

The Future of Economics?*

Register Lecture
University of Puget Sound

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0. Introduction

My talk tonight is about economics and whether economic science – particularly the economic “normal science” appearing in microeconomics textbooks – will look fundamentally different in a few years than it looks today. Is there currently a sea change – or “turning point” (Colander, Holt, and Rosser, 2004, p. 1) or “seismic shift” (Frank in Colander, Holt, and Rosser, 2004, p. 134) – at work in economic science? If so, what are the causes and consequences of this change? And if not, what are the possible stabilizing forces that might contribute to the preservation of the status quo?

Given the subject matter, it will be useful to begin with some background information about the particular aspect of the discipline being contested, how the contested theoretical terrain fits into the broader scheme of mainstream (also called neoclassical) economics, and the developments that have contributed to the potential challenge. To this end my presentation will be divided into three parts. The first section will clarify the specific aspect of economics being challenged, and make the case that the criticism goes directly to the heart, the theoretical hard core, of modern economic science. This section will involve a little review of – or introduction to, depending on your background – microeconomic theory. The second section will discuss some of the forces of potential change; there are many, but I will focus on the challenge that has come from a long series of negative empirical results (“anomalies”) generated by laboratory experiments. In the third and final section I will turn to the various forces that may transform these recent criticisms into a revolutionary change in economic theory, as well as those forces pulling in the opposite direction. I will conclude with some thoughts about why this might be interesting and/or important to those of you – that is the vast majority of you – who have nothing directly to do with the economics profession.

1. The Core of Modern Economics: The Theory of Rational Individual Choice

So the subject will be potential challenges to the core theory of modern economics, what I will call rational choice theory. So, what exactly is this core theory? What is rational choice theory? Since the audience’s background in economics is quite varied, I will explicate this core theory in a series of steps: first a little history, then a more analytical characterization, and finally two examples.

Seventy-five years ago Lionel Robbins defined economics in the following way (and, I would note, his definition continues to be standard in introductory textbooks):

Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses. (Robbins, 1932, p. 15)

Notice what this definition does and does not say: starting with the “not” part. It does not say anything about maintaining full employment, stable prices, or any of the other issues that one typically associates with economic policy making. It also, and this is perhaps even more surprising, doesn’t necessarily seem to be about markets, prices, interest rates, or any other standard economic phenomena. In fact, it isn’t necessarily about capitalism; it applies equally well to people in ancient Rome or in Soviet Union during the middle of the twentieth century (since both had ends and scarce means for achieving them).

What it does say is that economics is a “science” that studies “human behavior,” as – that is, particularly in the context of – the relationship between ends and scarce means. An “economic agent” is thus an individual with given (well-defined and consistent) goals/ends (usually given by the agent’s preferences), alternative competing means for achieving those goals/ends, and acts in an instrumentally rational way (using the most efficient means) to achieve those given goals/ends. Since economists themselves seldom use the term “instrumental rationality” (it is a philosopher’s term) it is perhaps useful to quote a contemporary philosopher on the matter (in this case Michael Friedman):

Instrumental rationality thus refers to our capacity to engage in effective means-ends deliberation or reasoning aimed at maximizing our chances of success in pursuing an already set end or goal. It takes the goal in question as given, and it then attempts to adjust itself to environmental circumstances in bringing this desired state of affairs into existence in the most efficient way possible (Friedman, 2001. p. 54)

Economic agents are thus rational, and rational in a very specific (instrumental) way; the theory that explains human behavior in this way is rational choice theory.

Robbins’s definition of economics basically defines economics as rational choice theory, and although economists certainly engage in other forms of theorizing (such as macroeconomics) and other scientific activities (such as econometrics), rational choice theory has been the core explanatory framework for economic analysis since the 1950s. Although rational choice theory need not be mathematical, it is easy to see why it so lends itself so conveniently to mathematical modeling. If the agent’s “goals” can be represented by an objective function $F(x)$, and the various constraints by functional constraints $g(x)=0$, $h(x)=0$, etc., then instrumental rationality simply reduces to maximizing the objective function subject to the relevant constraints:

$$\begin{aligned} & \text{Max } F(x) \\ & \text{Subject to: } g(x)=0, h(x)=0, \dots \end{aligned}$$

In this way economics becomes not only a mathematical science, but a far more mathematical science than any other social or behavioral science, and this adaptation to

certain formalisms follows almost immediately from the definition of economics as rational choice theory.

At this point I would like to note two much-discussed characteristics of the rational choice framework that will be important later but that have not, as yet, been mentioned: the role of “self-interest” and its implicit “consequentialism” of the framework. Although the general rational choice framework does not restrict the content of preferences, economists almost always assume self-interested agents. If the goal is to obtain the most preferred bundle, and the choice space – the set of things the agent is choosing over – is defined as the goods that the agent has possession of, then rational choice means self-interested choice. Regarding “consequentialism,” the rational choice framework presupposes that only outcomes or consequences matter, not the process by which the outcome is reached: in other words, same consequence implies same valuation.

In order to understand how rational choice theory is deployed in economics it is useful to see some examples. My approach will be to briefly discuss two examples which are at extreme ends of the applications continuum. The first example is completely standard economic theory – it is in every microeconomics textbook at every level (only the number of variables and amount of mathematics employed increases as one moves from introductory undergraduate to graduate level) – while the second is much very unusual. The first is demand theory – the explanation of the amount of a good that a consumer purchases at a particular price; and the second is about the behavior of terrorist suicide bombers – in particular how human capital theory explains the “productivity” of suicide bombers. First the standard application.

So where do demand curves come from? According to standard economic theory they come from budget-constrained utility-maximizing economic agents. The agent’s “goal” is to purchase the bundle of goods that is most preferred, and the consumer’s preferences for various bundles is given by their (ordinal) utility function. The standard constraint on consumer behavior is the budget constraint: the consumer cannot spend more than his or her money income. Thus, in the case of two goods – good 1 and good 2 – the consumer choice reduces to the following well-defined two-variable constrained optimization problem:

$$\begin{aligned} & \text{Max}_{\{x_1, x_2\}} U(x_1, x_2) \\ & \text{Subject to: } \sum_{i=1}^2 p_i x_i = M, \end{aligned}$$

where the quantities of the two goods are given by x_1 and x_2 , the prices by p_1 and p_2 , and the available money income by M . Solving this problem generates the two consumer demand functions $x_1 = x_1(p_1, p_2, M)$ and $x_2 = x_2(p_1, p_2, M)$. This is clearly a specific application of rational choice theory; the demand curve is explained by the constrained utility maximizing, that is, instrumentally rational, behavior of the economic agent.

For my second example I move from standard textbook theory and a subject that is obviously economic (consumer choice), to the streets of many cities of the world and a

subject that is far more frightening (suicide bombing). In a paper titled “Human Capital Theory and the Productivity of Suicide Bombers,” published last summer in The Journal of Economic Perspectives (by the way, JEP is one of the official publications of the American Economics Association), the authors explain the supply of suicide bombers in the following way:

On the supply side, we follow ... approach of “rational sacrifice,” where suicide bombers obtain benefits from their suicide-related activities ... The benefits of suicide-related activities include: fame, honor, and recognition; moral status; value of accomplishment; beneficial consequences and rewards for significant others; beneficial consequences and rewards for self; and the magnitude of harm and humiliation imposed on enemies. These benefits are likely to be increasing in the expected impact of a suicide attack. (Benmelech and Berrebi, 2007, 224)

Suicide bombers are thus rational economic agents – engaging in suicide-related activities in an instrumentally rational way given their preferences/goals and the various constraints they face. The authors did not provide a formal mathematical model, but it would not be particularly difficult to produce one.

Hopefully these two, very different, examples will give you an idea of the extremely wide range of applications that economists can find for rational choice theory. It is how all individual behavior is explained by economists – be it buying groceries at the supermarket or blowing up the supermarket.

At this point I think it is useful to respond to some potential criticisms of the way that I have characterized economics. Some of you may be thinking: Okay, economists may explain some things this way, but certainly that is not all there is to economics. How is it that this theory of rational individual behavior is the core theory of modern economics? More specifically one might ask:

- What about Macroeconomics?
- Isn't economics more about certain kinds of social phenomena, particularly market phenomena, than individual behavior?

Yes, much of economics is about the behavior of aggregate variables (unemployment rates, inflation rates, growth rates, etc.); and yes, social, particularly market, phenomena matters and not just individual action. Yes, these things are important, but they in no way detract from the fact that rational choice theory is the discipline's core theory and provides the cornerstone for all of economic analysis. With respect to macro, Keynesian economics in the 1940s and 1950s was a macro theory without micro-foundations – the aggregate relationships employed in Keynesian analysis could not be explained by, or reduced to, the self-interested actions of individual agents. For a time, during the heyday of Keynesian theory, economists were willing to allow this breach of methodological etiquette to pass, but eventually the lack of rational choice grounding became one of the

reasons the profession turned away from Keynesian theory (and toward new classical macroeconomics which clear neoclassical foundations). Regarding market and other social phenomena, rational choice theory is certainly not all there is to economic analysis. If one wants to explain social phenomena – market phenomena or any other – it is necessary to go beyond individual behavior. One also needs to specify the mode of interaction of the agents: the institutional structures and/or rules that frame and constrain the way the agents interact. Is it a competitive market? Is it a cooperative game? A non-cooperative game? The economic explanation of social phenomena thus involves two parts: the behavior of individual agents (given by rational choice theory) and the rules for the interaction of those agents (different rules for different models). For example, the “invisible hand” of Adam Smith is probably the single most important result in the history of economics, but the difference between an “invisible hand” and a “prisoner’s dilemma” (a social outcome with very different political implications) does not lie in the specification of the individual agents – it’s in the institutional framework in which they interact. My claim is not that economics ends with rational choice theory, only that it always begins with it. And since all economic explanations do begin with it, any illness in rational choice theory eventually stands to infect all of economic science.

2. The Problems of Rational Choice

Rational choice theory and the various research programs in economics most closely associated with it are under duress for a variety of different reasons. I will focus on what I believe is the main reason – results from experimental research – but it should be noted in passing that the things I will be discussing are not the only potential problems with economic theory.

So what is the main problem? What is the threat to rational choice theory that I have been alluding to since the start of this lecture, but have not, as yet, explained? The threat is the recent experimental evidence. Over the last few decades a massive amount of evidence has accumulated that subjects in laboratory experiments do not generally behave, in fact they almost never behave, in the way that rational choice theory predicts. This literature started in experimental psychology during the 1970s and 1980s – often associated with the work of Daniel Kahneman and Amos Tversky (Kahneman and Tversky 2000) – but has since spread to the young, but quickly expanding, field of experimental economics and various other subfields within the discipline. While no one set of negative experimental results would be sufficient to disturb the equilibrium of the economics profession – repeated, systematic, replicated, negative experiments that emerge across a wide range of different subjects, types of subjects, experimenters, laboratories, and experimental protocols, clearly has been. Although the critical literature started with experimental subjects in laboratories, similar results have increasingly been observed by those studying the behavior of economic agents in markets and elsewhere in “the wild.” A partial list of the panoply of different types of negative results that have been observed – referred to as “anomalies” in the literature – includes: endowment effects, framing effects, availability bias, preference reversals, loss aversion, choice bracketing, social preferences, context effects, hyperbolic discounting, remembered utility effects, and many others. And, unlike previous rounds of criticisms

leveled against rational choice theory – and there have been many: the Institutionalist attack on utility theory in the 1920s and 1930s and the “behavioral” economics of Herbert Simon and others during the 1960s to name just two – the profession has responded to these recent concerns. Daniel Kahneman (2003) and Vernon Smith (2003) receiving the Nobel Prize in economics in 2002 is a clear indication, but more important is the rapid expansion of many areas of economic inquiry that virtually did not exist even a few short decades ago: such as experimental economics, behavioral economics, neuroeconomics, evolutionary economics, agent-based computational economics, and behavioral finance. The research frontier in economics no longer looks like it did for most of the second half of the twentieth century – as the ever-growing subsumption of new topics by the rational choice paradigm – it now exhibits far more pluralism and accepts a much wider range of explanatory and predictive strategies. In fact, some argue that economics has already changed along the leading edge of the research frontier; it is simply a matter of recognizing it, and figuring out how to get it to trickle down into classroom instruction (Bowles 2004, Colander 2000, Colander, Holt, and Rosser 2004, Davis 2006).

I think the following quote from the economist Robert Frank nicely captures the spirit of this change. The quote is from Frank’s Forward to a new edition of Tibor Scitovsky’s The Joyless Economy, a book originally published in 1976, but which made many of the critical points that have recently become commonplace.

When the first edition of Tibor Scitovsky’s The Joyless Economy articulated this message in 1976, most economists simply were not ready for it. The profession was on a roll, triumphantly extending the neoclassical model into one new area after another. Most of us were in no mood to be distracted by Professor Scitovsky’s penetrating criticisms. ... In the intervening years, however, evidence against certain predictions of the neoclassical model has continued to mount. More importantly, much of this evidence has become widely disseminated in the profession ... Almost everyone who has confronted this evidence is troubled by it, and younger economists appear particularly inclined to rethink our conventional approaches. (Frank in Scitovsky 1992, iii-iv)

While it is certainly not possible to survey even a small portion of the various anomalies that have been identified, I think it is useful to briefly discuss a couple examples that have become standard in the literature. Earlier I identified “self-interest” and “consequentialism” as two key features of rational choice theory; I will present one paradigmatic anomaly for each. These experiments have been replicated and modified by numerous researchers and are now standard examples in almost every survey of behavioral economics (Camerer and Loewenstein 2004 and Rabin 1998, 2004 for example).

One common violation of self-interest comes from the so-called “ultimatum” game. A simple ultimatum game involves two individuals and a fixed sum of money – say \$10. One individual proposes a distribution of the \$10 between the two individuals – he or

she could make it 50%-50%, 90%-10%, 1%-99%, or whatever – and the other individual can either take it or leave it. The trick is that if the second individual rejects the proposed distribution then both individuals get nothing (if the second individual accepts the proposed distribution, then both receive the agreed upon amount). Self-interested economic reasoning would say that the first individual would propose a very small positive amount and that the second individual would accept it – since the alternative is to receive nothing at all. The empirical evidence on ultimatum games systematically violates both of these rational behaviors. The first individual generally proposes a fairly large amount (often around half) and the second individual frequently rejects the proposal if only a small amount is offered. Quoting one recent survey:

In studies in more than 20 countries, the vast majority of proposers offer between a third and a half of the total, and responders reject offers of less than a fifth of the total about half of the time. (Camerer and Loewenstein, 2004, p. 27)

Whatever people are doing in these games, it does not seem to be acting on the basis of individual rational self-interest.

Contrary to the consequentialism of rational choice theory, flesh-and-blood agents often exhibit “endowment effects” (Kahneman, Knetsch, and Thaler 1991, Knetsch 1989, Thaler 1980), that is, the value they attach to a particular choice/action does not depend solely on the consequences/outcome, but also on the circumstances conditioning the choice (other terms used for such effects include: reference-point effects, history-of-ownership effects, irreversibility of preferences, and the status quo bias). According to rational choice theory, preferences should be invariant with respect to the agent’s initial endowment; the gain from having an additional unit of a good, should be the same as the loss associated with giving it up (i.e. only outcomes matter). A number of experimenters have used variations of the famous “coffee mug” experiment to test for the endowment effect. The experiment basically involves eliciting from subjects the value they attach to a coffee mug (many other goods have been used) before they are given the mug (or know they will receive it) and then after they receive it. Rational choice theory would say that for a particular individual at a particular time a mug is a mug, and there should be no difference between the two values. What one repeatedly finds of course, is that individuals value the mug much more highly once they possess it (once it is part of the agent’s endowment). As Matthew Rabin explains one such experiment:

Some subjects were first asked to “imagine that we gave you a mug exactly like the one you can see, and that we gave you the opportunity to keep it or trade it for some money.” All subjects were then given a mug, and their minimal selling prices were elicited. Before receiving the mugs, subjects on average predicted their own minimal selling price was \$3.73. Once they had the mugs, however, their actual minimal selling price averaged \$4.89. That is, subjects systematically underestimated the endowment effect, and behaved significantly differently than they had predicted about themselves moments earlier. (Rabin, 2004, p. 90)

One of the most bedrock assumptions of rational choice theory is that preferences are invariant – if they jump around on the basis of ownership of the goods or the context in which they are elicited, then the entire framework is open to question.

Of course these are only two relatively simple examples of the kind of experimental results that have started to erode the profession's confidence in rational choice theory. There are many more, and more sophisticated, experiments, but simple or sophisticated, the results are generally quite negative. Add to this the literature that identifies anomalies in aggregate market behavior or elsewhere in "the wild" – much of this coming from financial economics – and the queen of the social sciences starts to look a little sullied.

3. Forces and Counter-Forces: So Where do We Go From Here?

So where does economics go from here? Well, of course the only honest answer is that I don't know, and as an historian I am more comfortable with explanation than prediction. But this said, it is time for me to venture an educated guess.

Since most of the lecture so far has focused on why a change might be in the works, what I would like to do here in the last section is to turn away from the forces of change and discuss some of the many countervailing influences that may help maintain the status quo. Once we understand some of these stabilizing influences, it may be possible to speculate about various potential disciplinary futures – not a prediction per se, but at least an historically informed judgment about where things may be going.

I could certainly talk a lot longer than you want to listen about all of the various stabilizing forces, but let me just offer four that I think are particularly interesting (and not sufficiently recognized). They are:

- So very much to lose
- Recent popularity
- Neuroeconomics
- The changing role of the positive and normative in economics

First of all the economics profession has a lot to lose. It is generally perceived to be both the most mathematically rigorous of the social sciences and the most imperialistic: imperialistic in the sense that rational choice theory has now spilled over into all of the other social sciences (particularly political science). It is the social science with a Nobel Prize and a Council of Presidential advisors. The actions of institutions such as the Federal Reserve – actions grounded in economic theory – can move markets, and in a world dominated by global markets, thereby change the world. This said, it is important to realize that this was not always the case (even in the twentieth century); prior to World War II, prior to the discipline stabilizing around the rational choice core, economics did not have the prestige or influence it has today. The story of how it came to occupy the position that it does is a history that has only recently started to be written – see Amadae (2003) and Bernstein (2001) for example on the socio-political aspects

and Mirowski (2002) and Weintraub (2002) for a more science studies-oriented take – but the status is real and something that it seems very unlikely that the profession would be willing to sacrifice, just to fix a number of annoying empirical anomalies. If the alternative theories could somehow be tacked on without giving up the rational choice core – as economists tried to do with Keynesian macroeconomics during the 1940s and 1950s – then perhaps it would be worth the risk, but not if it would require a revolutionary transformation. This tacking-on, or reformist, project is certainly how many economists doing experimental economics and behavioral economics see their work, but it is not the only, or in many circles not the dominant, interpretation of what these subfields are about.

Secondly, economics is very popular right now. Popularized versions of economic analysis such as Steven Levitt and Stephen Dubner's Freakonomics (2005) and Robert Frank's The Economic Naturalist (2007) have become runaway best sellers and have increasingly become topics for office water-cooler conversations. Although the explanations offered in these books employ both parts of the economists' standard explanatory strategy – a rational choice characterization of individual behavior as well as a specification of the institutional framework for the interaction of those agents – they clearly stand as a kind of prima facie demonstration of the empirical success of rational choice theory and thus an argument in favor of preserving it.

Third, neuroeconomics may provide utility theory – and thus rational choice theory – with a new lease on life. Neuroeconomics is a new and very rapidly growing field of research – practitioners consider its origin to be a conference in 2003 (Zak, 2004, p. 1737) – that combines contemporary neuroscience and economics in order to understand the neurological foundations of decision making in humans and other animals (Camerer, Loewenstein, and Prelec 2005, Glimcher 2003). In particular, most research in neuroeconomics employs neuro-imaging techniques that measure regional brain activity – particularly PET and fMRI imaging – in the context of scarcity-constrained decision making. Much like other new fields such as experimental economics and behavioral economics, neuroeconomics has both a reformist (improve rational choice theory) and a revolutionary (replace rational choice theory) wing – what Camerer, Loewenstein and Prelec call the “incremental” and “radical” approaches (Camerer, Loewenstein, and Prelec, 2005, p. 10) – but as a practical matter, most of neuroeconomic research leans more toward praising rational choice than burying it. The main reason is that neuroeconomics is much more than lighting up areas of the brain; in particular, it links the areas of the brain that light up to the evolutionarily selected common (or internal) currency of the nervous system – and that internal currency is what economists call utility and the map-like structures that carry it are utility functions (Montague and Berns 2002). On this interpretation, not only does neuroeconomics not threaten rational choice theory, it actually provides new, more physiologically- and evolutionarily-grounded, reason for accepting it. As Paul Glimcher et al. explain:

In sum, neuroeconomics seeks to unify the prescriptive and descriptive approaches by relating evolutionary efficiencies to underlying mechanisms. Neoclassical economics and utility theory on which it is

based provide the ultimate set of tools for describing these efficient solutions; and evolutionary theory defines the field within which mechanism is optimized by neoclassical constraints; and neurobiology provides the tools for elucidating those mechanisms. (Glimcher, Dorris, and Bayer, 2005, p. 253).

The final stabilizing force I will discuss is actually implicit in the previous quote about neuroeconomics; it is the changing character of the “positive” and the “normative” in economics. Economists define positive economics as being about “what is” (or to be epistemically more careful: “what the best scientific practice describes as what is”) and the normative as “what ought to be.” These definitions have not changed, but what seems to be changing is how economists view rational choice theory. Traditionally it was considered to be a positive theory of the behavior of economic agents – an attempt to describe what economic agents actually do – recently, and increasingly, though, rational choice theory is presented as a normative theory – a theory about what economic agents ought to do in order to behave rationally. This is a substantive change and seems to have come about as a result of just the negative empirical results I have been discussing. Over twenty years ago Richard Thaler began a seminal paper on behavioral economics with the following paragraph:

Economists rarely draw the distinction between normative models of consumer choice and descriptive or positive models. Although the theory is normatively based (it describes what rational consumers should do) economists argue that it also serves well as a descriptive theory (it predicts what consumers in fact do). This paper argues that exclusive reliance on the normative theory leads economists to make systematic, predictable errors in describing or forecasting consumer choices. (Thaler, 1980. p. 36)

I have not seen a study that tries to measure the degree to which economists now think about rational choice in normative terms, but it certainly seems to be increasing at an increasing rate. One more quick quote from Glimcher:

Economic models describe the task that animals and humans face in any decision-making situation. They define how a problem should be solved. Real animals and real people deviate from these solutions; they perform suboptimally. (Glimcher, 2003, p. 334)

Obviously this normative interpretation takes the heat off rational choice theory regarding its empirical track record – one does not throw out the Ten Commandments because they do not accurately describe the behavior of large segments of the population – but it also redefines the whole project of economic science. An explicitly normative microeconomics would no longer be a science which tries to describe economic behavior, rather it would change to identifying irrational behavior (on the basis of the instrumental definition of rationality) and perhaps suggesting ways to “fix” the people so identified.

For example: the Amazon.com website always provides “suggestions” for books you might like, and these suggestions have been generated by a computer program that employs something like the revealed preference version of rational choice theory. If you chose not to purchase these suggestions, the standard (positive) interpretation would be that the underlying theory has failed to accurately predict your behavior, but on the normative interpretation you have simply failed to be rational. Perhaps the role for economics in this normative case would be to recommend how much of a shock needs to be sent through your keyboard to encourage you to be more rational.

So if one weighs these four counter-revolutionary forces – and there are certainly others – against the sea of empirical anomalies bearing down on economics, what seems to be the most likely trajectory for the discipline?

The first thing to note is that a true revolution seems highly unlikely in the near future. As Thomas Kuhn (1970) taught us so well, scientific theories are not overthrown by anomalies, they are overthrown by another theory, and in this case there is no “other theory” readily available. There are many specific solutions to various specific anomalies – a patchwork of, well, patches – but no one single competitor that could replace rational choice theory as the foundation for all of economics in the way that rational choice theory served for much of the twentieth century.

Similarly, it seems highly unlikely that there will not be any change; it is very unlikely that, in Daniel McFadden’s words, when confronted with such behavioral evidence economists will simply “shuffle their feet, mumble excuses, and go on doing what they have been doing” (McFadden, 1999, p. 76). Unlike previous rounds of criticism, the profession has been willing to embrace the anomalous facts of experimental and behavioral economics as facts. Even the many economists who believe that such facts can be accommodated without any significant change in the rational choice core, still generally accept them as facts that need to be addressed (this was not the case with the “facts” offered in previous rounds of criticism). Returning to the halcyon days where empirical anomalies were considered irrelevant and everyone took rational choice theory as self-evident truth thus seems to be very unlikely.

If neither revolution nor the status quo is very likely, then what is left? What is left, at least until a full-blown alternative theory emerges, is a kind of “build an intermediate-range theory around a specific class of problems” pluralism. Certain classes of problems will – for a variety of context- and tool-specific reasons – surrender to a particular genre of modeling strategies, and small research programs will develop around those techniques and those topics. A version of this type of modeling strategy pluralism has, to some degree, existed for a long time in economics. The difference is that in the past the variation was more limited; using particular models for particular classes of problems was fine, so long as no one strayed too far from the rational choice core. Show me the maximizing agents! As long as you had maximizing agents in some way, you were then free to specify the rest of the model in whatever manner seemed to work for the class of problems at hand. The tendency, and a tendency that seems likely to accelerate in the future, is to weaken the rational choice constraints on theorizing. Now evolutionary

agents are okay, as are zero intelligence traders, or monkeys hooked up to fMRI machines. I suspect that lip service to rational choice will continue, but it will increasingly be used as a normative reference point rather than an attempt to accurately describe economic behavior (in the same way that perfect competition has been used for years).

So if this comes to pass – if the discipline known for its tight core theory loosens up – how will the profession be different? Well, since I was trained in the rational choice tradition, I naturally think in terms of costs and benefits. On the benefits side, applications of economics to specific problems should be much more useful, descriptively accurate, and have a much better predictive record. If one can design a model specifically to explain the behavior of left-handed consumers wearing blue shoes and buying peaches – and one does not need that specific model to be consistent with more general rational-choice based theory – then one should be able to do a really good job predicting the behavior of left-handed, blue-shoed, peach buyers. Specialization and the division of labor increase efficiency in scientific description as in the economy.

Turning to the cost side, it seems clear that there will no longer be a “discipline” of economics as there has been for most of the twentieth century – as a social science held together by its shared methodological commitments. How economics will be defined if it abandons the rational choice constraint on theorizing is unclear; perhaps we will go back to the nineteenth century definitions of John Stuart Mill and Alfred Marshall – economics as the science of behavior involving money/wealth. The other question, and this is particularly relevant here at an undergraduate teaching institution, is what will be taught in economics classes? The applied courses may not pose any particular problem – except for the fact that each one may have their own mathematical formalism and empirical protocols – but what about the intermediate level theory courses? What does one teach in the general theory course when the discipline no longer has a general theory? These are not easy questions – interesting, but not easy.

So what if economics becomes much less of a unified cohesive scientific theory and more pluralist and particularistic, how might that effect the lives of those of us in the room that are not economists, economics majors, or friends and family of such? This is very difficult to say, because it is not clear – and we have no real way of discovering – the degree to which the methodological coherence of economic science actually affected everyday economic life in recent history. As I noted earlier, a more pluralistic economics may be able to predict and explain in particular local domains much better than the profession’s traditional show-me-the-maximizing-agents-constrained theory. So are we to look forward to better, applied and policy economics? Perhaps, but as I say, it is a hard call. Against this possible improvement in local applications, one must weigh the argument that in order to be effective in the policy domain, economics or any other social science must maintain a high degree of scientific legitimacy, and it is clear that the unified, highly mathematical, core theory of economics played precisely that legitimizing role during the latter half of the twentieth century (Bernstein 2001). It could be that we have better, more descriptively accurate policy tools, but in the process of getting them, we end up de-legitimizing economics as a (capital S) Science, and thus undercut our

collective willingness to employ those tools. The bottom line seems to be that we will need to wait and see: first, if the changes in economics come to pass as I have suggested, and second, what it means for our economic lives.

As a final, and more general, point, perhaps the economics profession's retreat from one grand unified abstract theory into a pluralistic patchwork of special models for special cases, is more just a sign of the times than something that has anything specifically to do with economics. It seems that grand unified and universal theory (at least of the secular variety) is currently out of vogue. It appears to be the case in the natural sciences – although I am certainly no expert – and it is certainly the case for grand social theory; both Marxism and Natural Rights Liberalism have unraveled into a patchwork of pragmatic particularisms. The academic field that I know best other than economics, philosophy of science, has clearly turned away from the grand unified theory of logical empiricism and toward a patchwork of naturalistic case studies in the specific sciences. So perhaps it is not about economics after all, but rather is just something that is in the intellectual air. On the other hand, maybe economics is where the universalist line in the sand will finally be drawn. In any case, I leave you with a quote from a former UPS philosophy professor, David Berlinski. He is talking about differential calculus specifically and natural science in general, not economics, but with the substitution of a word here or there, I think he captures this spirit-of-the-day argument quite well (and more eloquently than I ever could).

The body of mathematics to which the calculus gives rise embodies a certain swashbuckling style of thinking, at once bold and dramatic, given over to large intellectual gestures and indifferent, in large measure, to any very detailed description of the world. It is a style that has shaped the physical but not the biological sciences, and its success in Newtonian mechanics, general relativity, and quantum mechanics is among the miracles of mankind. But the era in thought that the calculus made possible is coming to an end. Everyone feels that this is so, and everyone is right. [Swashbuckling] Science will, no doubt, continue as a way of life, one among others, but its unique claim to our intellectual or religious devotion - this has been lost and it is foolish to deny it. (Berlinski, 1995, viii)

So too perhaps this will be the fate of swashbuckling economics like rational choice theory.

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