

A Neoclassical Curmudgeon Looks at Heterodox Criticisms of Microeconomics^{1,2}

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Abstract

The purpose of this paper is to open a dialogue with heterodox economists about what, from a neoclassical perspective, is valid in heterodox criticisms of neoclassical microeconomics. Many heterodox criticisms of neoclassical microeconomics are valid to a neoclassicist; but some are not. Examples of both are given, mostly taken from E. Fullbrook's anthology, *A Guide to What's Wrong with Economics*, (London: Anthem, 2004). And neoclassical reasons for a lack of validity where that arises are provided. Both criticisms and the judgment of their validity can be subjective or objective.

Key words: heterodox criticisms, neoclassical microeconomics, valid criticisms, invalid criticisms

Neoclassical microeconomics is a well-established intellectual enterprise that sets out to explain economic behavior at the level of individual agents, producing firms, and market complexes. Its development through the nineteenth and twentieth centuries has evidenced increasing formalization and, as is well-known, its pretensions to scientific status have been accompanied by increasing recourse to mathematical formulations. In the course of its historical development, neoclassical microeconomics has properly attracted a healthy, and at times a vigorous and productive, scholarly discourse that has raised questions regarding the methodological character of its investigations, the assumptions it employs, and the interpretation of its results. But caution is necessary in the critique and evaluation of the legitimacy of what it is that neoclassical microeconomic is all about and how it proceeds. Inadequate realization of the objectives of analytical inquiry and the generally accepted methods of its argument can, from the perspective of its practitioners, easily give rise to essentially irrelevant criticisms. The aim of this paper is to throw light on that danger by suggesting what the practitioners of neoclassical microeconomics would regard as both proper and improper grounds and methods of critique, and to present illustrative instances of where the relevant literature has provided forms of criticism that are understood by them as unsustainable. Obviously there is some subjectivism involved in distinguishing proper from improper criticism. The manner in which that subjectivism arises will be taken into account.

There is little doubt that, from the vantage point of the practitioners of neoclassical microeconomics, legitimate forms of criticism of neoclassical microeconomics, together with suggestions for tightening the logic of its content, can be made. But disquisition addressed to either of those ends, instances of which will follow, will miss its target if it remains unaware of the nature and purposes of neoclassical argument itself. That argument is in general responsive to the fact that fully exhaustive description of economic affairs is impossible. Microeconomic argument has therefore necessarily engaged in abstraction from the detailed realities of the phenomenon or state of affairs whose explanation is sought. It is often analytical in nature in that it deals with the logical relations among ideas and frequently involves the development of theories and/or the construction of models. And the explanation it produces has often assumed that economic behavior can be visualized and understood as though it derived from certain well-specified, hypothetical

¹ Martin Shubik (1970) affixed a similar title to his screed on the relevance and appropriateness of microeconomics as of 1970. He began by warning the reader that his article "... is frankly partisan and gives a biased view of what microeconomics is and what is good or bad about microeconomics in its current state" (1970, p. 405). The present paper is of the same spirit and comes with a similar warning. It is intended to open a conversation among neoclassical and heterodox economists about what is valid and invalid when criticizing current microeconomic analysis.

² The author would like to thank Roberto Veneziani for suggesting this paper and, along with Douglas Vickers and John Harvey, for helping with its execution.

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functions. Such an approach has a rationalist or *a priori* flavor⁴ and clearly gives rise to what is essentially an 'as if,' or 'something like,' explanation. For example, it might be contemplated analytically that consumers make purchasing decisions as though they were optimizing an appropriately constrained utility function, or that a business firm chooses its output levels and factor combinations as though its decisions were taken against a suitably defined production function. But assuredly, real-world consumers and real-world firms do not and cannot actually have at their disposal such analytically specified functions.

Within this frame of reference economists have always thought that there was much wrong with neoclassical microeconomics. Any perusal of the history of microeconomic thought (or, for that matter, the history of economic thought in general⁵) will find numerous instances in which one theory, analysis, model, or argument was replaced by another because the one that was replaced was denigrated as incorrect or found to be inadequate to explain the phenomenon at issue. In perhaps the most startling rebuke of received 20th century microeconomic analysis, one of its founding fathers, none other than Nobel laureate J.R. Hicks repudiated his own work (the same work for which he was cited in his Nobel award) by altering his identity: "Clearly I need to change my name," he wrote in 1975. "Let it be understood that *Value and Capital* (1939) was the work of J.R. Hicks, a 'neoclassical' economist now deceased; *Capital and Time* (1973) – and *A Theory of Economic History* (1969) – are works of John Hicks, a non-neoclassic who is quite disrespectful toward his 'uncle'" (1975, p. 365). Much of Hicks' subsequently published work appeared under the newly assumed identity of its author. More recently, in a collection of essays edited by E. Fullbrook entitled *A Guide to What's Wrong with Economics*, (London: Anthem, 2004) twenty-seven economists detail their criticisms of economics in general and microeconomics in particular.

Criticisms, of course, can be valid or invalid. Valid criticisms can inspire. They can lead to changes in analytical or theoretical constructions, to their extensions, or to entirely fresh ones. Modifications and extensions of old analyses and theories and the development of new analyses and theories enhance explanation and the ability to predict. They can provide the means for communication among scholars and the basis for policy decisions. But invalid criticisms can have detrimental effects. If accepted by many, they can lead to the rejection of significant and useful analyses and theories and possibly to the development of irrelevant or 'false' ones. They can discourage communication among scholars because those who subscribe to the analysis or theory being criticized may think it a waste of time to respond to the individuals who appear to the subscribers not to understand what they are criticizing. And invalid criticisms can have serious consequences if damaging policy decisions eventually emerge from them.

1. Types of criticism

Criticisms, of course, may appear in different forms. Certain types, which might be referred to as objective in their intentions, may recognize and take full account of the methods and stated aims and claims of neoclassical microeconomic theory. But in doing so, they may call attention to imagined logical flaws or internal inconsistencies in parts of its argument or methods while containing no subjective presuppositions or preferences as to assumption content or methods of analysis. These criticisms remain consistent with the principle that a critique of a body of thought, quite apart from whether or not it is judged to be valid, should evidence an understanding of, and fully recognize the real nature, purpose, and intention of that which is being criticized. If, in such an instance, a charge of logical flaw or internal inconsistency was shown to be in error, or if that charge demonstrated a lack of understanding of the argument being criticized, its purpose, or its intention, or if acceptance of the criticism would vitiate the possibility of doing analysis as that activity is generally understood, a neoclassical's response to the criticism may be quiet straightforward in its reassertion of the validity of the criticized argument. In that way the neoclassicist would be making a clearly objective response that, as he sees things, vindicates the original construction. But it is always possible that a criticism that carries the charge of logical flaw or internal inconsistency may, in fact, be shown to be valid. In that case, the objective response of the neoclassicist would be to abandon or adjust

⁴ See Prasch (1996).

⁵ Indeed, much of the following through Section 1 may also be applied more generally to portions of economic analysis well beyond microeconomics.

the argument accordingly.

On the other hand, instances of criticism may arise (and the literature of criticism, as will be explored in what follows, makes their occurrence abundantly clear) where the critical attack emanates from more clearly subjective claims relating to assumption content or analytical methods. There are at least three kinds of subjective criticisms. First, a neoclassical argument could be criticized for its methodology. For example, the critic might be unwilling to accept the rationalist or *a priori* method employed by neoclassicals, asserting that an empiricist approach is more appropriate for understanding the microeconomic phenomena at issue. But a criticism that directs attention in the direction of empiricism is in danger of throwing out the objective or purpose of the analysis and lapsing into a plea for what is substantially a mere description of the phenomenon under investigation.

Second, it may be claimed that certain neoclassical assumptions are unwarranted. Such a critique may arise either as an intra-mural disagreement within the neoclassical camp, or from a heterodox or other perspective that understands the phenomenon in question or what is significant about it differently.

And third, a neoclassical analysis could be faulted for being unable to achieve its own stated goals. By that is meant that the analysis is criticized for not doing what it claims it sets out to do. For example, an analysis that purports to explain a certain economic behavior may be censured for not, in the critic's opinion, providing a meaningful or pertinent explanation of that behavior.

As a combination of the second and third types of subjective criticism, it might be held that the particular assumptions and/or construction in view remove the analysis sufficiently far from practical affairs and empirical reality as to render it irrelevant to the real microeconomic world. To illustrate, it may be contended that the widely-accepted assumption of perfect certainty takes neoclassical microeconomic theory quite outside the bounds of possible empirical actuality. Such a critique carries the potential of propelling analytical attention to a more robust development of other competitive forms, as well as to stimulating discussion across the neoclassical-heterodox divide. For, in a fundamental sense, that kind of criticism drives to the heart of neoclassical assumptions, analytical methods, and purported links to the real economic world. The neoclassical response to subjective criticisms may itself be subjective in the sense that it acknowledges that differences exist between the neoclassicist and his critic as to the realism, degree of potential usefulness, and justifiability of the scheme under critique. Clearly, then, neoclassical and heterodox economists may arrive at different judgments regarding the validity of subjective criticisms. And it is here that a dialogue between neoclassical and heterodox economists could benefit both sides and the profession at large by leading to a deeper understanding and more significant analyses of the issues involved.

Thus criticisms of neoclassical microeconomic theory as well as the neoclassical response to them can be either objective or subjective. To throw further light on the criticisms, responses, and the issues involved, this paper will examine in what follows a number of criticisms of neoclassical microeconomic theory that have been advanced by heterodox economists against various aspects of the neoclassical tradition. The specific criticisms selected for consideration are presented as a convenient means of drawing attention to more prominent and popular criticisms that are frequently offered from heterodox economic standpoints. The views represented are broadly shared. Because they are typical of the elements of a wider landscape, there is little harm in focusing on several of the essays in Fullbrook's anthology in which they appear. There are many valid criticisms of microeconomics in this anthology, and several examples of them are presented here without much evaluative comment. Unfortunately, the anthology also contains, from a neoclassical vantage point, examples of invalid criticisms of microeconomic analyses and theories. Four examples of the latter will be considered. In each case the reasons for the lack of validity are described. Additional criticisms, mostly invalid, not present in Fullbrook's book appear, with considerably less discussion, in footnotes. Understanding why the criticisms singled out for discussion here are invalid will hopefully pave the way to more solid and convincing criticisms of neoclassical microeconomics in the future.

It is evident that some valid criticisms will be more consequential in terms of the acceptability or usefulness or relevance of the criticized object than others. There could also be disagreement within the neoclassical camp on the importance of some valid criticisms or their relevance to the purpose of the criticized object. Nevertheless many analyses, theories, and models may continue to be embraced in full recognition and acceptance of the valid criticisms leveled against them because there are no reasonable

alternatives and because, in spite of the criticisms, the assumption content they contain seems to provide plausible approximate explanations of the phenomena under consideration.

2. Examples of criticisms likely to be judged valid by neoclassicals

Now many criticisms of neoclassical microeconomics, including, as previously suggested, several of those in Fullbrook's anthology, would be judged from a neoclassical perspective to meet standards of validity. For example, there would be little quarrel with Hicks' complaint (1976) that much of economic analysis is "out of time" because time appears in those analyses as reversible when, in fact, real historical time is irreversible.⁶ That is, the appearance of time in the analyses Hicks refers to is far removed from the time that is actually experienced in human life.⁷ Nor would a neoclassicist likely disagree with G.M. Hodgson who asserts (2004, p. 58) that the isolated individual who often appears alone without reference to an institutional structure is not always viable as an analytical starting point for economic model building. Institutions as well as individuals have to be accounted for from the outset. In particular, since all individual behavior takes place in an institutional context (Hodgson, 2004, p. 65), the institutional background in which that behavior occurs has to be a part of the assumption content of any model that purports to explain that behavior.

Three additional examples of similarly valid criticisms appearing in Fullbrook's collection of essays are as follows: First is H. Stretton's (2004, p. 20) clear statement of the inappropriate limits of some economic analyses: "Economic activity depends, in varying degrees, on its surroundings: on natural resources, law, culture, experience, know-how, mutual trust or distrust, and so on. It is part of life as a whole. It can be affected in many ways by the political, intellectual, social, and global conditions around it." The boundaries of economics need to be expanded to account for instances in which such interdependence can be judged to be significant.

Second, P. Ormerod argues that, "The single most restrictive assumption of conventional economics is that the tastes and preferences of individual agents – whether people or firms – are fixed" (Ormerod, 2004, p. 41). In many cases, this assumption is not reasonable since "... the behaviour of an agent can be ... altered by the behaviour of other agents" (Ormerod, 2004, p. 41). "In models in which tastes and preference can vary according to the actions of others, there is no point at all in looking for optimal rules of behaviour. Instead, we are seeking plausible rules of thumb for agents to follow" (Ormerod, 2004, p. 45). Certainly, Ormerod is not suggesting that an assumption of fixed preferences would not be appropriate under certain circumstances such as the purchase of commodities from a supermarket when the behavior of others has minimal influence.

Third, consider the comments of M.A. Bernstein: In mainstream economics, competition (whether perfect or imperfect) is in most instances a state rather than a process.⁸ That state, with its unrealistic assumptions, is considered a first approximation of reality that serves as a starting point for further more realistic investigation. But the later investigation is seldom undertaken (Bernstein, 2004, p. 34). And because mainstream economics characterizes competition as a state rather than a process of economic change, "... it rather frames a way of thinking about competitive behavior that forever and completely prevents a full understanding of the [process] phenomenon itself" (Bernstein, 2004, p. 35). This does not say, nor does Bernstein imply, that the concept of competition as a state does not have its uses.

The first four of the above criticisms are focused on an absence of realism in the objects or forms of analysis being criticized. The last draws attention to an inadequate methodology. Each is directed toward specific assumptions or specific aspects of the methodology employed. None can be generalized to render analysis impossible. Criticisms such as these are valid and push economists to explore issues and modify or create analyses that address the problems to which the criticisms point.⁹ But from the neoclassical perspective, certain other criticisms are based on misunderstandings of the object of criticism, or purport to

⁶ Here Hicks is writing under his altered identity.

⁷ See Katzner (1998, pp. 5-8).

⁸ An example of an exception is the competition analyzed as a Cournot duopoly.

⁹ For example, Hicks' valid criticism cited above that economic analysis is largely out of time has resulted in the development of economic models that are 'in time' (e.g., Katzner, 1998). And the valid criticisms of the neoclassical approach to capital and the marginal product theory relating to it (e.g., Moseley, 2012) have led to models based on money capital that arrive at parallel conclusions and avoid the difficulties raised in those criticisms (e.g., Vickers, 1968, and Katzner 2006, Chs. 13, 14).

expose defective elements in that object that do not actually exist. These purported defects include claims of logical or methodological weaknesses, and lack of reflection of, or contradictions to reality. Such criticisms would be judged by most neoclassicals to be invalid. The remainder of this paper provides the four examples of invalid criticisms of microeconomic analysis alluded to earlier that appear in Fullbrook's book. The issues raised by the criticisms are analytically, methodologically, or empirically important. In each case the source of the invalidity will be described. As illustrated by the previous examples, even from a neoclassical point of view there is plenty to criticize in neoclassical microeconomics, but such criticisms should be (as are those presented above) appropriately focused and well grounded.

3. Lawson's criticism

Consider first the following methodological criticism of T. Lawson:¹⁰ Economic analysis, he argues, should not employ mathematical-type functions because they imply a stable and isolatable relationship between the variables in the function's domain and its range. And such relationships do not exist in economic reality (Lawson, 2004, pp. 22-24).¹¹ This criticism is subjective in nature, leaving intact other possible analytical forms such as storytelling and argument by example. The following discussion of its invalidity is also subjective in the sense that different judgments are involved as to the meaning and operative usefulness in scientific argument of possible functional forms.

Lawson's argument does not convincingly demonstrate that the functional methodology employed in much of microeconomics is inappropriate. Of course such functions do not exist in reality. No functions can. They are all creations of the human mind – abstractions, figments of the imagination that serve as an aid in formulating an understanding of what is going on. The same is true of all functions in all scientific endeavor including the hard sciences such as physics and chemistry, e.g., the equations describing Newton's law of gravity or Boyles law relating the volume of a gas to its temperature and pressure.

Analyses (and theories and models) often entail the isolation of what are thought to be the important parts of the phenomenon under investigation in order to be able to study their properties and how they combine to approximate the whole. As noted at the outset, each element in the analysis is an abstraction, necessarily somewhat distant from reality both in its form and in its isolation from other real parts, and the construction of such abstractions is often required if the analysis is to achieve its goal of explanation. That the use of functions abets the process of construction and isolation is one of the reasons for their frequent employment.

Moreover, for an analysis, theory, or model to provide an explanation, its formal structure cannot change in response to changes in the phenomenon over the time interval that the analysis, theory, or model purports to cover. The structure required to explain a rapidly changing phenomenon may be different from that needed for a less rapidly changing phenomenon. If, over the period during which the phenomenon is studied, no significant change is thought to have occurred, or if whatever change that has occurred is thought to be reasonable to ignore, then a static analysis, theory, or model may be appropriate. Otherwise, a dynamic structure would be needed. And each time an explanation of the phenomenon is undertaken (even if it is to be for the same time interval) a different formal structure may be necessary.

These last two points concerning the facts that functions isolate relationships and impose stability on them apply, as does the earlier point about their non-existence in reality, to all scientific inquiry. The fact that stable and isolated components might not exist in the real phenomenon at issue is of no consequence.

In neoclassical microeconomics, for example, consider the supply-demand model explaining how the observed price of a single commodity is determined and how it rises and falls during a period when rapid inflation is not present. The commodity at issue is assumed to be homogeneous and bought and sold in a

¹⁰ A more extensive discussion of these and related issues emerging from Lawson's criticisms is contained in Mohun and Veneziani's (2012) review of Lawson's *Reorienting Economics* (London: Routledge, 2003).

¹¹ Another subjective-methodological-type criticism that is subjectively invalid and has a different focus is Fleetwood's (2002, p. 1) assertion that "... the presence of known falsehoods [necessarily arising through the use of deductive reasoning in model construction] removes all explanatory power from neoclassical economics." Of course, due to their abstract nature, all neoclassical models contain known falsehoods and omissions of aspects of the reality under consideration (e.g., Wimsatt, 1987, pp. 28-29). But this does not necessarily destroy their explanatory power. A case in point is the supply-demand model of an isolated market described momentarily.

single isolated market. This is already an abstraction for which, necessarily, there is no counterpart in reality. Gasoline, say, even within a single country, is not homogeneous and is sold in many places and under varying circumstances. The same is true of the 'observed price' which, at the empirical level, is often taken to be an average of observed prices over a collection of locations and similar products. Regardless, demand and supply functions (possibly represented by curves) are postulated that relate single quantity values to single price values and that are assumed to be stable for the period or moment of time in question. Clearly, such functions are further abstractions that are not reflected in actuality. When represented by curves and an observed price-quantity point is to be explained, both demand and supply curves are assumed to pass through that same observed point. The observed price is then viewed as the equilibrium outcome of the interaction of these representations of demand and supply. Furthermore, an observed rise in price, say, is said to be a consequence of either an increase in demand or a reduction in supply.

This explanation is so useful and resonates so strongly as an understanding of what is going on that it has passed from the realm of academic economics into the public domain.¹² But it is nevertheless all based on a fiction. Admittedly, when the media write or speak of demand and supply, they do not explicitly refer to functions or curves. But without having a demand function or its geometric representation as a curve explicitly stated or implicitly present in the background, it is not possible to give clear and full meaning to such words as 'demand' or such phrases as 'increase in demand.' That is because an increase in demand, say, may be taken to mean a change in the form of the relevant part of the demand function or a movement of the curve. Without functions or curves, there is no way to distinguish between changes in demand (shifts in the curve) and changes in quantity demanded (movements along the curve). And rigorous analysis falters in the absence of such meanings. None of this is to say that the demand and supply model gives a complete picture of all influences that determine the short-run price of the good. But in spite of its explicit or implicit use of a fictitious market, a fictitious commodity and price, and fictitious functions, it certainly is a reasonable start. Marshall (1948, p. 461) put it this way:

"The theory of stable equilibrium of normal demand and supply helps indeed to give definiteness to our ideas; and in its elementary stages it does not diverge from the actual facts of life, so far as to prevent its giving a fairly trustworthy picture of the chief methods of action of the strongest and most persistent group of economic forces. But when pushed to its more remote and intricate logical consequences, it slips away from the conditions of real life."

Lawson continues his argument by suggesting an alternative to the use of functions. 'Contrast explanation,' he says, should replace the use of functions:

"All we need for this method to work is a situation in which ... two outcomes are different ... in conditions where it was expected that they would have been the same, resting on an assessment that they shared the same, or sufficiently similar, causal history. Alternatively put, in contrast explanation we seek *not* to explain some X, but to explain why some 'X rather than Y' occurred in a situation where Y was expected (given our understanding of the causal history of the relevant phenomenon). In such a situation we do not seek all the causes of X but the one that made it different from the Y that was anticipated" (Lawson, 2004, p. 27).

One weakness of this part of Lawson's criticism is that he does not suggest any way of forming the initial expectation. To assert only that it emerges from past experience or understandings of that experience is not

¹² Nevertheless, and contrary to its popularity as explanation, Lee and Keen (2004, p. 190) claim that the supply-demand model has "no theoretical or explanatory substance whatsoever." Their subjective conclusion is derived from their critical view of the theoretical structure (*i.e.*, traditional models of the consumer and firm) underlying market demand and supply curves. Now apart from whether their criticisms of that underlying structure are valid or not, it is clear from the text above that the supply-demand model can stand on its own and have explanatory significance independently of reliance on any underlying theoretical structure. Hence, from this perspective, the criticism that the model has no theoretical or explanatory substance is subjectively invalid.

enough. For in order to be able to conclude that an initial expectation has been falsified by an actual occurrence, it is first necessary to establish clearly the grounds upon which that expectation was formulated. That is, the nature of the mental process that must have operated on the experience in question to produce the expectation needs to be described. And that may implicitly involve the construction of an analysis, theory, or model with functions.

Furthermore, to expect an outcome such as Y from conditions like A and B can only mean that Y is associated with both A and B. Now a function consists of three parts: a set called its domain, a set called its range, and a rule that identifies to each element in its domain a unique element in its range. Thus, to expect an outcome Y from conditions A and B is to implicitly specify a single-element domain containing the vector whose components are A and B, a single-element range containing Y, and a rule that relates Y to both A and B, that is the vector (A,B) . Similarly, to assert that A, for example, has a causal history is to claim that certain elements that have arisen in the past and that implicitly constitute a single-vector-element domain are associated by a rule to A in a single-element range. Furthermore, these two rules or functions have to be stable for Lawson's approach to work. Therefore, although Lawson does not say so, contrast explanation is implicitly based on the same stable-function methodology that Lawson states should not be employed in economic analysis.

4. Fullbrook's criticism

Focus next on E. Fullbrook's criticism of the standard analysis of consumer demand behavior. In this essay, Fullbrook describes eight categories of consumer behavior that do not fit into the mold of that analysis. He then asserts that:

"Projects to understand the logic of economic choice that do not engage with real-world situations of the same are doomed to epistemological failure and axiomatic delusions for the same reasons as are also attempts to theorize about the natural world without observing it. Economists' interest in choice behaviour has in the main been and continues to be far removed from the spirit of empirical, let alone scientific, inquiry" (Fullbrook, 2004, p. 83).

One interpretation of this statement (not necessarily that which Fullbrook intended) is the criticism that the models of the standard analysis of consumer behavior based on the constrained maximization of utility or preferences are irrelevant to economic explanation because, as Fullbrook understands it, they have no connection to real consumer activity.¹³ Under that interpretation, the criticism is subjective and if one accounts for the facts that individuals do have limits on what they are financially able to buy and preferences among the possible objects of choice, and, at least in Western economies, they often do attempt to buy what they tend to prefer, then, as will be argued from a neoclassical vantage point below, the criticism is subjectively invalid.¹⁴ Moreover, Fullbrook's criticism would appear to be subjectively defective on two additional counts. First, his assertion regarding distance of choice behavior from the "spirit of empirical ... inquiry" is in danger of confusing descriptive with analytical economics. And second, his dismissal of economic analysis as scientifically deficient misunderstands the proper and legitimate place of economic analysis as characterizing a unique scientific methodology. The latter point will also be considered momentarily.

With respect to the above claim of Fullbrook's paper regarding the relevance of the standard

¹³ Other invalid subjective criticisms of this type include the Benicourt and Guerrien (2008a, pp. 318, 319, and, respectively, 2008b, p. 336) statements that (i) general equilibrium analysis "... is irrelevant for understanding market economics" and that (ii) the supply-demand model of an isolated market contains logical flaws relating to aggregation and price determination that render it irrelevant to understanding how a real market operates. The former criticism is objectively invalid because it is based on a misunderstanding of what models do and how they relate to real phenomena; the latter has been shown to be objectively invalid in Section III above in which the supply-demand model presented there does not suffer from the logical flaws described by Benicourt and Guerrien.

¹⁴ Martinás' (2002) absence-of-connection-to-reality rejection of consumer utility maximization (arising from the timelessness of the context in which the maximization takes place) is subjectively invalid for a similar reason.

analysis of consumer behavior to real consumer behavior, it should be acknowledged first that empirical testing of consumer behavior derived from that analysis may have little power in determining its accuracy or fitness to explain real behavior. For to refute any particular analysis it is necessary to demonstrate that the theoretical properties of demand functions derived from the assumption content of that analysis are inconsistent with observed demand behavior. But it is a well-known fact that one can never in practice conclusively determine inconsistency. The problem is that observations are necessarily taken over time and there is no guarantee that consumer preferences are constant from one observation to another. Were preferences to change from one observation to the next, then the analytical demand functions relevant to the first observation of demand behavior would be different from those relevant to the second, and the change in demand behavior necessary for comparison to the theoretical properties of a single set of demand functions would appear to be inconsistent with both sets of demand functions. A test of the consistency of the properties of one set of demand functions with observed demand behavior, although possible in principle, is rendered impossible in practice. Thus any disconfirming instance observed in demand behavior can always be explained away by asserting that preferences modified between observations.¹⁵ Moreover, even if there were no disconfirming instances, the analysis still cannot be thought to provide the only definitive explanation of the observed demand behavior because there is no guarantee that some other analysis, which may actually yield the 'true' or 'correct' understanding, does not explain the same behavior. Therefore a negative outcome from empirical testing of the theoretical properties of demand behavior implied by the analysis that suggests rejection is irrelevant to a judgment of whether that analysis possesses the ability to explain real consumer behavior. This is not to suggest that empirical analysis of demand behavior (such as the estimation of demand functions, *e.g.*, Theil [1975, 1976], and the prediction of consumer action) is neither significant nor useful – only that it is unable to contribute to a determination of the model's viability.

But that in no sense provides a sustainable criticism of the received theory of consumer behavior. For it follows from the preceding argument that the question of relevance to reality in this case has to be based on the appropriateness of the assumptions¹⁶ that gave rise to the theory. Evidently, some assumptions are imposed for convenience: If constrained utility maximization is to be invoked, enough properties have to be assumed on the utility function so that the function can, in fact, be maximized. Nevertheless it is a widely recognized and observable fact that in Western economies individuals, as noted above, have preferences and limited budgets, and often buy what they prefer. Thus, as an approximation, the standard theory of consumer demand can usefully be applied to explain consumer behavior under situations where 'outside' influences such as altruism or savings are thought not to play a significant role.

As already observed, to claim that the use of such theories results in an analysis that is not scientific is to misunderstand the nature of science in regard to economics and to ignore the fact that economics cannot be a science in the same sense that, say, physics or chemistry is a science.¹⁷ That is so for at least three reasons: First the objects of study in economics are human activities and not the result of action by non-sentient, unmotivated physical entities. Human activities can change in ways and for reasons that physical objects cannot. Economic phenomena are therefore more unstable and less predictable than physical phenomena. Second, economists do not have as much control over human subjects in laboratories as physical scientists have over physical subjects. Unlike temperature, weight, and pressure that could be held fixed during a physics experiment, attitudes, beliefs, emotions, and desires cannot be counted on to remain constant over the course of an economics experiment. The modifications in preferences that might, as mentioned above, vary as observations of demand behavior are taken is one of many examples. And third, it is often easier to measure the significant features of physical phenomena than it is to quantify the human features of economic phenomena – although, it should be noted that rigorous analysis, both theoretical and empirical, are entirely possible in the absence of measurement.¹⁸ In any case, the unavailability of measures can impact both the content and methodology of an analysis. Taking these considerations into account, there is still no problem in identifying economics as a science, even as an

¹⁵ See Caldwell (1982, pp. 156-157).

¹⁶ Appropriateness of assumptions may be defined in such a way as to be consistent with Kincaid's criteria for good science set out below.

¹⁷ A more detailed discussion of this point may be found in Katzner (2001a, pp. 2-5).

¹⁸ Katzner (1983, 2001b).

empirical science. But its science is distinct from that of the physical sciences.

With these departures from the physical sciences in mind, the traditional theory of consumer demand may, according to Kincaid's criteria (1996, pp. 50-55), be regarded as good economic science: it coheres within itself and with knowledge outside its purview (e.g., known cultural values); it provides information relating to the actual buying behavior it addresses; it is objective given the value context within which it was created; it can be accurately fitted to demand data (e.g., Theil *op. cit.*) – although, as indicated above, rejection based on such data is not possible; it can be falsified in terms of the appropriateness of its assumption content in relation to the characteristics thought to be present in the reality it reflects; and it is causal in nature.

5. Benicourt's criticism

Also invalid because its assertion is based on a misunderstanding of the use of concepts in analysis and communication is the methodological criticism of E. Benicourt. According to her, words like 'goods,' 'household,' 'firm,' 'market,' and 'price,' used by economists have nothing to do with the meaning these words have in reference to reality. "Instead they refer to fictitious entities, and not approximations of something that really exists." This renders explanation of real economic phenomena that employs these words useless (Benicourt, 2004, p. 85).

It will now be argued that this subjective criticism is objectively invalid because to accept it would eliminate the possibility of engaging in any analytical endeavor in any science – not only economics. As previously indicated, this judgment of invalidity would be classified as relatively objective.

In general, to understand and communicate ideas, human beings have learned rules that tell them to identify repeatedly specific things with specific words.¹⁹ A chair is called a chair because a rule has been accepted asserting that a physical structure with certain characteristics and functions is called a chair. Similarly, behavior can be meaningful only if it involves the application of a rule. To cast a vote is to follow a rule that identifies a particular action under particular circumstances with the behavior voting. The learning and application of rules necessarily takes place in the mind.

A concept is a mental image obtained by applying a rule to a collection of different objects having the same characteristics as specified by the rule. Thus concepts take their places in a microeconomic analysis, theory, or model as the referents of things that exist in the real world and are often identified by words. That is, words necessarily refer to concepts, figments of the human imagination, that are themselves abstractions from what actually exists. For example, the word 'chair' refers to a concept, an abstraction from a large class of real objects that have certain seemingly identical properties that according to the relevant rule characterize what is known as a chair. That is how human beings formulate and communicate ideas in reference to reality.

Now in any scientific investigation the object of study must be observed, relevant facts about it noticed, and then, as in the case of the analysis of market behavior discussed earlier, abstract constructions developed. But to be able to notice relevant facts means that the researcher is able to identify certain characteristics; and to do this he or she must have some concept of what the characteristics are. And the latter is possible only with appropriate rules identifying communicable symbols like words with the characteristics, and these, in turn, will depend on what has been socially acceptable to others working in the same area.

This is exactly what is done in economics. "Words like 'goods,' 'household,' 'firm,' 'market,' and 'price,'" even when Benicourt uses them, necessarily "refer to fictitious entities." And in analyzing the behavior of, say, an individual or a firm, economists have to abstract from reality to focus on the conceptual forces that seem to be most important in understanding the economic events that have transpired. (Recall the Marshall quotation above.) There is nothing wrong with this. It is the way in which all analysis and explanation, economic or otherwise, proceeds. Moreover, it does not matter that the firm, for example, might be defined in terms of production and cost functions in one instance or with any collection of

¹⁹ The idea is due to Wittgenstein. See, for example, Winch (1958).

nonmathematical sentences seemingly unrelated to production and cost functions in another. Both are abstractions based on fictions, and parts of each may be implicit in parts of the other. To assert that one conceptualization is closer to reality than the other is misleading since there can be no objective or meaningful measure of distance from any concept to the reality it represents.

It is interesting that Benicourt's view of the way economic analysis should proceed is not unlike that described here:

"... observe what happens (or has happened) in known societies, look at how prices are actually formed and then try to find rules or tendencies on which a theory can be built (or developed)" (Benicourt, 2004, p. 93).

But in this statement, 'known societies,' 'price,' 'rule,' and 'tendency' are all abstract concepts – fictitious entities that do not really exist. To illustrate, the price of a particular good varies from time to time and place to place. The implicit notion that the good is homogeneous, and the explicit notion that a good has a single price that can be designated as 'the price' of that good, are both abstractions. (As noted previously, the average of observed prices is an abstraction at the empirical level.) Thus Benicourt's method of analysis has to employ fictitious entities while, at the same time, she criticizes economists for doing so.

6. Two criticisms of Keen

The last example of invalid criticism presented here is that of Keen who argues that microeconomic analysis, theory, and models often contain logical mistakes:²⁰

"Neoclassical economics is a mathematical science? Give me a break! ... its so-called mathematical credentials are a myth. Far from using mathematics to elucidate economic issues, neoclassical economics has twisted and distorted mathematics to maintain an ideological vision of the market which proper mathematics shows is unsustainable" (Keen, 2004, p. 221).

Quite the contrary. This objective criticism is judged invalid objectively because, at least with regard to microeconomics, it is not based on an accurate representation of microeconomic analysis or microeconomic models. Neoclassical microeconomic constructions are transformed into something they are not, and that something is used as evidence against neoclassical microeconomics. Here are two examples:

First, Keen argues that, in the neoclassical analysis of the firm, the "... slope of the individual firm's demand curve is exactly the same as the slope of the market demand curve." His argument is based on the equation

$$\frac{dp}{dq} = \frac{dp}{dQ} \frac{dQ}{dq} = \frac{dp}{dQ},$$

where p represents market price, q denotes quantity of a particular firm's output demanded by all buyers in the market (*i.e.*, demand quantity facing the firm), and Q indicates market quantity demanded. The right-hand equality obtains because Keen assumes that $dQ/dq = 1$.²¹ Thus Keen concludes that under perfectly competitive conditions, say, the demand curve facing the firm cannot be a line parallel to the q axis in the p - q plane as neoclassical microeconomic theory says it is because the market demand curve has a negative slope (Keen, 2004, p. 210).

This distorts the neoclassical microeconomic analysis of the firm by ignoring the fact that the market

²⁰ Barzilai (2013, 2014) makes a similar objectively invalid objective claim with respect to the utility function in the traditional model of consumer demand. His argument that, due to its ordinality, the utility function of that model (whether actually present or only implicit in preferences) introduces logical flaws that render the model useless in explaining consumer behavior is based on a misunderstanding of the ordinal nature of the utility function. See Katzner (2014).

²¹ This assumption would follow from, say, requiring that market demand be the sum of the demands that face all firms in the market.

demand curve and the demand curve facing the individual firm are two independent and, at the conceptual level, unrelated constructions. Neither is defined in terms of, or in relation to, the other, and the former is not the sum of the latter over all firms in the market. Rather, the market demand curve indicates the quantity that would be demanded by all buyers in the market at various prices (without reference to the particular firm from which each unit of the good might be purchased); the demand curve facing the firm describes the quantity that the firm expects to be able to sell at those prices.²² Except in the case of monopoly where they become identical, the relationship between them is rather complex²³ and cannot be simplified to imply that $dQ/dq = 1$. With regard to the perfectly competitive firm, because it is such a small part of a large market in which buying and selling a homogeneous product takes place, the firm believes that it can sell all it wants at the prevailing price. Based on this belief, the demand curve it faces is a line parallel to the q axis at the prevailing market price.²⁴

Second, Keen contends that, in a neoclassical Walrasian model, if market prices and market quantities begin to adjust from an out-of-general equilibrium position, convergence to a new general equilibrium position is not possible. He does this by postulating independent dynamic movements for market prices and market quantities over time, and obtains the result that if one of market prices or market quantities converges to their equilibrium values, then the other must diverge from their equilibrium values (Keen, 2004, pp. 220-221).

This distorts neoclassical analysis because Walrasian general equilibrium models do not postulate independent dynamics for market prices and market quantities. Rather they focus attention on what are called 'excess demand' functions. These functions express quantities demanded minus quantities supplied, *i.e.*, excess demands, as dependent on market prices. All markets in the model are in equilibrium together when all excess demands equal zero, and in that instance, supply equals demand in all markets. To handle out-of-equilibrium positions, a dynamic is expressed in terms of changing prices over time and this implies, through the excess demand functions, movements in excess demand quantities over time. Convergence in a Walrasian model to equilibrium price values everywhere then points to convergence of excess demand quantities to zero and hence to equilibrium quantities throughout the system. Alternatively, the dynamic could be expressed with respect to changing excess demand quantities and this would imply modifications in market prices across time. In this case, convergence to equilibrium quantities would force convergence to equilibrium prices.²⁵

7. Conclusion

Each of the four invalid criticisms described above is, from a neoclassical perspective, based on a misunderstanding of important aspects of microeconomics – its methodology, its relation to the real world, or its logical structure. This is not to say that various aspects of microeconomics in general cannot be validly criticized on these grounds; validly, that is, in the sense of the definition provided in this paper. But the particular criticisms of Lawson, Fullbrook, Benicourt, and Keen presented here decidedly miss their mark.

The discussion of analytical critiques in this paper implicitly points, it will be clear, to significant issues that lie beyond its scope. Questions of the status of economics as a scientific discipline, of matters that probe to deeper epistemological foundations, and conceivably of ethical relevance if the claim is made that economic argument is not, and cannot be, a value-free inquiry, warrant careful reflection. But within the frame of argument adopted here, it is equally clear that the room that economic analysis provides for discussion, and for agreement or disagreement on methods, assumptions, and results, not only furnishes channels for beneficial interaction among opposing camps, but also contributes to the intellectual pluralism

²² Similar wording appears in most undergraduate microeconomics textbooks. See, for example, Pindyck and Rubinfeld (2009, p. 278).

²³ This relationship would depend on how much each firm expects each buyer to purchase from it at each price – characteristics of buying behavior that are not normally specified in analyses of the firm. Moreover, except possibly at overall market equilibrium, at each price the sum of all expected purchases over all firms generally would not, and could not be expected to add up to actual market demand.

²⁴ Keen and Standish compound the error by using the incorrect statement that "the demand curve facing the perfectly competitive firm is downward sloping" to deduce that the perfectly competitive firm does not maximize profit where price equals marginal cost (Keen and Standish, 2010, p. 61) and that for such firms price-taking behavior is irrational (Keen and Standish, 2010, p. 69).

²⁵ See, for example, Katzner (2006, Sect. 9.1).

that both neoclassical orthodoxy (in its varied expressions) and modern (or postmodern) forms of heterodoxy address.

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