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Part I

Introduction

1 The dismal queen of the social sciences

Uskali Mäki

1 The factuality and fictionality of the “dismal queen”

Economics is a contested scientific discipline. Not only are its various theories and models and methods contested but, remarkably, what is contested is its *status as a science*. This becomes evident as soon as we think of some of the popular nicknames used of economics – such as “the dismal science” and “the queen of the social sciences.”

Suppose we take one of the characteristics of science to be the capability of delivering relevant and reliable information about the world. Suppose furthermore that this is not just a capability, but also a major goal and actual achievement of whatever deserves to be called by the name of “science.” How does economics do in this respect? This question is about as old as economics itself.

Many of those who are unimpressed think of economics as an arrogant and ignorant discipline, driven by methodological values that have little or nothing to do with the goal of delivering truthful information about the real world – values such as mathematical elegance and professional status. They might say that while economics may be the queen of the social sciences in regard to mathematical rigor, it is a failure in so far as its contact with the real world is concerned. Economics is largely a matter of formalized thin fiction and has little to do with the wonderful richness of the facts of the real world. It is the “dismal science,” as Thomas Carlyle once put it.¹

The expression “dismal science” seems to have grown in popularity – perhaps for reasons such as the new debates over the present and the future of economics, the current relaxed rhetorical atmosphere that favors fancy language, and, importantly, the ambiguity of the expression. The expression “dismal science” has many connotations. The most general and entirely useless one derives from its use as a tool for denouncing bad economic reasoning or an economic idea that one does not like. One of the more specific and familiar connotations relates to the Malthusian-type anticipations of a gloomy future, based on the presumed

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fact of diminishing returns. Another relates to a depressing awareness of the “economic necessities” that govern social life in the form of budget constraints and trade-offs of various sorts. A related connotation refers to a heartless attitude towards human suffering, often attributed to the proponents of free market economics. Yet another relates to the narrow focus on calculative greed and its consequences as shaped by the values of money and the market, while being blind to social norms, customs, emotions, and the moral strings of personal relationships, thus missing major facts of economic reality. The final connotation is connected to the alleged impotence of the theoretically narrow and inward-looking academic economics in explaining, predicting, and controlling the functioning of the complex economic system – for example, in anticipating and helping prevent major economic crises. It is the last two connotations – economics missing important aspects of economic reality and its autistic impotence with respect to real-world issues – that are the most relevant to the main themes of this volume.

Other people, most notably many practicing economists, disagree on the pessimistic diagnosis of economics – or at least of their own favorite part of it – as “dismal.” For them, economics is the queen of the social sciences, and this is so not only because of its superior mathematical rigor. They believe that the best of economics is driven by a keen interest in real-world issues and policy-relevance, and that it is capable of delivering insights and important information about economic reality: or at any rate more relevant and reliable information about economic issues than any other intellectual endeavor. These people – if they were methodologically enlightened – might say that it just appears as if economics deals only with fictions: the fictitiousness of economics is itself a fiction. In fact, economics – or at any rate a sufficiently large part of it – is very much a respectable fact-oriented scientific discipline. This fact about economics is easy to overlook, for the simple reason that the relationships between economic theory and reality are quite convoluted and hard to monitor: by necessity, reality is indefinitely complex, while theory is simple. Carlyle missed this because he did not understand that “all science is ‘dismal’ to the artist” as Schumpeter once put it (1954, 410).

The controversy around the “dismal queen” is old. In 1819, Simonde de Sismondi put forth a complaint that sounds very familiar today: “We see political economy adopting a more sententious language, enveloped in calculations increasingly difficult to follow, losing itself in abstractions and becoming, in every way, an occult science.” One and a half centuries later, similar appraisals were put forward by many prominent economists. Indeed, the early 1970s witnessed a barrage of critical assessments from among the highest ranks of the economics profession: fellow economists were charged with “continued preoccupation with imaginary, hypothetical, rather than with observable reality” (Leontief 1970, 1) and for working with theories and models “built upon assumptions

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about human behavior that are plucked from the air” (Phelps Brown 1972, 3). More specifically, the criticism was voiced that “these assumptions are frequently made for the convenience of mathematical manipulation, not for reasons of similarity to concrete reality” (Frisch 1970, 162). As a consequence, there “now exist whole branches of abstract economic theory which have no links with concrete facts and are almost indistinguishable from pure mathematics” (Worswick 1972, 78). These statements are manifestations of what Hutchison (1977) dubbed “the crisis of abstraction.”

Ronald Coase’s attack on what he calls “blackboard economics” is on largely similar lines. Coase suggests tracing this approach back to Joan Robinson’s *The Economics of Imperfect Competition* (1933): “This new theoretical apparatus had the advantage that one could cover the blackboard with diagrams and fill the hour in one’s lectures without the need to find out anything about what happened in the real world” (Coase 1993a, 51). Coase complains that “when economists find that they are unable to analyze what is happening in the real world, they invent an imaginary world which they are capable of handling” (1993a, 52), and summarizes his account like this: “What is studied is a system which lives in the minds of economists but not on earth. I have called the result ‘blackboard economics’” (Coase 1993b, 229). Blackboard economics, so characterized, looks like sheer fiction and not in the least a factual enterprise. The famous discovery by Arjo Klamer and David Colander (1990, 18) appears to confirm Coase’s worry: the economics students on the most prominent graduate programs at US American universities believe that being excellent in mathematics and skillful in puzzle-solving (on the blackboard, we might add) are important for success in economics, while having a thorough knowledge of the economy is regarded as unimportant for success.

In their discussion of what they call the “crisis of vision” in economics, Heilbroner and Milberg (1995) share these concerns. They argue that up to the post-Keynesian period – roughly up to 1970 – economics was characterized by analysis based on a vision of social reality and therefore by “its continuously visible concern with the connection between theory and ‘reality.’ By way of contrast, the mark of current economics is its extraordinary indifference to this problem. At its peaks, the ‘high theorizing’ of the present period attains a degree of unreality that can be matched only by medieval scholasticism” (1995, 3–4). Heilbroner and Milberg argue that, especially since the rational expectations revolution, there has been an “inward turn” away from real-world concerns and towards mere intellectual games amongst academic economists.

In this volume, the critical voice is Mark Blaug’s (see also his earlier falsificationist account in Blaug 1980). In chapter 2, he laments the illness of formalism that he believes dominates economics and has turned it into a policy-irrelevant academic game. Special blame is put on general equilibrium microeconomics after the Arrow–Debreu proof in 1954, on the more recent fascination with

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game theory, and on New Classical macroeconomics. Economists have lost their interest in tackling real-world issues, and some of them find justification for their attitudes in postmodern meta-theories that question the sensibility of notions such as the real world and its theoretical representation. Realism is the advisable alternative to help reorient economics, maintains Blaug.

In response to charges of the above sort, some practicing economists have taken on the task of defending economics as a fact-oriented discipline while blaming the critics for being uninformed about what is going on. Some argue, in diametric opposition to the critics, that in the last thirty years or more, economics has become more, rather than less, fact-oriented. A few prominent and representative illustrations will suffice to highlight the major themes in these arguments.

With a long career behind him, Robert Solow (1997) explicitly denies that mainstream economics has lost touch with reality. He recognizes a major change in economics from 1940 to 1990, but his diagnosis is decisively more moderate than that of the more radical critics: economics has become “a self-consciously technical subject, no longer a fit occupation for the gentleman-scholar” (1997, 42). Solow suspects that this may have led some observers to adopt the misconception of a discipline unconnected to real-world issues. Here we should add that this conclusion may require another premise, namely the observation that economics is a discipline without popularizers who would bridge the gap, in the minds of the lay audience, between forefront technical research and the pressing economic issues of the day (Krugman 1998, 8). Solow admits that there is a small minority of “formalists” in the economics profession, and that they are mainly writing to one another. Most of economics is not a matter of formalist fiction but rather model-building, “which is an altogether different sort of activity” (Solow 1997, 43) – more on this in a moment. The crux of the matter is that economics has become *technical* rather than “formalistic, abstract, negligent of the real world . . . Far from being unworldly, modern model-builders are obsessed with data” (Solow 1997, 57). If there is a problem, it is that there is a shortage of relevant data, and that sometimes model-builders keep building their models without adequate evidential checks-ups.

Another recent defensive voice is that of William Baumol (2000). In his assessment of the achievements of the economics of the twentieth century, he argues that, throughout this period, economics has made significant progress in what it offers to practice: “advances in empirical work and application of theoretical concepts to concrete issues of reality are where one can find the most distinct advances beyond the state of knowledge at the beginning of our century” (2000, 10). Baumol acknowledges that this observation cannot be extracted from economics textbooks that to a large extent fail to reflect relevant developments in actual frontline research. In his view, these developments stress the importance of rigorous data analysis and the interdependence between

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theory and data: “we have grown increasingly uncomfortable with theory that provides no instruments for analysis of the facts and no opportunity for empirical testing” (2000, 26–27). The employment of sophisticated mathematical techniques and drastic theoretical simplifications promote, rather than hinder, success in applied research that endeavors to support practice. The basic image of economics Baumol is suggesting is one of a discipline responding, in a systematic and rigorous fashion, to demand based on concern with practical real-world issues. It is an image of a fact-oriented discipline.

Representative of a younger generation, David Kreps (1997) offers further nuances to the largely optimistic picture. Kreps perceives a strong trend, in the last thirty years or so, towards a broadening range of research issues that are tackled in an empirically sensitive fashion by economists who are increasingly willing to reconsider the assumptions of their theories. Like Solow and Baumol, Kreps points out that there is an increasing body of data available to economists, and that they are increasingly prepared to produce more data themselves, for example by way of experimentation. He also indicates the growth of two-way interaction across traditional disciplinary boundaries with biologists, sociologists, and psychologists whereby economists learn from these fields. In microeconomics, Kreps identifies two trends, one more radical than the other. The less radical trend consists in relaxing “contextual” assumptions such as large numbers and anonymity of agents, shared information, and static analysis, and replacing them by small numbers interaction, asymmetrical information, and nontrivial dynamics. This is the main current in the new microeconomics. The more radical trend consists in relaxing one or more of the “canonical” assumptions of far-sighted rationality, purposeful greed, and equilibrium. This trend is understandably weaker as it challenges the canon and meets with more resistance from the established paradigm. Even though the canon is admittedly empirically deficient, the move away from it will be impeded by the (still) relative shortage of adequate empirical data and the possibility of tweaking the true-to-the-canon models on the face of almost any evidence.² What emerges from this is a qualified optimism about economics as a factual discipline.

In chapter 3 of this volume, Partha Dasgupta joins the camp of those who have set out to defend economics, motivated by a sense of social responsibility to defend an unjustly criticized discipline. Just like Solow, Baumol, and Kreps, Dasgupta claims that, in the last quarter of a century, economics has become more rather than less factual. While Baumol warns against just looking at textbooks, Dasgupta warns against just listening to what economists say about their work: both recommend looking at what they do in their research. Dasgupta explicitly launches a counterattack against the version of discontent put forth by Heilbroner and Milberg. By citing a number of examples in recent research, he argues that economics has moved away from grand theoretical issues towards

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small and sharp applied issues, and that this has helped economics become increasingly factual.

I have listed just a small selection³ of representative assessments of economics, and the clear picture that emerges is that there is no clear picture. Opinions diverge as to whether economics is on the right or wrong track, and, if on the wrong one, when exactly the sinning started: in the early 1930s, early 1950s, or early 1970s? Given the role and status of economics in university education, in policy, and in our culture at large, the radical disparity of these commentaries must be found very confusing, if not alarming. What to make of such striking differences in the assessments of economics? Whenever one comes across with such polarized claims, it is time for further questions and some conceptual scrutiny. This is where a little help from one's methodology friends is welcome, and this is where this volume sets out to offer some community service. Things will turn out to be much more complex than the most simplistic statements suggest.⁴

The first easy observation is that "economics" is a dangerously aggregated notion that hides a lot of variety and diversity behind it. One takes big risks by maintaining that economics is like this or economics is like that – for the simple reason that there is no one homogeneous "economics" about which one can justifiably make straightforward claims. A more differentiated approach is advisable. Statements should be made about particular branches of economics during particular spans of time being factual or fictional in carefully specified respects. Another obvious qualification is that the disjunctive "fact or fiction?" is misleading. The right configuration is the conjunctive "fact and fiction" – this latter serves as the title of this volume. *Any* scientific discipline combines fact and fiction, and there are many kinds and degrees of factuality and fictionality.⁵ Finally, whenever one attributes fictionality or factuality to something, one has to be very clear about what exactly this something is – a concept, an assumption, a model, a framework, a piece of data, a metaphor, a graph – as well as what one means by "fact" and "fiction."

Philosophers have offered a number of rival accounts of both fact and fiction. Economists and others, on the other hand, use these notions without analyzing their precise meanings. In a volume like this, bringing together a variety of themes, approaches, and perspectives, there cannot be a precise account of the notions of fact and fiction, unifying the contributions. We need to be content with somewhat intuitive and simple ideas. These notions can be linked to the issue of realism (of which more will be said in chapter 4). One can be a realist about the world and about theories of that world. Take *T* to be a theory, model, or assumption related to chunk *S* of the world. One is a realist about *S* in relation to *T* if one believes that *S* exists independently of accepting, believing, or uttering *T*. One is a realist about *T* in relation to *S* if one thinks that *T* and its constituents refer to *S* or that *T* in addition truly represents or should truly represent *S* – where truth is likewise independent of whether *T* is accepted, believed, or

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uttered. These definition sketches imply that, for example, the observability of an object and the testability of a theory are conceptually unconnected to realism.

Facts are what is the case, they are what make true statements true. A true statement is true because it stands in a suitable relation (such as that of correspondence) to facts in the world. Many economists believe that it is a fact about inflation that it is a monetary phenomenon. The link between facthood and truth then suggests that to say, “it is a fact that inflation is a monetary phenomenon” is to say, “it is true that inflation is a monetary phenomenon” (which, the redundancy theorists of truth will controversially add, is nothing else but to say, “inflation is a monetary phenomenon”). On this view of facts, facts are objective features of the world that serve as the truth-makers of true statements: if “inflation is a monetary phenomenon” is a true statement, then what makes it true is the fact that inflation is a monetary phenomenon. Some philosophers are concerned about whether there is sufficient distance between fact and truth, but for our purposes it is enough if we just take facts of the economy to be objective features of social reality that are not constructed in the intellectual games economists play. What counts as a fact and what counts as true in a community of scholars is socially constructed, whereas what is a fact and what is true, is not. Such a simple distinction will satisfy some unqualified realist intuitions.

One can attribute fictionality both to objects and to representations. We may say that an object is fictional where its existence and the truths about it are dependent on particular descriptions of it. Just like Robinson Crusoe’s existence and any truths about him are dependent on Daniel Defoe’s descriptions, the existence of *homo oeconomicus* and truths about “him” may be dependent on the various assumptions used by economists to describe the economic actor. One may then regard a representation such as a model or its constituent assumptions as fictional if it is about such fictional objects. If one thinks there are nonfictional real objects in the world as well, one may call a representation fictional if it is not taken to refer to any real objects, thus is not used for making assertions or conjectures about the real world. It lacks factual truth-value altogether: it is factually neither true nor false because it is about nothing real. Another possibility is to consider a representation fictional because it is false or radically false when interpreted as an assertion or conjecture about the real world. One then proceeds to study the real object *as if* it were as represented. Both of these ideas seem to appear in the commentaries of economic models: these models are claimed to be fictional in being radically false or in lacking truth-value altogether.

* * *

These issues can be approached from at least three perspectives, from the point of view of three questions. (1) *How do economic models function*: How do economic models and theories relate to the world? This question, too, has many

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facets and thus falls within the semantics, epistemology, and methodology of economics, addressing questions of truth, knowledge, and methods of testing. (2) *How does the economy function*: What is there in the social world that will be causally or constitutively relevant to the functioning of the economy, or to the occurrence and shaping of economic phenomena? This is a question in the ontology of economics.⁶ (3) *How does the academic discipline of economics function*: What is its structure of institutional constraints and behavioral incentives that shapes the endeavors of economists? How does the “industrial organisation” of economics enhance or hinder its fictionality and factuality? To answer these questions, one has to study the institutions of economics – the rhetoric, sociology, and economics of economics.

In actual practice, these are not fully separate perspectives, but for the purposes of this volume, the chapters are arranged in these three categories. These three perspectives have been characteristic of my own work, and I am delighted that the invited contributions appear to fall within this scheme. The scene is set by raising some of the key issues in the three chapters in part II of the volume. The six chapters in part III address question (1), asking how models link with reality. Question (2) about the constitution of economic reality is addressed by the five chapters in part IV. Finally, question (3) about the institutions of economics is the theme of the last three chapters in part V of the book.

2 Economic models

To do economics is to do modeling. In assessing the truth of this claim one had better be attentive to the ambiguity of “model.” On a narrow sense of “model” – a notion of model defined in terms of mathematics – the claim may have a great deal of truth in it, even though it may be taken to exaggerate with misleadingly restrictive implications (such as “you are not doing economics if you don’t build mathematical models”). On a broader sense of “model” – model as selective representation – all of economics was, is, and will be, a matter of modeling; and there is nothing peculiar about economics in this respect, in comparison to cosmology, chemistry, criminology, and casuistry.

If there is a puzzle about modeling, it is that economists build models that depict model economies that may appear to bear little or no resemblance with the real world. For outsiders, such as journalists, beginning undergraduate students, and many other social scientists, it may appear as if economists are living in a dream world of their models, in an imaginary world of fiction that they themselves have designed. The challenge for economists and economic methodologists alike is to analyze the ways in which models could convey, or fail to convey, truthful information about the facts of real economies.

Above, I cited Solow’s remark that economics is engaged in model-building that is an activity different from what “formalist” economists do. Indeed,

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model-building at its best can be construed as fact-oriented activity that takes as its objective to isolate key causal dependencies in reality: “The idea is to focus on one or two causal or conditioning factors, exclude everything else, and hope to understand how just these aspects of reality work and interact . . . modern mainstream economics consists of little else but examples of this process” (Solow 1997, 43). This is to say that modern economics is a matter of using the generic method of isolation, of inclusion and exclusion, of focusing on key elements and neutralizing the rest, of simplification and idealization. Models involve idealizing assumptions that are strictly false but serve the purpose of simplifying the problem attacked by excluding or neutralizing many factors that might be expected to have an impact on the outcome of an actual process. Such false assumptions help isolate some key dependencies for closer inspection. While laboratory experiments accomplish such isolations by way of causal manipulations of actual situations, the isolations of a model-builder take place in the theoretical sphere as thought experiments. Models are (among) the economists’ laboratories. (See Mäki 1992a.) As Solow suggests, “A good model makes the right strategic simplifications. In fact, a really good model is one that generates a lot of understanding from focusing on a very small number of causal arrows” (Solow 1997, 46). A model isolates one or a few causal connections, mechanisms, or processes, to the exclusion of other contributing or interfering factors – while in the actual world, those other factors make their effects felt in what actually happens. Models may seem true in the abstract, and are false in the concrete. The key issue is about whether there is a bridge between the two, the abstract and the concrete, such that a simple model can be relied on as a source of relevantly truthful information about the complex reality.

Since realists are friends of truth, they want to have models that provide truthful representations of economic reality. The challenge is to reconcile this goal with the intrinsic feature of models that they contain a lot of falsehood. This is too big an issue to be discussed here in any satisfactory detail and comprehensiveness, but let me make a brief remark about the important notion of representation. Virtually any objects can serve as models of something else, and such objects can be of various kinds: models may be material, linguistic, and abstract objects; they can take on the form of concrete analogues, graphs, experimental designs, idealized thought objects, systems of mathematical equations, and so on. In each case, we may think of a model, M , as a simple system used as a representation of something else, a more complex system, X , in two senses. First, M represents X in that M is used as a representative of X . By studying M instead of X directly, one hopes to learn about X . One manipulates M by way of constructing, experimenting, calculating, and imagining, and so learns about the properties of M . Second, M represents X by resembling it in relevant respects and sufficient degrees relative to the use to which M is put. Thanks to this resemblance, the examination of M will convey information about X .