The Disintegrating Force of Rationalism on Economics: What it means for Islamic Economics

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Abstract

In the last of this three-part study, the impact of the two dominant epistemologies of modernity on economics is fully explained. The intrusion of their ideas profoundly shaped both the content and methodology of the discipline, eventually instigating the separation of the field from the other social sciences that invariably bear on economic decisions and outcomes. The economists, notwithstanding these interdisciplinary linkages, continued to pattern their field of study after the natural sciences, further alienating the discipline from the humanities. These developments set off several rounds of methodological controversies within economics, which split the profession into irreconcilable camps. These disputes are analysed, helping to clarify why deep divisions within the discipline persist up to this day. Mainstream economics then gravitated further towards quantification and mathematisation, the implications of which have been enormous for the discipline. Ethical and normative considerations were altogether explicitly banished from economic science. To overcome these limitations, Muslim economists attempted to erect a separate discipline of economics based on the ethical values of Islam, whilst remaining largely committed to the methodology of neoclassical economics. They have registered little success in this effort. The reasons for this are explained and an alternative framework, centred on the precept of *Tawhid* in the unity of knowledge, is then suggested.

Keywords: epistemology, economics, rationalism, intellectualism, empiricism, Islam, Islamic economics, unity of knowledge.

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1 Review of Parts I and II of the Study

In two previous papers (Mahomedy 2015a, 2015b) related to the broad theme of this study, I traced how rationalist philosophy[1] had gradually penetrated into the Christian world and then eventually rose to become the dominant force of change in Europe from the beginning of the 17^{th} century. Its pervasive influence on many facets of modern civilisation has occurred primarily through its enduring impact in the area of epistemology.

In the first paper, I showed how early medieval scholasticism engaged with ancient Hellenist philosophy and selectively assimilated its ideas into Christian theology. But as the pace of this effort gained momentum, particularly after the encounter of the Latin West with the Islamic empire, the Church became increasingly distrustful of its usefulness for the Faith and attempted to stem any further encroachment into its domain of authority and influence. But the appeal of certain rationalist ideas as developed by the Muslim scholastics continued to arouse the interest of leading clerics who were deeply influenced by them. Eventually, it led to an irreconcilable tension between the interests of the papacy and the new rising class of scientists and philosophers who demanded greater freedom for independent scientific thinking.

The second paper then summarised how these strains at the epistemic level combined with the other socio-political undercurrents at the time, unleashing internecine warfare and bloodshed across Europe. Organised religion was blamed for the conflict; in its aftermath, the view took hold that at the very least, the religious and secular needed to be kept unequivocally apart. As the influence of religion in the public sphere began to wane, an alternative framework outside the scope of religion was sought to find solutions to the problems of human life and society (Toulmin 1990). Western Europe vested all of its faith and trust in the human faculties of reason and rationality to generate the necessary knowledge "essentially from scratch" (Holtzman 2003:83; see also Ackoff 1993), to guide humanity in this quest. And thus, the Scientific Revolution and the Enlightenment were instantiated as the expressive spirit of this new age of "intellectual emancipation" (see Kant 1784:1).

I then explained that as the two dominant epistemai of modern rationalism viz. intellectualism and empiricism emerged and took shape, each asserted exclusive authority for the testing of all truth claims. Since the intellectualists accentuated structure, uniformity, and ratiocination, they were predisposed towards *apriorism* and deductivism for the generation of new knowledge, whilst the empiricists, on the other hand, in emphasising contingency and sensation, recognised primarily *aposteriorism* and inductivism. The scientific enterprise, within and between the different domains of enquiry, was thus split between each of these two epistemologies. All efforts to unite them have not produced any satisfying synthesis, and as a result, an abiding dualism now characterises all of modernity in both thought and praxis. These dualisms, seen as opposing

[1] See Mahomedy (2015a:9-11) for an explanation of the sense in which I adopt this term throughout this study, contra some of its alternative formulations.

tendencies, have resulted in an inhering sense of tension and conflict that permeates all of the socio-politico and economic institutions of modern civilisation. From Darwinism to Marxism to Neoclassicism (in economics), for example, all reflect these ideas of competition, conflict, and survival of the fittest.

At the epistemic level specifically, the failure to find an irreducible premise of knowledge meant that there could be no convergence towards integrative thought. Relativism, pluralism and from thereon, scepticism are its logical outcomes, which render the quest for truth all the more elusive. The search for a universal morality has to be abandoned, with all of the negative consequences this implies. After elaborating on these issues, some of its implications were then considered in the context of Muslim scholars' efforts to Islamise economics and the encumbrances it has faced in doing so, within the rationalist paradigm. The last part of this series, constituting this paper, aims to particularise these developments for modern economics and then revisit how all of this further implicates Islamic economics (IE henceforth) as a discipline.

2 Background and Introduction to the Current Paper

As the agenda of 18^{th}-century Enlightenment began to gain momentum, its most perceptible impact was on, and through, the sciences, for "science was the engine of the Enlightenment" (Wilson 1999:24). Consequently, inasmuch as it had radically altered the ways of thinking of the time, it also experienced, *ipso facto*, a transformation in itself, and by forces from both within and without. It was precisely this drawing in and radiating out of ideas, sometimes reinforcing, yet at other times conflicting, that fed on one another so that it ignited, within Europe, an intellectual revolution that forever changed its course of history.

And in tracing the various strands of these pressures, one is hardly able to disentangle one from the rest since in most cases they formed an inextricable mix of mutually supporting hypotheses that eventually shaped the broad contours of modernist science. Some of these, nonetheless, were so dominant that they serve as the touchstone that differentiates the conception of rationalist science from those of its predecessors. I point the reader to some of these ideas in the following section, as the basis for launching the rest of the discussion in this paper.

2.1 The Atomisation and Disciplinarisation of Scientific Learning

As many of the novel ideas of the new emerging philosophy took hold, all of the sub-branches of science responded in different ways and to varying degrees to its rationalist élan. But there were, nevertheless, certain important elements of these changes that were common across the sciences, and that continue to persist even until today. As can be seen below, how modern economics evolved was deeply implicated in these changes.

Firstly, it is important to recall that the first split in the unicity of human intellect occurred when science and religion, in Europe at least, parted ways, each charting a self-determining path forward for itself with neither wishing to be bridled by the other (Pieper 2001). But in so doing, science assumed the capacity for the self-generation of knowledge independent of Revelation. This self-sufficiency principle became so intrinsic to the enterprise that all of its elements also embodied this individuating characteristic, transmitting it along its various trajectories of development. Methodological individualism in scientific enquiry now pervades all of its inner structures through and through (Choudhury 2000; see also Buchanan 1960; Von Mises 1978; Kincaid 1997; Hodgson 2007). Because each node and branch of science has been so deeply affected with this atomising tendency, the process becomes perpetually autogenous rendering any kind of systemic unity in knowledge elusive and unattainable. It manifests correspondingly as competition and rivalry in all of the institutions of polity, economy, and society (Bateson 1973; see also Buchanan 1964).

Secondly, an additional element that further reinforced this fragmenting impulse within the sciences warrants some mention here.[2] It came from a concomitant embrace by the scientific community at the time, of the mechanical conception of nature and reality. They likened the cosmos and all that it contained within to a machine, or a clock more specifically, and consisting of matter that was essentially atomistic and homogenous (Burtt 1932). The workings and secrets of this universe, moreover, could most effectively be unravelled by understanding the fundamental laws that regulate its most reducible components (Ackoff 1993; Capra 1996; Smith 2006). This form of reductionism, it was believed, applied to both the animate and inanimate world, including that of human beings (Anderson 1972; Cottingham, 1993; Capra, 1982; Lennon, 2000). This analytical approach[3] to scientific enquiry implied, inter alia, that all of the sciences should further differentiate and that each speciality then concentrates on a specific area within the artificially segmented realities of its respective domain. The reductionist-analytic method became so widespread within science that it was equated with science itself (Johnston 1976; Horst 2007).

When this methodology was conjoined to the already dichotomising spirit of rationalist thought vis-à-vis the *a priori-a posteriori* cleavage, it shattered the entire scientific enterprise into numerous specialised areas of learning, each confined to an academic silo alienated from all of the others. This fractionalisation of scholarship, in the form of increasing disciplinarisation and professionalisation, has been particularly acute in the social sciences (Wallerstein 1996). As each discipline then limped off along on its own path, adopting either the deductive or inductive method of investigation, the different areas of study of the same subject matter, were now all bounded into seemingly disparate and watertight compartments.[4] Henceforth, they lost the common language of enquiry

[2] A more detailed discussion of the implications of this mechanical-cum-physicalist conception of nature for economics is reserved for another study (Mahomedy 2015c).

[3] Sometimes referred to as the "torch of analysis" method (Wilson 1999).

[4] Consider, for example, how the now-in-theory unrelated disciplines of sociology, psychology, economics, history, philosophy, and anthropology seek to explain the same human reality,

and interchange they previously shared as cohesive bodies of knowledge.

The fragmentation, however, did not cease at the disciplinary level. Having now embodied the individuating element of rationalist thought together with the demands for greater specialisation, each discipline, in turn, disintegrated into yet additional sub-disciplines, specialities and sub-specialities. Now as each node and branch of learning self-generates, it breaks away from its maternal roots so that as this process of atomisation intensifies and persists *ad infinitum*, they all become independent from one another (Sarton 1924; Choudhury 2000). The vital links and causal relations between and within them weaken and eventually break down. Most notably, as these individuated sub-branches acquires a character unique to itself, each then competes with the other in claiming to offer a more authentic explanation of reality.[5]

2.2 The Case of Economics

Despite the widespread impact of the new forms of thinking on all of the sciences generally, it is perhaps economics that underwent the most fundamental change in its character as a result. This is hardly surprising since economics, traditionally, was interdisciplinary and inseparably linked with ethics, politics, history, philosophy, jurisprudence, and even the natural sciences (Häuser 1988; Hall et al. 2001; Louzek 2011). Of and in itself, it was never construed as an autonomous, standalone discipline. But then, Mahomedy (2015a) writes

> as the rationalist tide began to sweep through academia and all of its institutions during the Enlightenment, the field of economics had been rent asunder from its historical moorings, and tossed and pulled in several directions as rival groups each championed the rightful place of economics.

Eventually, though, economics chose to drop anchor inside the waters of the natural sciences and then attempted to fashion itself "in precisely the same sense as any of the physical sciences" (Friedman 1953:4). Its problems of enquiry, nonetheless, remained primarily within the ambit of the humanities.[6]

Due to the prevailing partitioned systems of thought within rationalist science, economics has ever since been trapped in the gulf between the natural and social sciences. From both ends, it has had to endure opposing centripetal forces that have become ever more difficult to counterbalance. On the one hand, economic science aspired to construct deterministic models of phenomena and derive exact laws therefrom, as in the physical sciences, whilst on the other, its subject matter concerned the complex reality of human behaviour, whose

but are all separated from each other by artificial boundaries, which hardly matter in the phenomenal world.

[5] See Mayr (1969, 1996) and Bartley (1982) for a fuller discussion of this rivalry in the natural sciences. In the social sciences, consider for example, the ideas of Marx (economics), Durkheim (sociology), and Freud (psychology) as competing explanations for the key drivers of human behaviour and societal evolution.

[6] See also Shackle (1978).

motivations and outcomes are not always so easily tractable. Given the highly charged issues that stoked the flames of the ensuing debates that followed this dualistic orientation of the discipline, economics became a hotly contested domain. It is due to this ambivalence with respect to its identity that several pejorative terms have been used to describe the field,[7] and because of which no science "has been criticized by its own servants as openly and constantly as economics" (Georgescu-Roegen 1971:1; see also Hodgson 2008).

Particularly telling on the economics discipline is the contraption of *homo economicus* and, following thereon, the methodology adopted to analyse this representative agent of the economy. In much of the critique on these issues, it has become conventional to launch the debate by beginning with the ideas of Smith, Ricardo, Malthus, and Mill,[8] proceed from there to the spat between Menger and Schmoller (linking it to the Marginalist revolution), and then to the positivist-falsificationist arguments vis-à-vis Friedman and Popper (see also Klein 1985). What is often ignored is that the methodological and other content-related disputes do not spontaneously arise in vacuity, and hence, cannot be resolved by addressing them in isolation from the ontological and epistemological assumptions that undergird them. Until those deeper issues are clarified, the problems will remain insurmountable. One thus encounters the same criticism of a dearth of "deep critical analysis" in IE to unearth the causes of its underlying problems (Aziz et al. 2011:772; Kahf 2004; Haneef 2012) as has also been levelled, to some extent, at mainstream economics (ME henceforth) (Shackle 1978; Kristol 1981; Dow 1997, 2002; Hodgson 2009; Düppe 2011).[9]

Throughout the last century, despite the (many) early warnings by no less a scholar than John Maynard Keynes (Keynes 1939, 1972) and subsequently other mainstream economists (Leontief 1971; Worswick 1972; Ward 1972; Phelps-Brown 1972) of the direction that economics was pursuing, the profession remained self-confident with its approach. That it failed to take heed and adopt corrective measures has now brought the profession into disrepute.[10] Beyond academic contestations, it is now being squarely blamed for the repeated crises afflicting the real economies of the world (Lux & Westerhoff 2009; Coyle 2012; Davies 2012). Not only did the economists, it is argued, fail to anticipate the crises, they may even have actively contributed towards them through the policy prescriptions (Colander et al. 2009; Fox 2009). As some commentators have quipped, the economic crisis may well be reduced to a crisis of economics (Kirman 2010; Desai 2015). That the profession now currently faces a crisis of legitimacy and public confidence is beyond question.

Quite interestingly, though, most of the criticisms against the discipline are not novel in any significant way. Many date back to the earliest origins of eco-

[7] As a "dismal science" by Carlyle (1849:672), and more recently, as "sickonomics" by Hodgson (2009:1215).

[8] And to some extent, Senior and Cairnes of the 19^{th} century.

[9] Dow (2002) discusses some of the reasons for this unwillingness to dig deep into history, particularly, to identify areas of relevance for methodological thought.

[10] See for example, Parrique (2013:29-30) for a full list of headline-grabbing articles from leading media outlets that slammed the economics profession for their alleged incompetence.

nomics and were expressed with perhaps greater hostility than in the current backlash. Economists, it appears, have always courted controversy: the history of their discipline has been punctuated by successive waves of *canonical method-enstreite* i.e. the "Great Disputes over Method" dating back to the 17^{th} century onwards until the present times (Häuser 1988; Pheby 1988; Reinert 2003; Louzek 2011). As a result, there has been an "abiding schism in the profession" leading to economic crises repeating themselves (Rostow 1986:2) And again, because the underlying differences persisted, any lasting resolution always remained elusive.

Why then did economics have to suffer this fate of being in a state of perennial dispute that has now metastasised into an existential crisis for the discipline? What are the issues that lie at the core of the discipline that has so alienated it from the reality that it seeks to describe? And for the specific purposes of this study, how did the Islamic economists respond to this crisis that was brewing at the very same time that they set out to craft their own discipline? The remainder of this paper seeks to address these issues in some detail.

Given the pivotal role that epistemic considerations have played in shaping economics, I first trace how their primal ideas have impacted on the discipline, with respect to both its content and methodology. I then show in Section 4 how these divergent presuppositions ignited several intellectual controversies, splitting the profession and the discipline along different trajectories. Despite these developments drawing great consternation from several quarters, the rationalising spirit of modernist science within economics persisted. This is currently manifested in the disconnect between the two main branches of economics, micro- and macroeconomics, with each explaining a reality partitioned from the other. In Section 5, I revisit the challenge faced by IE in overcoming the difficulties of ME, explain why it stumbled in its drive to do so, and what Islamic economists could do to regenerate their discipline. I then conclude.

3 The Intrusion of Rationalist Ideas into Economic Thought

Economic considerations have always been of interest, and sometimes great concern, to human societies throughout their history, for the satisfaction of human needs is integral to survival. Given the multifaceted nature of this area, from the wide range of human wants, their motivations, its human interrelational dimension, and the use of different resources to satisfy them, all of which form a complex nexus of relationships, economic issues were invariably examined from a cross- and interdisciplinary perspective.[11] With the onset of the Scientific Revolution and the Enlightenment in its wake, however, all of this radically changed.

As economics emerged as a separate science, it began to limit and increasingly narrow down the focus of its subject matter and the means adopted for its investigation. This transformation did not occur due to any pressures from

[11] See Stember (1991) for the nuances in the understanding and application of these terms.

within the discipline as such; it was largely driven by the external rationalising forces alluded to above, and described in much detail previously (Mahomedy 2015b). These extraneous factors played a pivotal role in directing the budding science in much of its subsequent development. As Coleman (1995:13) reminds us, "economics germinated on the margins of the philosophical turbulence" of that period whose centre was "the New Philosophy of Rene Descartes and the New Science of Francis Bacon". Not surprisingly, the schools of intellectualism and empiricism founded by these men, respectively, have both had a strong and lasting impact on economic thought from its early beginnings until the present day (Dow 1985; Pheby 1988).

And when economics, for various reasons,[12] increasingly emulated the natural sciences, it fell into the maelstrom of controversies that raged within rationalist epistemology, transplanting them into the heart of the nascent discipline. Invariably then, one is able to trace the source of the main contestations in economics to the very same set of widely divergent views on both reality and knowledge upheld by the intellectualists and empiricists. Therefore, in all of the developments in epistemic thought from the beginning of modernity[13] (see Mahomedy 2015b) – through its highs and lows in claiming that human behaviour obeys universal laws discoverable through the scientific method; in asserting the centrality of rationality; in accounting for whether reason or sentiment better explains such behaviour; in its abandonment of ethical considerations; in the *a priori-a posteriori* cleavage and all of its subsequent ramifications vis-à-vis the deductive-inductive, theory-practice, fact-value, and micro-macro debates and controversies; and ultimately, on the limitations of rationality – one is able to clearly discern how they have been transmitted to, shaped, and plagued, economic thinking throughout its evolution.

In what follows in the rest of this section, I summarise how the ideas of each of these two schools bore upon the discipline and, in fact, instigated its separation from the other social sciences.

3.1 Leibniz and his Intellectualist Ideas

As indicated to in the previous paper in this series (Mahomedy 2015b), the early rationalists postulated the notion of a rational universe: a cosmic structure that was orderly and lawful, whose functional principles were uniform and universal, and the mechanisms of which are easily discernible through the intellect. These could be formulated as a set of laws discoverable through the appropriate use of mathematics and the *a priori* cum deductive method. Several implications for economics immediately emerged from this cosmology.

Firstly, the intellectualists averred that the universe and all of its subsystems within both the animate and animate orders function best in their natural order and harmony, without the need for even divine intervention at any point in

[12] See Capra (1982), Mirowski (1989), Lawson (1997, 2003), Rosenberg (1995) and Toulmin (1998) for some of these motivations.

[13] The period of modernity, for all intents and purposes, is considered to begin from the early decades of the 17^{th} century (Toulmin 1990:8).

time (Leibniz 1956).[14] By this, they provided the ontological justification for an economy to be left unhindered by any coercive means and free from any interventionist polices by the state. By extension, individuals ought to have the liberty likewise, to pursue their economic goals and objectives as they saw fit for purpose, and were deemed fully capable of doing so (see below). It was precisely this self-determined and self-oriented motive in commerce and economy that marked, in Europe at least, the fundamental shift from the strictures of (Christian) theological asceticism and benevolence towards the self-interested spirit of capitalism (Weber 1930). Moreover, it served as the catalyst for, and subsequently an essential component of, the liberalist philosophy and process of modernisation that soon followed (Solo 1975; Kristol 1981).

It was these ideas of the intellectualists that spawned the ideology of a *laissez-faire* economy, finding among the French Physiocrats its first and most ardent adherents (Schumpeter 1954; Rothbard 2006). Individualism, self-interest, liberalism, and a messianic-like belief in rationality formed the cornerstone of the Physiocrats' economic philosophy, which they sought to popularise and transmit to the entire world (Neill 1949).[15] They believed that it was only on the basis of principles and values emanating from reason and freedom, respectively, that any science of economics could develop and progress (Quesnay 1946). And hence, even before the publication of Smith's works, the notions of a stable economy in equilibrium, of the primacy of property rights and freedom, etc. had already been firmly implanted by other Enlightenment economists (Faccarello 1994; Giocoli 2001).[16] As Gide and Rist (1947:7-8) further recount in their *A History of Economic Doctrines*, "it was the Physiocrats who constructed the way along which Smith and the writers of the hundred years which follow have all marched".

In a striking similarity of terms to the Cartesians,[17] the Physiocrats buttressed their economic doctrine on the basis that its ideas were "innate", "self-evident", "universal", and "guided by reason" (Neill 1949). And drawing likewise from the critique of the intellectualists, they denounced others for using the inductive method in economics, claiming that the greatest certitude could only and easily be arrived at through mathematics and logical deduction (Gide & Rist 1947; cf. Hatfield 1988).[18] These absolutist views of the Physiocrats and their belief in the sole validity of *apriorism* contra *aposteriorism* became the seed-plot from within which the first methodological controversy in economics germinated (Coleman 1995). Their epistemic doctrines particularly elicited a

[14] The need, or otherwise, for God to play any role in the universe after its creation had been one of the central sources of dispute between Leibniz and Newton (see also Hall 2002).

[15] The Physiocrats had such conviction in these ideas as propounded by the master, Quesnay, that they faced charges of having degenerated into an occult sect (Le Trosne 1777 cited in Neill 1949).

[16] Such as Galiani (1728-1787).

[17] A term that is used interchangeably with 'intellectualists' or 'early rationalists'.

[18] This approach of deriving all of knowledge from clear and indubitable principles started to receive widespread support, though with some qualification, even from other eminent French economists who were not directly associated with the Physiocratic school (Klein 1985; Pheby 1988).

harsh and vitriolic attack from the empiricists such as Hume (see below), who implored his allies in France "to thunder them, and crush them, and pound them, and reduce them to dust and ashes" (Hume 1969:205) through their writings. Such was the level of hostility and malevolence that characterised the early beginnings of these disputes.

Secondly, and equally significant for economics, Leibniz strongly motivated for the development of a "science of happiness", which he defined as the study of how individuals choose optimum levels of pleasures and pains to achieve a "lasting state of joy" (Leibniz 2006:169). In doing so, Leibniz (1956:131) asserted, people act on that in which they "find the greatest ease, or the least resistance". This attainment was possible for all people, since everyone, individually and independently, was endowed with reason and intelligence (Leibniz 1981).[19] One clearly senses here the strong impulses for the conceptual development of "rational economic man", and one guided solely by the principles of utility maximisation. These ideas, once planted, were subsequently cultivated by Bernoulli and de Maupertuis (Coleman 1995), so that later they could bloom into a rationality-based science of economics. The epistemological justification for much of the elaborate theory of rational choice, and neoclassical optimisation more generally, was therefore already pre-empted and provided for by the early intellectualists such as Leibniz and others.

There is a third important way in which the Intellectualist school had impacted on the development of economic thought. The value and use of the hypothetico-deductive method in conjunction with mathematics was extensively promoted and advanced by Leibniz (1981).[20] The intellectualists argued that when the deductive method is applied to axioms that are "clear" and "distinct", then a large range of truths could easily be uncovered from them. But because these truths are not openly manifest to everyone, a mind needed to be well prepared and trained in the use of "hypotheses", "assumptions", and "models", all of which were indispensable for the discovery of new knowledge (Coleman 1995). Whether for the purposes of explanation, or prediction, as a goal of science (Friedman 1953; McClosky 1985; Hausman 2007), this model of the intellectualists became the standard approach for the generation of theories and testing of hypotheses. Any discipline perforce had to adopt it and demonstrate its applicability for it to be elevated to the level of a science. "No science without theory" became the credo of the scientific enterprise (Georgescu-Roegen 1971:39). Economics enthusiastically took up the challenge and wholly embraced these demands of scientific rigour, as is discussed later.

These, then, were the important ways in which the intellectualists' ideas, especially those of Leibniz, provided the impetus for the development of economics as a modern discipline. Before critically examining the eventual outcome of that influence, let us now turn to the other significant stream of epistemic thought,

[19] These rationalist views on peoples' inherent capacity for self-determination resonated with those of the empiricists such as John Locke who remarked that "every man" is able to determine "by his own thought and judgement what is best for him" (Locke 1959:243).

[20] Towards this end, he discovered, independently of Newton, infinitesimal calculus (Jesseph 1998).

empiricism, to see how it has also come to bear upon economic thinking.

4 Hume's Emotionalism and his Empiricist Influence

Contrary to the rationally-ordered universe thesis of the intellectualists, the empiricists generally discredit the logical necessity for any inhering structure and uniformity to exist in nature (see Dilworth 2007; Mahomedy 2015b). That we perceive the world as such is only because of contraptions and habits of the mind (Hume 1902). Consequently, the empiricists deny any human capacity to know the world as it is, and hence to arrive at definitive explanations of reality. The implications of this epistemic position are indeed profound, for several reasons.

Firstly, it means that it is pointless to search for universal theories of human behaviour, including economic theories. The best that that we can attest to are what we observe and experience within, and limited to, a given spatio-temporal context. Given that "economic activity is embedded in a web of social institutions, customs, beliefs, and attitudes" and "are indubitably affected by these background factors" (Solow 1985:328), no firm generalisations or conclusions can be logically drawn from a set of observations and extrapolated across all cultures, or even across generations within a particular culture (see Veblen 1901; Dasgupta 1985). As Hume (1896:180) would have it, "by this means, all knowledge degenerates into probability". Reason and the deductive method, in contraposition to the intellectualists, therefore, could not contribute much in this regard. This scepticism towards any claims of axiomatic certainty was widely adopted by the Historical schools of Economics, and formed the crux of their arguments against the deductivist economists (see below).

Secondly, having enfeebled our faculties of reason in arriving at true knowledge (Hume 1896), what purpose, if any, may reason serve? Moreover, how do the empiricists account for purposive human behaviour and moral decisions? It is in this respect that we observe the deep influence that Hume had on (his close friend) Smith, Bentham, and Mill, leading figures in the development of early economic thought (Raphael 1997; Sally 1999; Priest 2007; Phillipson 2012). Hume, as previously noted, explicitly discounted the role of reason in motivating action, for it was in and of itself, unwilled (Mahomedy 2015b). It was subservient to some higher master and could "never pretend to any other office other than to serve and obey" (Hume 1896:415). Hume argued that there was something more instinctive to human nature than reason that spurred people towards action. This he identified as the 'passions', i.e., sentiments or emotions, as the most important force that directed an individual towards any endeavour. We note, therefore, that whilst Smith (only later) sought to balance self-interest[21] with sympathy,[22] Hume had already explained in detail the interplay of these

[21] In his *The Wealth of Nations* (reprinted 1977).
[22] In his *The Theory of Moral Sentiments* (reprinted 2002).

self-same impulses, and how they counterbalance to produce the grounds for behaviour (see Hume 1896:499-500).

In a similar vein, Hume argued, because reason was utterly incapable of distinguishing virtue from vice, it was the passions that enabled us to mark the difference between moral rectitude and depravity. These sentiments he reduced solely to the feelings of joy, or abhorrence, that we experience when performing a noble or ignoble deed, accordingly. He thus wrote, "The distinguishing impressions, by which moral good or evil is known, are nothing but particular pains or pleasures" (Hume 1896:471). This pain-pleasure nexus, as explained and justified by Hume, provided the core arguments for its subsequent development as a normative theory of ethics by Bentham (1879) and Mill (1879). It is this utilitarianism which, ever since, has formed the bedrock of modern economic theory in accounting for the motives of behaviour by economic agents (Darwall 1995; Priest 2007).[23]

Thirdly, and related to the above, Hume contributed significantly towards shaping the content and scope of modern economic theory when he contended that the truth or falsity of morality could not be demonstrated objectively, and hence, such considerations had to be precluded from science. He maintained that the descriptive (the "*is/is not*") had to be kept apart from the prescriptive ("*ought/ought not*") because it was "altogether inconceivable how the [one] can be a deduction from [the] other" (Hume 1896:469). According to Gordon (1991:123), the *is* and *ought* statements were considered by Hume to "belong to categorically different realms of discourse", and because he so emphatically sharpened this fact-value distinction, the dichotomy has "persisted down to the present day". Building on this Humean thesis, Robbins (1935) and Popper (1948) claimed that due to the incommensurability of the logical foundations of the normative and the positive, the transition from one to the other could never be bridged. Therefore, they all averred, both had to be kept apart in any consideration of moral philosophy.

Relying on this self-same criterion of "Hume's Guillotine",[24] from Mill (1836) and Senior (1836), through Cairnes (1874), J.N. Keynes (1891) and Weber (1917), down to Pigou (1914), Friedman (1953) and Klappholz (1964) from the neoclassical school of economics, there has been this insistence that the distinction between the positive and normative should be strictly maintained within economics. Of even greater significance and import, the view increasingly took hold that as a *science*, economics should limit itself to positivistic analyses only and not entangle itself at all with normative issues (Colander 2009; Hands 2010). The hegemony and importation of positivist ideas within economics led to a further derogation of the normative: Robbins declared such propositions to be "illegitimate" within science (Robbins 1935:141), whilst for Pigou (1914:10-11), they have to be "driven ruthlessly away" after "we have entered the temple of science".

Fourthly, Hume's empiricism led him to conclude that propositions not re-

[23] That utilitarianism is, in essence, a form of normative ethics, belies the claim that economics is a value-free science.

[24] See also Black (1964) and Mongin (2006).

ducible to quantitative dispositions/experimentation had to be cast into the epistemic dustbin, for they "contain nothing but sophistry and illusion" (Hume 1902:165). This circumscription of scientific propositions to quantitative dimensions only stems from a view that reality is constitutive of matter that is fundamentally quantitative, rather than qualitative in nature (Burtt 1932; Capra 1982; Dilworth 2007; Smith 2008). This attitude was the inevitable result of rationalist philosophy's predilection to reduce all things "to their sensible or corporeal modality alone, and finally that modality itself to a mere aggregation of quantitative determinations" (Guénon 1953:90) This shift in orientation from a qualitative to a quantitative perception of reality is hardly insignificant: it has been described as an "epochal shift [for] Western Europe" since it facilitated the birth of modern science (Crosby 1998: back cover).

The drive to exclude non-quantitative variables from even the social sciences found a willing ally among mainstream economic (ME) theorists. Economics always sought to emulate the natural sciences in order to earn the status and respectability of a scientific discipline in its own right (Mirowski 1989; Capra 1982).[25] It was therefore obliged to incorporate all of the crude rationality axioms of science into its body of knowledge, including its "cult of metrication" (Hodgson 2009:1205). Henceforth, reduction and quantification became integral to economic reasoning and theory. As McClosky (1985:7-8) quips, it serves as the "Golden Rule" underpinning all of the other "Ten Commandments of modernism in economic and other sciences". Together with the mathematisation of economic theory that followed, these changes have had huge implications for the discipline (Spengler 1961; McClosky 1985; Debreu 1991; cf. Beed & Kane 1991). It has affected almost every branch of economics and transformed the profession in critical ways, as discussed below.

5 The Impact on Economics as a Discipline

Whilst the preceding section clarifies how the two dominant epistemai of rationalist philosophy impacted on various aspects of reflecting upon and approaching economic issues, how did their primal ideas eventually coalesce to shape the discipline as a modern academic endeavour and its practice? For the purposes of this paper, and the overall objectives of the study as whole, I focus on three inter-related aspects: the break-up of the discipline and the profession, the quantification and scientification of economics and, lastly, the micro-macro divide.

5.1 The Schism in Economics

It is important to recognise that although intellectualism and empiricism have both had an indelible influence on economic thought, the essential ideas of each

[25] A more detailed treatment of this discussion is reserved for another paper (see Mahomedy (2015c)).

are underpinned with widely divergent epistemic and ontological presuppositions. It resulted in a clash of methodology, among several other disputes, all of which exacted a heavy toll on the discipline: it ignited several rounds of *methodenstreite*, the earliest in France, one in England, another in Continental Europe, and yet a fourth in America that later evolved and spread to Europe again. These effectively split the economics profession and the discipline into two competing traditions.

The issues surrounding the earlier *methodenstreit* between Hume and the Physiocrats re-emerged among the classical economists in Britain in the early 19^{th} century, when several leading economists, notably Ricardo (1952), Senior (1826, 1836), Mill (1836), and Cairnes (1874), among others, all became heavily influenced with the *apriorism* of the intellectualists.[26] Malthus protested against the "certainty of knowledge" principle[27] that this ultra-deductivism presumed, through a series of interchanges with Ricardo (Malthus 1951; Ricardo 1952). Though this engagement was conducted in a courteous manner, all of the "intense [and] endless exchanges remained almost ... a dialogue of the deaf" (Rostow 1986:2). By most accounts, Malthus was deemed to have lost the debate to the deductivists when his arguments were disregarded (Hutchison 1998). The deductivist approach held sway, becoming the dominant mode of economic thought during the 19^{th} century.[28] In the sober assessment of Keynes (1933:144), this outcome left the world all the more impoverished of both "wisdom" and "riches".

When these differences finally burst forth as a full-blown canonical dispute some decades later in Continental Europe, it exposed the deeper epistemological and ontological underpinnings that characterised each position. Apart from the personal acrimony that it elicited between the two key protagonists, Menger and Schmoller, the issues raised were far more substantive, extending beyond the inductive-deductive dichotomy (Bloch 1940; Hayek 1976; Bostaph 1978; Mäki 1990). They covered a broader spectrum, from whether economic phenomena demonstrated any kind of lawfulness as the exact laws of the natural sciences presumably do (Häuser 1988), to the now familiar debate on the interplay between ethics and economics (Haller 2004). Invariably, the main thrusts of the arguments revolved around the contentious issue of methodological individualism vis-à-vis methodological holism (Hayek 1976; Udehn 2001).

Now although the centre of this canonical *methodenstreit* was located within Austria-Germany, the points of contention largely reflected the two dominant but divergent traditions of economic thought, which, by the 1880s, had already crystallised within Europe. The first was an English variant, largely predisposed towards deductivism, and underpinned with the liberalist values of in-

[26] Like their predecessors among the Physiocrats, they used the exact terms of the intellectualists like "certainty", "self-evident" and "universality", to elevate their axiomatic propositions to the status of "laws" equivalent to "what gravitation is in Physics" (Senior 1826:9, 1836:28).

[27] In economic parlance, this principle translates as the "full-knowledge component of the rationality principle" (Hutchison 1998:45).

[28] This, despite the efforts of later English economists (e.g. Leslie 1888) to swing the tradition towards inductivism.

dividualism, self-interest, and *laissez-faire* economy (Solo 1975; Pheby 1988; Blaug 1980). In contradistinction, the German tradition of economics was more closely allied to the Historical Schools (of Economics), which emphasised induction, the integration of ethics into economics, and state intervention in the economy (Schumpeter 1954; Caldwell 2001; Senn 2005; cf. Pearson 1999). Given these differences in methodology and ethical orientation, the English variants of economics became committed primarily to the methods of the natural sciences, whilst that of mainland Europe remained integrally connected to jurisprudence and philosophy (Häuser 1988).[29]

The stark differences between each of these traditions, primarily, though not exclusively, around the deductive-inductive debate (Schumpeter 1954; Newman 1952), were hardly resolved.[30] As Hayek (1976:24) recounts, the controversy was carried on by their disciples and others, and kindled between them a "degree of hostility not often equalled in scientific controversy".[31] But, for reasons discussed in the next paragraph, like Malthus in England, Schmoller, in Germany, was eventually judged to have lost his defence of historicism to the theoreticism of Menger (Nardinelli & Meiners 1988; Häuser 1988). The failure to integrate these approaches, in the end, precipitated the birth pangs of economics as a separate science, isolated and torn away from all of its maternal disciplines such as philosophy, history, politics, religion, and jurisprudence (Hodgson 2001; Louzek 2011). One important consequence, among others, of this orphaning of economics "is that economic theory learns nothing from economic history, and economic history is as much corrupted as enriched by economic theory" (Solow 1985:325).

Coterminous to the *Methodenstreit*, the Marginalist revolution of the 1870s as led by Menger, Jevons and Walras, was already in full swing. It marked what was perhaps the most audacious move to transform economics into a physico-mathematical science based on the foundations of a "mechanistic epistemology" (Georgescu-Roegen 1971:40). In their drive to reorient economics towards a pure science (see Walras 1954), they found it convenient, despite their aversion towards the classical doctrines (Milonakis & Fine 2009), to embrace and meld together the deductivism of Descartes, the utilitarianism of Bentham and the (subsequent integration of) infinitesimal calculus of Leibniz into economic theory. By then expunging from the domain of economics all normative considerations, the fate of the discipline was sealed. Neoclassicism was born, and ever since, the deductive method, with an increasing bent towards the mathematisation of economics, has become the mainstay of modern economic analysis. Ontologically, as in the natural sciences, it is underpinned by atomism and individualism within a "closed" system (Lawson 2006; see also Anderson 1972). The reign of logical positivism during the first half of the 20^{th} century only served to further entrench this dominance, culminating in the works of leading and

[29] It is also important to note, however, that there was a tradition of Historical economics even in other countries, including England (Nardinelli & Meiners1988; Caldwell 2001).

[30] As some have suggested, the issue was not methodological only, but "touches the surface of a dispute that is far deeper and more fundamental" (see Louzek 2011:441 for some references).

[31] See also Nardinelli & Meiners (1988).

influential economists such Robbins (1935), Samuelson (1947) and Friedman (1953).[32]

It is important to note, however, that regardless of the dominance of neoclassical economics in academia and the profession generally, "other canons" of economics have always existed, reincarnated themselves in various forms, and sometimes even rose to prominence during certain periods. For example, the school of Institutional economics, led by Veblen, Commons and other economists, rose as a formidable challenge to the hegemony of neoclassicism in America during the first decades of the 20^{th} century (see Dugger 1988; Yonay 1998; Hodgson 1998). It soon declined, but then reinvented itself in a transformed way as Evolutionary economics (Boulding 1991; Witt 1993), and now forms part of the broader tradition of Heterodox economics (Garnett 2006; Lawson 2006; O'Hara 2007).[33]

5.2 The Quantification and Scientification of Economics

Although the deductive tradition in economics (with its underlying atomism) can be traced back to its 17^{th} and 18^{th} century roots, when the discipline subsequently committed to fashion itself after the natural sciences it embraced the tenets of logical positivism, the reigning philosophy of science of the 20^{th} century (Caldwell 1980; Hausman 2007; see also Zaman 2013). In the self-same spirit of Hume and Comte, logical positivism recognised only observable entities and their logical relations as objects of scientific study, and it likewise rejected metaphysical notions and any possible causality between them and observed entities (Ayer 1936; Carnap 1967; Feigl 1981; Overman 1988). The challenge for economics, then, was to reduce all of its phenomena to observable, or at the very least, objectively measurable, attributes only. This ushered in a new era for the emerging science of economics.

The clearest expression of this drive towards quantification is to be found in the burgeoning enterprise of econometrics, which subsequently inspired a penchant for modelling all economic relationships. This insistence on the "modelling approach" has now reached the level of doctrine, whereby any idea, howsoever insightful, is not considered economics-worthy if it cannot be modelled (Colander et al. 2004; see also Redman 1991; Solow 1997). When this tendency merged with the mathematisation of economics already underway, it inaugurated what

[32] Although modern economics, over the last 40 years or so, has attempted to temper its neoclassical claims of complete knowledge, perfect competition, and even selfishness (Colander et al. 2004; Davis 2006; Arnsperger & Varoufakis 2006), optimising behaviour of individual economic agents guided by rationality remains the touchstone of economic theory. Utility and profit maximising impulses of consumers and producers, respectively, thus continue to inhere in Veblen's (1898:398) description of this representative agent, as a "lightening calculator of pleasures and pains who oscillates ... under the impulse of stimuli that shift him about". That this characterisation of the subject matter of economics has prevailed for over a century is indeed remarkable, given the celebrated critiques of this conception of "economic man" (see e.g. Shackle 1978; Simon 1979).

[33] Equally noteworthy is that despite some of the possible differences between the variants of these "other canons", including Marxist economics, almost all of their core arguments can be reduced to the various points of contention raised in the different sections of this paper.

has been described as the "formalist revolution" of the 1950s (Blaug 1999, 2003). A key feature of this transformation has been an inordinate emphasis on technique and analytical rigour at the expense of realism and practical relevance. In the process, economists "converted the subject into a sort of social mathematics" so that it "has increasingly become an intellectual game played for its own sake" (Blaug 1997:3). This new orientation marked "a watershed in the evolution of economic theory" (Milonakis & Fine 2009:297), not only because of the shift within economics itself, but more so because it further alienated the discipline from actual economic practice and the other social sciences that also contribute to illuminating that reality.

This latest trajectory in the development of the discipline has aroused deep concern from several Nobel laureates such as Leontief (1971, 1982), Myrdal (1958, 1972), Hicks (1975), Samuelson (1983), Solow (1985; 1997), Coase (1997), Friedman (1999) and Krugman (2009), besides others (Blaug 1980, 1997; Eichner 1983; Blatt 1983; McClosky 1985, 1992; Lawson 1997, 2003; Hodgeson 2001, 2006, 2009; Boylan & O'Gorman 2007). The critique, however, is not altogether new: much of the apprehension related to the direction economics was taking was already expressed in the disagreements between the institutionalists and their neoclassical counterparts almost a hundred years ago (Dugger 1979; Emmett 2009). These concerns were subsequently echoed in the disquiet anticipated by Keynes (1939), and found some resonance in the interchange between Hutchison (1938, 1941) and Knight (1940, 1941) soon thereafter.[34] What is particularly notable in the most recent warnings, however, is that they have come from many leading economists within the mainstream, and from several mathematical economists themselves.[35]

Why then, in the face of the many misgivings expressed by all of these prominent scholars and leading economists on the inadequacy of the quantitative-cum-modelling approach, did economic analysis proceed so vigorously on that pathway over the last century? Whilst a more detailed treatment of this issue is discussed elsewhere (Mahomedy 2015c), it relates fundamentally to the demands on the discipline to conform to the desiderata of rationalist science. Its methodology and the theories it generated had to satisfy the verifiability/falsifiability criterion (à la logical positivism/Popperianism) if it wished to maintain its status as a scientific discipline. And it is for this reason as well that economists analysed economic phenomena as a "closed system" (see Lawson 2006), for only then could the canons of modernist science[36] be preserved (Dilworth 2007; see also Burks 1953). Any unaccounted for leakage out of, or seepage into, the system would render these intractable, and possibly collapse the very core of the paradigm.

On this view of what constitutes science, economists felt it necessary to ex-

[34] Hart (2010) has performed a remarkable task in bringing to the fore where exactly the points of contention and misunderstandings arose that led to this exchange between these two distinguished economists.

[35] And who, quite paradoxically, might have even actively contributed towards the kind of economics that they subsequently disowned.

[36] Namely, the principles of causality, substance, and uniformity of nature.

clude religious beliefs, cultural practices and habits, and ethical and other normative considerations from the discipline, since these qualitative factors were not readily reducible to quantitative dimensions, and therefore not easily testable vis-à-vis the requirements of scientific rigour. But economic behaviour is fundamentally value driven, and these qualitative elements can hardly be relegated to the category of merely "disturbing causes" à la Mill (1836:V59). Consequently, deep scepticism has always been expressed on the plausibility of even maintaining the normative-positive dichotomy within the discipline (Souter 1933; Myrdal 1958). But modern economics persisted with it so that the banishment of normative considerations from its purview has remained part and parcel of the "received view" throughout much of the 20^{th} century (Blaug 1980; Mongin 2006; Hands 2010).

Now although the early neoclassicists were unequivocal in their rejection of normative considerations in economic science, it should not be construed from this that they were moral nihilists and thus attached little value to ethical considerations and policy prescriptions. On the contrary, they were, generally, deeply concerned about the welfare of humanity and how it could be improved. For example, Robbins and Pigou, who were quoted earlier about the non-admissibility of normative considerations within economics, made it clear that value judgements are indispensable in the economics profession, broadly conceived, and indeed have a very important role to play in practice (Robbins 1981; Pigou 1908, 1920). But what they were emphatic about was that because the logical gulf between the normative and positive within rationalist scientific thought was not bridged, ethical considerations could not, and, therefore, should not, play any role in economics as a *science* per se.

What we then find is that when modern economics restricted its methodological apparatus to those of the physico-mathematical sciences and limited its scope of enquiry accordingly, it isolated itself from the all of the other humanities, or in Mill's (1836: V2) terms, the "moral sciences". This meant that it became further estranged from the other closely interwoven areas that inevitably impact on economic outcomes. As these links weakened, the core of the discipline itself fractured into Economic Science, Political Economy, Economic History, and Sociology. Each of these sub-areas, now splintered apart from their united vision of explaining human conduct within the complexity of empirical reality, was now forced to recognise these artificial disciplinary boundaries, and thus could offer but a partitioned view of human behaviour.[37]

5.3 The Micro-Macro Divide

But even economics as a science, in its now narrower conception, could not avoid another rift soon after its fractious dismemberment described above. Coterminous with the publication of Keynes's *The General Theory* in 1936, several leading and influential economists[38] became predisposed, in varying degrees,

[37] Economics particularly, as a science reflecting methodological individualism *par excellence*, became divorced from all of its social and institutional contexts.

[38] See for example, Hutchison (1938), Samuelson (1947) and Friedman (1953).

to the positivist élan of that period (Caldwell 1980, 1994, 2013; Blaug 1980; Boland 1991; Fox 1997; Hart 2010). With the positivists' emphasis on objective experiential data as the only legitimate source of knowledge, these economists largely adopted an empirical-inductive methodology in cultivating the nascent field of macroeconomics (Burns & Mitchell 1946). This created two insurmountable obstacles for the further development of economic theory as an integrated body of knowledge.

Firstly, at the theoretical level, soon after Keynes' revolutionary ideas were incorporated into classical economic principles, Samuelson (1955: VI) hailed the "grand neoclassical synthesis" as the much-awaited harbinger of economic growth and sustained prosperity for everyone. But hardly two decades later, with the onset of economic depression in the 70s, Lucas and Sargent (1978:57) declared, tongue-in-cheek, that its predictions likewise, were a "failure on a grand scale". The synthesis was in a severe crisis and fighting for its very survival. The critical flaw in the synthesis was the disjuncture between the (microeconomic) theoretical construct of hyper-rational economic agents and the (macroeconomic) empirical reality of imperfect markets. Not surprisingly, therefore, Blanchard 1987:634) avers, the synthesis "suffered from the start from schizophrenia in its relation to microeconomics". It thus exposed the enormous difficulties encountered at the theoretical level, in deriving suitable microfoundations for macroeconomic phenomena (Lucas & Sargent 1981).

This failure, more poignantly, is another reminder of what Georgescu-Roegen (1971:65) refers to as the inherent dissonance between the "arithmetical continuum"[39] and the "intuitive continuum". Whilst the world of numbers (the arithmetical continuum) can effortlessly be divided and re-multiplied without affecting its character, the real world that constitutes the intuitive continuum has no artificial divisions that allow for any such equivalent reduction and reconstruction. Fundamental changes are effected when the one-to-many or many-to-one processes are undertaken. As Anderson (1972) demonstrates, even at the inanimate level of atoms, such as sugar molecules, aggregations not only break down old laws and reveal new laws of symmetry, but reversions to earlier states are sometimes not even achievable. This transformative process becomes magnified at the more perceptible level when we transit from the microscopic to the macroscopic scale, since "the whole [now] becomes not only more than, but very different from, the sum of its parts" (Anderson 1972:395).

Now when these transitions that lead to entirely new conceptual structures are so manifest in the inanimate order, one may well imagine their preponderance in the organic world of living matter.[40] Marx (1887) was at pains to emphasise how these ontological changes are wrought on the economic structures and institutions of society, and how they impact on human behaviour. He thus reminds us of Hegel's discovery that "merely quantitative differences beyond a certain point pass into qualitative changes" (Marx 1887:216). The mechanical attempt then, to upscale microeconomic behaviour to the macroeconomic do-

[39] This was despite the efforts of great mathematicians to formalise the latter within the former (Dedekind 1924 cited in Georgescu-Roegen 1971).

[40] See Prigogine & Stengers (1985) for a detailed treatment of this issue.

main through a process of simple lateral aggregation, without factoring in for the emergence of new laws and symmetries, was bound to severely distort reality. It reflected the failure to recognise the lack of a one-to-one correspondence between the continua of the worlds of dialectics (or intuition) and arithmetic.

Secondly, even at the applied level, there arose a clear divergence in the methodological preferences between microeconomic and macroeconomic studies, respectively. Because macroeconomics and statistics share the common feature of examining collectives and aggregates in seeking out "the laws of group properties" (Kendall 1950:131), a natural affinity between the two fields readily emerged. The empirically based inductive approach of macroeconomics thus tended to be closely drawn towards the methodology of statistical analysis.[41] The slant towards more a-theoretic modelling techniques received a further boost following the publication of Granger and Newbold's (1974) study, which shook the foundations of the then existing research on macroeconometric modelling. From the 1980s, many economists were led to believe "that difficult economic questions could be unambiguously answered by the mechanical application of statistical techniques" (Smith 1999:239).

This particular digression then, in the evolution of macroeconomic analysis towards empirical-inductive techniques, however, did not come without further consequence. For several reasons (beyond the scope of this paper), the symbiotic relationship in the intellectual marriage between economics and statistics turned to one of dominance.[42] The techniques and tools of statistics became an end in itself so that increasingly, theoretical considerations were being discarded from the toolbox of the economic analyst. The use of measures like statistical significance received greater prominence in the literature than the actual *economic* significance of variables (McClosky 1992). In the process, macroeconomics gravitated towards becoming a science of 'measurement without theory' (Koopmans 1947; Cooley & LeRoy 1985; Thomas 1999). This was in contradistinction to the predominantly theoretic-and-deductively grounded methodology of microeconomics, which, at the other extreme, has become so abstract with qualifying assumptions that its "desired results emerge(d) almost as tautologies" (Schumpeter 1954: 472-473).

Given the inability to satisfactorily integrate micro- and macroeconomics at both the theoretical and applied levels, each of the two main branches of modern economic theory developed along its own distinct pathway. That they remain so dichotomised can be gleaned from the fact that each has "its own special postulates" (Lucas and Sargent 1981:304) designed to explain a different reality on its own terms. Consequently, the cleavage between the two that Samuelson (1955:360) so eagerly claimed to have finally been closed remains ever so glaring to this day. This lack of convergence has in turn bedevilled even the sub-field of macroeconomics itself: over the last century alone, it has split up into at least seven distinct schools of macroeconomic thought (Phelps 1990), and eroded the

[41] This has resulted in macroeconomics being viewed as a statistician's paradise, where large-scale econometric models were deployed after the Second World War to guide policy formulation (Pheby 1988).

[42] See Redman (1991:156-180) for a wide coverage of the purely 'non-epistemic' reasons.

confidence that many had in every new 'synthesis' that promised to avoid the pitfalls of its predecessors (Morris 1978; Spahn 2009).

5.4 The Persistence of the Atomising Spirit of Rationalism Within Economics

To summarise then, each of the above trajectories in the development of economics demonstrates its tendency to continuously break up and atomise. This has become an inherent feature of the discipline ever since its evolution as a separate body of knowledge. And like its counterpart, the natural sciences, its history is punctuated with exactly the same kinds of disputes, which continue to persist until today. The parallels are so striking that Rostow (1986:4) describes the schism in economics as the divide between the "neo-Newtonians and the biologists".

Endeavours were sometimes undertaken, nonetheless, by those within the mainstream to reconcile the competing claims on the discipline (Rostow 1986; Coleman 1995).[43] But strikingly, just as Kant and Husserl failed to unite them for the sciences generally (Mahomedy 2015b), the syncretic efforts of the economists were also doomed to falter, and eventually failed to bring about any lasting consensus. This is because most of the approaches towards reconciliation were merely concessionary and could hardly be considered a synthesis (De Vroey & Duarte 2013). That such an outcome occurred should come as no surprise: the lineage of almost every significant notion of modern economics can be traced back to either the intellectualist or the empiricist traditions of an Enlightenment philosophy that was thoroughly rationalist (Kant 1784:1). Given their individualistic orientations, the fundamental ontological and epistemological differences and contradictory value systems that inevitably arise therefrom prevented any kind of creative integration.

The lack of convergence towards integrative thought, then, is primarily due to the atomising spirit of rationalist philosophy. Whether of its intellectualist or empiricist tincture, its individualist character abides in both its conception of reality and episteme. Of all the social sciences, economics epitomises this individualism with respect to its content and methodology. When economics embraced it as the basis of its intellectual enquiry, it unavoidably inherited this individuating element and thus continues to suffer its effects. As Kristol (1981) in his *Rationalism in Economics* argues, this remains the central reason why so many of the dissenting movements in the economics profession have been unable to prescribe effective change for the discipline. He demonstrates with several examples how they have all remained firmly wedded to rationalist philosophy, and hence have become paralysed by its hubristic claims.

[43] But they were hardly significant and nowhere near the kind of integration that was needed (see Rostow 1986; Coleman 1995 for details).

6 Implications for Islamic Economics (IE)

The principle objective of this study is to evaluate the commensurability of the methodology of modern economics for any further development of IE. This has become a central issue for IE given the serious concerns that have been raised by both critics and proponents of IE on the current state of the discipline. In what follows, I therefore summarise the methodological challenges that IE has faced and then examine whether modern economics can provide the required framework for IE, given the objectives of the latter.

6.1 Recalling the Challenge of Islamising Economics

The Islamising of economics is part of a larger project of Muslim scholarship to recast all of knowledge within a holistic framework. It is driven by the fact that in Islam there is no strict separation between the sacred and profane (al-Attas 1978; al-Faruqi 1982). Since all actions of believing Muslims are considered acts of worship, those regulating their worldly endeavours, including importantly, their economic affairs, are to be guided by the dictates of the Religion.

With this motivation in mind, many Muslims who were trained in conventional economics recognised the inadequacies of *homo economicus* as the representative agent of an Islamic economy (IRTI 1991). Whilst they were willing, generally, to accept several assumptions of neoclassicism such as the postulates of scarcity, rationality, competition, and even optimisation, they rejected the notion of "hedonistic man" that served only individualised narrow self-interests. Humanity was considered to hold a far more noble position, and created to pursue much higher, non-secular objectives. They thus coined the concept of *homo islamicus*, a rationally driven being that operated within an Islamic ethical framework, as their idealised economic actor. On the further assumption that if an Islamic economy is populated with such ethically well-behaved individuals, an optimal allocation and distribution of resources would naturally prevail. To most of the early Islamic economists,[44] then, the essential problem with modern economics was that it was ethically barren. If it could somehow be injected with a set of religiously-grounded values, conventional economics could conceivably be transformed into an Islamic one (see e.g. Limam, 2004; al-Jarhi 2004).

Crucially, the Islamic economists saw no reason to question the epistemological or the ontological foundations of modern economics. They were of the opinion that these were neutral to scientific enquiry and, therefore, its methodology and tools of analysis could simply be incorporated into the Islamisation of economics programme (see e.g. Kahf 2004; Zarqa 2004). With this conviction, they were emphatic that there was no need to reconstruct the discipline *de novo* (Siddiqi 1981, 1994; Naqvi 1981; Mannan 1984; Anwar 1990; Hasan 1998; Kahf 2012). On this basis, they set about erecting their discipline by superimposing, exogenously, some of the moral and ethical components of the Islamic faith

[44] Especially those that gave shape to the discipline during its formative years (between 1970 to the present).

onto the framework of ME. By mechanically grafting the former onto the latter, they expected their discipline to stand alongside neoclassical economics as the alternative paradigm for the Muslim world.

From the outset, the Islamic economists were warned by many, both from within (Sardar 1984, 1988; Nasr 1986, 1991; Kirmani 1989; Choudhury & Nadwi 1992; Choudhury 1994, 1999a, 2000, 2001a, 2001b, 2006b, 2008a, 2008c, 2011) and without (Kuran 1983, 1986, 1989, 1995a, 1995b, 1997, 2004; Philipp 1990; Haque 1992), that their project was being wholly misconceived and risked an embarrassing failure. But the Islamic economists ignored the concerns raised and persisted with their approach. Now after several decades, the IE profession has finally conceded that "something has gone wrong". There seems to be some consensus emerging that their difficulties are fundamentally epistemological and/or methodological (Aydin 2012; Haneef 2012; Iqbal 2012; see also Zaman 2011). But there is still uncertainty as to why ME methodology might have been a poor match for their project. It is to this conundrum that I now turn.

6.2 The Incommensurability of IE with ME

As indicated to previously, the overall objective of this paper was to unearth the key postulates and guiding principles of ME epistemology for the purposes of evaluating its suitability for IE. At the same time, it is not possible to detail all of the intricacies of Islamic epistemology in a paper of this sort, and then undertake any comprehensive contrast between the two. I therefore focus on those that have not been covered elsewhere in the other papers of this series.[45]

(i) The Link between Values, Axioms, and Methodology

From all of the preceding sections of this paper, as one traces the various strands of influence on economic thought, one is able to clearly identify how the various debates about methodology link back to their epistemic and ontological presuppositions. Consequently, elementary notions about the nature of reality, and the purpose and adequacy of science via its theories and models in explaining that reality determined the methodology adopted and, oftentimes, even circumscribed its tools of analysis. Within rationalist philosophy, this relationship has been strictly linear due to the problem of Kantian heteronomy that bedevils all of Occidental[46] thought (Carnap 1966). Circular causality in the form of reflexive relations between and among these domains remains notably absent (Choudhury 2008).

Among the social sciences, economics best exemplifies this unidirectional relationship. For example, consider the embrace of utilitarianism by neoclassical economics, from whose wellsprings arose the notion that economic agents must

[45] See Mahomedy 2013; 2015a; 2015b; 2015c.

[46] The term 'Occident' is used to designate the comity of countries of Western Europe (and North America) whose intellectual lineage can be traced back to Greek philosophy and culture (see Comte 1908; Rappoport 1912).

optimise. This neoclassical hypothesis is now so deeply embedded that for some of its adherents "no criticism of that hypothesis will ever be successful", and hence it cannot be overthrown (Boland 1981:1031). Because of this enduring axiom of economic orthodoxy, the deductive method with the use of utility and production functions under certain constraints became entrenched as the standard technical apparatus or architecture of ME (Fine 2006). It is from the underlying marginalist presuppositions that inhere in this architecture that the rest of its conclusions logically follow. Given the assumptions, howsoever unrealistic, the methodology appeared to be scientifically coherent.[47]

But intrinsically linked to this economic methodology and the scientific elegance it displayed, are all of the first-order conditions of marginalist economics – scarcity, competition, substitution, optimisation, and steady-state equilibrium. And for any of these pillars to stand, perforce they have to be underpinned by the values of rationalism, individualism, and liberalism.[48] Take away any of these and the edifice of neoclassicism collapses. This linkage thus demonstrates that the marginalist construal of economics was not only a scientific quest; it was undergirded by a political and social ideology (Solo 1975; Dasgupta 1985). The intellectual feat of marginalism was thus its capacity to cloak its underlying philosophy and values under the garb of an ostensibly objective science (see also Schumpeter 1949; Myrdal 1958; Kristol 1973; Heilbroner 1988).

Now given this orientation of ME with its agenda of promoting its implicit values, one wonders how the Islamic economists could have so uncritically incorporated its axioms and postulates into their discipline (Haneef 2005; Alatas 2006). After all, they fully recognised (1) the principle role of Revelation in knowledge, (2) the obligation to surrender oneself unconditionally to the Will of God, The Most High, and (3) the integral link between individuals and society as encapsulated in the concept of *Ummah*.[49] Each of these principles clearly militates against the values and axioms of marginalist economics, since the latter was melded together from the postulates of intellectualism and empiricism, both of which unequivocally eschewed linkage to any supra-rational source such as Revelation and divine authority (Mahomedy 2015b; see also Kant 1784). Positivist science, in fact, was formulated by its founder Auguste Comte (1798-1857) with the explicit aim of supplanting the "Religion of God" with the "Religion of Humanity" so that it may reflect its humanist values (Comte 1908: 355-444).

All scientific endeavours (or research programmes à la Lakatos (1978), or paradigms à la Kuhn (1962)), for that matter, are defined by their metaphysical presuppositions (Burtt 1932). Examples abound and neoclassical economics is no exception (see Boland 1981). One, therefore, cannot merely assume that any science or its methodology is neutral to one's purpose, without first thoroughly investigating the lineage of its ideas and their hidden intent. As the forgoing sections of this paper have demonstrated, all of the important ideas of modern

[47] See Sraffa (1925) and Saglam & Zaman (2012) for earlier and more recent accounts, respectively, of why the methodology may not be as coherent as always claimed.

[48] One may also include here consumerism as encapsulated in the notion of consumer sovereignty.

[49] A word in Arabic referring to the universal brotherhood of the Muslim community.

economic thought, including its methodical apparatus, have been shaped by its rationalising philosophy, which, at inception and throughout its development in modernity, was principally intolerant of a religious agenda (Mahomedy 2015b).

On what basis then, did the Islamic economists expect any of its offshoot sciences such as marginalist economics to reflect the ideals and philosophical underpinnings of Islam? How might one explain this oversight on their part? From most of the literature on IE, particularly the earlier writings,[50] it appears that the Islamic economists failed to recognise the paradigmatic nature of science: that any academic endeavour is inextricably linked to the worldview of its practitioners, that its presuppositions and its methodology that emanate from its ontology and epistemology all form a mutually reinforcing nexus of relationships with one another, and that it implicitly, if not explicitly, serves some agenda with a set of hidden values. This shortcoming of the Islamic economists has also been alluded to in some of the other recent critiques of IE (Choudhury 2000, 2007; Haneef 2007; 2012; Furqani & Haneef 2015; Aydin 2013; Khan 2013),[51] and has had additional consequences for the Islamisation programme.

(ii) The Quest for Integrative Knowledge

One of the central objectives of the Islamisation of KNOWLEDGE agenda has been to bridge the gulf between divinely revealed and humanly-acquired knowledge. For the Islamic economists, this was interpreted to mean integrating the Islamic principles/heritage in economics with ME (Furqani & Haneef 2015; Ali 2015; Zaman 2011). The notion of an integrative paradigm, notwithstanding its different interpretations, in principle, is indeed laudable, for it is not only an aspiration of Muslim scholarship but remains the ultimate quest of the great minds of the Western world as well (see Sztompka 1974; Hawking 1988; Wilson 1999).

But how did the Islamic economists plan to realise this highly ambitious goal of integrating revealed knowledge with ME science, into a cohesive whole? Before they even embarked on this endeavour, were they not *au fait* with the enduring schism that was already festering within the economics profession, that the gulf between *apriorism* and *aposteriorism* was not bridged, that profound differences between the economists on the role of history - theory remained, and that a host of other related issues highlighted in this paper were not satisfactorily resolved? Were the Islamic economists not familiar with the ontological and epistemic debates that played a critical role in sustaining these disputes within economics, and their historical links to the early intellectualist and empiricist schools of rationalist philosophy? Most critically, did they not consider how these deeply entrenched divisions might impact on their agenda of unifying an already fractured branch of existing knowledge (ME) with their revealed knowledge? Presumably they were fully cognisant of these issues, for these economists were some of the most outstanding scholars of the Muslim world

[50] See Mahomedy 2013 for some references.

[51] The reasons for this particular neglect are discussed elsewhere (see Mahomedy 2016a. 2016b).

who received their training at leading universities in the West, several of whom (e.g. Siddiqi, Ahmed, Chapra, Mousa) subsequently went on to become King Faisal Laureates,[52] in recognition of their contributions to IE.

So what new insights did they then bring to the field of intellection so that the disputes in economics might be reconsidered in the light of fresh ideas presented? The Islamic economists were, after all, endowed with a Divine Revelation that unequivocally asserted to be the "explanation of everything" (al-Qur'an: Ch. 6, V.3), and supplemented with the detailed recordings of the lifestyle of the Prophet Muhammad (P.B.U.H)[53] who operationalised that Divine message. They possessed a legacy of scientific scholarship in all of the natural and human sciences that predated the Western world by several centuries (see Mahomedy 2015a). And the Islamic economists were fully conversant with the exceptional role that the Muslim philosophers-cum-scientists played in conveying rationalist philosophy to the Occident, and the highly charged disputes that it also aroused in the history of Islamic scholarship (see Chapra 1992, 2000, 2008a). So were they able to draw from this immense trove and harness the wisdom it offered to provide any relief whatsoever to the vexing problems of the discipline?

Alas, the verdict on this response from even the stalwarts within the IE fraternity has not been favourable. They have been frank in acknowledging that IE was "not able to break any new ground" (Khan 2013:xiii), that "all is not well with Islamic economics ... [and that it] has yielded to a desire to join the flock" (Siddiqi 2008:3), and that the "Islamic economists did not provide any agenda for political economics founded or derived from their branch of human knowledge in spite of the need" (Kahf 2004:10). More recent contributors to the field have been more candid by simply dubbing IE as a "neoclassical guise... retaining its assumptions, procedures, and modes of analysis" (Alatas 2006: 595; see also Haneef 2005). The reason for this acquiescence, according to Choudhury (2011: xiii) is that IE "leaned and slumbered in the bosom of the neoliberal paradigm" so that it remained "uncritical and epistemologically barren".

Given this almost complete capitulation to neoclassicism, IE, instead of overcoming the hurdles of ME methodology, embraced it *in toto* and now, as a result, is beset with its gamut of competing dichotomies and disharmonies. In an earlier paper on this issue (Mahomedy 2013), it was recounted in extensive detail how, from several perspectives, IE has been characterised in contradictory terms. In almost every area of enquiry – from theory generation and model building to economic prediction, from the ownership of resources to the distribution of output, and from policy prescription to the role of institutions – writings in IE have exhibited barely any unanimity on critical issues or even on principles that, at the very least, ought to have guided outcomes towards some consensus. Paradoxically, almost all Islamic economists begin their analyses with the same set of ideological axioms, viz. *Tawhid* (Unity of God), *Khilaafah*

[52] The equivalent of the Nobel Prize in the Muslim World.

[53] An acronym meaning "Peace be upon him" used by Muslims as a mark of respect when reference is made to the Prophet Muhammad or any of the other prophets of God, including Jesus the son of Mary, Moses, Abraham, etc.

(Vicegerency), *Ukhuwwah* (Brotherhood), etc., and are able to buttress their viewpoints with verses from the Qur'an and the Prophetic tradition. Yet their works show a lack of convergence in ideas, nor are they able to identify any overarching paradigmatic principle that could have enabled the process towards integrative thought. Simply, the Islamic economists did not have an epistemic framework around which to build their discipline in any coherent manner.

As a result, even a cursory reading of the literature on IE easily demonstrates that the deductive-inductive, methodological individualism-holism, micro-macro, and theory-practice divisions characteristic of ME were all replicated in IE studies, hence producing, as expected, conflicting results and opposing policy prescriptions (see also Choudhury 2000). It appears that in the haste to provide differentiated content for the discipline, howsoever cosmetic, to distinguish IE from ME, the objective and the requirements thereof for establishing a truly integrative paradigm was just simply abandoned, or at best, relegated to the backburner.

(iii) The Role of Ethics in Economics

Notwithstanding the close similarities in the basic postulates and methodology between ME and IE, the *raison d'être* for IE as a distinct discipline has always been its explicit inclusion of ethical values into any consideration of economic behaviour and outcomes (Naqvi 1981, 2003; Chapra 1992, 2000; Wilson 1997; Nienhaus 2000; Siddiqi 2001). For example, the gulf between the micro- and macroeconomic domains in ME, discussed earlier, was largely attributed to a lack of corresponding values at the micro level that could then be transmitted to the macro sphere (Chapra 2008b). IE was seen to be quite able to fill this glaring lacuna that prevailed in ME, and thus unapologetically prided itself as a normative-cum-positivist discipline.

On this view, the Islamic economists transposed ethical values from the *Shariah*[54] (e.g. benevolence/prohibition of interest) and imputed them into the preferences of agents via their consumption menus and production possibilities. The so-derived well-behaved utility and production functions were then superimposed onto the marginalist-type models that assumed full information, stable preferences, etc., in order to determine optimal consumption choices and production decisions, respectively (see Metwally 1981, 1991; Khan & Mirakhor 1987). But by so doing, the rationality axioms of neoclassicism had, either by design or otherwise, thoroughly penetrated Islamic economic theories. Moreover, in all of these models, any kind of endogenous interaction between ethically-induced preferences and the broader nexus of institutions, policies, instruments, and variables remained notably absent (Choudhury 2000; 2014). Its implications were, therefore, not without significance.

Interspersing Islamic values in this way with the analytical tools of marginalist economics raises more difficulties for IE than it helps to resolve. Fundamentally, the problem is that it directly challenges other principles of Islam.

[54] An Arabic term referring to the Islamic Law of Jurisprudence.

Firstly, invoking the assumption of full information violates the belief that such complete knowledge is unequivocally the preserve of God alone.[55] Secondly, ethical knowledge is critically dependent on *Tawhidi*[56] consciousness,[57] which itself is a function of ethical behaviour.[58] This endogeneity of learning-by-doing is completely neglected in such models of predictive behaviour. Thirdly, the steady-state equilibria of optimality rule out any possibility of progression (regression) towards higher (lower) states of ethical compliance, which again undermine Qur'anic principles.[59] Lastly, ethical rules of conduct, in practice, are largely inter-relational. Their derivation, consequently, demands a participatory and evolutionary process of discursive consultation, again strongly emphasised in the Qur'an.[60] With the modified neoclassical models of the Islamic economists, on the other hand, it is assumed that these values are, at every moment in time, individualistically interpreted and fully implemented. This assumption ignores empirical reality and Islamic expectations of normative behaviour.

This subtle embrace of marginalism clarifies why so many critics and proponents of IE have parodied the discipline, in its current form, as a poor imitation of neoclassicism. By assuming that the moral law of Islam will somehow instantaneously and universally be implemented by all economic agents, the Islamic economists converted *homo economicus* – "a lightening calculator of pleasure and pains", into *homo islamicus* – a shining epitome of ethical perfection. And just as the neoclassical world of perfect competition is non-existent, so too the ideal world of a perfect Islamic society could never be found, notwithstanding its highpoint during the Prophetic era. This romantic conception of economics not only "pushed the Muslim economists into [a] blind alley" (Khan 2013: xiii), but it also clarifies why IE has been labelled as neoclassicism disguised in the garb of Islamic terminology (Choudhury 1994; Haneef 2005; Alatas 2006; Furqani & Haneef 2015). Moreover, if, as Boland (1981) argues, the maximisation hypothesis is what defines the paradigm of ME, then on this criterion alone IE falls squarely within the mainstream. In the process of anchoring itself within this paradigm, IE, thus, whilst pledging allegiance to Islamic ethics, also endorsed the implicit and underlying ideological values of the very system it sought to replace (Sardar 1988; see also Kristol 1981).

The failure of IE to realise each of its main objectives described above is viewed as a serious setback "for the grand Islamic agenda", and openly acknowledged as such by its chief proponents (Siddiqi 2004:3, 2011, 2012; Kahf 2004). But a clear and unified approach on how to reform the discipline remains a contentious issue (Mahomedy 2015a). In what follows, I suggest in very broad outline, a possible resolution to the dilemma that the Islamic economists find themselves in.

[55] See al-Qur'an (Ch.27, V.65).

[56] Simply translated as the Oneness of God, or monotheism (see subsequent sub-section for further details).

[57] See al-Qur'an (Ch. 2, V.282).

[58] See al-Qur'an (Ch. 2, V.183).

[59] See al-Qur'an (Ch. 8, V.2; Ch. 84, V.19; Ch. 24, V. 40).

[60] See al-Qur'an (Ch. 3, V.159; Ch. 42, V. 38).

6.3 The Way Forward

The critical role of a *weltanschauung* in the shaping of a science, particularly after Kuhn's (1962) *The Structure of Scientific Revolutions*, is now being increasingly recognised not only in the Occidental world, but also by Islamic scholarship (Boland 1981; Sardar 1985, 1988; Holtzman 2003; Dilworth 2007). This concept of a worldview, which is underpinned by one or more presuppositions, defines its scientific paradigm, outlines its aims, and guides its methodology. The Islamic economists (e.g. Choudhury 1990, 1994b, 1995; Chapra 1992; Haneef & Amin 1997) have also emphasised the indispensability of clarifying the worldview of IE for the coherent development of the discipline. But the challenge was not so much to identify what that irreducible premise might be but to derive from it its epistemology and methodology. What then might serve as a basis for the fulfilment of this purpose?

The Islamic economists have all paid homage to the importance of *Tawhid* in Islam, and accept it as the most important and cardinal precept of the Faith. But most of them from thereon restrict it to its theological domain, limiting its application to the transcendental being of God vis-à-vis ritual worship only. Some draw from it as a corollary the unity of humankind and its universal fellowship (Naqvi 1981; Chapra 2001; Mirakhor 2007, 2009; Askari et al. 2014). Very few see any meaningful role for *Tawhid* beyond its metaphysical-cum-theological orientation There are, however, some generalist Muslim scholars such as al-Faruqi (1982, 1992), Sardar (1985, 1988), Bakar (1984, 1991) Nasr (1992), and al-Attas (1995) who have emphasised to varying degrees the importance of *Tawhid* for the contemporary reconstruction of knowledge in Islam. But attempts by them to develop and bring it to fruition as a workable paradigm have generally been rudimentary.

The only scholar among the Islamic economists who has thoroughly plumbed the depths of this precept to sequence from its primal ontology an episteme, in the Foucaultian sense (see Foucault 1972:191-192), is Choudhury (1983, 1986, 1990, 1993, 1994, 1995, 1997, 1999b, 2000, 2001a, 2004, 2006a, 2007, 2008b, 2009, 2010, 2011, 2013, 2014). He has demonstrated through his writings how the *Tawhidi*/unitary worldview can be projected onto all realms of existence across the continua of time, space, and knowledge. By this means, the monotheistic law of God is embedded within all of the socio-scientific and politico-economic processes that constitute created reality, from its primordial beginning to its terminus, the Hereafter. The universality of this divine law then serves as the central epistemic axiom for all the sciences, not only for economics and finance. This, because the Qur'an repeatedly calls all of humankind to recognise the Divine Oneness through the manifestation of the monotheistic law that overarches and pervades all that exists in the heavens and the earth.[61]

The implications of this Qur'anic worldview, at the ontic level, are most profound. The world of created matter is no more conceptualised as being in a state of static existence that is atomistically divisible, as in rationalist science. It is a dynamic and process-oriented reality that functions as an integrated world

[61] See al-Qur'an (Ch. 3, V.190; Ch. 41, V. 53; Ch. 45, V. 3-6; Ch. 51, V. 20-21).

system. Individuals and their societal polities such as organisations, institutions, policies, and the larger environment are no longer viewed as necessarily being in competition and conflict à la Darwin and Marx, but exist within a fundamentally unified essence. These intra- and inter-systems linkages occur through extensive relationships that are organically connected to one another. This connectivity applies equally both within and across the human and non-human domains. There is nothing in the entire creation of the heavens and the earth except that it submits to this monotheistic law of unity in diversity. It is manifested in the pervasive complementarities that can be found in the multiple diversities of the human, animate, and inanimate orders. As a primal axiom then, *Tawhid* serves as a matrix that webs together all of existence, thought, and action into a unitary whole.

When *Tawhid* overarches methodological considerations, it implies that the search for these unifying relationships and bringing them to bear on the experiential world requires a conscious effort to comprehend them principally from the Knowledge of God, which is absolute and complete. Truth, as from its divine source, is one and thus defies any inherent plurality. It finds its expression in the unity of knowledge within which is also embalmed the divine law. Through an interactive and integrative process of evolutionary learning among agents, extensive complementarities are discovered by and through projecting them upon the socio-scientific-politico-economic realms of existence. It is through this self-same discursive and consultative process that ethics are endogenised within all of the other causal relationships in a given system. The learning is continuous and recursive since God bestows only a little of His knowledge upon humanity, and that too, incrementally and in measure of individuals' invoking of God-consciousness (*taqwa*, in Arabic).[62]

Whilst full text-book treatments of this *Tawhidi weltanschauung* may be found in Choudhury (2000, 2004, 2006a, 2011, 2013, 2014), the dynamics of its episteme might be briefly illustrated as follows:[63]

Insert Figure 1 about here

In Fig. 1 below, A and B represent the domains of *a priori* and *a posteriori* reasoning, respectively.[64] Using the concept of supercardinal topology,[65] Ω denotes the completeness of Divine Knowledge i.e. the stock of complete knowledge which is exogenous of all created phenomena due to its primal nature. It is from $\{\Omega\}$ that knowledge flows emanate and are bestowed upon the created order through the medium of revelation viz. the Qur'an. It is via this Qur'anic inspiration that the divine will (law) is conveyed to humankind, at which point it becomes part of the *a priori* domain of pure reason, A. It is now left to human

[62] See al-Qur'an (Ch. 2, V.282).

[63] For the purposes of clarity, I will use the notation adopted by Choudhury (2011, 2014).

[64] These remain dichotomised within rationalist thought.

[65] A mathematical space of sets that is open without bounds i.e. it is a non-denumerable and non-dimensional space (see Choudhury 2004).

intellect, wisdom, and the consultative process (see below) to discover the meanings and applications of the Qur'anic guidance. These knowledge flows, denoted as $\{\theta_i\}$, are then extended onto the *a posteriori* domain of the observed world and her relational entities, B, by means of which we intuit reality.[66] These sensate objects are designated as consisting of a vector of entities $\{X(\theta)\}$, since they are all induced from the knowledge flows of $\{\theta\}$.[67] Within the *Tawhidi* episteme, the institution of Prophethood (*sunnah-ar-Rasool*, in Arabic), denoted as S in Fig. 1, is what enables integration between the *a priori* and *a posteriori* realms of intellection.[68,69]

This process, however, is not once off nor static. Due to the pervasiveness and recursivity of knowledge flows, evolution from one level to the next occurs continually through the post-evaluation of a well-defined criterion function, again derived through the consultative process. This social well-being function, represented as $W\{\theta, X(\theta)\}$, is estimated to ascertain the degree of complementarity attained among all of the relational entities of $(X(\theta))$. It is assessed and then simulated to identify potentialities towards higher levels of *Tawhid* (unity) as encapsulated in Ω. And thus begins the process once again from Ω to the new $\{\theta_2\}$ in A_2 to $\{X_2(\theta_2)\}$ in B_2 to $W_2\{\theta_2, X_2(\theta_2)\}$ and back again to Ω, and so on recursively. Through this circular causal progression, learning and inter-systemic interaction are incessantly evolving, leading to continuous re-origination in all of the creative order until its final consummation in the Great Event of the Hereafter.

Several critical observations emerge from the above, with significant implications for the Islamisation of economics. Firstly, the worldview, episteme, methodology, and vast network of interactions among all of its sub-systems and their constituents, so defined, are integrated within an organicist framework. The unity of knowledge thus cascades from the universal (Ω) to its particulars $(X(\theta))$, and in reverse likewise through inseparable causal interactions, all under the force of the monotheistic law. This means that economics has to be an interdisciplinary enterprise, and adopt a systems approach that integrates endogenously within its analytical framework the actions of all agents, institutions, policies, instruments, and variables that have a discernible impact on economic behaviour and outcomes. Secondly, none of the conceptual entities involved is static;[70] by dint of the processual view of the universe, they are subject to interrelational dynamics and continuously evolve. Consequently, they require constant renewals of learning states. As a result, notions of full knowl-

[66] In the Qur'an, the phenomena of the experiential world are referred to the as the *Aayaat-Allah* (the Signs of God).

[67] As Whitehead (1978:43; i.i.o) emphasizes, "an actual entity arises from decisions *for* it, and by its very existence provides decisions for other actual entities which supersede it".

[68] For the Prophetic model was nothing other than the lived Quraan, as reported by Aisha, the Prophet Muhammad's (Peace be upon him) wife.

[69] Within the rationalist episteme, contrarily, it is in this intervening space between the *a priori* and the *a posteriori* domains that the Kantian heteronomy (i.e. antinomy) abides which prevents transition from the one sphere to the other (see Carnap 1966).

[70] God is the only Exogenous Agent, Who decrees the functioning of everything else that constitutes the created order.

edge, optimisation, steady-state equilibria and the like are *non-sequiturs*, apart from the fact that they do not reflect empirical reality.

Thirdly, the inducing of knowledge flows relating to economic phenomena and the rules/laws that guide them are drawn from the Qur'an and Prophetic guidance (Ω, S) through a consultative process of learned scholars. This process is achieved through interaction (discourse) and integration (convergence) that lead to consensus (*ijma*, in Arabic). With the endogenising of ethics within all of the economic institutions of society, including family, community, markets, the state, etc., concepts of social well-being are so derived and recursively examined to unify agents and their interrelations. In this circular process of learning, implementing, and re-evaluating outcomes, the *a priori* and a *posteriori* modes of knowledge are integrated, which facilitates the unification of both the positive and normative within a singular framework. The classic God-mind-matter trichotomy, as expressed in Kant's partitioned world of Moral Imperative, Pure Reason, and Practical Reason, dissolves into a unified whole. Markets, contracts, and instruments in this way are all endogenously ethicised, and underpinned by the cooperative behaviour of agents rather than the competitive spirit of rationalist individualism.

Lastly, due to the pervasiveness of continuous learning, the methodology of being and becoming expresses itself in the Qur'anic conception of re-origination (*khalq in-jadid*, in Arabic).[71] This, together with the related process of "noble pairing" (*zawj in-kareem*, in Arabic),[72] opens up a plethora of new production possibilities that can be energised and brought to fruition in the created order. Through this organic inter-causality of relations, scarcity and the related neoclassical postulate of marginalist substitution between the good things of life dissolve and disappear (see Choudhury 2008d). For example, economic efficiency and social equity, or price stability and employment, are no longer viewed as competing alternatives. Their antinomies are resolved by the continuous reproduction of resources, and the search for complementary relations between them within a learning and evolutionary epistemology.[73]

As can be seen from the exposition above, invoking the *Tawhidi*/unitary worldview across all domains marks a major shift from the rationalist paradigm of neoclassicism. It offers to the Islamic economists a revolutionary approach in actualising the full potential that the Islamic faith uniquely provides. The solutions to economic problems that it generates are not to be confined to Muslim communities but equally to all of the monotheistic faiths. The approach, moreover, opens up a vista of opportunities for the reconsideration of all other socio-scientific quests and aspirations of the contemporary world.

[71] See al-Qur'an (Ch. 13, V.5).

[72] See al-Qur'an (Ch. 36, V.36).

[73] See Campbell (1988) for some of the other implications of evolutionary epistemology for the social sciences.

7 Conclusion

The European Enlightenment project played a crucial role in arrogating to science the pre-eminence of being the only wellspring from which all knowledge must flow and cascade. For the purposes of this study, I identified two important elements of this modernist conception of science that impacted on economics. The first was the embedding of the rationalist spirit[74] within all areas of human enquiry, whilst the second related to the adoption of methodological individualism, both of which together precipitated the atomisation and disciplinarisation of knowledge (Wallerstein 1996). Given the multidisciplinary character of economic enquiry, the field was deeply affected by these changes.

From its early origins, economics was drawn to the *a priori*-cum-hypothetico-deductive methodology, as predicated upon the ontological and epistemic ideas of the intellectualists. Based on the notions of harmony in the natural order, and of rational human beings who seek the greatest ease and least resistance, Leibniz and his associates strongly motivated for the establishment of a science of happiness of humankind. But the analytical tools were by their time not fully developed for the science to take shape. The agenda, on a practical level, was taken up by the French Physiocrats who fervently advocated for a laissez-faire economy, underpinned with the values of individual self-interest, liberalism, and rationality. These ideas became the first major source of intellectual influence that spawned the idea of an economic science that was subsequently given its first fullest expression by the marginalist revolution of the late 19^{th} century.

At the other extreme, the empiricists such as Hume rejected the thesis of any necessary uniformity in nature and consequently scorned suggestions of universal theories of human action. They argued that people are driven by their instinctual passions such as self-interest and sympathy, which actuate behaviour. Moreover, it was not possible to prove any rational basis for moral action either. All that we could attest to is what we observe empirically, and explain these phenomena in terms of their quantitative features and descriptions. These inductive techniques of describing human conduct had a discernible impact on leading economic thinkers such as Smith and Bentham.

So when economics did eventually emerge as a distinct discipline, it polarised economic thinking along two competing pathways, each consisting of an admixture of ideas from both streams of influence. On the one hand, there was a predominantly English tradition that adopted deductivism, methodological individualism, and liberalism, whilst also inveighing heavily against the inclusion of ethical considerations in economic science. Against this approach, the (German) Historical Schools emphasised an inductivist approach, the integration of ethics into economics, and consequently, advocated for active state intervention in the economy. The profession was henceforth split and continues to be until today. As this paper painstakingly demonstrates, this disintegration is largely due to epistemological contestations that can clearly be traced to the two dominant and competing epistemologies of modernity. The differences were never

[74] I.e. that the faculties of the intellect and/or sense perception were all that individuals required to understand themselves and the world around them.

resolved, which ignited several rounds of acrimonious controversies among the economists.

The deductivist-theoretic approach eventually morphed into the marginalist/neoclassical school which rose to dominance during the 20^{th} century. From then on, as it increasingly gravitated towards the methodology of positivist science, mathematisation, quantification, and econometric modelling coalesced to form the defining feature of modern economics. Not only did this narrow down the scope and methodology of economic analysis even further, it almost completely alienated the discipline from the other social sciences and the empirical reality that it sought to explain. Although Keynes and other leading mainstream economists expressed strong reservations about this turn in the discipline, it did little to stem its advance in that direction. Under these conditions, the nascent branch of macroeconomics itself split off and developed along its own trajectory, so that there is currently little semblance of any synthesis between itself and microeconomic theory.

On the other side, subsequent to the reign of marginalism in economics, the Historical school eventually withered away vis-à-vis the number of its adherents. But its primal ideas lived on and were incorporated by lesser-known schools and several of their subsequent transmutations that currently fall under the rubric of Heterodox economics. It attracts many who are trained in ME, especially those who have become disillusioned with neoclassicism and sense little value and relevance in it. These fringe schools together acts as an alternative 'canon' that is growing and thrives alongside ME. Separately, they continue to challenge mainstream ideas and do rise to prominence, but momentarily so, every time a serious economic crisis strikes any significant part of the world economy. And though they have not been able to break the stranglehold of neoclassicism, they are gradually eroding its intellectual base by mounting ever more sophisticated critiques against every one of its key axioms (Lawson 2003, 2006; Arnsperger & Varoufakis 2006; Milonakis & Fine 2009; Düppe 2011).

It is for this reason that the *methodenstreit* never really died out. It continued to resuscitate itself during most of the 19^{th} and 20^{th} centuries, albeit in the form of new 'schools of economics' as polar representatives of different positions, debating the same underlying issues each time.[75] These issues pertain to the nature of social reality, identifying the key drivers of human behaviour and the extent of their universality, whether the deductive or inductive method is more appropriate to study them, the realism of assumptions and the models they generate, and what ought to be the relevant aims of the discipline. And once again, at the heart of all of these fundamental issues lies the central principle of the assumed rationality of human beings, both in its capacity to discover these truths, and in explaining economic behaviour in these terms.

Now like all of these dissenting movements, IE has also attempted to carve an alternative conception of economics centred around the ethical values of the Islamic faith. But it appears to have limited its discontent with ME primarily on

[75] For example, the early controversies were reignited in the debates between the Institutionalist and Neoclassical Schools (Dugger 1979, 1996; Reuter 2006).

the grounds of its lack of an explicit moral framework. By and large, the rest of its assumptions are seen as unproblematic and perhaps viewed only as heuristic devices à la Friedman, with no broader implications. IE thus attempted to complement this missing dimension in ME by incorporating within it some of the ethical concepts of Islam. The Islamic economists assumed that they would be able to achieve this integration by adopting ME methodology with its tools of analyses. They paid almost no attention to developing any unique epistemic framework that coheres with the range of concepts that they wished to add to economics. They hardly recognised the need for one.

By their own admission, their project, at best, has now stalled. Some have described it as stillborn (Khan 2013; Maurer 2002) whilst others see no difference between ME and IE with the exception of a palliative in the form of Islamic terminology cloaked over the latter. The ethically focussed *homo islamicus*, like its neoclassical counterpart of *homo economicus*, turned out to be a fiction that has no empirical counterpart. It lost any relevance for the kind of transformative process that Islam sagaciously requires from economic agents. More seriously, the underlying premises of *homo islamicus* violated other injunctions of the Islamic faith. The contraption was thus rendered useless for predictive purposes, even under idealised conditions. The other highly ambitious objectives of IE vis-à-vis contributing towards the larger agenda of initiating an intellectual revolution in Islamic thought; of generating knowledge that seamlessly transcends the religious-secular divide; of offering to the Muslim world an alternative economic system, etc., has now been whittled down. In its place, the emphasis has shifted in favour of Islamising financial end-products that largely ape their capitalist-based counterparts (Asutay 2007; Choudhury 2008a; Haneef 2009; Haneef & Furqani 2010). This exercise in apologetics throughout the development of IE has become increasingly stark.

The multiple failures of IE have now forced the Islamic economists back to the intellectual drawing board. But their conviction in the certainty of their faith to address the problems of humanity has not been shaken nor diminished. In a remarkable twist of irony, IE set out to supplant ME as an ethically oriented discipline, but it fell into an existential crisis at exactly the same time that ME is experiencing its own intellectual haemorrhage and crisis of confidence. Their common approach has widely been cited for these outcomes, and both have equally been criticised by those from within for the same failures. There is an important parallel here that the Islamic economists, at least, cannot disregard.

There now appears to be a rejuvenated sense of urgency, particularly on the part of a new generation of Islamic economists, to address the inadequacies of their predecessors (IRTI 2004; IERC 2008; IIIT 2011; IEI 2012; ILKE 2013, 2014). Scholars such as Asutay (2007, 2008), Aydin (2012a, 2012b, 2013), Haneef (2007, 2009, 2012), Iqbal (2012) and Zaman (2005, 2009, 2011, 2013, 2015a, 2015b), all seem to concur that the difficulties besetting IE are epistemic and/or methodological. But whether they will be able to galvanise their efforts in building on the path-breaking and revolutionary ideas stemming from *Tawhid* that Choudhury has extensively detailed remains to be seen. That such a unitary paradigm is absolutely crucial for the revitalisation of the project is reflected in

the wise words of the Nobel Laureate economist, Gunnar Myrdal (1979:106):

> I came to see that in reality there are no economic, sociological, psychological problems, but just problems and they are all mixed and composite. In research, the only permissible demarcation is between relevant and irrelevant conditions. The problems are regularly also political and have moreover to be seen in historical perspectives.

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Figure 1