we are as likely to have an inter-racial marriage as a marriage within the race? Not in my lifetime, but who knows what the more distant future will bring.

We've changed a lot. There is still discrimination in different areas against blacks but it is totally different to what it was when I wrote the economics of discrimination. When I was growing up, I remember the attitudes we had as boys. We just didn't know anything about blacks and there was tremendous segregation. They weren't in schools. When I was at Princeton it was not until my second or third year that the university accepted their first black undergraduate. It's hard to believe now, but they just wouldn't accept any. So, things have changed enormously – for the good. And I think they will continue to change. That will affect inter-racial marriages. How rapidly those will increase, I don't know. I don't think it will be something that will be very rapid in the next decade or so.

Crime and the fear economy

This book's chapter on crime examines some of the factors that may have led to the fall in crime in the USA in the 1990s. Do you place more importance upon police enforcement and punishment efforts relative to the strength of the economy?

Yes, I think if you look at victimization studies, crime actually started going down in the early eighties. So, I put a lot of emphasis on increased enforcement of the laws, increased conviction of criminals and the growing number of people in prison. One of the unfortunate by-products of all this is that we have around two million men and women in prison in the United States. That's a huge number, a larger fraction than the other Western countries as far as I know. But I think it has cut crime rates in the United States. I would say that is one factor.

One of my colleagues at Chicago, Steven Levitt, has written an interesting and controversial paper that I think is in the right direction on the effect of allowing abortion on the crime rate. He claims – he is a very good empirical analyst – that the effects of the seventies show up in the nineties, 20 years later when these kids get born and don't get born. That was really what he was arguing. I think that was a factor.

The prosperity was a factor, but I don't think it was a dominant factor in the United States. We've had countries like Britain that have been pretty prosperous where the crime rate has been going up, not down – very different from the US. I think it is because they have adopted a different policy in terms of treatment of criminals. The US change-around in about

1980 was very crucial. We were also, so I recall, soft on crime in the sixties and seventies and crime rates skyrocketed. People said it was due to changing morals and cultures. I argued against that position and for once I think I was right [*laughs*]. It wasn't changing morals. Criminals adapted to what we were allowing.

The intellectual view that punishing criminals was unjustified was itself the crime. Once we got away from that view and tightened up and toughened up, we brought our crime rates down enough so that in all areas of crimes of violence, we are considerably below Britain per capita now. On property crime, we are below quite a number of Western European countries. We still lead on violent crime, but even that is narrowing somewhat compared to Western Europe. So, I think we showed it can be done and I don't believe that prosperity was the major contributing factor in my judgement.

Are you in favour of capital punishment?

Well, that's obviously a very controversial issue. I think the discussion of it is often greatly obfuscated. I certainly would be strongly in favour of capital punishment the more convinced I was that capital punishment reduced murders. That's the main issue, not whether the state has a right to take people's lives. That's a mis-statement of the issue because if capital punishment did reduce murders, by not using it the state is indirectly taking people's lives by allowing innocent people to be murdered.

So, I think the issue is can we cut down murders significantly with capital punishment? I believe we can. To the extent I felt I was right about that, I would support capital punishment. If somebody could convince me that the evidence shows strongly that we can't, then I go against capital punishment.

It's something you don't want to have to use for lots of reasons. You don't want to take people's lives if you don't have to. You don't want to go to war if you don't have to. But if you have to go to war, most people are willing to. If you believe that capital punishment would reduce murders, I think most people would come along. But people have been convinced that the evidence shows that capital punishment has no effect. I think that is a mis-reading of the evidence. I would be willing to accept the view that the evidence is mixed. If it is mixed, then maybe you want to take the minimal view and not use it. I don't have any problems with that. I'm not a crusader on the capital punishment issue, but I believe – you asked me what I really *believe* – that it does deter and as a result of that we should use it. But I also believe one cannot demonstrate that conclusively with the evidence available.

What was your response to the papers on capital punishment produced in the 1970s by one of your former students, Isaac Ehrlich?

I think Isaac did some very important, pioneering papers. He didn't work only on capital punishment. He worked in general on deterrence, but he did come out with a very large number on capital punishment. Other people have criticized them. The debate is still continuing. There are at least two dozen papers or so on that subject since then. I've just read one recently that reaffirms, if you want, again that capital punishment has a significant effect. Others claim it doesn't, so it's an ongoing discussion, but Ehrlich was the one who got that discussion going.

His number that every execution reduces seven or eight murders is probably too high in my judgement, but I don't know what the number is. I think it's positive. It may well be more than one, although it doesn't have to be more than one to be in favour of capital punishment. When you are punishing people who are murderers, the lives you are saving are often innocent lives. Somehow you have to weight those differently in my judgement.

In recent years, we have seen a rise in international terrorism. Do you think there is something we can refer to as the economics of fear?

Yes, actually I have a paper in process on that with an Israeli economist. They know a lot about terrorism. I think terrorists almost by definition operate by spreading alarm and fear. That's their purpose and they succeed often in doing it. We're looking at people's willingness to ride buses in Israel after a suicide bombing on a bus. We find big falls and some permanent effects. We have a bunch of other evidence on people's willingness to go to restaurants and, from the United States, evidence on people's willingness to ride airlines. So, I think we can use an economic model to understand that. That's what we are doing in this paper. We've developed an investment model where people invest in trying to control their fear and those who are doing an activity the most have the biggest incentive to make that investment.

Look at mad cow disease in Europe. A study of that by a French economist showed that people eating meat the most were least likely to reduce their consumption. Now, that seems surprising, but our view is that it is the right view because most of the reaction to mad cow disease was excessive. It was a lot of fear. I think in England there were 150 cases documented, in Europe there was hardly one, yet there was a big decline in French and other European consumption. If you are eating a lot of meat you have more incentive to try to make that investment to control your fear. While if you are just an occasional meat eater, you might as well just give it up and not try to associate with it.

We find that with terrorism too. Those people who ride buses regularly are less likely to cut their bus use than those people who ride it occasionally. We have a bunch of evidence consistent with this interpretation. So, I guess there is an economics of fear. They (terrorists) operate by fear and I think understanding the type of responses people make can maybe help us in reducing the negative effects of terrorist attacks.

What criminological insights or perspectives have you found stimulating or interesting in recent years?

Well, I think (Steven) Levitt has been one of the leaders in this, two of his papers in particular. The one which better documents that putting people in prison in the United States has a positive effect and the abortion paper, although I don't think that was a major effect. I think it was a very interesting piece of work and convinced me that was a factor involved in it (the fall in crime in the US in the 1990s) which I wouldn't have thought of beforehand, I must say. So, I think those papers by Levitt were good.

Controversies over the use of guns have been interesting. I don't think we have any clear-cut answers yet on the controversy over whether gun-control laws reduce crime or raise crime. I'm pretty familiar with the main papers in the literature, although it's confusing because people reach some very different conclusions about it. My own belief is that gun control laws probably do raise crime. I have a very simple argument. Most people who use guns to commit crime get their guns illegally, so gun control laws don't affect their access to them. But the people who would legally use them to defend themselves would have a tougher time doing it. So, I have tended to favour a different approach: we punish those who use guns in committing crime much more severely than those who don't use such weapons in committing crime. I think that's a more effective way. You hit the person using the gun for bad purposes directly rather than the control of guns.

I think the fact that US crime rates are going down while European crime rates are going up is a very interesting set of case studies provided to us by the data. The question is, why this very different change in societies that in other respects are very closely linked? I guess they haven't been studied enough. I gave you some of my explanations before, so these are the sort of things that I think have been important. I can't say I'm up on every single study of crime that is going on. Since I haven't been working on it, I haven't followed it as closely as I might otherwise. But this is what I have concluded from what I am aware of.

Drugs and despair

We have a chapter in this book which examines addiction (specifically, illicit drug addiction). We discuss your 1977 paper with George Stigler on the relative theory of addiction and your 1988 paper with Kevin Murphy on rational addiction. What stimulated your initial interest in addictive behaviour? How have your views on addictive behaviour changed over time?

[Laughs] Well, I know what stimulated my interest. George Stigler and I started to write this paper on why preferences are stable and the same. Then we started thinking about examples. I remember he came to me with a quote from Alfred Marshall that the more good news that a person hears, the more they like it. I think we have that quote in our paper. I started thinking about that. I said, 'One could think that one has a stock of capital and that it influences one's desires for it'. So we wrote that section on addiction. We didn't quite get the formal analysis right in my judgement but we were in the right direction.

Then I had a student, Larry Iannaccone, who wrote a thesis on addiction. I thought it was a very good piece of work and that stimulated Murphy and me to get involved. We worked out this paper which became the 1988 paper on rational addiction which was the development of both what Stigler and I did and what Iannaccone did.

Have my views changed since then? I must say, not a lot [laughs]. We were lucky in stimulating a fair bit of literature. It surprised me at the time that there would be a number of papers. But a lot of economists seem to have gotten interested in that question, some of them testing the rational addiction model, including Michael Grossman and others, some supporting it, some rejecting it, other people trying to come up with alternative models based upon inconsistent behaviour over time. We even discussed some of these types of models in our 1988 paper but they have formalized them a little more in terms of hyperbolic discounting, for example.

What do you think of these extensions to the rational addiction model?

Well, I know those papers pretty well, particularly the hyperbolic discounting work and the work on happiness, such as whether addicts are more or less happy and like high taxes. I haven't been convinced that these extensions help us understand behaviour better. I have had these people out to workshops at Chicago. Gruber's done quite a bit of work on it and Laibson has done hyperbolic discounting.

I am very friendly with both of them and I look at papers of this type. But I haven't felt they have advanced if you look at the data, including people who state that they want to quit but can't. Most of these issues I think we anticipated in the discussion in the 1988 paper. I think we can do

as well at explaining this data as they can. In fact, a couple of these papers (the one by Gruber, maybe one by Cutler and Glaeser) admit that from a positive point of view, rational addiction does well, but from a normative point of view, these other models have different implications. They do, but the question is, are they the right models for this behaviour?

So, I would say I like this literature. I think it's good to try to confront the rational addiction model. Eventually, it will have to be modified in some fashion, but I think it has stood up pretty well to a lot of onslaught. Empirically, it has done pretty well. Have I radically changed my views on it? No, I haven't. Rational addiction captured an important part of addictive behaviour and when the smoke clears, that will be the judgement in this literature. Though maybe it didn't capture all of it, so we will have to modify the 1988 paper in some way.

We also examine in this book the economics of drug prohibition and we look at policy alternatives. Would you legalize drugs? If so, how would you regulate a market for drugs?

Yes, I believe we should legalize drugs for a lot of reasons. For a pragmatic reason, I think it [the war on drugs] has been a very costly programme and it has had a very low benefit/cost ratio. Now, what would we do if we did legalize them? For one thing, like alcohol, we would want to have an age restriction on who gets access to it. You may want to tax it if you believe it has certain externalities on other people. People who become addicted may drive or come to work and harm others. A better way to treat that is to punish more severely those who are driving while under the influence of drugs or who are at work under the influence. They would be the main sort of things I think would be necessary. It would be a fairer system and less discriminatory against blacks and poor people. They are the ones who suffer the most under the present system.

How does that work?

Well, it works in three ways. One, if you look at the people who are sent to prison for drug convictions, a huge disproportion are blacks or other minorities in the United States. I know the data well for the US and I think it would be similar for Britain. [Under legalization] They wouldn't be there, at least not for those problems.

Second, the drug markets are usually centred in poor parts of the city, so poor neighbourhoods suffer as a result of that. You get a lot of transactions going on there. And not surprisingly when they are centred there, a lot of crime is more common in general. The police have their hands full, so it is hard to control the drugs trade.

And third, because it is concentrated there, access to drugs for poor, inner-city kids is easier than it is for rich kids. That is one reason why we have the law. I think it's really the middle-classes [*laughs*] battling against the poor and putting more of the burden on the part of the poor. It is discriminatory, maybe not intentionally, but that's the way it works out, against the poor and against the blacks, Hispanics and other minorities.

A legalized system, with taxes, would raise the price of drugs and the poor would be more responsive to a higher monetary price. The middle-classes are more responsive to a higher non-monetary price. For example, you can't get good jobs if it was known you took drugs. Look at the way [Douglas] Ginsburg lost the possibility of getting on the US Supreme Court because somebody reported that he smoked marijuana when he was at college. That was a big price at the end of the day.

So, for all those reasons, I would legalize it, I would tax it if need be, and I think that would have a lot of beneficial effects.

The economics of suicide is another topic featured in this book. Do you think economists have a role to play in understanding suicidal behaviour? For instance, do you think we can help explain the alarming rise in recent years of young male suicide in the USA and Europe or the emergence of suicide bombing in the Middle East?

I definitely think so. In fact, I have on-going work with Richard Posner on the economics of suicide. We have a way of approaching it which I think is interesting. We are collecting a fair bit of data and trying to test it against a lot of things. As you say, young males have a high suicide rate, older males are also high, older females are not so high. Females are much higher in attempts and lower in actual suicides. There are a lot of regularities that are interesting. Blacks have relatively low suicide rates even though low-income people tend to have a higher suicide rate than higher income people. It's an interesting question. I'm not sure I have all the answers but it's a challenge to try to explain that. And there are a lot of other regularities that one sees.

We have a quote from Arthur Schopenhauer and David Hume, both of whom said suicide is a rational response to circumstances. Some people's lives are miserable. You almost never see a happy person commit suicide. What causes suicide? Well, suicides are caused by severe, negative events that hit people like bad health, going to prison, losing your job, losing your money, divorce – these are all suicide stimulators. Some people get over that quickly, but for other people it is devastating to have that to overcome. Their utility levels go down, you might say, below that threshold where they begin to think they are better off dead than alive.

There are other people who, biologically, have a propensity to depression. A number of suicides are depressed individuals, some of whom have attempted suicide in the past. Now, one might say, 'we have to help these people'. We try and often we succeed. Anti-depressants I think have been an important tool, but up until the nineties we had very few tools. Psychoanalysis was not that successful in my judgement in treating highly suicidal, depressed people. These were people who go through many episodes of being really down, and then they come out of it sometime and then come into it again. They begin to think, 'Well, this is what my life is going to be like, it's going to be pretty miserable'. These people commit suicide. Is that rational? I think so.

Do you think a suicide bomber is a rational individual?

I think it's useful to interpret suicide bombers as rational in this following sense. They want to achieve a goal and they are willing to give up their life to achieve that goal. The hero in war risks and often loses his life in order to accomplish an aim. Do we call that an irrational act? Well, think of a suicide bomber as engaged in a war. They are willing to give up their lives to harm others. So, that's not on the face of it an irrational act. They may be indoctrinated, so we have to think of preferences being formed, but that's okay, that's part of economics – the formation of preferences. You've got to understand that process.

If you raise the cost of committing suicide, namely by reducing the likelihood they will succeed, you will cut down suicide bombing. Israel hasn't stamped it out, but by various tactics (some strong-arm, others by protecting various things and careful checking), they have cut it down. So, this strikes me as some evidence that you do get responses in suicide bombing to reducing the likelihood that you will succeed. And there are other approaches you can use.

When 9/11 came out, one of the problems I set on the theory course I teach was can you interpret suicide bombing in a rational framework. I think you can. It's also a useful way to help understand why young people get involved in doing it, what their goals are and how to combat it. Those things go together.

Behavioural economics and wackonomics

Does the behavioural economics approach of economists such as Thaler and Camerer limit or extend your approach to the study of human behaviour?

It does both. I think behavioural economics has been useful in economics. It is challenging some things that economists accepted too readily maybe

and introducing some concepts that may turn out to be useful. Although it has certainly not provided any alternative, systematic theory to compete with neo-classical theory, it might ultimately enrich it, like hyperbolic discounting which is not Thaler or Camerer, but Laibson.

Now, Laibson formulates that within a rational choice framework. You have people who are rational but it is just that they are inconsistent over time. So, they have got to take rational actions to recognize that. I think for some problems that might be useful. But again, I haven't been convinced that for much behaviour like addiction we need hyperbolic discounting. But nor have I been convinced that it's worthless and not going to be useful. We will have to wait and see. That would enrich the theory of rational choice. Now we have different ways of discounting. For some problems we can maybe show why people are going to be hyperbolic and others maybe not. That would be the goal at least.

Similarly, in other areas, like in finance, some behaviourists have pointed out some empirical difficulties in the orthodox theory of efficient markets and the like. Do they have an alternative theory? Not really, not much of a successful one. But they have made people less theological about efficient markets, by having to see how we can amend some things and make it work better. There is good work going on both by people like Thaler and others but also by people who are much more strongly supportive.

So, my own overall evaluation of behavioural economics is that while it's been useful, it's not been a revolution. It's usually too focused at the individual level, not at markets. Economics is about markets, it's about groups. We have a theory of individuals to get at group behaviour, but we want to know what an excise tax does to behaviour or what more punishment does to crime. We are not so focused on the individual, but behavioural economics and experimental economics, much of it, not all, is focused on the individual.

This is one reason why there is a disconnect between psychology which is usually individual and economics which is group. Let me give you a reason why these differences may be huge. Most people can't make probability calculations as accurately as some behaviourists suggest. Those people don't go working for casinos and other places where these type of calculations are important. They won't survive in that kind of job. The blackjack dealer when he is playing against the players has to know when to stop. If you watch dealers, they are basically working out through experience what we would call optimal stopping rules. That's been shown. People who couldn't do that wouldn't be running blackjack tables.

That's true in a lot of other areas. You've got to look at the specialization that we observe in markets and embed a theory of individual choice within a market specialization framework. Now, when you do that you can

well understand why most people might not be good at something but they don't end up being doctors or lawyers or whatever it may be. And is the market equilibrium we get close to what we think we get from a rational framework? I think it is, although it's not perfect. Behavioural economics can maybe fill in some of the edges there, but it certainly hasn't given us an alternative approach to understanding these problems in my judgement.

Finally, I think it fair to say that a number of people may see some of the topics covered in this book and believe it is a case of 'wackonomics'. Thirty years ago, Alan Blinder wrote a parody paper published in the Journal of Political Economy entitled, 'The Economics of Brushing Teeth'. Are there any spheres of human activity where the application of economics does not belong?

[Laughs]. Take Blinder's paper. I thought Blinder's paper was very cute and clever. Indeed he was probably right that waiters have a greater incentive to brush their teeth and have good breath than bus-boys or people washing the dishes. He was dealing with it in a humorous way with minor little issues. But it is true that waiters want to get tips and so on.

Are there any areas where it (economics) is not applicable? Probably. Do we know what they are? No. How do I reconcile those two statements? I'm not saying that at the moment this approach to behaviour explains everything that we see in the world. A lot of topics have been difficult, like war. When a country goes to war people become religious. There is interesting work going on in the economics of religion. But nobody, including leaders like Iannaccone, would claim that they have solved all of the problems to understand everything about religion.

So, with every area, there are still considerable gaps in our knowledge, whether it's the family or addiction. Some of the gaps may be because we haven't used the theory well enough. That's my position, but I don't know if all of the gaps are due to that. Maybe we have to modify the theory in certain ways. I have an open mind on that question.

All theories evolve over time. Look, Newtonian mechanics for certain purposes were replaced by quantum mechanics and certainly economic theory which is not at the level of Newtonian mechanics in terms of generality and power will be modified over time. That's inevitable, that's what a good, empirically-based science does. Economics is an empirical science and I am well prepared to see the theory being modified over time. Which modification, which areas, I don't think we know that yet. But I am sure there are areas out there that will need some important modifications to the theories.

