Mainstream Economics: Searching Where the Light is.

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1. Introduction

A striking feature of today's economics discipline is the amount of methodological consensus. This is very exceptional for a social science. Take any introductory textbook to sociology, history, international relations theory,... and different approaches to the discipline will be developed alongside each other. It earns them names such as 'pre-paradigmatic science', the idea being that scholars of these disciplines haven't yet made up their minds, that the discipline hasn't been developed enough, etc. Economics seems to be one of the only social sciences to have outgrown this stage, earning them the status of most developed social science and giving rise to "economic imperialism". Economics textbooks usually pay little attention to the different approaches. The story of competing schools in economics is something from the past; as such it is banned from the core courses to a peripheral course on economic history. In some countries there are even plans to ban courses on the history of economics from economics departments altogether. This seems like a benign evolution because it reminds of past scientific successes in which competing schools were abandoned to give way to the successful approach. Examples are the discussion between the miasma and the germ theory of disease[1] and that between Wegener's theory of continental drift and a number of rival theories.

Does mainstream economics belong in this line? Based on the number of scholars adhering to its program, it appears it does. But while both the germ theory and the theory of continental drift gained broad acceptance because of greater empirical success than other theories, the most puzzling feature about mainstream economics is that is has no significantly better empirical track record than most of its contenders. This puzzle is the starting point of this paper: how to explain mainstream economics' great level of acceptance in the face of its poor empirical track record?

But then what is it that sets economics apart from other social sciences? In virtue of what has it been granted this status? A common answer is because mainstream economics has the ability to explain a wide variety of phenomena. Its great explanatory power rather than its empirical success is what sets mainstream economics apart and this, it is argued, more than compensates for other of its inadequacies. In the same sense economists have argued that the

[1] The miasma theory of disease attributes the occurence of disease to the presence of bad air.

theory using individuals exhibiting maximizing behaviour is superior because it explains the widest array of economic phenomena.

"the validity of utility maximization does not depend on its being an accurate description of the behavior of individuals. Rather, it derives from its being the underlying postulate that pulls together most of economic theory" (Aumann 1985, 35)

"The existence of analogies between central features of various theories implies the existence of a general theory which underlies the particular theories and unifies them with respect to those central features. [...] It is the purpose of the pages that follow to work out [the implications of this fundamental principle] for theoretical and applied economics [...] seemingly diverse fields –production economics, consumer's behavior, international trade, public finance, business cycles, income analysis- possess striking formal similarities. [...] Only after laborious work in each of these fields did the realization dawn upon me that essentially the same inequalities and theorems appeared again and again." (Samuelson [1947] 1983, 3)

There is certainly something to be said for unification as a virtue in science. Some philosophers have even contended that all explanation consists of unification (Kitcher 1981,1989; Friedman 1974). Paradigm examples are the explanatory power of Newtonian physics and Darwin's theory of evolution. Newton provided a way to explain both sublunary and superlunary phenomena: planets and falling apples, tied and trajectories of cannon balls, galactic constellations and molecular formations; they all fall under the same forces of gravity. However, the question I wish to address is whether this explanatory power is in itself enough to argue for the superiority of a theory, as seems to be the argument for mainstream superiority. This is an additional claim, based on inference to the best explanation (IBE). IBE can be illustrated with an example[2]: Suppose all electrical appliances in the kitchen stop working at the same time. Did all appliances break down at the same time? Or has a fuse blown? Almost anyone will infer to the best explanation at this point. From an explanations ability to explain the widest variety of phenomena is inferred that it is the best one. Applied to mainstream economics, this kind of reasoning yields that

"Neoclassical theory provides us with a mathematically elegant set of postulates that can be applied over and over again to economic phenomena of apparently quite diverse nature and indeed to social processes not normally thought of as economic at all. By showing that these many different processes can be derived from a small set of basic postulates, neoclassical theory shows that it has the kind of explanatory power characteristic of good science. None of its rivals have anything like this ability to unify. Neoclassical theory is clearly far and away superior." (Kincaid 1997, p.100)

This paper asks whether the appeal of mainstream economics to inference to the best explanation is justified. The conclusion will be that it is not, and as such it undercuts one of the main reasons for the dominance in mainstream economics today. The second section explores the relation between unification and IBE using the distinction offered by Mäki (2001) between derivational and ontological unification. The third section takes the edge of an argument that could be raised as a defence against the criticism of section 1. The fourth section brings the results from the previous sections together in a general framework for explanatory pluralism.

[2] This example is drawn from Lipton (1991)

2. Unification

One of the most elaborate positions on unification is presented by Philip Kitcher (1981, 1989). The account of unification as proposed by Kitcher is one of derivational unification. The best explanation is that which best unifies an accepted set of *sentences*. This mirrors his Kantian perspective. This means that an explanation being the best explanation on Kitcher's view does not allow inference to the best explanation; something being the best explanation does not automatically entail that what is said in the explanation is actually the case. For example after seeing ten green balls coming out of a closed tube, the explanation which best unifies is that the balls in the tube are green. But having said this, Kitcher would not acknowledge that there *are* in fact only green balls in the tube. Inference to the best explanation allows to go one step further and conclude that the balls in the tube *are* green.

In order for IBE to be possible, an additional assertion must be made, namely that derivational unification mirrors the ontic unity present in the domain. Given his Kantian perspective, Kitcher doesn't underwrite this additional assertion. But those who defend the superiority of mainstream economics on the basis of its explanatory power indeed must do this. Despite a widespread instrumentalism launched by Friedman (1953), mainstream superiority on the basis of explanatory power can only be asserted if one believes that mainstream economics does indeed provide the best *ontological* unification of its domain. Ontological unification *"is a matter of redescribing apparently independent and diverse phenomena as manifestations (outcomes, phases, forms, aspects) of one and the same small number of entities, powers and processes."* (Mäki 2001, 498).

Now there are two points to be made here. For one, as Mäki notes, ontological unification can not simply be imposed on the domain but is a matter of empirical discovery. And as stated in the introduction, the empirical track record of mainstream economics is not sufficient to justify its superiority against its contenders. As such, defenders of mainstream superiority need to resort to a bolder measure to cash their claim to explanatory power. This bold measure amounts to searching where the light is and it is this practice which is the subject of the remainder of this paper.

3. The 'not my table'-argument

I began by arguing that claims for mainstream superiority are often based on its impressive explanatory power. But is the conclusion that is best supported by our scientific knowledge also the case? In other words, does mainstream explanatory power justify its claim to superiority? This is a strong claim and in Section 2 I indicated that in order for this claim to hold, it is not sufficient to show the mainstreams superior ability for derivational unification (to which typical arguments for superiority are restricted) but must be supplemented with an argument that mainstream economics also provides ontological unification. Now this is where the trouble starts because, as indicated in the introduction, the empirical track record of mainstream economics is not sufficient to justify its superiority against its contenders. To bring home this point a bolder measure is brought in: the "not my table" argument. The importance of alternative explanations based on giving priority to other theoretical virtues is acknowledged, but said to be outside the domain of (scientific) economics. Whereas the natural order should be to choose a domain and then see which explanations best unify, the

situation is turned upside down by starting from the explanations that best unify and consequently restricting the domain to those phenomena. Mainstream economics doesn't say: "this is our domain, and we think this and that this theory best explains it." Rather, it says "this is our theory, and anything that it explains is its domain; moreover, this domain is the domain of the discipline called economics."

This is already apparent in the work of John Stuart Mill. Because of the problem of disturbing causes, Mill considered only deduction was "adequate to unravel the complexities." with empirical methods merely in the role of supplying premises for and verification of deductions (Mill, III, 439). As such he assumed that prices were determined competitively, because this is the only way how they can "be reduced to any assignable law." (Mill, III, 460) And, after having distinguished between 'competition' and 'custom', he argued that "only through the principle of competition has political economy any pretension to the character of a science." (Mill, II, 239) He considered that the social phenomena relevant for political economics were those "in which the psychological law mainly concerned is the familiar one, that a greater gain is preferred to a smaller." Treatments involving behavioural assumptions other than wealth maximizing belonged "to some other science." (Mill, IV, 331)

Mill did indeed acknowledge that what he called "political economics" was merely a branch of a more encompassing "general theory of wealth" which would need to be supplemented with other specializations, although "Mill failed to specify the particular specializations which would (in principle) complement economics." (Hollander 1992, 20) Also, economics was seen as explicitly not to have a predictive function but an explanatory function. However, with mainstream economics today claiming superiority, it seems as if these reserves have long been abandoned.

It is consequently unsurprising that mainstream economics has indeed the greatest explanatory power of the entire economics discipline, because its entire research programme is designed specifically to attain this generality. However, as Nancy Cartwright notes, this explanatory power usually comes at a price, namely descriptive adequacy:

"In modern physics, and I think in other exact sciences as well, phenomenological laws are meant to describe, and they often succeed reasonably well. But fundamental equations are meant to explain, and paradoxically enough the cost of explanatory power is descriptive adequacy." (Cartwright 1983, p.3)

My reply is that this amounts to "searching where the light is", an expression derived from the following joke: A drunk is found on his knees under a lamppost. He appears to be looking for his keys. Asked why he is looking under the lamppost he answers: "Because at least here there is some light." I argue that this is exactly what mainstream economics is doing: it is searching where the light is. The absurdness of the drunk's strategy summarizes my case against the dominance of mainstream economics. The domain of inquiry is restricted to what can best be explained. The theory is not designed to fit the data, the data is selected to fit the theoretical desiderata. In order to conform to its self-imposed ideal of unification mainstream economics restricts itself to those areas of research that fit within idealized assumptions. As such the vast complexity of social reality can be ignored in favour of nicely unified, easily modelable explanations. This amounts to 'searching where the light is'.

4. A framework for explanatory pluralism

The starting point of this paper was the claim that mainstream economics is superior because of its explanatory power. In the previous two sections, I have indicated two sources on which such a claim is based. First, the idea that unification is the basic aim of science and second, that economics is too complex to be studied in a non-deductive fashion. If these claims are simply taken at face value, then an argument for the superiority of mainstream economics can follow. However, it was immediately indicated that two well-known advocates of these respective positions, Philip Kitcher and John Stuart Mill, would both resist this conclusion. Kitcher only advocated that it is useful to systematize our knowledge (derivational unification) and resisted the extension of his argument to IBE. Mill, for his part, saw what he called political economics merely as a branch of a more general study of wealth. As such, both would resist the claim that mainstream economics is the best way to study economics. Kitcher writes:

"Especially in economics, the drive to unify often overrides sensitivity to the details of particular situations, so that claims of fit are often exaggerated. When Nancy Cartwright and John Dupré offer critiques of premature attempts to systematize economics, attempts often based on some vulgar conception of human motivations, I can only applaud their efforts." (Kitcher 1999, 342)

In the remainder of this paper an attempt is made to develop a framework that incorporates some of the ideas from this and previous sections. As a starting point I would like to draw attention to a seminal paper in population biology, Levins (1966), in which three different models in population biology are scrutinized. Levins argues for the existence of a three-way tradeoff between generality, realism and precision. The existence of this tradeoff renders it impossible to construct a single model in which all of these theoretical virtues are maximized simultaneously. This account has received attention and elaboration up until today.[3] The idea of a tradeoff in explanation is also apparent in the work of philosophers of science such as Alan Garfinkel, Philip Pettit, Nancy Cartwright and Philip Kitcher:

"Explanation is caught, and lives, in a tension between these two requirements. On the one hand, explanations are about the world and so must refer to real things. On the other hand, every explanation must have some generality, and so its objects must in some sense be abstract." (Garfinkel, 1981, p.174)

"It is true that going micro and getting at smaller levels of causal grain involves getting better and better contrastive information – greater and greater detail – on causal history. But it does not follow that it involves getting better and better information tout court. On the contrary, the obvious thing to say is that while it means getting better and better contrastive information, it means losing information of a comparative kind." (Jackson and Pettit, 1992, p.15)

"In modern physics, and I think in other exact sciences as well, phenomenological laws are meant to describe, and they often succeed reasonably well. But fundamental equations are meant to explain, and paradoxically enough the cost of explanatory power is descriptive adequacy." (Cartwright, 1983, p.3)

[3] The November 2006 issue of Biology and Philosophy was dedicated to Levins (1966). Also see e.g. Odenbaugh (2003), Weisberg (2004), Orzack and Sober (1993)

"If we think of unification as a regulative ideal for a scientific community, then the best way of approximating the ideal might be to have two kinds of people, those always pressing for unification and those always insisting on the particular details, each group keeping the other honest." (Kitcher 1999, 343)

4.1. An explanatory tradeoff

There are a number of desiderata that can be said to trade off against each other (scope, generality, inclusiveness, accuracy, precision,...) and different kinds of tradeoffs can be distinguished such as strict tradeoffs, increase tradeoffs and Levins tradeoffs (Weisberg, unpublished). This paper will only consider a strict tradeoff between generality and precision. Precision reflects the level of realistic detail of an explanation. Generality is a measure for the number of phenomena explained by the explanation. The reason to confine the framework to these two desiderata is, first, that as indicated by Weisberg and the above quotes, this tradeoff is the most interesting from the point of view of the larger goals of theoretical practice such as descriptive breadth, the discovery of similarity across disparate systems and increased explanatory power. Secondly, additional dimensions to the tradeoff would complicate but not alter the conclusion of this paper.

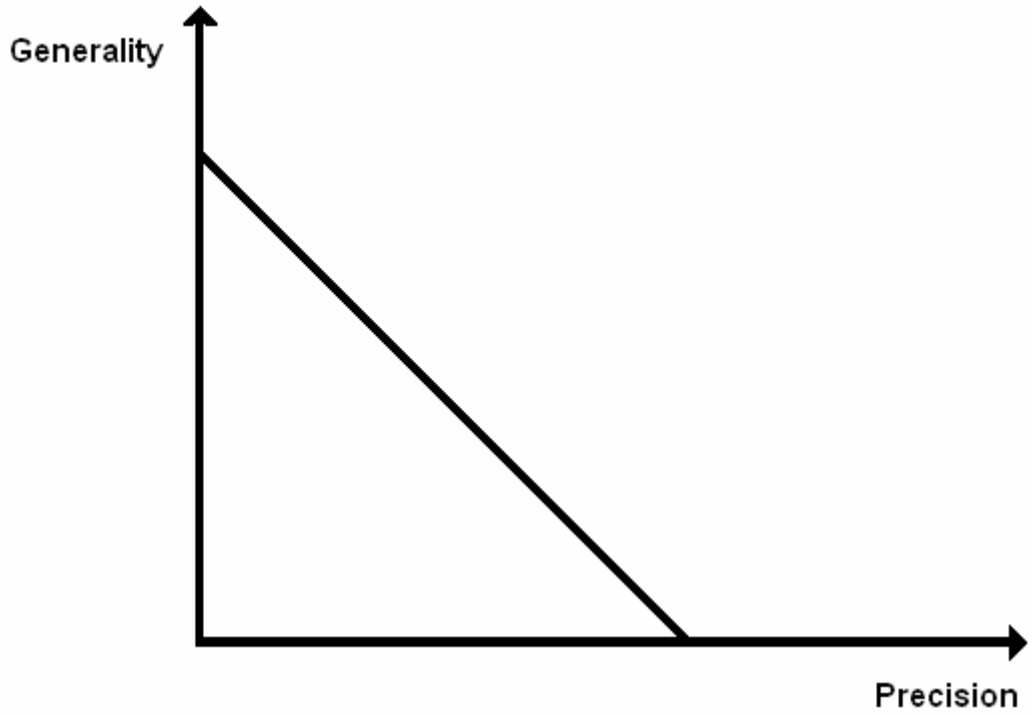

Figure 1: A tradeoff between generality and precision

The framework is drawn in Figure 1. Explanations can then be represented by their co-ordinates on a graph with the X- and Y-axis depicting respectively the level of precision and the level of generality. The line reflects the existence of a tradeoff, constraining the available combinations of generality and precision. Any point on the line maximizes precision for a given level of generality and vice versa. If the domain of the framework is taken to be the entire world, maximizing precision at the total expense of generality would mean taking the world as its own model. This would mean a situation in which every event is the sole instantiation of the category it belongs to. If, on the other hand, generality is maximized at the

total expense of precision, the result is the logical space, all logically possible states of the world.

The tradeoff only suggests is merely that any point on the tradeoff will have maximized precision for a certain degree of generality and vice versa. The domain itself is silent as to what is the best way to trade off generality and precision against each other. Nature doesn't care how we approach it. The only thing that follows is that scientists should try to reach the tradeoff line. However, when a scientist develops a model or a theory, he is forced to make a choice[4] because theoretical constructs can not simultaneously incorporate all different ways of trading off precision and generality. Following Levins, this choice is made depending on the theoretical goals a scientist deems most important in the context of his specific inquiry. For example a scientist might choose to reduce the parameters to those deemed relevant for the short term behaviour of a system in order to make fairly precise, testable predictions. On the other hand, one might be interested in attaining qualitative rather than quantitative results, for example by using a graphical model in which functions are increasing or decreasing, concave or convex, rather than specified by an exact mathematical equation.

I want to use this framework to make sense of the staggering diversity of models and approaches in economics. Different models used by different approaches can then be seen as an answer to the tradeoff they face between generality and precision. Instead of a winner-take-all attitude to different approaches, this suggests a view in which every approach offers a solution to a problem that is objectively unsolvable (nature is silent as to how it is approached), but for which an answer is a conditio sine qua non if any theoretical knowledge is to be acquired. As such, different schools in economics can be mapped along the tradeoff line and the resulting classification is a framework for pluralism in economics. For example an institutionalist approach allows to explain contrasts between levels of economic growth, whereas neoclassical growth models overlook these divergences. However, the role attributed to cultural and historical factors curtails the generality of their conclusions. Similarly, feminist scholars discern differences in gender, while Post-Keynesians generalize across gender; Post-Keynesians are able to discern more general patterns of exploitation. Hence, explanatory pluralism is the only way to avoid searching where the light is. The framework is meant to provide an argument for explanatory pluralism and clarify what this position can be taken to mean.

4.2. In search of the light

Having constructed this framework, the claim that mainstream economics is searching where the light is can now be represented. Mainstream economics can be positioned at the top end of this graph, exhibiting much generality at the cost of realistic detail. This follows directly from the great reliance on mathematical modelling, as documented e.g. in Lawson (2006). Such models have an in-built requirement for regularities, which attributes high generality to the resulting explanations. However, such regularities require a high level of idealization to be made applicable to the domain of economics. As such, in line with the tradeoff, the generality it champions is acquired at the cost of realistic detail. As such it is no coincidence that the empirical track record of mainstream economics is not baffling.

This alone is however no reason for concern. As was indicated, any position along the tradeoff line is valid and any theoretical construct will need to make a choice as to where it is positioned. The problem lies with the claim of superiority, which runs counter the equality

[4] For an elaboration of choice in the context of pluralism see De Langhe (2009)

expressed by the tradeoff line. I see three motives for this superiority claim, which I think are all three flawed. First there is the doubtful emphasis on explanatory power and inference to the best explanation makes the value on the Y-axis all-important as a measure for success. This was already criticized in section 2. Second, the not-my-table argument, which restricts the disciplinary boundary of economics to the upper part of the tradeoff. Any discipline is characterized by disciplinary boundaries; their domains are restricted to a certain extent. However, what happens in economics is not a restriction of domain but a restriction of ways in which the domain is studied. The domain is selected on the basis of the fact that it fits the economist's preferred methods and aspirations. The elegant axiomatic structure of a science based on mathematical modelling and great explanatory power give economists a way to resist the fate of their social science counterparts of being denied a mature scientific status.

"The essential condition of any science is the existence of regularities which can be analysed and forecast. This is the case in celestial mechanics. But it is also true of many economic phenomena. Indeed, their thorough analysis displays the existence of regularities which are just as striking as those found in the physical sciences. This is why economics is a science, and why this science rests on the same general principles and methods of physics." (Allais, 1992, p. 25)

There are a number of advantages to this position. A coherent framework based on rigid assumptions allows for a high level of specialization. While handbooks in history or political science are different across the world's universities, students in economics get teached the same theorems wherever they go. An economist publishing a paper in one subfield will find compatible contributions in other subfields, allowing for easy integration of research results. There are also benefits of a more political nature. Big internal coherence allows to channel more research funding their way. The formalist framework allows for easy and unambiguous quality assessment, both with respect to research (does the model live up to technical standards) as researchers (does s/he master the technicalities?). This allows for strict hierarchisation which again improves the discipline's efficiency. Perhaps an even greater (be it dubious) benefit is that these internal quality standards, because they are so clear, become so dominant that they can be used to dodge nasty questions concerning external quality, i.e. relevance. This is a third motive.

These three motives are conducive to a search for the light. The first one lets the discipline evolve toward the light, the second one makes it forget about alternatives and the third eliminates an important source of potential criticism, so that the situation can be upheld. However, from an explanatory point of view such a restriction of the domain is a very bold move. Any explanation of a phenomenon will be faced with a tradeoff between generality and precision. Within any selected domain there will always be questions for which answers are preferred that require different combinations of theoretical virtues.[5] More generality allows to discern patterns which would otherwise remain hidden; more precision allows to explain contrasts which a more general mode overlooks. An approach can then be visualized as a mesh; the finer the mesh, the more precise but less general. The fineness is determined by the presuppositions of the approach. As such, different meshes appear depending on whether an approach is built around maximizing individuals, uncertainty, evolutionary developments, care, institutions and history, etc. Of course the mainstream has been very inventive in trying to model these concepts in their preferred scheme. However, the resulting approach keeps on

[5] De Langhe (200x) for example explores how question-relative factors such as contrast classes affect the GA-ratio of ensuing explanations.

exhibiting the same combination of generality and precision because the presuppositions remain unchanged.

Each approach tries to reach the tradeoff line, i.e. the point where precision is maximized for their level of generality. Different meshes strive toward different points on the tradeoff line. As such a framework for pluralism in economics ensues. There is room for a division of labour. I'm willing to follow Tony Lawson's characterization of economics as *"the division of social theory or science primarily concerned with studying all social structures and processes bearing upon the material conditions of well-being."* (Lawson 2006, 500) However, whereas Critical Realists envision a division of labor around this ontologically defined domain, and "*Lawson's account invokes the picture of a crowd of scientists peeping at 'reality' through many different holes in a wall"* (Peter 2003, 99) the view presented in this paper complicates this relation by inserting the tradeoff in between the observer and the world. As such, the division of labour doesn't center around a common ontology, but around the basic tradeoff that is faced when studying a loosely defined domain.

5. Conclusion

This paper argues that approaches in economics can be classified against each other based on the way they trade off generality and precision. The superiority claim of mainstream economics rests on a defence of its specific way to trade off accuracy and generality, which I summarized in three motives. Such superiority claims are suspect, because they limit a discipline's ability to address the variety of explanatory requests that can be raised with respect to economic phenomena. Consequently a framework for explanatory pluralism is built around the idea of different approaches being different answers to the same trade-off.

The framework indicates in what sense different approaches are complementary. Namely, they address a common domain using models exhibiting different combinations of generality and precision. An important advantage of the view at hand, however, is that is doesn't require logical compatibility in order to be complementary. In order to address different combinations of generality and precision, different approaches will be built differently from the ground up, as such often being fundamentally incompatible. This is in line with actual scientific practice, where different approaches are often only compatible in a loose sense, if at all.

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