

The Quantum Enigma and Islamic Sciences of Nature: Implications for Islamic Economic Theory

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Neoclassical economics claims to accommodate any instrumentally rational, or internally consistent, set of values or tastes in its theory of choice. However, a mono-utility function does not provide a “heuristic device” that can be successively adjusted for all rational values involving a single end, for it reduces quality to quantity in the attempt to imitate Newtonian mechanics and nineteenth-century physics, thereby implying psychological hedonism. Fortunately, “good physics is now refuting bad philosophy.” Developments in quantum mechanics reveal that the reduction of quality to quantity does not apply to the natural world, let alone to the human realm. This has tremendous implications for the debate over the proper analytical tools in economics, revealing the intimate (but currently neglected) connection between the Islamic sciences of nature and Islamic economic theory. This also has major implications for the theory of welfare and economic policy, redefining the necessary conditions for equilibrium and efficiency.

1. Introduction

Neoclassical economists often make two claims that preclude the possibility of “Islamic” economic theory. The first is that neoclassical economics accommodates any instrumentally rational, or internally consistent, set of values or tastes, making the theory of choice spiritually neutral (Robbins, 1962; Hargreaves Heap et al., 1994). The second is that market exchange is compatible with a variety of ultimate ends, whether egoist or altruist, making industrial capitalism and the neoclassical theory of exchange spiritually neutral (Heyne, 2000). According to such arguments, Islamic (or “Christian” or “Buddhist” or any other) economics is a “special case” of neoclassical economics at best (assuming that Islamic and other religious values are internally consistent).

Of course, economists admit that certain eighteenth and nineteenth-century classical economic figures espoused “commerce without virtue” based on narrow self-interest.¹ But other economists during this period opposed that view, arguing

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¹ For example, David Hume, who wrote about economics as well as philosophy, denied traditional conceptions of virtue in espousing his view of commercial society based

that even enlightened self-interest was insufficient to provide the moral and legal constraints necessary for markets to exist in the first place.² Although this did not exclude greed as a potential motivation within industrial capitalism, it did not presuppose greed either. Many neoclassical economists now insist that egoistic assumptions are neither necessary to the economic theory of exchange nor implied by the analytical tools of contemporary neoclassical thought (Novak 1982; Boulding et al. 1985).³ Accordingly, the fact that some classical economists espoused materialism and greed is not sufficient to prove that industrial capitalism presupposes such criteria and motivations. Critics of economic thought either do not recognize the difference between classical and neoclassical economics or deliberately employ misleading arguments according to this view.⁴ In short, religious economic laws obviously exist, but a religious economic theory does not, because religious values neither alter economizing nor exchange processes as such nor the analytical tools for studying them.

In our opinion, the mainstream religious response to such arguments has not, by and large, been satisfactory.⁵ In fact, economists of different religious affiliations generally appear to accept such neoclassical assertions, because they believe that industrial production processes are spiritually neutral, with all this implies for motivational assumptions and exchange processes, and that the standard analytical tools of neoclassical theory, which were imported from Newtonian mechanics and nineteenth-century physics, can be combined with moral “constraints” to accommodate spiritual values. As we shall see, both beliefs are erroneous.

primarily on egoism. For an important comparison and contrast with Adam Smith, see Fitzgibbons (1995).

² Adam Smith opposed Hume’s conception of “commerce without virtue,” although Smith is routinely accused of espousing it. He attempted to integrate economic activity and moral virtue based on a diluted version of Stoicism, rejecting Aristotelian thought (Fitzgibbons, 1995).

³ For example, Milton and Rose Friedman state (see Novak, 1982, p. 94):

Economics has been berated for allegedly drawing far-reaching conclusions from a wholly unrealistic “economic man” who is little more than a calculating machine, responding only to monetary stimuli. That is a great mistake. Self-interest is not myopic selfishness. It is whatever it is that interests the participants, whatever they value, whatever goals they pursue. The scientist seeking to advance the frontiers of his discipline, the missionary seeking to convert infidels to the true faith, the philanthropist seeking to bring comfort to the needy – all are pursuing their interests, as they see them, as they judge them by their own values.

Friedman therefore declared in his Nobel acceptance address (see Machan, 1996, p. 21), “The great Saints of history have served their ‘private interest’ just as the most money grubbing miser has served his interest.”

⁴ It is particularly important for scholars in the humanities to note that many economists dismiss critiques of economics that do not recognize the distinction between classical and neoclassical theories.

⁵ For a variety of views, see for instance Boulding (1985).

Fortunately, leading philosophers such as Seyyed Hossein Nasr (1996, 1999, 2000) and scientists such as Wolfgang Smith (1984, 1995, 2003) provide an explicit refutation of the former and an implicit denial of the latter, even challenging the applicability of neoclassical theory's analytical tools to the "corporeal" world of perceptible qualities as opposed to the "physical" world of measured or measurable quantities that concerns physicists.⁶ In fact, such a critique of the secular sciences of nature provides a profound, if not explicit, critique of neoclassical economics. Indeed, the "unity of method" within the secular philosophy of science is connected to industrial production processes on one hand, and to the unity of analytical tools between neoclassical theory and physics on the other. In this sense, the refutation of unity of method ultimately provides a profound critique of both industrial capitalism and the analytical tools of neoclassical economics; without Islamic metaphysics and sciences of nature, there is no such thing as Islamic economics in our opinion. But because the aforementioned authors articulate elements of these profound arguments in philosophical terms that many economists are not familiar with, and because different parts of these arguments are found in various writings that do not always explicitly draw their implications for economics, few economists are either aware of or understand the implications of such an approach.

Fortunately, E. F. Schumacher, the most important economist of the twentieth century from this perspective, is an exception (El-Ansary, 2006a). His personal library reveals the immense influence of contemporary Muslim philosophers, showing that he took far more extensive notes within the books of Rene Guenon (Shaykh Abdul Wahid Yahya), Frithjof Schuon (Shaykh 'Isa Nur al-Din), and Titus Burckhardt (Shaykh Ibrahim) than most other authors, including leading Catholic thinkers such as Jaques Maritain. Moreover, this Islamic influence appears in Schumacher's notes for a twenty-four lecture course he taught at London University in 1959 and 1960 entitled "Crucial Problems for Modern Living." His lecture notes are highly detailed with extensive commentary and references, including notes on the perennial philosophy and Burckhardt's *Alchemy: Science of the Cosmos, Science of the Soul* in German.⁷ Tragically, Schumacher died a few weeks before a scheduled meeting with Nasr, a leading representative of another generation of Islamic philosophers, on Islamic economics in Tehran. Despite such profound influences, this foundation of Schumacher's work is not widely known. And because he left certain points implicit without rebutting elements of the aforementioned neoclassical arguments, even his admirers have misunderstood or misinterpreted his thought.⁸

⁶ As we shall see, this crucial distinction reveals the proper domain assumptions for the analytical tools of physics, which do not apply to economic choices in the corporeal realm.

⁷ We would like to acknowledge the help of Joseph Lumbard in identifying the German passages in Schumacher's notes.

⁸ See for instance the preface to the 1989 edition of Schumacher's classic *Small Is Beautiful*

It is therefore necessary to make such arguments explicit, integrating the writings of Schumacher and the aforementioned philosophers and scientists as well as other religious thinkers to respond to neoclassical claims that economic theory is neutral. It is also important to clarify certain details of neoclassical economics for other scholars who understandably may not be familiar with them. In our opinion, an intellectual division of labour is necessary in which economists of different religious affiliations build upon the foundation that has already been beautifully laid by the “heavy-lifting” of these authors.⁹

The purpose of this article is to reveal the interconnections of these profound arguments with respect to contemporary economic theory (the critique of industrial capitalism as such is the subject of a forthcoming article (El-Ansary, 2005)). The article is divided into three sections. The first examines the three objectives of human work from a religious perspective, as well as a spectrum of classical and neoclassical views. The second section challenges the claim that the analytical approach of neoclassical theory can accommodate the three objectives because it implies psychological hedonism, clarifying the need for an Islamic alternative. The third section considers the link between economics and physics, drawing the devastating implications of the Islamic sciences of nature for neoclassical theories of choice and welfare as well as policy issues such as “freedom of contract” in the context of Wolfgang Smith’s distinction between the physical, corporeal, and higher levels of reality.¹⁰

1. Traditional Objectives of Human Work

What are the objectives of work by which to evaluate production processes if man is created for a higher purpose? Brian Keeble points out that it would be inconceivable that work would necessarily entail conflict between spiritual and other needs (1998, p. 75).

by John McClaughry, who states:

(Schumacher’s) recurring diatribes about ‘greed and envy’ showed a failure to appreciate the normal human urge to work to provide the good things for one’s family. His attack on nuclear-generated electricity (Chapter 4, Part II) lacked any persuasive analysis of the costs, benefits, and risks of alternative energy sources; he chose instead to reject nuclear power on dubious environmental grounds, and also because its generation requires engineering complexity and large corporate and governmental organization.

(p. xv) From a theistic perspective, McClaughry has essentially misunderstood Schumacher’s critique of secular production processes.

⁹ For an application to Islamic economics, see El-Ansary (2006b). For the specific contributions of Nasr to Islamic economics, see El-Ansary (2003).

¹⁰ We also apply these distinctions between the various levels of reality to production processes, drawing out their implications for the debate on whether or not industrial capitalism is compatible with diverse welfare criteria, and for the debate on the definition of economics (El-Ansary, 2005).

(Otherwise) we would have to face an awkward question: how it ever came about that, in order to sustain his earthly existence, man should be obliged to follow a course of physical action that seems a direct denial of his deepest nature, as if by some ghastly mistake of his Creator it is man's destiny to follow a direction that leads him away from the very thing it is his nature to be? If we are to avoid such a dilemma, we must conclude that in some way work is, or should be, profoundly natural and not something that must be avoided or banished as being beneath our dignity.

If work is not only supposed to help keep us alive, but is also supposed to help us strive towards perfection, then we can derive three purposes of human work, as Schumacher points out (1979, pp. 3-4):

First, to provide necessary and useful goods and services.

Second, to enable every one of us to use and thereby perfect our gifts like good stewards.

Third, to do so in service to, and in cooperation with, others, so as to liberate ourselves from our inborn egocentricity.¹¹

Of course, economists recognize the first objective of work. But some recognize the others to various degrees, acknowledging that different types of work have different effects. For example, Adam Smith acknowledged the second objective to some extent, arguing that an extremely high division of labour employing few of man's faculties could have serious social costs by reducing certain human capabilities. He states (see Schumacher, 1997, pp. 99-100):

The understandings of the greater part of men are necessarily formed by their ordinary employments. The man whose life is spent in performing a few simple operations... has no occasion to exert his understanding... He naturally loses, therefore, the habit of such exertion and generally becomes as stupid and ignorant as it is possible for a human creature to become... but in every improved and civilised society this is the state into which the labouring poor, that is, the great body of the people, must necessarily fall, unless government takes some pains to prevent it.

Other figures such as James Mill, the father of John Stuart Mill, opposed this view, denying the existence of such harmful effects and arguing that all types of work were homogeneous in terms of the second objective (Pagano, 1985). He also denied that the third objective was possible based on psychological hedonism, leaving only the first objective applicable to economics. More recently, some neoclassical economists adopt a curious, syncretic position, assuming that all types

¹¹ Regarding striving for perfection, Schumacher cites the Biblical injunction: "Be ye therefore perfect, even as your Father which is in heaven is perfect." He also cites: "Whichever gift each of you have received, use it in service to one another, like good stewards dispensing the grace of God in its varied forms."

of work are homogeneous on one hand (Pagano, 1985) while asserting the legitimacy of all three objectives on the other.¹² These various positions clearly have important implications for one's assessments of industrial capitalism and socialism (El-Ansary, 2005). Suffice it to say here that qualitatively different production processes affect all three objectives, and that any trade-offs between them can only exist in the short or medium-term, not the long-term, from the Islamic point of view. As Nasr states (1982, p. 89), "Equilibrium on the socio-economic plane is impossible to realize without reaching that inner equilibrium which cannot be attained save through surrender to the One and living a life according to the dictum of Heaven." From this point of view, what man makes, or man's art, should communicate a spiritual truth and presence analogous to nature, or God's art (Nasr, 1987).

2. Neoclassical Theory, Psychological Hedonism and the Islamic Alternative

We now consider whether or not neoclassical theory offers the analytical tools to accommodate the three objectives. Most economists take the following view (Heap, 1994, p. 5):

The desires (of *Homo economicus*) can be 'good,' 'bad,' 'selfish,' 'altruistic' – anything you like. The only proviso is that those desires generate a preference ordering; that is, the person can always say whether he or she prefers one bundle to another or is indifferent between them, and that the ordering satisfies the following conditions (reflexivity, completeness, consistency, and continuity).

This obviously implies that neoclassical theory can accommodate the spiritual objectives of work. However, most of the earliest neoclassical economists did not make this claim, for they explicitly defined the role of psychological hedonism in economic theory. As Georgescu-Roegen points out (1973, p. 456), Benthamism "was so much in the air" in England and the Continent during the rise of neoclassical theory, that Edgeworth, with whom hedonism reached its apogee in economics, contended that actual pleasure "is measurable in terms of its 'atoms,' i.e. in terms of 'just perceptible increments' (*Mathematical Psychics*, 1881)."¹³ Edgeworth therefore expressed his belief that a "hedonimeter" would be built for measuring actual pleasures, somewhat analogous to Bentham's wish for a "political thermometer." Because later economists were less enthusiastic about such prospects, they attempted to make economic theory independent of such

¹² Some economists adopt this position implicitly by acknowledging the validity of religious beliefs while employing the neoclassical approach to work as "forgone leisure" (Pagano, 1985, pp. 111-115). Pagano provides an excellent historical survey of classical and neoclassical approaches to work.

¹³ Although Georgescu-Roegen provides an excellent history of modern approaches to utility in this article, his interpretation of pre-modern views is highly debatable.

speculations, shifting from “cardinal,” or measurable, utility to “ordinal” utility, which requires a simple ranking of alternatives.¹⁴

But any such attempts to divorce economic theory from psychological hedonism fail so long as economists presuppose a “mono-utility function,” an aggregate in which there are no qualitatively different needs and/or wants. This is the opposite of the Islamic approach to welfare based on a hierarchy of spiritual and other needs. The fundamental difference comes down to the distinction between a qualitative whole and a quantitative aggregate, which we shall return to in the context of Wolfgang Smith’s distinction between the corporeal and physical realms. Suffice it to say here that a mono-utility function is not a “heuristic device” that can be successively adjusted for all rational values involving a single end, because it applies only to a particular domain of them, i.e. unethical preferences based on psychological hedonism.¹⁵

¹⁴ Lionel Robbins forcefully states the contemporary neoclassical position, which began developing with Irving Fisher in his doctoral dissertation in 1892, as follows (1962, pp. 83-85):

It is sometimes thought, even at the present day, that (the economic theory of value)... depends upon the validity of particular psychological doctrines. The borderlands of Economics are the happy hunting grounds of minds averse to the effort of exact thought, and, in these ambiguous regions, in recent years, endless time has been devoted to attacks on the alleged psychological assumptions of Economic Science. ...

Unfortunately, in the past, incautious utterances on the part of economists themselves have sometimes afforded a pretext (for such criticism)... It is well known that certain of the founders of the modern subjective theory of value did in fact claim the authority of the doctrines of psychological hedonism as sanctions for their propositions. ... The names of Gossen and Jevons and Edgeworth, to say nothing of their English followers, are a sufficient reminder of a line of really competent economists who did make pretensions of this sort. ...

But it is fundamentally important to distinguish between the actual practice of economists, and the logic which it implies, and their occasional *ex post facto* apologia. It is just this distinction which the critics of Economic Science fail to make. They inspect with supererogatory zeal the external façade, but they shrink from the intellectual labour of examining the inner structure. Nor do they trouble to acquaint themselves with the more recent formulations of the theory they are attacking. ... No one who was acquainted with recent value theory could honestly continue to argue that it has any essential connection with psychological hedonism, or for that matter with any other brand of *Fach-Psychologie*.

¹⁵ A “heuristic” analytical device makes simplifying assumptions that are neither negligible nor specify a domain of reality, but serves to discover truth (a classic example cited in the philosophy of science literature is Newton’s assumption of a single planet in a solar system). For a classic discussion of negligibility, domain, and heuristic assumptions in economic theory see Musgrave (1981).

Such a “mental state” account of welfare does not even distinguish between “the mental states involved in believing something that really is true and a successful deception” (Griffin, 1986, p. 13), with all this implies for the three objectives of work. Actually realizing the meaning of existence and being fully deluded that one has done so are the same in this view.¹⁶ Griffin uses the example (p. 13) that “if a father wants his children to be happy, what he wants, what is valuable to him, is a state of the world, not a state of his mind; merely to delude him into thinking that his children flourish, therefore, does not give him what he values.” The mental state account therefore subordinates truth to utility, admitting happiness that is false because the object of happiness does not exist, making this position an inversion of the Islamic (and other religions’) doctrine that “there is no right superior to that of truth” (see Schuon, 1981a, p. 112). This inversion is based on a confusion regarding the nature of the operation of the intelligence (Schuon 1987, p. 212):

The good is a possibility of action; the true is not a possibility of knowledge, it is knowledge itself. Evil is a “willing,” but error is not a “knowing,” it is an ignorance. In other words, evil is an act of the will, but error is not an act of the intelligence. Intelligence is not, like will, free through its possible action; it is free through its very substance and so through the necessity of its perfection.¹⁷

In the next section, we shall see that this debate over the analytical tools of economics has profound implications for the debate over freedom of contract in Islamic and secular approaches to economic law.

But first we must clarify how the conventional neoclassical approach excludes spiritual values in the three objectives of work and the source of confusion over this issue. Let us begin by considering the following example related to the third objective, to work “in service to, and in cooperation with, others, so as to liberate ourselves from our inborn egocentricity.” Imagine that we have the authority to prevent an evil act, and someone is trying to bribe us to permit it. Although we may be unwilling to accept any amount of money to permit the evil act, we may also have a limit on how much we would be willing to pay to stop the same event that others have the authority to prevent. The two situations are different in the sense that the former is an “act” in which we participate to accomplish an evil, whereas the latter is an “event” others perform that perhaps we cannot afford to stop. The mono-utility approach, however, requires that willingness to accept (WTA) be

¹⁶ “Bentham, Mill, and Sidgwick all saw utility as having to enter our experience. But we desire things other than states of mind; I might sometimes prefer, say, bitter truth to comforting delusion” (Griffin, p. 13). If one does not prefer “bitter truth to comforting delusion,” such egoistic states of mind are not integrated according to the Islamic theory of choice, as we shall see.

¹⁷ Although the intelligence can be wrong by the falseness of its content, “then it is wrong as thought and not as knowledge; to speak of a false knowledge would be as absurd as to speak of a blind vision or a dark light” (Schuon, 1981a, p. 102).

equal to willingness to pay (WTP). This excludes the ethical values of one who “cannot be bought at any price,” although it can accommodate the unethical preferences of a miser or a hedonist. In fact, if we constrain choice to alternatives that equate WTA and WTP, no alternative is more “right” or “wrong” than any other (in the absence of special assumptions that the cost of eliminating the damage equals WTA, the only basis on which it might be morally justifiable to accept a particular sum of money to compensate for the damage in permitting an otherwise evil act). Unconditionally equating WTA and WTP therefore implies arbitrary choice from a normative point of view and denies a rational basis for ethics. Analogous arguments apply to choices of risk, in which an “expected” mono-utility function implies that one would be willing to accept one dollar for the additional risk of death if one would be willing to pay only a dollar to eliminate such a risk (Heap, 1994, p. 10). Moreover, Finnis points out (1990a, p. 12) that in this approach, “there is no difference in principle between buying the right to inflict injury intentionally and buying the right not to take precautions which would eliminate an equivalent number and type of injuries accidentally.”

The moral requirement that WTA not equal WTP implies that there are two possible rankings for the desirability of a particular alternative rather than one depending on the “context” or the “direction of trade,” i.e. whether one is paying or accepting. In this case, there is a mathematical relation rather than a function between a given income and its moral desirability, depending on how the money was earned. (In terms of a two-dimensional graph, a mathematical relation has more than one value of “y” for each value of “x,” illustrating how “context matters,” whereas a function has only one value of “y” for each value of “x,” illustrating that context may be irrelevant, at least to an egoist in our example.) The same divergence between WTA and WTP applies to production processes if they conflict with the second objective of work, “to enable every one of us to use and thereby perfect our gifts like good stewards.”

Despite these crucial distinctions, leading Muslim economists such as Naqvi (1981, p. 63) appear to believe it is possible to add moral “constraints” to a mono-utility function.¹⁸ This is internally inconsistent, because a moral constraint requires that WTA and WTP diverge, whereas the mono-utility approach equates

¹⁸ See particularly Naqvi’s comments regarding the “allowability constraint.” His opening paragraphs on the sacred dimension of all aspects of life are eloquent. But he does not write one word against the neoclassical claim to provide a formal theory of choice, although so much hinges on this claim. The majority of Muslim economists also appear to believe that the standard mono-utility approach can accommodate Islamic values with such constraints. With respect to the mainstream literature, Griffith and Goldfarb (1991) provide an overview of this debate, examining neoclassical attempts to amend the rational egoist model to include norms. The authors suggest that the results are unsatisfactory, although for reasons that are not based on a hierarchy of spiritual and other needs or the difference between a relation and a function as discussed in this section.

them. Although Naqvi eloquently critiques greed and consumerism to distinguish between Islamic values and egoistic preferences, this does not by itself address the distinction between Islamic and neoclassical economic theories. The latter requires a response to the neoclassical claim to accommodate different motivational assumptions in its theory of choice, as well as the assertion that alternative motivational assumptions have limited relevance for production and exchange processes.

Some economists (Lutz and Lux, 1988) therefore suggest a “lexicographic” or sequential function involving multiple ends rather than a mono-utility function to accommodate moral choices, allowing higher priority ends such as honour to be fulfilled before lower priority ends such as wealth.¹⁹ Although this “sequential” structure successfully denies unethical trade-offs between alternatives to accommodate values better than the mono-utility approach, a lexicographic function cannot accommodate spiritual needs. This is because it substitutes a single, spiritual end with a sequence of multiple independent ends, breaking the intimate linkage within a hierarchy of spiritual and other needs.²⁰ Moreover, a lexicographic function does not necessarily exclude egoism, as the case of a “lexicographic hedonist” who pursues various pleasures while equating WTA and WTP on moral choices suggests. Because diverse ends can also pose problems for the consistency of preferences (as ends “competing for position” within the sequence suggests) (May, 1954), neoclassical economists generally object to this lexicographic approach in favour of a mono-utility function involving a single end.²¹ We shall return to the Islamic perspective on preference integration shortly.

Turning now to the first objective of work, “to provide necessary and useful goods and services,” the mono-utility approach is also problematic, because it equates WTA and WTP across qualitatively different goods, thereby excluding any distinction within or between needs and wants. As Allen points out (see Lutz and Lux, 1988, p. 21), “‘need’ is a non-word” in neoclassical economics, which excludes the possibility that one may not be able to abstain from or substitute for a particular good. Indeed, “The modern utility theory reduces all wants to one general abstract want called ‘utility.’ In line with this reduction, one need not say ‘these people need more shoes’: instead, ‘these people need more utility’ should

¹⁹ At one point, we also espoused the lexicographic approach (Alwani and El-Ansary, 1999), which we believe is still preferable to a mono-utility approach.

²⁰ Although the lexicographic approach accommodates divergences between WTA and WTP in its “step-wise” approach to multiple ends, it is for reasons that are completely different from a single end involving multiple use values, since the latter presupposes a hierarchy of levels of reality, as we shall discuss shortly. In any case, a mathematical relation may still apply *within* a lexicographic function in the sense that context may still be important for a particular term.

²¹ Economists generally view lexicographic functions as a mathematical curiosity applicable to peripheral cases such as the preferences of drug addicts.

suffice” (Georgescu-Roegen, 1973, p. 458).²² But common sense suggests that, “He who does not have enough to eat cannot satisfy his hunger by wearing more shirts.” A mono-utility approach therefore implicitly attributes “to man ‘faculties which he actually does not possess,’ unless we could drink paper, eat leisure, and wear steam engines” (Lutz and Lux, 1988, p. 324).²³ Georgescu-Roegen points out (1966) that qualitatively different use values also apply to different uses of the same good, such as water which we use to fully satisfy needs like thirst without driving the incremental value in other uses (such as sprinkling the lawn) to zero.²⁴ In short, “a mattress, knife, so much bread ... are things that have by design particular qualities in virtue of which they are useful for particular purposes and meet particular needs, and they are inherently different” (Meikle, 1995, p. 16). Thus, the economist’s common inference from a “downward sloping demand curve” (like the demand for water) to a single use value for all goods is a non sequitur.²⁵

From an Islamic perspective, the mono-utility explanation of the economizing process involves the “post hoc, ergo propter hoc,” or “after this, therefore because of this,” fallacy.²⁶ Erroneously equating WTA and WTP across different goods that

²² Georgescu-Roegen therefore espouses a lexicographic approach to model the economizing process.

²³ Unfortunately, Lutz and Lux place Ruskin and Schumacher, who espouse a theistic approach to economics, in the same group as Sismondi and Hobson, who adopt a non-theistic one. The solutions that Lutz and Lux propose are consequently somewhat syncretic. Nevertheless, they provide an important critique that is consistent with many elements of religious thought, even dedicating their first book to Schumacher, whom they refer to as “the gentle giant of humanistic economics.” They also refer once to Rene Guenon’s *The Reign of Quantity and the Signs of the Times* (2001) in light of the reduction of quality to quantity in economics, recommending his book in “A Reader’s Guide to the Literature” (Lutz and Lux, 1979). However, they appear to be unaware of Guenon’s influence on Schumacher.

²⁴ Georgescu-Roegen argues (pp. 196-197):

If all wants were reducible (to a composite use value) we could not explain why in any American household water is consumed to the satiety of thirst – and therefore should have a zero “intensity” of utility at that point – while, since water is not used to satiety in sprinkling the lawn, it must have a positive “final degree of utility.” Yet, no household would go thirsty – no matter how little – in order to water a flower pot. In other words, if a commodity satisfies several wants, it may very well happen that its “marginal utility” with respect to some wants may be zero (because these wants are completely satisfied) and yet the “utility” of the last unit be not null.

²⁵ Economists like Heyne (1999) argue that needs are non-existent, because higher prices always lead to lower consumption, i.e. abstention or substitution is always possible unless a “demand curve” is vertical, which he calls a “fictional beast.” However, substitution between alternatives *within* a need does not imply substitution *between* needs. For example, the ability to substitute rice for potatoes to satisfy one’s need for starch when the (relative) price of potatoes increases does not imply that one does not need starch, and that one can “wear more shirts” instead.

²⁶ Georgescu-Roegen (1973) even points out that it is not possible to construct a mono-

fulfil different needs or wants (or combinations of the two in the case of goods with multiple use values or attributes) fundamentally misunderstands agents' choices, for changes in allocation involve changes in "each of the items in relation to the whole, rather than in relation to each other... Changes happen at the Centre rather than at the margin" (Hobson as cited in Lutz and Lux, 1988, p. 335).²⁷ In a word, values transform the economizing process with all this implies for the analytical tools necessary to model it.

Consequently, some Muslim economists such as Khan (1995, ch. 2) have used a variation of the lexicographic approach in a commendable attempt to distinguish between needs and wants in consumer choices.²⁸ We certainly applaud these and other efforts to challenge the strangle-hold of mono-utility functions in economics. However, as noted earlier, even a lexicographic function cannot accommodate a hierarchy of spiritual and other needs, which require a mathematical relation.

Despite the problems with the notion of a single use value, the conventional economic literature never (to our knowledge) discusses the analytical tool necessary for cases involving multiple use values on one hand and a single end on the other, which Islamic and other religious values require.²⁹ Perhaps most economists assume that this combination is impossible, thinking that a single end is incompatible with multiple use values, a correct conclusion if they are on the same

utility function based on the observation of consumer behavior alone, for this requires structuring the data according to *a priori* assumptions.

²⁷ Hobson (see Lutz and Lux, 1988, Appendix II) provides vivid examples of the "fallacy of allocation by marginal comparison" in neoclassical theory, ranging from a mother's response to a price increase for medicine required by a sick baby to an artist's response to a price increase for a pigment for a painting to charitable contributions. In all such cases, the comparison of marginal utilities is unconvincing and represents a fragmented rather than holistic view. It is important to note that Hobson, a disciple of John Ruskin, did not embrace a theistic approach to economics. Therefore, this critique based on qualitative differences within and between needs and wants is consistent with a broad range of views. Whether or not such views are internally consistent is a separate philosophical issue.

²⁸ Khan combines the lexicographic and mono-utility approaches in the following sequence of choices: 1) "spending for worldly needs" vs. "spending for the cause of Allah" using a mono-utility approach, 2) "future consumption" vs. "present consumption" using a mono-utility approach, 3) consumption of "essentials" (*daruriyyat*), "complements" (*hajiyyat*), and "improvements to essentials" (*tahsiniyyat*) using a lexicographic approach, and 4) various substitutes within a particular end in a lexicographic function.

²⁹ On the rare occasions the literature employs a multi-utility framework it is always a lexicographic approach. Although some critics of neoclassical theory recognize the problems of conflating needs and wants, equating WTA and WTP, etc. none has proposed an analytical solution corresponding to the Islamic point of view. In addition to the previous references, see for instance Etzioni (1986). Perhaps the most advanced critique that falls short of properly specifying a multi-utility relation is the work on law and economics by Finnis (1990a, 1990b, 1990c) (although his approach also introduces some questionable philosophical presuppositions according to some theistic philosophers).

level of reality. But this combination is possible and even necessary within a hierarchy of levels of reality. Classical Islamic treatises on philosophical ethics such as Nasīr al-Dīn Tūsī's *The Nasirean Ethics* (1964) make such a distinction clear, explicitly establishing the ontological basis of multiple use values in the context of spiritual needs. We therefore suggest the term "multi-utility relation" for the analytical tool in the Islamic approach, since it entails multiple use values in a mathematical relation. Indeed, we believe that this approach resolves various paradoxes in economics, the most notable of which involve risk and uncertainty, which is crucial in understanding the religious prohibition of certain forms of risk trading and other aspects of religious economic law. (Although Mahmoud El-Gamal (2000, 2001) has attempted to draw the consequences of inconsistent preferences for the economic analysis of Islamic law, he makes no mention of the possibility of a multi-utility relation.³⁰) In any case, the fundamental opposition between a multi-utility relation and a mono-utility function is based on the polarity between "unity" and "uniformity" according to contemporary Islamic philosophy (Guenon, 2001).

The economic literature's pervasive neglect of a multi-utility relation in comparison to utility functions is indicated by the fact that the leading graduate textbook on microeconomic theory (Mas-Colell, et al., 1995) simply makes no mention of any other possibility except irrational preferences. But this is a crucial error, because spiritual values can fulfil the economist's criteria for rational preferences, i.e. they are "complete" (one can rank bundles A, B, and C, for example) and "consistent" (one prefers A to C if one prefers A to B and B to C).³¹

With only mono-utility and lexicographic utility functions left to choose between, economists select the former because a single end seems more plausible and appears to fulfil the consistency axiom more easily than multiple ends (a

³⁰ A multi-utility relation is obviously important when risk / uncertainty are unevenly distributed, e.g. when the *material* costs and benefits of actions are more uncertain than the corresponding *moral* costs and benefits. Ruskin maintains this is always the case (1968, pp. 117-118):

... the variety of circumstance which influence... reciprocal interests are so endless, that all endeavour to deduce rules of action from balance of expediency is in vain. And it is meant to be in vain. For no human actions ever were intended by the Maker of men to be guided by balances of expediency, but by balances of justice. He has therefore rendered all endeavours to determine expediency futile for evermore. No man ever knew, or can know, what will be the ultimate result to himself, or to others, of any given line of conduct. But every man may know, and most of us do know, what is a just and unjust act.

But the first step to any modification of economic theory is an alternative analytical tool for choices under certainty.

³¹ Although many Muslims, Christians, or other theists may not have internally consistent preferences, this does not imply that preferences are inconsistent *because* of spiritual values. We shall return to this issue shortly.

mono-utility approach also employs the analytical tools of Newtonian mechanics and nineteenth-century physics, as we shall see). Accordingly, neoclassical economists add another axiom, that of “continuity.” Economics textbooks routinely present this as a technical mathematical condition that has no serious implications, since it simply excludes lexicographic utility functions. Even leading thinkers in the philosophy of economics such as Hausman neglect to critically assess this axiom, stating in his important book on ethics and economics that (1996, p. 29), “Continuity is a technical condition, which we shall not discuss.” But the continuity axiom is not only a “technical” mathematical condition, since it rules out a multi-utility relation as well as a lexicographic utility function. Unlike the other axioms, the continuity axiom is not spiritually neutral, for it reintroduces the hedonistic assumptions of Jeremy Bentham, the founding father of modern utilitarianism, into neoclassical theory (Georgescu-Roegen, 1966, 1973). As noted earlier, such a mental state theory of welfare subordinates truth to utility, treating the operation of the intelligence as an operation of the will, as if error was a type of knowing in the same way that evil is a type of willing.³² The mental state account of welfare is therefore internally inconsistent (one can never offer a reason to subordinate truth to utility in any case).

It is important to note that economists often espouse an alternative “satisfaction of desire” view of welfare that partially corrects the mental state account by requiring that the object of desire actually exist to count towards utility (Hausman, 1996).³³ But this is not what the continuity axiom implies, which economists who believe that it is neutral do not recognize. In any case, Hausman asserts that economists do not take the satisfaction of desire account literally and often have in mind a substantive, mental state account of utility.³⁴

³² The relativist assertion that the intelligence is incapable of objective knowledge is also self-contradictory (Schuon, 1984).

³³ The satisfaction of desire criterion is still subjective, however, because desirability defines goodness rather than goodness defining desirability (which may be appropriate for tastes, not for values, since the former are not subject to criticism and are unmodified by understanding). Even if people’s preferences are based upon false beliefs, the satisfaction of desire account of welfare requires that they be fulfilled. Hausman argues (1996, p.76), “The only consistent ways out of this impasse are either to follow people’s preferences, even if they depend upon beliefs that are false and unreasonable, or to employ some substantive theory of welfare.” Thus, although the satisfaction of desire account “severs the link between ‘fulfillment of desire’ and the requirement that the person in some way experience its fulfillment,” it does not rule out egoistic or illusory desires, just like the mental state account. Truth is still subordinate to utility. The satisfaction of desire is therefore not neutral as *the* criterion of *welfare* (although it can be neutral in a theory of *choice* if one drops the continuity axiom). Indeed, the criterion is self-defeating, denying preferences their “authority” by subordinating truth to utility while “feeding off” of them.

³⁴ As Hausman points out (1996, p.74), “Economists often slide from talking about utility to talking about happiness. Economists often talk about individuals ‘seeking’ utility, which

Since this is what the continuity axiom entails, it is sobering to note that Bentham dreamt he was inspired by an “angel” shortly before the publication of his *Introduction to the Principles of Morals and Legislation* (see Crimmins, 1990), which established the utilitarian principles on which the state should discard religious laws governing society and replace them with a secular science of legislation based on utilitarianism, attacking Church teachings while arguing that bans against such practices such as sexual indulgence and homosexuality decreased utility.³⁵ In the dream (pp. 314-315), the angel put into Bentham’s hands a book which “(the angel) said he had just been writing with the quill of a phoenix... it was lettered on the back Principles and Legislation.” Bentham viewed himself in the dream as “a founder of a sect, of course a person of great sanctity and importance,” the savior of England and quite possibly the world. When he was asked by “a great man” what he should do “to save the nation,” Bentham replied, “take up my book, & follow me.” He clearly implied that the book the angel delivered to him should replace Scripture as the best plan for the salvation of the world. According to the angel, it is a book with “the true flavour of the fruit of the tree of knowledge,” and Bentham “had no occasion to eat it... as St. John did his: all I had to do was cram it as well as I could down the throats of other people...” Bentham’s subsequent sense of self-importance led to his will request made shortly before his death in 1832 that his skeleton be preserved, dressed in his own clothes, and placed in his chair (as an “Auto Icon”) so that “personal friends and disciples... (could commemorate) the founder of the greatest happiness system of morals and legislation.”³⁶

Such details are obviously an embarrassment in the history of economic thought. Although few economists today explicitly subscribe to Bentham’s view of welfare, it is intrinsic to the mono-utility approach. Contrary to this mental state account, a multi-utility relation requires that “our willing is not inspired by our desires alone, fundamentally it is inspired by the truth, and this is independent of our immediate interests” (Schuon, 1987, p. 93). In the Islamic theory of welfare, happiness can be an effect rather than a motivating cause, because beauty and the

makes no sense if utility is just a measure of the extent to which preferences are satisfied.” Moreover, talk of “moving to the highest indifference curve” makes “the temptation to equate utility and welfare... seemingly irresistible” (p. 117). Although some philosophers have attempted to modify state of mind accounts with “qualitative hedonism” and state of world accounts with “informed desires,” a mono-utility function cannot support such qualitative distinctions. In any case, the debate over whether or not such non-theistic attempts avoid subordinating truth to utility is irrelevant if the difference between the physical and corporeal corresponds to the nature of reality, as we shall see.

³⁵ John Colls, a former disciple of Bentham who turned against him, described Bentham’s volumes on religion as “volumes of blasphemy and slander... against the Author of Christianity and His people” (Crimmins, 1990, p. 148).

³⁶ This aspect of Bentham’s will is available on-line at: <http://www.ucl.ac.uk/Bentham-Project/info/will.htm> .

love of beauty give the soul happiness, and virtue, or beauty of soul, is the highest form of beauty in this world. As Schuon explains (1981a, p. 94), “sensible beauties are situated outside the soul, and their meeting with it is more or less accidental; if the soul wishes to be happy in an unconditional and permanent fashion, it must carry the beautiful within itself.” Virtue is a necessary part of man’s total attachment to the Truth, or God, because man has a will to act in addition to an intelligence which knows.³⁷ The totality of this contemplation with the whole of one’s being – intelligence, will, and sentiment – results in the virtues.³⁸ Happiness is, therefore, an effect which constantly accompanies virtue, and is not a motivating cause alone like truth. Consequently, there is an intrinsic connection between the “right” and the “good,” between spiritual “needs” and corresponding “duties” as two sides of the same coin.³⁹ Thus, the Islamic view of welfare requires that the satisfaction of desires be based on true beliefs and happiness be based on reality to count towards well-being. From this perspective, psychological hedonism rationalizes the sacrifice of spiritual and other needs for false happiness based on inferior intentions, providing a theory of choice and welfare of the “lower soul” (the *nafs al-ammārah* in Qur’ānic terms).

We do not assert that economists must therefore completely banish the continuity axiom from the theory of choice. The axiom is not only necessary to model certain preferences of misers and hedonists, it is also appropriate for many neutral choices if applied locally rather than globally, such as those involving tastes. For example, if one is willing to pay a maximum of two apples for one pear in moving from bundle A to B, one should be willing to accept a minimum of two apples for one pear in moving back from bundle B to A. In this case, there is no qualitative difference between WTA and WTP, because they are simply movements between two bundles on the same “indifference curve,” a locus of points between which one is indifferent. But for values, the continuity axiom only applies within a given objective that can be fulfilled in a variety of morally

³⁷ Schuon explains the necessary connection between metaphysical truth and virtue as follows (1987, p. 183):

A spiritual virtue is nothing other than consciousness of a reality. It is natural – but immaterial – if it is accompanied by feeling. ... The key to understanding the spiritual necessity of the virtues is that metaphysical truths are also reflected in the will and not only in the intellect and reason. To a given principal truth there corresponds a volitional attitude. This is a necessary aspect – or a consequence – of the principle that “to know is to be.”

In an Islamic context, Nasr (2004) explains the relationship between Truth (*al-Haqq*) and truth (*al-haqīqah*) in that, “*haqīqah* means truth as it is grasped, (and) *al-Haqq* is the Name of God which is associated with that truth.”

³⁸ See Part II of Schuon (1981a) for an incomparable exposition of this issue.

³⁹ From this point of view, the alleged conflict between the “right” and the “good” in contemporary moral philosophy is a “false problem” resulting from an anti-metaphysical approach in “desire-ethics” such as utilitarianism and “duty-ethics” such as deontological ethics. For an excellent refutation of both, see for instance Veatch (1971, 1985).

equivalent ways. Thus, one can apply the continuity axiom locally within a given use value, but one cannot apply continuity globally between use values without implying unethical preferences (as the equation of WTA and WTP illustrates). In short, the misapplication of the continuity axiom to choices involving ethical values implies that, “nothing is ‘good’ or ‘evil’ in itself, there is only ‘more’ or ‘less’” (Schuon, 1992, p. 61).

But if economists apply continuity globally because they believe that a single end is incompatible with a multi-utility framework, then neoclassical theory appears to offer the only possible theory of choice for a single end. In this case, neoclassical thought appears to offer a valuable “heuristic device” that can be successively adjusted for all such complete and consistent values rather than applying only to a particular domain of them.⁴⁰ The result is a vacuum in the literature on a multi-utility relation that is the central analytical tool of the Islamic approach, with all this implies for economic policy.

3. The Quantum Enigma and the Islamic Critique of Economics

The preceding discussion clarifies important elements of the Islamic critique of neoclassical theory. However, this only sets the stage for far more devastating implications based on the intimate connection between the analytical tools of economic theory and the sciences of nature, a link that obviously could not exist if a mono-utility function accommodated all rational values or tastes for a single end. In fact, arguments regarding the Islamic natural sciences and “quantum paradox” not only demonstrate that the reduction of quality to quantity in a mono-utility function is a subjective construct that does not correspond to the nature of reality, they imply that the concept of a mono-utility aggregate is internally inconsistent, and that hedonists have inconsistent preferences. Accordingly, no one has ever had a mono-utility function and no one ever will, with all this implies for economic policy. In short, if the reduction of quality to quantity cannot apply to the world of nature, it does not apply to the human realm *a fortiori*.

⁴⁰ Michael Novak, a leading Catholic thinker who espouses much neoclassical dogma, even criticizes theologians for their supposedly ill-founded suspicions about economic theory (Novak, 1985). He states, (pp. 567-568):

Two words which cause theologians particular trouble in discussing the liberal tradition in economics are “self-interest” and “acquisitiveness.” ... When an economist uses these words, he means “autonomous choice.” He says nothing at all about the moral content of that choice; in the eyes of the economist, that frame is deliberately kept empty. Self-interest means whatever a person has chosen, whether it is sanctity or truth, pleasure or material benefit. The concept is as general and empty as possible, in order to be universalizable.

But the global application of the continuity axiom proves Novak wrong and the supposedly ill-founded reservations of others right.

Historians of economic thought (Mirowski, 1984) demonstrate that the founders of neoclassical theory imported the mono-utility approach from nineteenth century physics in an attempt to impose a “unity of analytical tools,” not only unity of method, between the disciplines. Mirowski, for example, maintains that (p. 377):

Neoclassical economic theory is bowdlerized nineteenth century physics. ... present research techniques may be favoured because they were appropriated from physics. ... neoclassicism was not ‘simultaneously discovered’ because it was ‘true,’ as Jevons and others would have it; instead, the timing of its genesis is explained by the timing of the energetics revolution in physics, and by the fact that scientifically trained individuals in different Western European countries at that time had access to the same body of knowledge and techniques. ... One cannot predict where new theories will come from, but one can venture a broad inductive generalization from past patterns: that a substantial non-neoclassical economic theory will distinguish itself by consciously repudiating the energetics metaphor.

In a word, Mirowski and other critics claim that the neoclassical attempt to replace energy in physics equations with a mono-utility function in economics equations is arbitrary, erroneous, and compromises economic analysis. He provides an enormous amount of supporting historical information to demonstrate the “sociology of knowledge” at work in economic theory. Leon Walras, one of the “founders” of neoclassical theory, even boasted that, “the pure theory of economics is a science which resembles the physico-mathematical sciences in every respect” (p. 363). This is not simply rhetorical flourish, since it is very nearly correct for his rareté equations (p. 368). Analogous comments apply to the work of Jevons, Edgeworth, Pareto, and other neoclassical economists, all of whom explicitly invoked the analogy between physics and economics (pp. 363-370). Accordingly, the timing (if not the possibility) of the mono-utility approach may be explicable primarily in terms of the sociology of knowledge.

The same applies to the neoclassical claim to accommodate any set of values and tastes, which has its roots in John Stuart Mill’s analogy (1984) between classical economic theory and Newtonian mechanics.⁴¹ Mill believed that just as Newton added constant forces such as gravity to “disturbance terms” such as

⁴¹ Mill espoused the unity of method between the sciences, because he believed that the natural and moral sciences are on a continuum in which there is no fundamental shift in outlook, only increasingly complex data. Mill (1984) cites Newtonian mechanics as the model for economics and the premier example of a science based on “composite” causes, or causes in which the order does not matter to predict the effect, e.g. the effect is the same whether the causes occur simultaneously or sequentially. Unlike “combination” causes, in which the effect is sensitive to causal order, composite causes may be examined separately, “one at a time” (p. 53). The resulting aggregate is quantitative and reducible to a sum of parts, an object for “analysis” in which no *a priori* vision of the whole is necessary, for there are no qualitative differences to integrate.

friction to predict their aggregate effect, one could add constant causes such as greed to disturbance terms such as generosity to predict the aggregate result of economic phenomena. The “conflicting forces” of different motivating causes were analogous to the “conflicting forces” of mechanics, both of which a mathematical function could incorporate, thereby justifying the unity of analytical tools.⁴²

But Ruskin (1938) rightly objected that disturbance terms such as generosity were not of the same quality as the supposedly constant force of greed, and the two could not be aggregated.⁴³ He even asserted that (see Clark et al., 1903-1912, volume XXVII, p. 180):

⁴² According to Mill (pp.53-54), economic analysis dealt with the main cause of greed, and other sciences dealt with the “disturbing causes,” because he defined each science according to a specific cause and each art according to desired effects. The *art* of economic policy therefore drew on many sciences in addition to economics to incorporate different disturbance terms. *Classical* economics was thus a “separate but inexact” science. Neoclassical economists would later import the approach of the *art* of economic policy-making into the *science* of economics itself, apparently introducing the ability to incorporate the disturbance terms directly with mono-utility functions for *any* choice. For an excellent analysis of Mill’s economic thought, see for instance Hausman (1992). In this regard, we believe that Mirowski goes too far when he claims that (1984, p. 365) “recourse to the history of mathematics and physics shows that the characterization of neoclassical economics as ‘Newtonian’ is both inept and misleading.” Mono-utility functions clearly have a basis in Newtonian mechanics based on Mill’s analogy, not just nineteenth century physics. Although the difference between these two phases of pre-quantum physics helps to explain the expanded role of mono-utility functions in neoclassical theory, Newton’s bifurcationist metaphysics is the necessary condition for both, and Mirowski underestimates this aspect of continuity between these phases of pre-quantum mechanics from an Islamic perspective. Indeed, the reduction of quality to quantity in the secular natural sciences implies production and exchange processes common to both classical and neoclassical thought. Thus, we believe that Mirowski also underestimates the continuity and overestimates the discontinuity between these phases of economic thought despite his admirable scholarship.

⁴³ Ruskin states this objection in the opening paragraph of his renowned *Unto this Last* (1938, p. 115):

“The social affects,” says the economist, “are accidental and disturbing elements in human nature; but avarice and the desire of progress are constant elements. Let us eliminate the inconstants, and, considering the human being merely as a covetous machine, examine by what laws of labour, purchase, and sale, the greatest accumulative result in wealth is attainable. Those laws once determined, it will be for each individual afterwards to introduce as much of the disturbing affectionate element as he chooses... .” This would be a perfectly logical and successful method of analysis, if the accidentals afterwards to be introduced were of the same nature as the powers first examined... . But the disturbing elements in the social problem are not of the same nature as the constant ones; they alter the essence of the creature under examination the moment they are added; they operate, not mathematically, but chemically, introducing conditions which render all our previous knowledge

The modern Liberal politico-economist of the Stuart Mill school is essentially of the type of a flat-fish – one eyeless side of him always in the mud, and one eye, on the side that has eyes, down in the corner of his mouth, – not a desirable guide for man or beast.⁴⁴

In short, Ruskin asserted that ethical values require a different analytical framework than composite causes to accommodate qualitative differences, thereby denying the validity of the unity of analytical tools.⁴⁵

Although arguments espousing the unity of tools are logically separable from arguments espousing the unity of method, the writings of the aforementioned economists clearly suggest the latter is a necessary intellectual condition (in terms of the “sociology of knowledge”) for the former. It is no accident that Ruskin challenged both. He even attacked the secular natural sciences, implicitly relying on a hierarchy of complementary human faculties and methods in pre-modern philosophy to study nature as “God’s second book” (Rosenberg, 1961, p. 6).⁴⁶ In this sense, Ruskin and Mill represent polar opposites on a spectrum of methodological positions, the former implicitly invoking the unity, plurality, and hierarchy of methods in the human and natural sciences, and the latter denying the plurality and hierarchy of methods in favour of unity of method and analytical tools.⁴⁷ According to Schuon (1984) and Nasr (1996, 2000), the danger of the latter

unavailable.

⁴⁴ Ruskin gives the following more diplomatic assessment of Mill in another passage (see Clark et al., 1903-1912, volume XVII, p. 478): “Mr. J. S. Mill is assuredly strong in some directions of thought, and entirely, by his nature, shut out from following others.”

⁴⁵ For an introduction to Ruskin’s economic thought, see for instance Fain (1956).

⁴⁶ However, Ruskin did not explicitly clarify the hierarchic methodology for this in which the senses occupy the lowest realm, reason and other faculties of the soul the intermediate realm, and the intellect (as used in its original sense), or “eye of the heart,” the highest level. As Nasr explains (1999, pp. 200-201):

the faculty of intellection symbolized by ‘the eye of the heart’ ... ‘sees’ the spiritual world in a direct manner much like the physical eye which possesses the same power in the sensible world and in opposition to the faculty of reason which functions discursively and ‘knows’ indirectly.

It is important to emphasize that knowledge based on the intellect does not imply “non-verifiable... truth claims,” as some (Aminrazavi, 2000, p. 555) allege. Nasr (2000) responds to this charge in the same volume. For a synthesis of the traditional doctrine of the intellect pertaining to epistemology, see for instance Schuon (1981b, pp. 5-35). For a detailed examination of this in the context of the traditional sciences of nature, see for instance Nasr (1996).

⁴⁷ Other thinkers such as Dilthey can be understood as taking an intermediate position on this spectrum, asserting unity of method *within* the natural sciences but not *between* them and the human sciences. “Methodological anarchists” deny the unity of method as such, asserting plurality without hierarchy.

increases the higher the level of being that is the subject matter of study, making it most hazardous in economics and other human sciences.⁴⁸

Fortunately, “good physics is now refuting bad philosophy,” as the philosopher and scientist Wolfgang Smith (1984, 1995, 2003) points out. In the context of the mind-boggling findings of quantum mechanics, he demonstrates (1995, 2003) that the reduction of quality to quantity does not even apply to the natural world, let alone to the human realm. Obviously, this has tremendous implications for the debate over the proper analytical tools in economics. Smith clarifies his solution to the paradoxes that the new physics poses for the understanding of the natural world in his seminal book *The Quantum Enigma: Finding the Hidden Key*, which Nasr hails (1997, p. 158) “as one of the most important books written in recent decades on the metaphysical interpretation of modern physics.” One of the central distinctions that Smith makes is between the corporeal world of perceived qualities that we regularly experience and the physical world of measured or measurable quantities that occupies physicists. The world is not without qualitative differences as the “naïve realism” of billiard ball atomism (the notion that atoms alone “really exist”) suggests. Although quantum mechanics has refuted atomism, the view that quality is reducible to quantity persists because of the desire for physics “without residue” (1995, p. 12).⁴⁹ “Quantum paradox” is the result, and Smith brilliantly demonstrates that the solution is to drop such a reductionist tenet, i.e. “bifurcation.”⁵⁰ He states (2000, p. 475):

⁴⁸ For a profound critique of secular methodological positions, see for instance Schuon (1984). For a remarkable discussion of the Islamic response to secular approaches to science, see Nasr (1996, 2000). For a discussion of secular approaches to the philosophy of science in relation to economics, see for instance Redman (1991).

⁴⁹ Smith points out (1984, p. 15) that Newton was wrong in claiming in the *Principia* that we “justly infer the hardness of the undivided particles,” because “the hardness of the whole arises from the hardness of the parts.” Smith cites Schroedinger (pp. 50-51) that, “we have been compelled to dismiss the idea that such a particle is an individual entity which in principle retains its ‘sameness’ forever. Quite the contrary, we are now obliged to assert that the ultimate constituents of matter have no ‘sameness’ at all.” Because the idea that neither the atom nor the fundamental particles into which it can be decomposed have a true self-identity may be difficult to conceive, Schroedinger puts it in even more emphatic terms as follows:

And I beg to emphasize this, and I beg you to believe it: It is not a question of our being able to ascertain the identity in some instances and not being able to do so in others. It is beyond doubt that the question of ‘sameness,’ of identity, really and truly has no meaning.

However, a “totalist” physics that claims to be the complete explanation of the totality of the physical world “‘without residue’ is obliged to accept bifurcation, almost as a ‘necessary evil’ one might say” (1995, p. 12).

⁵⁰ Smith defines bifurcation (1995, p. 137) as the “Cartesian tenet which affirms that the perceptual object is private or merely subjective. The idea of bifurcation goes hand-in-hand with the assumption that the external world is characterized exclusively by quantities and

The non-bifurcationist interpretation has the immediate advantage of eliminating at one stroke what is generally called “quantum paradox.” There is no need any longer for this or that *ad hoc* hypothesis to make things fit; no need for “parallel universes” or new laws of logic! The one thing needful to avoid the semblance of paradox is to jettison bifurcation once and for all.⁵¹

Smith also demonstrates that this is the key to integrating the findings of physics into “higher orders of knowledge,” showing that the findings of quantum mechanics reveal “reality is nonlocal.” The “most striking” example according to him (1995, 2003, ch.4) is the fact that the observation of photon A can have an instantaneous effect on photon B despite the fact that they are hundreds of meters apart traveling in opposite directions. Accordingly, Smith turns to the theory of hylomorphism in classical philosophy to explain the corporeal as the combination of “form,” or what renders a thing intelligible, and “matter,” the pre-existential recipient of form (“matter” here obviously differs from the conventional usage of this term today). This locates the physical as an intermediate realm of “potentiality” above the *materia prima* but below the “actual” corporeal, accounting for the lack of true self-identity for atoms (or other fundamental particles) on one hand, and explaining the “state-vector collapse,” the actualization of potentiality on the physical level, by action from the corporeal level on the other.⁵² Nasr (2006)

mathematical structure. According to this view, all qualities (such as color) exist only in the mind of the percipient.”

⁵¹ Bifurcation also poses major problems for philosophy, which Smith illustrates as follows (2000, p. 473):

The red apple which we do perceive... has become relegated to a private phantasm, a mental as distinguished from a real entity. This postulate, moreover, demands another: one is now forced – on pain of radical subjectivism – to assume that the red apple, which is unreal, is causally related to a real apple, which, however, is not perceptible... (what) was one object has now become two; as Whitehead puts it: “One is the conjecture, and the other is the dream.”

He argues (1995, pp. 10-12) that there are no possible grounds for proving bifurcation, for “if the dogma of bifurcation were true, then the corresponding ‘two object’ theory of perception would *ipso facto* be unverifiable, for the obvious reason that there would be no way of ever finding out whether the external object exists, let alone whether it is geometrically similar to the perceptual.” Accordingly, “The ‘two object’ theory of perception, no less than the bifurcationist tenet on which it rests, constitutes... a metaphysical premise which can neither be verified nor falsified by any empirical or scientific means.” In short, “No real philosophic advantage... results from the postulate of bifurcation, which is to say that the totalist claims of physics need in any case to be relinquished: In a word, not everything without exception can be understood or explained exclusively in quantitative terms.”

⁵² As Smith explains (1995, p. 139), physicists define such potentiality in terms of the “state-vector,” or “the mathematical entity which represents the state of a physical system in the formalism of quantum theory.” The act of measurement itself causes the state-vector to “collapse” to an actual value from this range of potential values.

also demonstrates that certain pre-modern Islamic philosophers and scientists such as Khayyam make an equivalent distinction between the physical and corporeal. (Even if some other pre-modern scientists did not, they certainly do not reduce the corporeal and higher levels of reality to the physical, which is scientism, not science.) This has extremely important implications for the understanding of pre-modern sciences, and is crucial for the ontological basis of the multi-utility relation in Islamic economic theory. Nasr makes the crucial point regarding traditional sciences as follows in his review of *Quantum Enigma* (1997, pp. 151-152):

The qualities of the corporeal world are not accidents but come from the essence of corporeal objects which is not mathematical. Herein lies the key to the understanding of the significance of the traditional sciences which are precisely the sciences of the essence and attributes of corporeal objects... . In contrast quantitative and mathematical sciences in the modern sense refer not to the essence but to the material or material substratum of things. In this bold manner Smith destroys the stranglehold that modern scientism has exercised upon the traditional sciences since the 17th century when these sciences became interpreted as crude antecedents of modern science... . Henceforth those interested in the traditional sciences of nature can pursue them as the sciences they are in reality, namely sciences dealing with the qualitative aspects of corporeal objects related to the very essence and attributes of these objects and providing knowledge of the corporeal world. This knowledge is, therefore, not in any way abrogated by the findings of modern physics which deals with another level of reality, ontologically speaking, namely the physical world in the sense that Smith uses this term and which he distinguishes from the corporeal world.

In short, integration (as well as every other positive quality) comes “from above.” As the astronomer Robert Jastrow has put it (see Smith, 1995, p. 103): “For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; and as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.”

The distinction between the physical and corporeal levels has catastrophic implications for the analytical tools of neoclassical economics as well as the theory of welfare. A mono-utility approach simply cannot accommodate qualitative differences in the corporeal realm, whereas both a lexicographic function based on a sequence of qualitatively different ends and a multi-utility relation based on a hierarchy of spiritual and other needs can. Even inconsistent preferences, the subject of behavioural economics, allow for qualitative distinctions, because the difficulty of choosing between qualitatively different goods and attributes can explain behavioural inconsistencies in the first place. But a mono-utility function requires an aggregate devoid of any qualitative differences whatsoever, which can only apply on the physical level. Choice (and existence itself) does not occur on

this level, for it occurs in the corporeal realm. The mono-utility approach is thus eliminated from rational choice theory altogether, for egoistic preferences cannot be globally consistent over corporeal choices, although such preferences may be consistent within a limited range of choices.⁵³ Indeed, there is no “unitary self” in so far as the psyche is not integrated by the spirit (Coomaraswamy, 1999). As Nasr explains (2004), we often try “in the modern world to achieve integration by bringing forces together on a single plane of reality,” although this is metaphysically impossible given a hierarchy of levels of reality. “It is only a transcendent Principle that can integrate the various elements on a lower level of reality. And this repeats itself through all of the hierarchies of the universe.”⁵⁴ Economists cannot therefore simultaneously combine the consistency and continuity axioms using a mono-utility approach, and the egoistic preferences of misers and hedonists are the subject of behavioural economics.⁵⁵ It is no accident

⁵³ Economists often argue that individuals must have consistent preferences in the long run because of “survival of the fittest” – those with rational preferences will exploit those with irrational preferences until only rational actors remain. Yet, Hodgson shows that “survival of the fittest” only applies to firms, arguing that (1993, p. 41)

it is more difficult to attach such a notion to the supposedly ‘rational’ consumer, as ‘non-rational’ consumers do not go extinct in the same way. If ‘non-rationality’ simply means inconsistent preferences, there is no obvious reason to assume a ‘rational’ consumer will have a superior survival value in socio-economic evolution.

This neoclassical argument on “survival of the fittest” clearly cannot account for empirical evidence suggesting the pervasiveness of intransitive preferences. As May (1954) points out, the evidence from several sources demonstrates that “intransitivity is a natural result of the necessity of choosing among alternatives according to conflicting criteria... the question is no longer ‘Are preferences transitive?’, but rather ‘Under what conditions does transitivity fail?’ ” We examine this issue further in El-Ansary (2006b). According to the Islamic view, if the only people to survive were those with integrated preferences, the world would contain only saints.

⁵⁴ Nasr elucidates this point with the following example:

Take the human being. It is composed of body, soul and spirit. There is no way you can integrate the body without the presence of the soul. That is why, when the soul departs, the body falls apart into dust. And this remarkable, integrated functioning of various parts of our body is one of the greatest miracles to which we pay very little attention. ... The same is true for the soul. Our souls are scattered, like particles flowing out of the centre, and we live in a scattered world. The common everyday English usage of the words “scatter brain” reflects the fact that in a sense the mind is “scattered.” There is absolutely no way to integrate it without the presence of the spirit. It is only the spirit that is able to integrate the psyche. The vital principle that is integration not only relates to God as the Supreme Reality, but to every level of reality down to the ... world in which we live. Therefore, to really talk about integration, you must accept the vertical dimension of reality. The reason that we cannot integrate anything in our world is because of the eclipse of a knowledge of that vertical dimension.

⁵⁵ As noted earlier, in philosophical terms, the “unity” required for consistency and the “uniformity” required for continuity are polar opposites. The former is associated with

that economic theory confuses this issue based on the confusion between the physical and corporeal levels, for neoclassical economists imported the mono-utility approach from a secular approach to physics.

Since a lexicographic function also excludes spiritual needs, it too implies behavioural inconsistencies (e.g. rivalry between ends for position in the function's sequence). In a word, bifurcation is a necessary, but not sufficient condition for the neoclassical theory of choice (and welfare) to be coherent. Such arguments regarding Islamic metaphysics and sciences of nature therefore imply that no one has ever had a mono-utility function (or a lexicographic function for that matter), and no one ever will, just as "No one has ever perceived a physical object, and no one ever will" (Smith, 1995, p. 24).

Consequently, economic policy based on the neoclassical approach to welfare that assumes WTA should equal WTP breaks the link between preferences, choice, and welfare. Without true beliefs linking preferences to welfare, efficiency is misdirected and no longer normatively relevant. And without self-consistent preferences linking preferences to choice, "maximizing efficiency" is meaningless, because there is no stable goal as the object of efficiency (Hausman, 1996, p. 76). Since hedonistic preferences violate both of these conditions, as the distinction between the physical, corporeal, and higher levels of reality implies, neoclassical theory draws the wrong welfare and efficiency implications for ethical constraints.

According to this neoclassical view, laws should not reduce the choices available to consumers or producers because restrictions on voluntary transactions will decrease welfare and allocative efficiency, i.e. voluntary transactions are in the welfare of both the buyer and seller, since they otherwise would not be willing to exchange (assuming the absence of certain "market imperfections"⁵⁶). But this argument for the efficiency of "freedom of contract" and "complete markets" applies only when preferences are linked to both welfare and choice. This may be true for choices involving tastes, in which WTA equals WTP, but it is not necessarily true for choices involving values. Indeed, policies that institutionalize unethical preferences in the name of utility maximization lead individuals to internal disintegration and the community into social chaos. Hausman concludes (1996, p. 76), "It seems that those who are benevolent need to consider not just preferences, but the origins of preferences or the justifiability of preferences."

This is particularly important when policies and institutions affect preferences systematically, as occurs in development and environmental programs. "Assessments of policy must then depend in part on one's views concerning which preferences to promote or concerning which institutions provide a suitable

infinite quality whereas the latter is pure quantity.

⁵⁶ Market imperfections include, for example, "asymmetric information" in which differences in the amount of information each party has can lead to exploitation, and "negative externalities" in which non-contracting third parties are harmed such as pollution.

framework within which desirable preferences will develop” (p. 79). If freedom of contract and complete markets change values, not just tastes, then such policies can establish, maintain, or break the link between preferences and welfare.⁵⁷ But since mono-utility functions cannot support the distinction between values and tastes or intrinsic “good” and “evil,” the neoclassical theory of choice favours libertarian policies while claiming to be neutral, thereby smuggling psychological hedonism into economic policy while suppressing the need for substantive philosophical debate over these policies.

Indeed, the “Coase theorem,” the central insight of the most cited paper in economics (by far) since World War II (Coase, 1960), implies technical economic solutions to pollution based on the equation of WTA and WTP without the need for philosophical judgement.⁵⁸ The same applies to cost-benefit analysis. Analogous arguments apply to industrial production processes, which many economists assume are spiritually neutral like tastes, once again equating WTA and WTP with all this implies for the assessment of industrial capitalism. But if the paradigm behind such processes reduces the corporeal to the physical, then such an assumption is false (ultimately accounting for their disastrous unintended consequences on one hand and the impossibility of merely technical solutions to such problems on the other).

The Islamic critique of the unity of method is therefore critical for determining the areas within which WTA should not equal WTP, not just fully exposing the hedonistic presuppositions behind the neoclassical unity of analytical tools. In short, while market-based solutions may work well if WTA should equal WTP, they can fail miserably if they diverge. And to the extent that religious values are ultimately necessary to uphold the principle of justice, or that property rights are respected, the principle of contract, or that contracts (promises) are kept, and the principle of allegiance, or “that one loyally support a government that enforces the principles of justice and contract” (Wilson, 1990, p. 4), neoclassical theory espouses the very policies that in due course undermine the values necessary for markets to exist in the first place.⁵⁹

The hierarchy of levels of reality thus implies the need for spiritual principles in public policy. As Islamic medicine asserts, vertical equilibrium in which the body is subordinate to the soul, and the soul is subordinate to the spirit, is necessary for

⁵⁷ As noted earlier, the behavioral economic analysis of religious law is interesting, but not fully consistent with these arguments if the analysis neglects a multi-utility relation while assuming that a mono-utility function is rational.

⁵⁸ We critique the Coase theorem and cost-benefit analysis from an Islamic perspective in Part II of El-Ansary (2006b).

⁵⁹ This is most obvious in the case of “non self-enforcing” markets as opposed to “on the spot” exchange. For an interesting survey and taxonomy of views on the effects of markets on society, see for instance Hirschman (1986, ch. 5). For a theistic view of this issue, see for instance Lindbom (1982).

welfare (Nasr, 1996). In this way, man “avoids many unseen catastrophes and assures himself a life of wholeness and meaning” (Nasr, 1994, p. 98). While some may object that accepting religious laws completely destroys human initiative, this criticism “fails to understand the inner workings of the Divine Law.” Indeed, the Law places many paths before man which he chooses from according to his nature and needs. “Initiative does not come only in rebelling against the Truth which is an easy task since stones fall by nature; initiative and creativity come most of all in seeking to live in conformity with the Truth and in applying its principles to the conditions which destiny has placed before man.” By eliminating certain negative possibilities, Divine Law helps man in his internal struggle to have the will he wants and make the right choices in the face of path-dependent preferences. Consequently, Divine Law gives man the ultimate freedom of will by making it possible for him to integrate all of life around a Sacred Centre that links preferences, welfare, and choice.

4. Conclusion

Muslim economists eloquently critique greed and consumerism to distinguish between spiritual values and egoistic preferences, but this does not by itself address the distinction between Islamic and neoclassical economic theories. The latter requires a response to the neoclassical claim to accommodate different motivational assumptions in its theory of choice, with all this implies for freedom of contract, production, and exchange processes.

Indeed, the debate between Islamic and neoclassical economics ultimately depends on the all-important debate over the hierarchy of levels of reality and the secular philosophy of science. If the distinction between the physical, corporeal, and higher levels of existence corresponds to the nature of reality, then no one has ever had a mono-utility function, and no one ever will, because quality is not reducible to quantity. Egoistic preferences are the province of behavioural economics, since spiritual principles are necessary for integration. Values fundamentally transform the economizing process, and a multi-utility relation is necessary for a theory of rational choice.⁶⁰

Accordingly, the on-going attempts of classical and neoclassical economists to apply the actual analytical tools of pre-quantum physics to prove equilibrium without spiritual principles, or economic laws without spiritual ones, is the height of scientism that has led to misunderstanding rather than understanding of both economizing and exchange processes. From the Islamic point of view, such attempts are parodies of doctrines on the correspondence between man and nature in theistic theoretical and practical sciences. Unfortunately, such scientism also

⁶⁰ Analogous arguments apply to industrial production processes with all this implies for the theory of exchange. The Islamic critique of the secular philosophy of science therefore integrates the critique of the analytical tools of neoclassical theory, freedom of contract, and industrial capitalism.

leads to devastating consequences for both man and nature. At best, the reliance upon a mono-utility approach in economics forces a trade-off between spiritual neutrality and logical completeness. One can either: 1) apply mono-utility locally in a spiritually neutral way, leaving essential economic questions unanswered and the theory fatally incomplete, or 2) attempt to provide answers to essential questions by reducing values to tastes. Perhaps this is why E.F. Schumacher asserted that economics is either trivial or evil (see El-Ansary, 2006a).

At the very least, neoclassical economists must recognize that spiritual values are not reducible to a special case of neoclassical theory. The debate over which values are the necessary starting point of analysis is one that the economist *qua* economist cannot resolve. We can only hope that more economists will read the remarkable works of authors such as Schuon, Nasr, and Smith to set the stage for a serious debate within the field.

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