SOCIETY, SCIENCE, AND ECONOMICS: THE DELICATE BALANCE BETWEEN IDEOLOGY AND EPISTEMOLOGY AND THE CONCEPT OF FAIRNESS

RePEc:wpa:wuwpmh/0412002 - 2004-12-28

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ABSTRACT

The search for scientific truth is never ending. Society's knowledge base at any time is tentative and is advanced, modified, or remains unchanged with the findings of scientific research. In society, the daily lives of human beings are guided by policies established based upon knowledge acquired over time. Great trust is placed in the hands of the policy makers who accept the research findings which are considered scientific truths. Historically, the problem facing society is that ideology dominates that which is epistemologically relevant. Many research findings are deemed false not on the basis of the incorrectness of the findings but on ideological grounds. Consensual correctness is considered the basis for research acceptance rather than representational correctness. The history of astronomy and economics reveals the force of ideology in the cases of Copernicus, Galileo, Samuel Bailey and P. W. S. Andrews. The issue in philosophy is much more difficult, as exemplified by Hobbes' argument against Aristotle's philosophy. However, Hobbes' position is reinforced by the formidable work of Mandeville, whose work is the foundation for the ever-popular work of Adam Smith. This paper, in a historical setting, explores issues in several disciplines whereby human beings are exposed unnecessarily to the vagaries of those researchers who permit ideology to dominate epistemology. A corrective factor--the fairness concept--is recommended to modify/ameliorate the impact of ideology.

1 - INTRODUCTION

Truth is independent of belief and scientific research presumably is a quest for truth [Salvary 1989, xi]. While scientific theories are comprehensive, they can never be complete because our knowledge base is expanding with each new scientific finding. In the conduct of scientific investigations, epistemological relevance is the one significant criterion which guide scientists (scholars) in the pre-selection of facts, hypotheses, and explanatory methods. Notwithstanding this fact, there are many instances where ideology dominates epistemology. In those instances the criterion used in the exploration of scientific issues and the judgment of scientific findings is consensual correctness as opposed to representational correctness. Consensual correctness ensures a minimum amount of revision to the core of scientific knowledge and maintains the status quo; while representational correctness, which is resisted, usually displaces part of the core of the existing body of knowledge.

This treatise focuses on the role of the concept of fairness in maintaining the delicate balance between ideology and epistemology. The study's concern is of great importance since the members of society "are guided in their moral responses and intuitions by the inherited, accepted suggestiveness of the concepts by which they live [Gellner 1988,124]." The rest of the paper is divided into ten sections: Science, Ideology, and Epistemology; Society and the Concept of Fairness; Ideological Dominance and Epistemological Relevance; Astronomy, Economics, Philosophy and Physics; Economics - Modelling and Theory Formulation; Instrumentalism; The Free Market and The Regulated Market; Business Education; Operationalizing the Fairness Concept; and Conclusion.

2 - SCIENCE, IDEOLOGY, AND EPISTEMOLOGY

Science seeks to discover the structures underlying the world as they manifest themselves to us through our senses. It attempts to make explicit the intricate connections and regularities which are the structural causes for the actions and events that are observed. Ideology serves as the means of defining and communicating the nature of moral obligations [Wuthnow 1987,145]. It is a subjective thought-construct [Williams 1988,105], which simply focuses on conditioning to attain a submission to the rules of an established order [Williams 1988,101,102]. Thus, when confrontation is chosen by any society as the modus operandi, it does not mean that confrontation is better than cooperation. However, *it must be emphasized that ideology of itself is not bad; but the manner in which (and time when) it is used can produce serious negative social consequences.*

Knowledge grounded in observations and reasoning through our senses is the essence of epistemology. Since interpretations of human observations and intuitions constitute the basis of epistemology, absolute freedom from ideology is not possible [Williams 1988,105]. The role of ideology in determining lifestyles cannot be denied. However, ideology should not be permitted to dominate investigations of a scientific nature, because invariably *ideology is used to provide a moral cloak for a particular view*.

The ideological connection of capitalism, the free market, and freedom serves to sustain the conviction that members of the society are acting as morally responsible individuals when they accept the end result of a free marketplace. This set of cultural construction--the illusion of a self-maintaining market as an objective oracle [Gellner 1988,186]--gives us the impression that there are certain economic forces which we cannot expect to control because they are simply the laws of nature [Wuthnow 1987,89].

In medieval Europe, the developing capitalism borrowed from religion (habits of self-denial by focusing on future gains, avoidance of self-indulgence). Along with the emergence of a growing technological resourcefulness, capitalism cloaked with morality engendered confidence because of its success in providing gains. However, by the seventeenth century, capitalism became purely a money-making system with no definable ends or purposes beyond its own further expansion [Mumford 1961,415].

Ideologies not only articulate ideas about moral obligations, but they reinforce these obligations and thereby influence or control the manner in which social resources may be expended or distributed [Wuthnow 1987,345]. For instance, in order to legitimize capitalism as the sole means to attain freedom, one can appreciate the equating of capitalism with freedom. While the market is identified with freedom of choice, technology is presented as providing the greatest means for enlarging freedom [Wuthnow 1987,145] and mergers are held to be the means by which the economic system is made efficient.

Unequivocally, society has enjoyed many benefits from technology and mergers; nevertheless, they have become ends in themselves. Unfortunately, the significant redundancy of human beings in the work force due to the rapid technological advances, which are not mastered by society, is justified on moral grounds as the working of the natural law as embodied in the free market.

3 - SOCIETY AND THE CONCEPT OF FAIRNESS

The devastating consequences of self-interest, which individuals in pre-society had experienced, constituted the precise motivating force for trying to find a means for the future avoidance of such consequences. The communal approach--a symbiotic relationship with synergistic effects--proved to be better than the individual approach, whereby each one fought each other and faced the hazards of nature alone. Thus, the emergence of society as an organized form of human existence was based upon the awareness of the benefits to be obtained from cooperation. *Fairness was the impetus for the emergence of society.*

This paper argues that “fairness” is the foundation of society; however, the existence of society does not of itself guarantee fairness. It is only through cooperation among the members of society that fairness can be attained. Imagine if, instead of 'self-interest' being advocated as a natural law, the "fairness concept" had been espoused as a necessary imperative for society--necessary for its civil continuation. To argue that this author is simply introducing the author's ideology in place of another is simply to ignore the force that propelled society into existence. Yet one can interpret cooperation as a selfish notion. Arguing from a psychological point of view, Mandeville [1732] maintained that human beings in all their actions (including acts of altruism and even of compassion) are guided by selfish motivations. Mandeville also argued that: (i) the formation of society itself is based upon a selfish notion, (ii) those who govern master the art of flattery, and (iii) from all of the selfishness (vices) manifested in the acts of individuals, immense public benefits emerge. Points (ii) and (iii) of Mandeville's argument are witnessed in many instances. However, point (i) does not hold, since by definition selfishness signifies the benefiting by a few members of society at the expense of the other members. All members of society are expected to benefit from society and have benefited in varying degrees. Society engenders a cooperative effort to the benefit of its members. "Fairness" was the means by which individuals were able to avoid or minimize the intrusive and abusive force of the powerful self-interested tyrants.

The concept of “fairness" has faded into oblivion simply because it was never expounded as an ideology. Religion was the more likely means to have “fairness” propagated as an ideology, but religion manifested its own agenda. With religion pursuing its own self-interest, the "fairness” concept never had a fighting chance. However, our senses should not be numbed by the past, it is time to recognize the need to embrace the concept of fairness with its all-important role as a modifying influence on our every action.

Invariably, each country sanctions a particular ideology as official doctrine [Wuthnow 1987,177]. Pursuing what is in one's best interest seems morally appropriate; however, when self-interest constitutes the dominant concept of the socialization process, the inevitable result would be anarchy. In the long run, indifference to the concept of “fairness” will undermine the viability of the social system.

Indubitably, the acquisition of knowledge and the extension of the knowledge base of the social system is unduly influenced and becomes severely limited by the concept of 'self-interest'. It is quite clear, in the case of the history of religion (with the clergy in pursuit of its own best interest) and scientific research, that ideology simply dominates epistemology.

4 - IDEOLOGICAL DOMINANCE AND EPISTEMOLOGICAL RELEVANCE

During and after the Middle Ages, religious belief strongly influenced scientific writing.[1] "Boyle and his colleagues [were forced to write] ... at length defending their scientific enterprises to the theologians and couched much of their philosophy in terms deferential to and influenced by theologians" for fear that natural philosophy would appear opposed to the Christian religion. Leibniz attempted to use Newton's shortcomings on biblical chronology to associate Newton's Principia "with an atheist's plot to subvert the world of learning and then the world of political stability" [Redwood 1976,98]. Hobbes was not daunted by that force and considered the possibility that the senses deceive us [Redwood 1976,100]. On this type of deception " . . . no one has spoken more eloquently . . . than Galileo [who maintained that] . . . to accept the idea of a moving earth one must overcome the strong impression that one can 'see' that the sun is really moving" [Holton 1973,59]. It is this line of reasoning that led Hobbes [1651] to criticize Aristotle's natural philosophy. Hobbes, given the many wars in England and Europe, felt Aristotle (also aware of many wars--Grecian and pre-Grecian) knew his philosophy to be false since it was repugnant to natural reason; but Aristotle continued to profess it in order to be consonant with the then religious setting [Hobbes 1651(1987),39,41] and, of course, being fearful of having to take the same holiday as did Socrates.

Hobbes found great fault with the familiar Aristotelian view that man by nature is a social (pre-programmed) animal. Man unlike bees and ants, which are internally programmed for social behavior, is a quarrelsome creature with an inclination to "envy, hatred and war." Hobbes' thesis was firmly grounded in the psychological observations that: (a) man is envious by nature and (b) obtains great pleasure by ranking himself above other men. To compound this problem of the psychologically disruptive forces within the human animal, (1) there is a scarcity of the means of survival in the external world, and (2) the state of nature is characterized by the absence of property rights; this latter condition places no proscription on one man's right to another man's material possessions [Moss 1977,259].

Hobbes' summarized view of human nature is that there are three principal causes of quarrel: (i) competition, (ii) mistrust, and (iii) glory. "The first makes them invade for gain; the second, for safety; and [the] third, for reputation" [Moss 1977,260]. Today, there is much more evidence on Hobbes' position (e.g., ranking--third world countries; developing countries' freedom to decide means accepting the decisions of the powerful countries).

One may contend that Hobbes view was fundamentally unhistorical and psychologically simplistic. To the contrary, such a contention is refuted by the arguments presented by Mandeville [1732,323-369], who was influenced by Hobbes. Such arguments are derived primarily from historical and psychological perspectives. Mandeville went further than Hobbes by stating that animals are born without compassion, yet kill only out of necessity for self defense or to eat; but: "Tis only Man, mischievous Man, that can make Death a Sport " [Mandeville 1732,178].

In the sixteenth century through the early eighteenth century, the common experience was that contradictory views were not tolerated. Religion as ideology was supreme. Any ideas that seemingly contradicted it was atheistic and had to be condemned [Redwood, 1976,217]. "Clerics encouraged and praised natural philosophers if they worked within the framework of orthodox Christian apologia... The world was dominated by a battle for preferment and orthodoxy... [Redwood 1976,31]." Yet, there were those who were not confounded by the consensus based on ideological dominance--religious or otherwise. For instance, Kepler, who developed the planetary theory, was critical of Aristotle's work which was at the centre of religious belief [Holton 1973,73].

The new astronomy and new physics, advanced by Copernicus and Kepler, were at odds with the Aristotelian and Ptolemaic views of metaphysics and astronomy [Finocchiaro 1989,26]. Apart from Copernicus' excommunication, the rejection of the new ideas by the Church led to the condemnation of Galileo [Hull 1913,26-35], who had advanced the Copernican system by means of a new mechanics [Hull 1913,15]. While the earlier attachment to Aristotelian and Ptolemaic views was in itself not wrong, it is the refusal to allow new ideas because they contradict the existing orthodoxy that leads us into an unnecessary battle of the minds.

Research in economics has shared similar experiences. For instance, Bailey [1825] had criticized Ricardo's [1821] definition of value and his positions on interperiod comparison of the value of goods and an invariable standard of value. Bailey [1825,72-73,94-98] established that value is relative and not absolute, psychological and not physical, and that an invariable standard of value is impossible. J. R. McCulloch, T. R. Malthus, and James Mill, were among many who attempted in vain to defend the Ricardian position. Rather than recognize the contribution, attempts were made to discredit or incorporate Bailey's work into the Ricardian framework. Fortunately, they were unsuccessful. However, Bailey's work remained in obscurity until its rediscovery in 1905 by E. R. Seligman. This rediscovery led to its being reprinted by The London School of Economics in 1931 as No. 7 of its series of scarce tracts in economics and political science. With this reprinting, references to his work gradually increased [Rauner 1961,1-5,118-120,138-141].

Ideology permeates scientific research and negatively affects the social process of adaptation. Given the impact of scientific research on the lives of individuals, the "fairness" concept takes on added significance.

5 - ASTRONOMY, ECONOMICS, PHILOSOPHY, AND PHYSICS

The desire of early economic scholars to use the scientific tools is quite understandable. However, many times the inherent limitation of a particular method or its misapplication escapes normal attention. Clearly, a very important case is the use by Adam Smith of the universal law of gravity (the "law of the invisible chain" [Evensky 1989,124,142]) developed by the mathematical physicist, Isaac Newton, to arrive at the "law of the invisible hand." Newton had used Kepler's laws to demonstrate that "the sun exerts a force on each planet which varies in inverse proportion to the square of the distance of that planet from the sun" [Copleston 1985,148]. Having brought such major phenomena as the motions of the planets, the moon, and the sea under one mathematical law, it was suggested by Newton that all of Nature's phenomena of motion might be derived mathematically from the principles of mechanics [Copleston 1985,148].

Newton had validated religious society with his work [Redwood 1976,94-97. Similarly, Smith had hoped "to validate commercial society by demonstrating commercial society as the last in a series of successive stages through which the invisible chain of events leads society (as if by an invisible hand) in its evolution toward an approximation of natural jurisprudence and thus to the best of all possible worlds" [Evensky 1989,125]. The dialectical syllogism of Adam Smith, whose work is the guiding principle for free market economists, leads into many fallacious modes of thought.[2]

> "Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of society, which he has in view. But the study of his own advantage naturally, or rather necessarily, leads him to prefer that employment which is most advantageous to the society."
> [Smith 1776, Book IV, Chap. II]

According to Recktenwald [1978,72], there is an "invisible hand" which ensures that:

> "in a freely negotiated trade all sides guided by self-interest must benefit; otherwise no exchange would occur. The accepted exchange value is then socially beneficial. Both benefits and trade are the results of man's pursuit of private interest and his propensity to bargain; they are matters of empirical observation and not of abstraction or ideology."

It is interesting to note that what was observed by Smith was the opposite--the collaboration of a few at the expense of the others resulting in significantly disparate benefits to society [Evensky 1989,134-139]. To accept the conclusion arrived at by Smith, one must accept the many hidden assumptions: equal talents, equal access, and equal endowment, which will produce a stalemate. This stalemate would necessitate cooperation among the participants of the economic process to avoid a complete paralysis of the economic system; it is only in this setting that the benefit of the entire society will be served--"employment which is most advantageous to the society". While it is maintained that Smith in his later life fully realized the failure of "the Invisible Hand" to function and that he was merely advocating an "ideal" system, many economists have adopted him as the patron saint of the free market paradigm and continue to hold steadfastly to that belief [Evensky 1989,143].

In *The History of Astronomy*, Smith revealed his overwhelming admiration for Sir Isaac Newton [Smith 1967,65]. His fascination with Newton's scientific achievement enabled him to overcome all consideration for Hobbes' remarkable exposition on human nature. Smith was more convinced of the natural law principle of individual selfishness which was expounded by Mandeville [1732] with such eloquence in unequivocal terms:

> . . . [Should one] examine into the Nature of Man, . . . [one] may observe that what renders him a Sociable Animal, consists not in his desire of Company, Good-nature, Pity, Affability, and other Graces of a fair Outside; but that his vilest and most hateful Qualities are the most necessary Accomplishments to fit him for the largest and, according to the World, the happiest and most fluorishing Societies. [Mandeville (1732)1924,Preface,p.4]

Smith recognized the similarity of Mandeville's position on human actions (that each person, unimpeded by any social constraint, following his/her natural impulse--own selfish interest--would produce results that appear to be guided by some force) to Newton's mechanics. From this belief that the seeking of selfish passion was the most critical and natural human phenomenon (a philosophy of individualism with man as "a mechanism of interacting selfish passions" [Mandeville/Kaye (1732)1924,cxl]), it became quite easy for Smith to draw a parallel between political economy and natural science, and, hence, reject Hobbes' position on rights and responsibilities in a communal setting.

In *The Theory of Moral Sentiments*, it is fairly evident in that work that Smith was influenced by the philosophical views of the Earl of Shaftesbury (Anthony Ashley).[3] Yet, for the description of the economic system, Smith chose to use Mandeville's views since they provided a neat comparison with the Newtonian concept. Mandeville [1732,359] maintained that the destruction of London by fire created benefits--the jobs created by the need for replacement of the items destroyed--that were greater than the cost. Apparently, the work of an arsonist is of great benefit to society. The dilemma for society is quite clear because reliance on that model one would have to accept (although quite reluctantly) that the commitment of crimes do produce jobs, therefore society benefits in this process.

6 - ECONOMICS - MODELING AND THEORY FORMULATION

Mirowski [1989] has severely criticized economic scholars for having bogusly modeled economics on the physical sciences. While not disagreeing with Mirowski, this author maintains that scholars should use whatever models that are available, provided they are adequate for the task at hand by providing a good understanding of new ideas.

Some new ideas are rejected not because the models employed are erroneous, but because they contradict the existing orthodoxy. Yet, other ideas are accepted although they ignore reality. For instance, due to the religious establishment’s attachment to particular views of metaphysics and astronomy, Copernicus' work was considered heretical. In order to minimize the negative view of Copernicus' work, "Osiander added an anonymous preface designed to shield it from persecution by claiming its central idea as a mere mathematical fiction for practical use. ... [Owing to this precaution] the book escaped official condemnation until long after [Copernicus' death], in Galileo's time" [Pledge 1966,37-38].

Although Copernicus relied upon mathematics and deduction, it was Tycho Brahe's vast amount of accurate observations which enabled Johann Kepler to formulate the empirical laws of planetary orbit--the planetary theory as is known today [Pledge 1966,38-39]. The accurate observations of Brahe were at variance with every philosophical, astronomical, and mathematical tradition of the past. This fact forced Kepler to introduce ellipses into the heavens in place of Copernicus' circles [Drake 1973,20]. Copernicus was concerned with mathematical elegance, while "Kepler's Copernicanism was no less guided by the desire to discover the physics of the heavens than his sober demand for precise mathematical fit between actual observations and the theory he proclaimed concerning the architecture of the universe" [Drake 1973,23]. The metaphysical implications of the new astronomy and new physics were at odds with the Aristotelian and Ptolemaic views [Finocchiaro 1989,26]. Accordingly, the Church refused to accept it. Its rejection led to the condemnation of Galileo [Hull 1913,26-35], who advanced the Copernican system by means of a new mechanics--the law of falling bodies [Hull 1913,15].

In economics, Walras [1926,69-70] attempted to ascribe to economics the features of the natural sciences (physics in particular) and made the exaggerated claims that value in exchange (nominal money price) is: (1) a "natural phenomenon"--natural in its origin, manifestations and essence, (2) comparable to the law of gravity, and (3) a branch of mathematics (which has been neglected and left undeveloped by mathematicians). While human beings cannot alter the planetary motions, they can certainly change their economic behaviour. The significance of this latter point is that, human beings are not internally programmed to act in a predetermined manner. The objects of physics have no emotions; therefore, they cannot and do not react to emotional stimuli.

While reality must not be denied, experimentation must not be denied since its purpose is to enable society to cope with reality. On such grounds, one can justify Walras' strenuous emphasis that a pure science of economics needed to be developed:

> Following . . . [the same procedure of the mathematical sciences] . . . the pure theory of economics ought to take over from experience certain type concepts, like those of exchange, supply, demand, market, capital, income, productive services and products. From these real-type concepts the pure science of economics should then abstract and define ideal-type concepts in terms of which it carries on its reasoning. The return to reality should not take place until the science is completed and then only with a view to practical applications. Thus in an ideal market we have ideal prices which stand in an exact relation to an ideal demand and supply [Walras 1926,71].

In astronomy, Kepler recognized that mathematical elegance had to bow to reality. It was only by reverting to *reality*--the observations of Brahe--was Kepler able to arrive at the empirical laws of planetary orbit. Galileo recognized that friction affected falling objects. In order to understand how objects fall, abstraction (the removal of friction) by Galileo was necessary to get a better understanding of reality. The abstraction enabled reconciliation between Galileo's theory and fact. *In spite of the use of abstraction, astronomers did not substitute abstraction for reality--a world in which friction exists.*

One cannot find fault with the modeling outlined by Walras. However, unlike astronomy, after the elegant scientific (mathematical) economic model was developed by Walras in economics, *it was accepted as reality by many economists.* This author's view is shared by Coase [1992,714], who lamented on this issue in his Nobel Prize lecture.[4]

It is the acceptance of an ideal in place of reality which produces much confusion in economics. In the full cost versus marginal cost debate, Andrews' contribution--the theory of Normal Cost Pricing--was denied its rightful position in economic theory by the marginalists, who marginalized the theory. This denial occurred despite the fact that those economists, who believed in the works of Walras and Pareto, were the same economists who attempted to defame Andrews. However, Andrews' contribution was based upon concepts that were fundamental to the works of Pareto and Walras. Pareto maintained that: (1) fixed expenses must be distributed over its output [1927,243,255,265-266], and (2) in the calculus of investment, fixed costs are provided for to solve the coefficient of production [1927,444-

445]. Walras [1926,252-254] provided a mathematical proof that the law of supply and demand ensures that the cost of production is the true value in equilibrium. In continuing the discourse, it was maintained that where price is insufficient to cover depreciation, capital will not remain intact [Walras 1926,273]. Also, it was emphasized that the cost of production controlled the quantity of output [Walras 1926,476].

Andrews [1949] posed a challenge to the theory of imperfect competition which had been developed by Joan Robinson (1933) and Edward Chamberlin (1933). At that time, neoclassical price theory consisted of three sub-theories: (a) perfect competition, (b) monopoly, and (c) imperfect competition. The theory of imperfect competition had been developed to provide for the gap left by the first two sub-theories; common to all three sub-theories were marginal cost pricing and the assumption of profit maximization. So Andrews attack on imperfect competition drew the ire from the entire neoclassical school. Andrews drew attention to an anomaly in the theory of imperfect competition; its underlying assumptions were inconsistent with empirical findings, therefore, its conclusions were wrong. In turn, Andrews offered a theory of manufacturing business which contained a theory of normal-cost pricing. There were a multitude of empirical studies which supported Andrews' own empirical study [Lee and Irving-Lesserman 1992,280-281]; nevertheless, the criticism from the orthodox economists was incessant.

Andrews and his followers "were usually regarded as unimportant heterodox contributors by the majority of the economic profession." What was at stake was the orthodox belief of the maximizing behavior of firms. Andrews' theory was accused of being neglectful of demand and competitive pressure [Mongin 1992,316,331,333]. Like Galileo who had received clerical advice concerning critics of his work, Andrews was asked by Roy Harrod, then editor of the Economic Journal, to avoid responding to A. Robinson (1950 and 1951) and R. F. Kahn (1952), who were the most vocal critics of his work [Lee and Irving-Lesserman 1992,291,298].

Besides verbal criticism, Andrews was subjected to occupational pressures. The renewal of his Nuffield fellowship was threatened by eminent economists. Also, his close associates were subjected to institutional pressure. It was made clear to I. M. D. Little that he had to repudiate Andrews and all of his works or lose his promotion. In a similar vein, Galileo had been advised by the clergy to renounce Copernicus and his work or face excommunication. Just as Osiander had deflected the heat from Copernicus' theory, so too did Elizabeth Brunner deflect the heat from Andrews' theory. In an article she deliberately put the theory into neoclassical terminology. The article was favorably received by Oxford economists and incorporated into neoclassical price theory rather than accepted on its own merit. With the disguised fashion of presentation, Andrews' fellowship was saved [Lee and Irving-Lesserman 1992,298-299].

To the chagrin of society, consensual correctness has a tendency to prevail. In a slightly different situation, it is noted that brilliant scholars such as Ludwig von Mises and Frederick von Hayek acted (to Coase's puzzlement [1992,715]) toward Oskar Lange's work as Ernst Mach did toward Einstein's work. Mach, in his 1913 rejection (published in 1921 five years after Mach's death) of Einstein's special theory of relativity, stated that it was merely dogmatic [Holton 1973,230]. Einstein's reply in this regard is very revealing [Holton 1973,232-233]:

> ... Mach rejected the special relativity theory passionately .... The theory for him was inadmissibly speculative. He did not know that this speculative character belongs to Newton's mechanics, and to every theory which thought is capable of.

The criticism leveled at Oskar Lange's work on a socialist system by Ludwig von Mises [1935] and Frederick von Hayek [1940] would be in line with the Machian blow: Mises and Hayek maintained that an orderly socialist economy was impossible or at best unfeasible [Heilbroner 1990,1111]. According to Mises [1960,222]: "[E]conomic calculation is not possible under socialism ... ."[5] Heilbroner [1990,1111] maintains that Mises and Hayek scored a victory. However, this victory is one born of ideological dominance, not epistemological relevance; it is essentially the type of victory that was experienced over Copernicus and Galileo.

Once more Galileo's situation is instructive. Galileo had set out to prove that weight and density have no direct effect on the speed of fall. This hypothesis could only be proved in a nonexistent vacuum. Yet, Galileo was able to establish by logical extrapolation from observational evidence to a nonexistent situation that all bodies fall at the same speed. Thus, Galileo was able to establish natural motion as a pure case of a concept - motion unimpeded by a resistant medium [McMullin 1967,16]. Yet to Galileo's predecessors at Paris, the idea (the elimination of the resistance to motion) never came upon them that the resultant of such an idealization would be natural motion [McMullin 1967,16]. The bases of the criticisms levelled at Galileo, Einstein, and Lange were ideologically motivated and not epistemologically related.

7 - INSTRUMENTALISM

In the early development of mathematics from it empirical roots (e.g. surveying), a clear distinction was made between axioms, postulates, and assumptions. An axiom was a self evident truth requiring no proof. A postulate was evident but proof was optional. An assumption was a condition imposed in a given situation for the purpose of analysis; in this case, the issue of truth was not of any concern.

"Hilbert asserted mathematics is a meaningless game played with meaningless marks on paper... [Bell 1951,38]." David Hilbert introduced formalism in which assumptions, axioms and postulates are considered as interchangeable. Since then, it is the view of most modern mathematician that mathematics is concerned with playing a game according to a given set of rules. Such a view makes it necessary that non-mathematicians enquire into the 'truth of mathematical propositions' [Bell 1951,23; Schwartz 1962,356-357].

While Osiander engaged in deceptive language to lend an air of falsity to Copernicus' model, it was not a case of mathematical specification by Copernicus with indifference to empirical reality per se. Osiander's intimation of falsity was out of sheer necessity to protect the scholar and preserve the work:

> Scholars will doubtless be shocked ... by the unsettling hypothesis of the earth's motion set forth in this book. They should remember, however, that the astronomer is not concerned with the true causes of celestial motions. He is therefore free to adopt any hypothesis which may enable him to give a geometrical representation of the motions that have been observed in the past, and to predict the motions that will occur in the future. Such a hypothesis need not be true or even probable; it is sufficient that it should lead to results in agreement with the facts of observation, and that it should be the simplest hypothesis capable of so doing. [Armitage 1957,66]

While Friedman's Positivism [1953] is a version of 'instrumentalism' as defined by Popper [1959], apparently Osiander and Hilbert were potential sources of influence upon Friedman's [1953,14] thinking as the following passage reveals:

> "... the relation between the significance of a theory and the 'realism' of its assumptions is almost the opposite. ... Truly important and significant hypotheses will be found to have 'assumptions' that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions ... ."

Early debates on this issue have recognized the impropriety of such a position. For instance, although the mathematical astronomy of Ptolemy had proven to be far more predictively successful than the physical astronomy of Aristotle, the latter was considered superior to Ptolemy's because it provided a better explanation of the working of the cosmos [McMullin 1967,13].

The falsity of axioms does appear in the literature, but it is in context with the fact that axioms for entirely different systems (e.g. Euclidean versus non-Euclidean systems) are invariably false for each other [Pledge 1966,189; Flew 1989,426-427]. The situation of Galileo is quite instructive in this regard. Galileo had chosen to take an opposite position to Aristotle. Based upon observations that while a body falls in one medium, it rises in another, Galileo was able to demonstrate the contradictory consequences of Aristotle's claim that speed was inversely proportional to density. With this evidence and additional observations on dense media, Galileo established that bodies of very different density fall at quite different speeds, and in air they fall at almost the same speed [McMullin 1967,15].

While, the role of intuition cannot be denied, it should not be confused with protective (sunk cost) distortion. Unequivocally like Galileo, Friedman has the scholar's right to take an opposite view to the perceived reality that is intuitively appealing. However, to maintain that position, when the evidence based upon his own model design fails to support his theory, is simply dogmatic.[6] Boland [1979] has defended Friedman's adherence to an instrumentalist epistemology; that is: it is only prediction, and not explanation, that is needed for policy prescription. However, economic policy based on monetarism, which is ideologically based has had calamitous results (e.g., bankruptcies and unemployment).

Since ideologies influence the manner in which social resources may be expended or distributed [Wuthnow 1987,345], the consequences due to attributing mechanical causalities to living processes are quite devastating for citizens in many countries [Weekes 1998]. The free market/capitalism orthodoxy, shareholder wealth maximization, profit maximization, the general equilibrium model of economics based on physics, and instrumentalism as the preferred epistemology owe their elevated positions to ideological dominance. There is no empirical evidence to sustain the position that society is better off with a free/unregulated market than with a regulated market in which there is guided cooperation for the benefit of the members of society. The historical evidence speaks for itself.

8 - THE FREE MARKET AND THE REGULATED MARKET

The evidence is quite clear that both the UK and the US have moved from free/unregulated markets to regulated markets. For instance, in England, the Bubble Act of 1720 was enacted to address the abuse in the securities market. After the repeal of the Act of 1720 in 1825, there has been a succession of British Companies Acts. After the Wall Street Crash in 1929, the US Congress enacted the Securities Act of 1933 and The Securities Exchange Act of 1934, which brought the Securities and Exchange Commission into existence. Many countries today have their own Securities Commission. In both the UK and the US, there are many regulatory agencies.

Monopoly is the natural tendency in a free market. This condition, in the US in the late 1800s and early 1900s, resulted in the regulation of the free market with the Sherman Antitrust Act of 1890 and the Clayton Act of 1914. The latter act created the Federal Trade Commission and authorized the Department of Justice to guard against monopoly by prosecuting antitrust cases [Pfiffner and Presthus 1967,365]. Standard Oil Company (1911) and American Telephone and Telegraph (1984) were broken up due to antitrust action. Given the emphasis on deregulation, from 1990 to 1998 the value of worldwide mergers and acquisitions is estimated at $2.5 trillion, with 64% of such activities in the US [http://www.soutcentre.org, 2000].

It is advanced that the free market increases competition producing price reductions to the benefit of consumers. However, Veblen [1904,28-32] better describes the competition resulting from the free market: Firms operate with business strategies aimed at manipulation and control of economic spaces for monetary and not industrial benefit. Business leaders will circumvent or even sabotage industrial efficiency if their monetary gains are greater when such strategies are employed. What is witnessed is anticompetitive behavior (e.g., Microsoft Corporation). To restore some form of competition, regulation is undertaken. Today, it is a regulated market (with more or less regulation from one time to another) that exists, and not a free market. In business education, ideology is accepted in place of epistemological relevance.

9 - BUSINESS EDUCATION[7]

"Men [and women] are guided in their moral responses and intuitions by the inherited, accepted suggestiveness of the concepts by which they live [Gellner 1988,124]." The learning process enables human adaptation, that is the ability to cope with, if not control, the environment and increase its yield for the benefit of society. The progress of society is directly linked to the learning process; therefore, any threat of damage to the learning process must be repelled vigorously. It is quite evident that society adopted the scientific method in its attempt to reduce the random approach to discovery through the development of logical theories and laws. Likewise, society has adopted schools of higher learning as vehicles for accumulating and disseminating information about the natural and social environments.

Given the impact of higher education on the lives of individuals, the "fairness concept" in the educational process takes on added significance. The discussion which follows is intended to be a general comment on higher education; however, the business school is chosen as a working example because the average individual is quite familiar with the immediate effects of business decisions on their daily lives. What is said of business education holds with equal force for education in the natural and social sciences.

The business school is the vehicle for accumulating and disseminating information about the business environment. The intent of this institutional arrangement is the desire to minimize the cost to society by eliminating the need for trial and error in the business environment. Ideally, the business educator works with a set of concepts and discovers new combinations of elements. This aspect of education, known as research, is protected by institutional guarantees. However, in the bid for institutional visibility, research takes on a different twist. The ease of publication takes precedence over epistemological relevance. That is, research in support of the existing orthodoxy (e.g., maximizing monetary returns, shareholder wealth maximization, and the free market effects of restructuring leading back to general equilibrium) are easier to publish than findings which challenge the existing orthodoxy. Such an approach can only lead to the retardation of social progress. Indubitably, society is the victim of such an ill-conceived plan - institutional visibility.

In general, business schools have failed to establish the importance of human social responsibility--the "fairness concept" is ignored. In business education, corporate social responsibility appears to be of little or no significance. Invariably, emphasis is placed on marketing which eliminates the competition and downsizing/cost-cutting which decimates the workforce. There is little concern to find means to augment the workforce while increasing its productivity and to master technology to limit its devastating effects on the workforce. While technology is not evil, the failure to master and control its use can create havoc for much of the labor force.

Society, per se, cannot improve itself. Society is a collection of individuals bound together by a common culture; therefore, improvements in society can be brought about only through the collective acts of the individuals who comprise that society. If institutions of business education foster selfish motivation - monetary returns - as the basis of human conduct rather than individual contribution to the betterment of society embedded in the "fairness concept", then the natural consequence would manifest it self in the behavioral patterns of the graduates of these institutions. Obviously, the end product of aberrant learning is aberrant behavior. Unmistakably, there is clear evidence that the lesson of human conduct on the basis of selfish motivation is well learned and effectively exercised in corporate life by graduates of the business schools.

It is interesting to note that corporate management - yes, the business school graduates - maintain that they are guided by the principle of shareholder wealth maximization, which necessitates optimizing the monetary returns to the firm. It is the advocacy of profit maximization and the invisible hand of competition (ideologically based theories and propositions of self-interest) that inflicts the greatest damage to society. This condition holds because little or no attention is paid to the augmentation of the workforce while increasing the productivity of the socio-economic system. The burden of responsibility falls squarely upon the business faculty to re-examine the theories and propositions which espouse self-interest, before handing them to their students as divine truths. Critical action is needed to insure that the "fairness concept" is recognized, because the business graduates, in their desire to excel, execute or implement the self-interest ideology with great precision. They feel morally justified as they are acting in accordance with the natural law and possibly totally oblivious of the grave consequences of their actions.

10 - OPERATIONALIZING THE FAIRNESS CONCEPT

Many research studies are not published, simply because they are critical of the existing orthodoxy. Consensual correctness determines what is published. This condition is debilitating for the further development of society--the growth of knowledge. To overcome this problem, the "fairness concept" is offered. No researcher wishes to be considered a failure; and given a very scholarly effort, no researcher should be considered a failure. Unfortunately, once a researcher has established a foothold in a given area, he/she feels obligated to defend that position at all cost lest he/she be discredited in the eyes of the scientific community. Perhaps, the most effective way to operationalize the "fairness concept" would be to:

(a) review anomalous research findings critically, not from the standpoint of discrediting them but from the lessons which can be learned - incorrect model specifications and/or methods or models which indicate erroneous research directions;

(b) define failure in research not as having developed a failed theory but in defending that theory on the grounds of conventional wisdom - consensual correctness,

(c) encourage researchers to accept critical reviews of their research without having to feel that their research is deficient, and

(d) evaluate research on the basis of "what is said" rather than "who said what".

The "fairness concept" underscores the need for every effort to be made by members of the research community to remove the unnecessary burden (*the fear of failure emerging* *from the pressure of consensual correctness*) which each researcher carries into each research project. To ensure high quality research, no restriction should be placed on the methodology to be employed in the conduct of research. However, each researcher has the responsibility to accept the limitation of his/her model. Teachers would be in a much better position to differentiate and explain what is ideologically based (and why it is accepted in a given environment) from what is epistemologically relevant. In this process, it may be possible that society may rid itself of The Legacy of Mandeville's Paradox.

11 - CONCLUSION

Throughout history, there is a continuing trend of ideological dominance in scholarly investigations despite the recognition that epistemological relevance is necessary for solid social progress. To the detriment of society, national fiscal and monetary policies are affected by this imbalance in scholarly investigations. The study has emphasized the social imperative to institute the concept of fairness in order to minimize the negative impact of ideology.

To overcome this negative imbalance between ideology and epistemology, acceptance of the "fairness concept" is essential. It is important to stress that each entry in the research effort, regardless of the methodology used or the findings, adds to the body of knowledge. Though in some cases, this contribution would be in a falsification sense; nevertheless, negative types of research do provide a basis for identifying and testing the epistemological relevance of other models and is therefore useful. To the benefit of society, adoption of the "fairness concept" would minimize the importance of consensual correctness and promote the importance of representational correctness.

ENDNOTES

1 It was quite clear at that time that:

> No natural philosopher interested in the mathematical problems of force and gravity could afford to omit some general account of the applicability of his ideas to the God-filled world of his contemporaries. If he preferred not to, there would have been many who were all to willing to construe his meaning unfavourably. Newton was aware of the danger, and fought to allay the fears of clerics and reactionaries, both in his general scholia, and in his letters to the First Boyle lecturer.
>
> In Newton's opening paragraph to the published correspondence can be found his often quoted remark that he hoped his theory would be useful to Christian apologists. ... It was only through ... conscious and concerted work that the Newtonian theorists were able to consolidate the position of their ideas at the centre of English metaphysics; it was only through a programme of successful popularization and concern with the wider ramifications of the theory that Newton became an important part of the argument from design, able to add weight to the wisdom of God and his world. [Redwood 1976,94]
>
> Through his study of ancient philosophy, theology and the classics, Newton had managed to concern himself with the whole gamut of contemporary intellectual problems: by careful and cautious publications he had preserved a reputation not only as a natural philosopher, but also as a Christian. ... [A]t the heart of Newton lay a fundamental belief in the power and wisdom of God, an omnipotent, interventionist Deity who influenced everyone's lives. [Redwood 1976,97]

2 In accordance with the Aristotelian terminology, the premises in this syllogism are only probable. [Armstrong 1947,7]

3 A careful reading of the F. B. Kaye Edition of Mandeville's *The Fable of the Bees: or Private Vices, Publick Benefits* [1924] would lead one to conclude that Smith was heavily influenced by Mandeville. Similarly, one could infer such a conclusion from the work of Copleston [(1963/64) 1985].

At this stage it is important to trace the philosophical origins of the idea which Adam Smith espoused. Mirowski [1989,pp.165-168] maintains that Smith was heavily influenced by Francois Quesnay and the Physiocrats. From a systems approach Mirowski's view holds; however, as far as the evidence analyzed by this author, Smith's view is an amalgamation of two philosophical points of view--that of the third Earl of Shaftesbury, Anthony Ashley (1671-1713) and Bernard de Mandeville (1670-1733). These philosophical views are to be found in the Earl of Shaftesbury's Characteristics of Men, Manners, Opinions, Times, and the criticism of Shaftesbury by Mandeville's The Fable of the Bees or Private Vices Public Benefits. Ashley's as well as Mandeville's positions follow, respectively:

> Ashley - We know that every creature has a private good and interest of his own, which nature has compelled him to seek. ...[A] well ordered concern for ... [one's] own preservation on the part of individuals contributes to the common good [Copleston, 1985,172-173].
>
> Mandeville - ... [I]t is vice (that is, self-regarding affections and actions) which benefits society. A society which was endowed with all the 'virtues' would be a static and stagnant society. It is when individuals, seeking their own enjoyment and comfort, contrive or promote new inventions and when, by luxurious living, they circulate capital, that society progresses and flourishes. In this sense private vices are public benefits [Copleston, 1985,p.177].

According to the introduction provided by Kaye [Mandeville (1732)1924,ciii-cv], Mandeville had drawn from such predecessors as Pierre Bayle and La Rochefocauld.

4 What is studied [in economics] is a system which lives in the minds of economists but not on earth. [Coase 1992,714]

> . . . [T]he infamous Coase theorem [which is based on zero transactions costs], named and formulated by George Stigler, . . . is based on work of mine. [T]he Coase theorem follows from the standard assumptions of economic theory. Its logic cannot be questioned, only its domain (Stigler 1989,631-3). I do not disagree with Stigler. However, I tend to regard the Coase theorem as a stepping stone on the way to an analysis of an economy with positive transactions costs. The . . . Coase Theorem . . . undermines the Pigovian system. Since standard economic theory assumes transaction costs to be zero, the Coase theorem demonstrates that the Pigovian solutions are unnecessary in these circumstances. . . . . My conclusion: let us study the world of positive transactions cost. [Coase 1992,717]
>
> [T]ransaction costs affect not only contractual arrangements, but also what goods and services are produced. Not to include transaction costs in the theory leaves many aspects of the working of the economic system unexplained, including the emergence of the firm, but much else besides [Coase 1992,716].

5 Mises' position is similar to that of Ptolemy. Although knowing that the Greeks had realized that: (1) Euclid's parallel axiom is a pure assumption and not an axiom and (2) the possibility of four dimensional space, Ptolemy attempted to prove that the first was an axiom and the latter was impossible [Pledge 1966,180].

6 While not directed at Friedman, the poignant and revealing admonition of Samuels [1991,514-515] is a clear stand against the steadfast adherence to a preferred epistemology.

7 The discussion in this section is extracted from Salvary [1980].

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A revised version of a paper presented at the:
International Association for Research in Economic Psychology/Society for the Advancement of Behavioral Economics Conference, Vienna, Austria, July 2000.