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# **Taking Absurd Theories Seriously**

3 essays on Rational Choice Theory and Welfare Analysis

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The Ragnar Frisch Centre for Economic Research and HERO

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Health Economics Research programme at the University of Oslo HERO 2004

**Keywords:** Welfare Analysis, Rational Choice, Rational Addiction, Gary Becker, Jon Elster

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### **Contents**

- 1. Acknowledgements
- 2. Introduction
- **3.** Essay 1: "Taking Absurd Theories Seriously: Economics and the Case of Rational Addiction theories," Philosophy of Science, Vol. 71(July 2004): 263-265
- **4.** Essay 2: "Preferences, Rationality and Welfare in Becker's Extended Utility Approach," Rationality and Society, Vol. 15(3): 282-323
- 5. Essay 3: "Rationality Traps," In submission

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The ideas in this dissertation have been strongly influenced at various points by discussions. In early 2000 I attended a series of lectures in celebration of Jon Elster's 60th birthday. Elster's dismissive remarks concerning Becker's notion of endogenous preference change triggered an e-mail discussion with Professor Ole-Jørgen Skog in April 2000. Skog made some excellent comments and arguments that strongly influenced my interpretation of Becker, though obviously this neither implies that he agrees with my views in what follows nor that he is in any way responsible for any errors that may be. More specifically, what he helped me see was how the various utility effects assumed in Becker's rational addiction model were the "net effects" of any number and variety of mental, physiological and social effects of drug use. Much of what follows is, in my opinion, the implications that follow from taking this seriously. Economists Hans Olav Melberg, Dag Fjeld Edvardsen and Morten Nordberg all deserve thanks for numerous challenges to my arguments. The same goes for the referees of essays 1 and 2, who likewise improved my work immensely. Things I thought I had said plainly were revealed to be obscure, and the rate of misunderstanding seemed to rise with the use of "precise" theoretical language and fall with the use of everyday language. Things I thought I had covered were

questioned, triggering new lines of thought and leading me into new pockets of relevant writings. E.g., a referee's remark that ignoring the distinction between anticipated and realised events might not be innocuous led me to see the importance of the distinction between anticipated and realised future that is now an important part of essay 2. A second referee pointed me in the direction of Rosenberg, while a third gave me some obscure Elster references that strengthened the arguments in essay 2.

I also want to thank my wife, Mona, for keeping my spirits up, and my son Eik (currently four), better than most at the tough (impossible?) task of making me simplify and keep things brief and jargon-free.

Finally, the perhaps hardest part of this work was to avoid feeling that I was silly, crazy or stupid for arguing against claims that seemed as bizarre and absurd as the rational addiction welfare and explanation claims eventually seemed to me. The nagging feeling that "no one can *really* take these claims seriously" made me feel like I was spending my days down Alice's rabbit hole solemnly debating a joke. For this reason, it was strangely gratifying when people (editors, referees and others) disagreed with my criticism and attempted to defend the theories as plausible theories with valid explanations and welfare results. While I would have been happier if *everyone* regarded such theories as clearly untrue of real world people, I was at least reassured that my task was not completely meaningless and misguided. Similarly, it was a lasting comfort whenever I came across the writings of other individuals similarly troubled by these parts of modern economics (for instance Alexander Rosenberg, Thomas Mayer and Robert Clower).

### Introduction

**Dissertation Abstract:** The effects of public policies on the welfare of different groups in society are in many cases unclear. Economists often study such effects through welfare analyses based on a mathematical model of an individual decision maker. I show for the case of Rational Addiction theory that we have both theoretical and empirical reasons to think that the model fails to reflect the welfare of real people. I argue that the acceptance and standing of the theory is due to a failure to apply relevant criteria when evaluating such welfare analyses, that this failure makes the profession take absurd theories seriously, and that such welfare analyses should therefore be treated with scepticism and great care.

Do public pension schemes and unemployment insurance raise people's welfare above what it would otherwise have been? Are smokers made better off by cigarette taxes that reduce their smoking and future health problems? Is advertising a good or a bad? Public policy on a variety of issues influences the welfare of real people, but the effects such policies have on various groups are in many cases matters of dispute. Economists often study such effects by constructing a mathematical model of an individual decision maker and calculating the welfare effect of various policies within this theoretical model. In the following dissertation I argue that – as currently used by many economists – this method is a highly unreliable way of supporting and justifying claims about the welfare of real people.

In evaluating the use of choice theory for welfare analysis, I believe we need to distinguish between cases where choice theory is used to *summarise intuitions* concerning welfare effects and those where it is used to *justify* claims concerning welfare effects.

Most people would agree that there are cases where a person's choice reflects what is good for him or her, for instance in everyday situations concerning household goods. Based on such beliefs, it is relatively unproblematic to state that people are better off if they are given a choice between a wider range of household goods, if their real income is increased so they can purchase more goods, etc. In such cases, the economist's utility-maximising toy-person could be said to provide a *summary of intuitions or beliefs shared by many* concerning welfare and consumption. Such cases of choice theory used for welfare analysis are relatively unproblematic, as long as we keep in mind that such choice theories do not *establish* how people's welfare changes,

but rather *state* how many *already believe* people's welfare would change if consumption opportunities shifted in some specified way.

The case where choice theory is used to *establish* claims concerning people's welfare is more troublesome. We then need to know why and when and to what extent this method should be seen as trustworthy and valid. Put differently, we need reasons to suppose that the welfare of the utility maximising toy person reflects the welfare of real people. The question is how we can evaluate this.

Friedman 1953 – perhaps the most famous methodological essay in economics – has been read as suggesting that the goal of economics should be to achieve measurable aims such as prediction. The specific theoretical assumptions and constructs employed are then irrelevant for evaluating your theory, all that matters is your measurable success in achieving good predictions: It is sufficient that the real world behaves "as-if" your theory was correct. While such theories may have their uses, they are insufficient for someone doing welfare analysis. For welfare analysis, the theoretical toy person needs to be more than just a cog in a prediction generating machine. The toy person also needs to accurately represent the welfare of real people. To establish this it will clearly be insufficient to show predictive success, especially since we can make our utility maximising toy person reproduce people's behaviour patterns *no matter what these behaviour patterns are*. Provided the patterns remain stable, our toy person will then "predict" observations no matter how well or poorly he represents the predicted person's welfare.

In practise, most economists interested in welfare analysis would agree that predictive accuracy is insufficient, and at seminars and in their referee comments assumptions are frequently discussed: Are they compatible with standard rationality assumptions? Do the results of the model rely on restrictive assumptions of complementarity between good X and good Y? Would the conclusions change if there was uncertainty in the model? And so on. This shows that you do not have unrestricted freedom when making assumptions. Instead, it seems as though there is an unwritten rule that some assumptions are immune to empirical evidence and can only be challenged using purely theoretical criteria of elegance, mathematical tractability, compatibility with already existing literature, solvability, etc. In this way, it seems to me that choice theories have been allowed to evolve away from anything that could accurately represent the kind of decision problems that real people are face

and solve. In particular, choice theories used for welfare analysis are now allowed to involve assumptions of precise, correct and quantitative beliefs, full awareness of the preferences you would have in all possible contexts and a God-like ability to make long range, intricate plans exploiting all trade-offs across goods, time and uncertainty. These assumptions seem to conflict with empirical evidence from, for instance, the field of "behavioural decision theory." Researchers, of which the most well known are the pioneer team of Kahneman and Tversky, have here documented a number of what seems like "cognitive anomalies" (see McFadden 1999 for an overview and further references). These can, of course, be "explained away" in a variety of ways (see the last ten pages of Rabin 2002 for a humorous discussion of this), and economists who "only want to predict" may feel that psychological "realism" is unnecessary if they predict well without it. For this reason, I have chosen to focus on welfare analysis, because this is a subject where these issues cannot be easily explained away or avoided: It is economists who are making the claim that their choice theories give valid welfare results, and that puts the burden on their shoulders to either provide grounds for believing that their specified decision problems are "close enough" to those faced by real people for the welfare results to be valid, or to provide grounds for believing that a wildly inaccurately specified decision problem can still provide valid results.

My account of how and why choice theories evolved to their present form may well be wrong. That is of little importance since my goal is not to write a historical narrative identifying "villains" and "heroes" or "crucial wrong turns," if indeed there are any such. My main goal is to argue that as they are currently used for welfare analysis, choice theories in economics are so insulated from relevant empirical evidence that clearly absurd theories are taken seriously by the profession. In making this argument, I am not saying that all use of choice theories for welfare analysis is wrong. I am saying that the economics community is, today, in practise, unable to weed out invalid and clearly inappropriate uses of choice theory for welfare analysis. The sample of theories I have concentrated on is probably not representative, but it seems to me that the signal-to-noise or sense-to-nonsense ratio of welfare economics is distressingly low. The fact that some result or theory is accepted within the economics profession is not in itself – in my experience – a strong indication that this result or theory provides well-justified claims about the real world. In particular, my

scepticism is high when the decision problems specified concern intricate, detailed long-term plans, incentives caused by complex, elaborate and casually documented causal chains, accurate estimates and valid reasoning concerning risk and uncertainty, and so on. In other words: The claim that an economist's toy person reflects the welfare of real people requires more support and justification the more psychologically "unrealistic" and alien the economist has made his toy person.

To establish my case that economics fails to weed out clearly inappropriate uses of choice theory for welfare analysis, I need an example of a theory that has been taken far more seriously than it deserves. The theory I have used for this purpose is the theory of rational addiction. I would hazard the guess that only a minority would initially agree to Nobel Laureate Gary Becker's statement "that even extreme forms of addictive behavior, such as heavy smoking or drinking, involve forward-looking, consistent utility maximization [...]" (Becker 1996, 11). Yet, since economists claim support from "economic theory" for such beliefs, these beliefs seem more "scientific" or "supported" or "justified" than the welfare intuitions of others. After all, the "rational addict" belief seems to be based on mathematically sophisticated, peer-reviewed scientific theories that have become standard tools in the discipline of economics and are regularly published in leading economic journals. This gives such claims a weight out of proportion to the justification offered.

My dissertation argues for a conclusion that – to my mind – seems correct but rather obvious: Rational choice theories as they are currently used do not provide well-justified claims about the welfare or motivation of real world people, despite the many claims to the contrary. While I feel reasonably secure in this conclusion, I do not pretend to have "the" answer to how such claims *should* or *can* be justified. On the one hand, I do not believe it is necessary to have the correct answer in order to criticise a wrong one. If our present tools do not work, why should we use them just because we lack better ones? Wasting resources by straining to achieve a goal with useless means is not a sensible activity. On the other hand, I am not a "nihilist" arguing that individual decision making and individual welfare are impossible to study. My point, as noted above, is more that economists cannot grant their theories immunity from empirical research if they want us to believe the implications they draw from these theories. Provided such "challenges" from empirical work are faced, I think a lot of interesting work can be done both on individual decision making and

individual welfare. While I am not familiar enough with other approaches to believe that I can pass any general verdict, my impression is that there is a lot of interesting, well-supported research on such topics already, both from the already mentioned behavioral decision theory and happiness research, and from various forms of psychology such as those popularised in Pinker [1997] 1999, Cialdini 1993, Gigerenzer 2000, Dawes 1996, Dörner 1989 or Norman [1988] 2002.

My briefest attempt to argue that rational choice theory is an insufficient basis for welfare theory is through parody:

"My rational toy person, constructed ad-hoc by me in my office based on rough generalisations and bizarre claims about human motivation and reasoning, would receive a higher utility if allowed to main himself with knives. Ergo, I should not be disturbed by the suicidal behaviour of my son." (Rogeberg and Nordberg 2003)

In this dissertation I attempt to support the claim more extensively by using two lines of arguments:

#### □ External criticism:

■ Essay 1. Economists accept rational choice theories that can not be taken seriously as possibly true theories involving realist claims that provide valid explanations and a basis for welfare analysis. A case that illustrates this is rational addiction theories which, judged in this regard, are absurd, poorly interpreted and weakly justified.

### □ Internal criticism:

□ Essay 2 and 3. Even if one accepts – for the sake of argument – the validity of choice frameworks such as extended utility approach of Gary Becker, there may be good reasons from "within" to question the real world relevance of the welfare analysis that results. One reason is that the theories usually fail to distinguish between the anticipation of the future and the realisation of the future. A second reason is that there are alternative choice frameworks that can generate the same behaviours from different assumptions that imply different welfare conclusions. A third reason is that beliefs may match and mismatch with the world external to the agent in a way that traps the agent in belief sets leading to possibly severely suboptimal actions.

# Essay 1. Taking Absurd Theories Seriously: Economics and the Case of Rational Addiction Theories

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In order to be interesting, academic work usually has to state something that is not already the consensus opinion. Crudely put, you either show that something people think is smart is stupid, or that something people think is stupid is smart.

Rational addiction theories try to show how a behaviour pattern almost everyone sees as stupid is actually so smart most people do not even begin to understand how smart it is. The theories were well received by the discipline, and became "one of the standard tools in the economic analysis of the markets for drugs, alcohol, tobacco and other potentially addictive goods" (Ferguson 2000, 587). Their welfare implications were presented and discussed (e.g. Becker and Murphy 1988; Orphanides and Zervos 1995), altered by others (see for instance Gruber and Köszegi 2001 and Laux 2000), and used in discussions of what real world tobacco taxes *should be* (e.g. Gruber 2001), while the logic and rationality required by rational addicts was analysed philosophically (e.g. Elster 1997) and tested for empirically (see Chaloupka and Warner 2000 for references).

Essay 1 in this dissertation tries to show how this method for studying human welfare - which some economists apparently think is smart - is actually so stupid that most economists do not even begin to understand how stupid it is. Since rational addiction theories claim to explain real people and provide a valid basis for welfare analysis, the authors cannot claim that the theories are just a way of capturing stylised or other facts in an as-if theory. Their explanatory concepts need to be more than just useful fictions for summarising observations. Given this:

- a) if choices are made consciously, the assumptions made and the explanation offered by rational addiction theories are neither adequately supported nor compatible with evidence, while
- b) if choices are *not* made consciously, there is no valid source known for the assumptions made and no reason to care about the welfare results.

This essay also tries to address why rational addiction theories *seem* both relevant and supported to (at least some) economists. It suggests that this is because the most clearly unreasonable parts of the explanation remain exclusively in the

mathematical model, while the theory is interpreted in a loose story-telling manner that triggers feelings of insight and understanding. Finally, it notes the possibility that no one *really* believes these theories to be true. It could be that everyone just *pretends* to take them seriously as part of an intellectual game. At the time, I felt that this suggestion was extreme in some way and that writing it violated some rule of "the game," but I have since found it mirrored in quotes from other economists. Robert Clower has written that "[m]uch economics is so far removed from anything that remotely resembles the real world that it is often difficult to take the subject seriously," while Mark Blaug has stated that "[m]odern economics is sick; economics has increasingly become an intellectual game played for its own sake and not for its practical consequences" (both quotes collected in Frey 2002).

Essay 2. Preferences, Rationality and Welfare in Becker's Extended Utility

<u>Approach</u>

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If one remains unpersuaded by the arguments in Essay 1, does that force one to accept the welfare analysis that comes from theories such as those of rational addiction? Having tried out arguments from Essay 1 in various contexts without convincing a lot of economists, I see little reason to believe that many economists will change their minds concerning these theories as a result of Essay 1. After all: Such theories would not have survived for as long as they have unless they had evolved various defence mechanisms against such arguments. While the defences I have encountered seem unsatisfactory, this is not the place to discuss them in detail. Even if choice frameworks are held to be valid for welfare analysis, however, they would not be valid unless used for this purpose in a logical manner that makes sense within the choice framework itself. Essay 2 tries to reason through various aspects of Becker's extended utility framework and argues that this is not currently the case. Becker's framework is probably the currently most used choice framework for modelling and doing welfare analysis in a way that allows for social interaction, changes in tastes, habits, and time preferences, and "seemingly" irrational or nonoptimal choices. Essay 2 argues that even if the framework should be correct, the way it is currently used for welfare analysis is not.

The main critic of Becker's approach in the past has been philosopher Jon Elster, who argues that Becker's framework is bad rational choice theory and should be rejected on that basis (quotes and references in Essay 2). Essay 2 discusses Elster's arguments and claims that Elster is mistaken: Becker's framework can be "good" rational choice theory (i.e. coherent, consistent, etc.), but even good rational choice theory does not provide justified claims about the welfare of real people. It concludes by suggesting that Becker's framework could be seen more as an argument *against* doing welfare analyses with choice theories than as a good (or poor) way of doing it.

In our present context, the essay's main claims are that theories within the framework

- rest on faith, in that they
- o derive their conclusions from assumptions about the world that are impossible to check
- o are flexible to the point where anything can be explained as rational
- o belong to one of a class of frameworks all equally untestable and flexible, yet with differing welfare implications
- □ are misused, in that they
- o involve a distinction between two types of time. On the one hand, there is time in the individual's mind as he thinks about the future when making his plans. On the other hand, there is time in the individual's life as he actually ages. Typically, these two are not distinguished in welfare analysis.
- O The implication of this is that such theories do not currently say anything about the welfare the agent will actually experience, only about the welfare he or she experiences from the act of planning itself at the moment of choice. As a result of not treating the two ways time enter separately, we get welfare analyses that are false *even if* we accept the framework as true.

### Essay 3: Rationality Traps

In Submission

This final essay expands on an idea from essay 2, where I briefly discuss what I call the "extended extended utility approach." In one sense, it is a further implication of the two types of time: The time we include in the decision problem is the time in the agent's mind as she makes her plans. Unless she is omniscient and knows the true model of her world, this planned life is not identical to what will actually occur. The world as it is modelled and appears in the decision problem is only the agent's *beliefs*. Put differently: In most choice theories of the kind under consideration, the agent's actual world is never considered, and her actual life is therefore never "predicted."

Taking the world external to the agent, her rationality and her preferences as given, we can see beliefs as determining beliefs in a "feedback-loop." Beliefs determine what the agent rationally chooses, what the agent rationally chooses determines what the agent does, what the agent does determines what happens, what happens determines what she experiences, and what she experiences determines how she updates her beliefs. I argue that this raises the possibility of rationality traps. These are feedback loops such that the agent's beliefs seem correct or unproblematic representations of the world, while they *actually* lead to, possibly severely, suboptimal outcomes. This means that *even if* everyone is rational, and *even if* we disregard the problems discussed in essay 2, the straightforward welfare conclusions of rational choice theories such as those of rational addiction still do not follow.

### Two caveats

Note that, while I argue against using rational choice theory to examine people's welfare or reasons for doing what they do, I do not deny that these theories may have other values, both aesthetic and practical. When I first heard the reasoning behind Becker's rotten kid theorem, human capital theory, his theory of crime or some of the results from his theory of marriage, I was thrilled intellectually and found them fun and entertaining. Saying that a hammer is not suited for brain surgery clearly does not deny that it can be useful for driving in nails.

Also: I certainly would not wish to be misread as claiming that the *theorists* discussed above are stupid in any way. The creativity, talent, perseverance and hard work displayed by Gary Becker through his career, for instance, is outstanding by any

standard. These theorists are outstanding craftsmen of economic theory. They at times accept a widespread practise in academic economics that I find absurd, but their skill and excellence in constructing hammers is not lessened by their sometime statements that hammers can be profitably used on brains.

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### **Endnotes**

<sup>i</sup> Though there are those who would dispute this too, claiming that people are misguided, influenced by peer pressure, manipulated by advertising, caught on a hedonic treadmill, etc., and that people could actually achieve higher welfare within the constraints they face by living simpler, changing their values, etc.. A well written and interesting example of such an argument based on psychological theory and written by an economist is Scitovsky [1976] 1992. A different example of how even "common sense" intuitions such as "more income makes you better off" may be misleading or at least incomplete comes from "happiness research" which studies how self-reported happiness or satisfaction with one's life correlates and is influenced by various factors. In a recent article, Frey and Stutzer 2002 note that "Several scholars [...] have identified a striking and curious relationship: per-capita income in western countries [...] has risen sharply in recent decades, whereas average happiness has stayed "virtually constant" or has even declined over the same period" (p. 413).

ii Many would dispute this reading while agreeing that it is common. E.g. "Friedman's argument that hypotheses do not require realistic assumptions has been treated as a carte blanche for making whatever assumptions provide a tractable model" (Mayer 1993, 51), which Mayer calls a "misreading." iii Briefly put, they seem to me as if they often involve inconsistent terminology, switching back and forth between the "official" definition of something, and the implicit definition required to make sense

of actual practise. E.g.:

Utility function as a mathematical summary of a consistent preference relation that merely *describes* what a person would be observed to choose given a choice between various alternatives

("this involves no restrictions on what a person is motivated by")

Vs.

utility function as a measure of "welfare," happiness, etc ("behaviour motivated by moral concerns is not standard theory").

Rationality as consistency at a point in time (reflexive, transitive and complete preferences)

VS.

rationality as a claim concerning aims, thought processes etc ("is it rational to vote when there is almost no probability that this will have an impact?" "Is it rational to use drugs?").

Choice theory as tool for prediction ("purely an as-if theory")

Vs.

choice theory as a theory of human psychology ("this gives important insights into addictive behaviour.").

A different way of phrasing much the same point is that economists confuse the limited and specific meaning a technical term has within a formal theory (e.g. uncertainty, addiction, belief, regret) with their everyday counterpart. For instance: Early on I heard more than one economist claim something along the lines that the criticism in my Essay 1 "is really just a criticism of the fact that Becker and Murphy have a full certainty model. Orphanides and Zervos, however, derive the same results in a world with uncertainty." Introducing one single parameter about which agents are uncertain, in other words, was taken to mean that we were back in the real world.

# Essay 1

# Taking Absurd Theories Seriously: Economics and the Case of Rational Addiction Theories

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Preferences, Rationality and Welfare in Becker's Extended Utility Approach

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# Essay 3

### **Rationality Traps**

In submission